TOOL COMMUNICATION
OSG EUROPE



DRILLS - REAMERS - CARBIDE END MILLS - HSS END MILLS - INDEXABLE TOOLS - TAPS

www.osgeurope.com

TOKO-TON SPIRIT

TOOL COMMUNICATION
OSG CORPORATION

VOL II



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www.osgeurope.com



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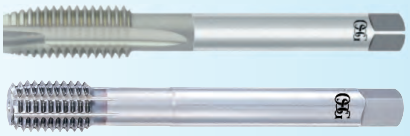
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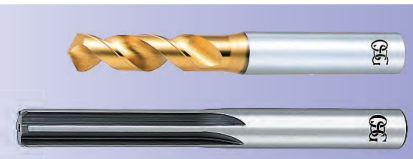
TABLE OF CONTENTS

Drilling & Tapping Tools



CUTTING TAPS
FORMING TAPS

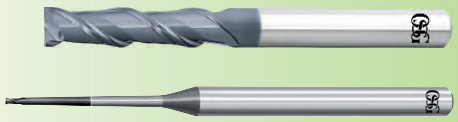
Product Map ..... B. 2
Selection Chart ..... B. 5 ~
Pictograms..... B. 9 ~
Index ..... B.11 ~
Content ..... B.30 ~



DRILLS
REAMERS

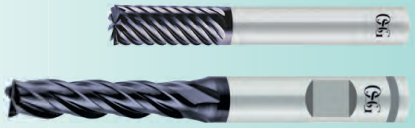
Product Map ..... C. 2
Selection Chart ..... C. 5 ~
Pictograms..... C. 9 ~
Index ..... C.11 ~
Content ..... C.30 ~

Milling Tools



CARBIDE END MILLS

Product Map ..... D. 2
Selection Chart ..... D. 5 ~
Pictograms..... D. 9 ~
Index ..... D.11 ~
Content ..... D.30 ~



HSS END MILLS

Selection Chart ..... E. 5 ~
Pictograms..... E. 9 ~
Index ..... E.11 ~
Content ..... E.30 ~

Indexable Tools



INDEXABLE TOOLS

Selection Chart ..... F. 2 ~
Pictograms..... F. 4 ~
Content ..... F. 6 ~

Technical Data..... G. 1 ~

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TOOL COMMUNICATION

TOOL COMMUNICATION

OSG sees a tight link between tools and communication. In order to establish sound business relationships, many regard communication as a requirement. OSG advances this view on communication by adding another definitive factor, tools that deliver. What is communicated is difficult to realize without the means to execute the message in the communication. Our tools are what completes communication.
Our tools encourage those involved in our business to walk the talk.

Let our tools walk the talk.

“OSG sieht eine enge Verbindung zwischen den Werkzeugen und der Kommunikation. Um eine erfolgreiche Geschäftsbeziehung aufzubauen betrachten wir die Kommunikation als Voraussetzung einer guten Partnerschaft. Die Funktionalität der Werkzeuge gehört für OSG auch zum Ergebnis einer erfolgreichen Kommunikation. Denn nur wenn die speziellen Anforderungen exakt vermittelt werden ist es auch möglich diese mit Erfolg zu erfüllen.
OSG Werkzeuge sind somit das Ergebnis einer korrekten, ehrlichen Kommunikation zwischen Kunde und Werkzeughersteller.

Lassen Sie also unsere Werkzeuge für uns sprechen.

Sammenhængen mellem værktøj og kommunikation prioriteres højt af OSG. Det er almindelig kendt at kommunikation er en vigtig faktor for at kunne opnå gode forretningsrelationer. OSG udvider og fuldender kommunikationen ved at tilføje yderligere en dimension; ”værktøj som leverer”. Det som kommunikeres er vanskeligt at realisere, med mindre man formår at virkeliggøre selve budskabet. Vore værktøjer fuldender kommunikationen ved at gøre det , der siges, de vil gøre.

OSG værktøj – fra tale til handling!

Kopplingen mellan verktyg och kommunikation prioriteras högt av OSG. Det är allmänt känt att kommunikation är en viktig faktor för att uppnå framgångsrika affärsrelationer. OSG utvidgar kommunikationen genom att lägga till ytterligare en dimension “verktyg som levererar”. Det som kommuniceras är svårt att realiseras om man inte har verktyg att uppnå själva budskapet med. Våra verktyg uppfyller de budskapen.

OSG verktyg - från ord till handling!



OSG vede uno stretto legame tra utensili e comunicazione. Al fine di stabilire solide relazioni commerciali, la comunicazione è requisito determinante. OSG fissa questo punto di vista sulla comunicazione con l'aggiunta di un altro fattore determinante, gli utensili che offre. Ciò che viene comunicato è difficile da realizzare senza i mezzi per eseguire il messaggio nella comunicazione. I nostri utensili sono ciò che completa la comunicazione. I nostri utensili incoraggiano coloro che sono coinvolti nel nostro business e percorrono il nostro cammino.

Lasciatevi coinvolgere dai nostri utensili.

OSG voit un lien étroit entre les outils et la communication. Pour établir de solides relations d'affaires avec la communication que beaucoup considèrent comme une exigence, OSG progresse sur le point de vue de la communication en ajoutant un facteur décisif, les outils qui fonctionnent. Communiqué est tres difficile à réaliser sans les moyens d'exécuter la communication. Nos outils sont notre complément de communication. Nos outils encouragent ceux qui participent à nos activités afin de faire passer les messages.

Laissez nos outils montrer l'exemple.

OSG ve un eslabón apretado entre instrumentos y comunicación. Para establecer relaciones sanas de negocio, mucha comunicación de respeto como una exigencia. OSG avanza esta vistaa la comunicación por añadiendo otro factor definitivo, instrumentos que entregan. Que es comunicado es difícil de realizarsin el medio de ejecutar el mensaje en el comunicación. Nuestros instrumentos son que completa la comunicación. Nuestros instrumentos animan aquellos complicados en nuestro negocio a andar la conversación.

Deje a nuestro paseo de instrumentos la conversación.

OSG видит тесную связь между инструментами и коммуникацией. Для того, чтобы установить прочные деловые отношения, многие считают общение необходимым.OSG развивает эту точку зрения добавляя новый фактор – режущий инструмент, как средство общения. Мы рассматриваем наш инструмент в качестве “моста” между нашими клиентами и нами.Этот “мост” помогает донести смысл сказанного в общении. Мы стараемся поставить себя на место клиента. Это помогает разрабатывать и производить для наших клиентов такую продукцию, которую они действительно хотят. Наши инструменты поощряют тех, кто вовлечен в наш бизнес, на то, чтобы подкрепить слова действиями.

Пусть наши инструменты подкрепят наши слова в действии.

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Automotive Industry



Aerospace Industry



Wind Mill Industry



Mold & Die Industry



Other Industries



High Speed Rail

World's Leading Tool Maker

World's Leading Tool Maker

OSG prides itself as the all-in-one round shank tool supplier. No other competitor has ever succeeded in developing its own HSS taps, Carbide Taps, Rolling Dies, HSS End-mills, Carbide End-mills, HSS Drills and Carbide Drills. OSG has the will and the ability to launch product lines by itself as it operates its own carbide substrate factory, coating facility with over 20 ovens and a grinding machine factory.

Automotive Industry

OSG knows what is expected from the Automotive Industry. Reliable delivery, consistent quality and tool designs that increase productivity are the keys to success in the Automotive Industry.



OSG's involvment with the Automotive Industry goes back to its inception. Since 1938, OSG has served the ever-changing Automotive Industry with its taps and drills. The development of hole making tools has always been and will be OSG's speciality.

Carbide Taps for aluminium alloys



HS-O-OTT

The new generation forming tap designed for tapping up to 35HRC



S-XPF
Page B.105-131-156-175

Carbide Drills for deep hole operation required in different automotive parts



WDO-30D
Page C.47

Three-fluted Carbide Drills to dramatically improve productivity



TRS-HO-3D/5D
Page C.40-41

Unique PHP design supports drilling on inclined planes, cast surfaces and stacked sheets.



PHP
Page F.26-27

Aerospace Industry

The Aerospace Industry's mission is to manufacture more environmentally progressive, longer-range and faster aircrafts that require lower operating costs. OSG's cutting tools share the same mission.



DLC coated End Mills for aluminium alloy machining



DLC-EBD

End Mills with Variable leads for exotic materials



NEO-PHS
Page D.29

Specially designed Taps for heat resistance materials



NEW

WHR-NI Series
Page B.57-83-142-153-163-172

Patented cutting tools for Carbon Fiber Re-enforced Plastic



NEW

DIA-HBC4



NEW

D-STAD
Page C.42



NEW

D-DAD

The Aerospace Industry, almost always, encounters world's cutting edge materials. They are the world's toughest materials to machine. This is when your experience becomes your best asset. OSG has accumulated machining experiences from all over the world ranging from aluminium alloys to Inconel alloys and from titanium alloys to CFRP.

Wind Mill Industry

Recycleable energy is a big global agenda. Needless to say, their parts are just as big and consequently very expensive. Reduce any risk of part damage by applying OSG's cutting edge Taps and Drills.





Large wind mill parts are not only expensive but also sensitive. To add to the mix, drilling and thread making are the last processes in finishing the part. In order to make sure that the last machining process operates seamlessly, OSG has a variety of drills and taps to control machining torque and minimize work hardening.



NEXUS-GDS
Page C.88



NEXUS-GDR
Page C.89

OSG offers a series of large taps designed for machining low carbon steel, 42CrMo and ductile cast iron which are all used in the wind mill industry. These taps are designed for smoother chip evacuation and are equiped with extended flute length to meet the specific nature of the wind mill industry.



HXL-SFT
Page B.66-147



VXL-SFT
Page B.68-148



OIL-TXL-MT
Page B.89





Mold & Die Industry

Keeping up with the changes in the Mold and Die industry is a difficult task, but to be successful, one needs to stay ahead of the game. OSG provides the industry with tomorrow's technologies.



With the introduction of 5 axis machines and the increasing demand for more complicated molds, speed is the key success factor in the Mold and Die Industry. OSG's End Mills encourages speed with size variation and unrivaled quality. This is made possible with OSG's relentless test cuts with materials of all types.

OSG's End Mills series are available in various sizes and shapes with numerous coatings.



WXL-3D-DE

Page D.35



WXS-LN-EBD

Page D.62-65

CBN Series for high precision and super-smooth surface finish



CBN-SXB

Page D.133

DG Series, End Mills with OSG's own Diamond Coating technology for graphite.



DG-EBD

Page D.53



DG-CPR

Page D.55

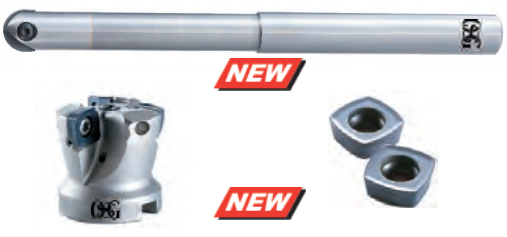
Carbide Drills for deep coolant holes in Mold and Dies



WDO-30D

Page C.47

PFB realizes industry-leading precision with spiral edge and superb radius tolerance.





Phoenix PFB

Page F.6~

Our field of operation is diverse

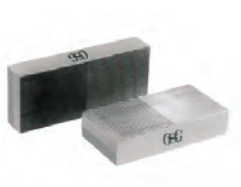
Other Industries

Christmas Cutters for Heavy Electrical Industry



Rolling Dies





Page B.221

OSG has invested time and resources in reflecting its vast experiences from round shank tool to its indexable tool series, the Phoenix series. The result has exceed even our own expectations.



Phoenix Indexable Tools

Page F.8~

OSG's experience is as diverse as manufacturing. Our knowhow is based on the accumulation of experiences and communication with our users. Communicate your needs to us, and our tools will deliver.
This is "Tool Communication". Insist on OSG's expertise.



High Speed Rail



Shipbuilding



Heavy Electrical

Special Taps

Click Here







Special Taps

► Our vast experience and expertise in the production of Special Taps since 1969 has made OSG UK a leading force in the special tap market. Together with our parent company OSG Corporation of Japan, we are able to offer exceptional technical support and production capability.

► OSG-UK are probably the largest stockist of specials in the UK.
Our stocked range includes:

Fine Pitch	Hand, Spiral Point & Spiral Flute
Oversize Threads	4H, 5H, Class 1, 3B
Wire Insert	Left-hand

► All styles and specifications of taps can be considered and our comprehensive stock of pre-prepared blanks gives us the ability to offer a quick turnaround on many designs.

► All thread grinding on your prepared components can be considered.

► Upon receiving an order, OSG can generally deliver in 5 working days depending on the availability of materials. if a coating is required then allow up to 5 additional days. Please fill out the form below for your quotation.



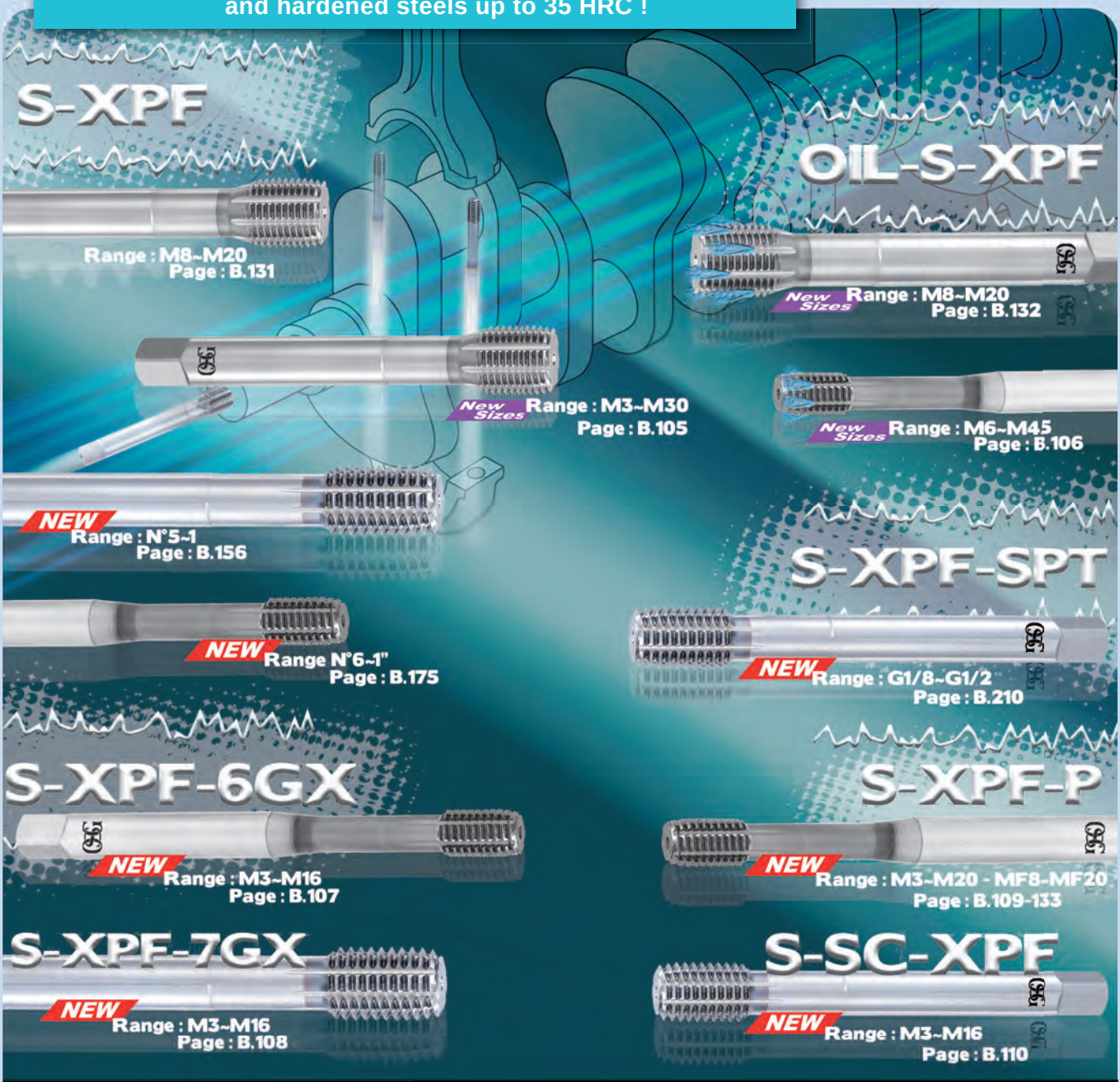
How to make your Special Tap & Thread Grinding request

1 ► Go to www.osgeurope.com
2 ► Click on your country and look for this button
3 ► Fill in the form
4 ► Submit the form
5 ► Our local sales office will generate your request
6 ► We will submit you our quotation



X Performer Forming Taps !

Exceptional performance in alloy steels, forged steels, and hardened steels up to 35 HRC !



FEATURES

Ideal for automotive parts application !

1. Long tool life is possible in carbon and alloy steels, as there are no problems with chips typically found with cutting taps. This is particularly effective for machining steel forgings for automotive applications.
2. The use of special threading reduces tapping torque and heat generation, which creates stable, long tool life even when using water-soluble cutting fluid.
3. Stable tapping performance can be achieved thanks to the high wear resistance and toughness of the cobalt HSS substrate.
4. The excellent wear resistance and anti-welding properties of the V coating provide the S-XPF with stable tool life.

TAPS

CARBIDE HSS-Co HSSE XPM



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TAPS PRODUCT MAP - *THROUGH HOLE*

THROUGH HOLE

CAST IRON
GG-MT p. B.88 -126-208
OIL-TXL-MT p. B.89
VP(O)-DC-MT p. B.90-92-127-128
VP(O)-DC-SC-MT p. B.91-93

GENERAL
POT p. B.44-45-119-201
EX-MCT p. B.116
VA-POT p. B.43-118-136-137 157-158
Z-(OIL)-POT p. B.97-98-129
CC-POT p. B.49-120
HS-RFT-TIN p. B.99

SUS
TIN-POT p. B.47
TICN-POT p. B.48

AL
AL-POT p. B.50
HS-RFT-TIN p. B.99
US-AL-RFT p. B.100

FORMING
V-NRT-P p. B.113-114-135
S-XPF p. B.105-131-156-175
OIL-S-XPF p. B.106-132

THREAD MILL
WXO-ST-PNC p. B.36
WX-PNC p. B.37~41

TAPPING SPEED
10 m/min | SUS: 20 m/min 30 m/min | 100 m/min

HARDENED
CPM-POT p. B.51
H-POT p. B.52-139-160
VP(O)-H-POT p. B.53-54
V-XPM-HT p. B.94
WH55-OT p. B.95
VX-OT p. B.96

EXOTIC Ti
EXOTIC Ni
Z-(OIL)-POT p. B.97-129-98
V-Ti-POT p. B.58-143-164
WHR-NI-POT p. B.57-142-163
E-POT p. B.56-141-162

HARDNESS
20 HRC | 40 HRC | 50 HRC | 60 HRC

TAPS PRODUCT MAP - *BLIND HOLE*

BLIND HOLE

CAST IRON
GG-MT p. B.88-126-208
OIL-TXL-MT p. B.89
VP(O)-DC-MT p. B.90-92-127-128
VP(O)-DC-SC-MT p. B.91-B.93

GENERAL
SFT p. B.62-63-122-204
(OIL)-HXL-SFT p. B.66-67-147
(OIL)-VXL-SFT p. B.68-69-148
Z-(OIL)-SFT p. B.61-102-130
VA-SFT p. B.59-60-121 -144-145-165-166-203
CC-SFT p. B.73-124-149 -168
CC-NEO-SFT p. B.74
HS-SFT-TIN p. B.103

SUS
SUS-SFT p. B.72-123
TIN-SFT p. B.70
TICN-SFT p. B.71

AL
AL-SFT p. B.75-125
HS-SFT-TIN p. B.103
US-AL-SFT p. B.104

FORMING
V-NRT-B p. B.111-112-123
S-XPF p. B.105-131-156-175
OIL-S-XPF p. B.106-132

THREAD MILL
WXO-ST-PNC p. B.36
WX-PNC p. B.37~41

TAPPING SPEED
10 m/min | SUS: 20 m/min 30 m/min | 100 m/min

HARDENED
CPM-SFT p. B.77
H-SFT p. B.78-150-169
VP(O)-H-SFT p. B.79-80
V-XPM-HT p. B.94
WH55-OT p. B.95
VX-OT p. B.96

EXOTIC Ti
EXOTIC Ni
Z-(OIL)-SFT p. B.61-102-130
V-Ti-SFT p. B.84-154-173
WHR-NI-SFT p. B.83-153-172
E-SFT p. B.82-152-171

HARDNESS
20 HRC | 40 HRC | 50 HRC | 60 HRC

Carbide drills for pilot hole WDO-3D/5D (for speed operations) p. C.36~38 FS/FT-GDS (without internal cooling) p. C.32-34
HSS drills for pilot hole NEXUS GDS (for speed operations) p. C.68/EX-SUS-GDS (for general materials) p. 70~76 VPH-GDS p. C.64
Remove broken tap EX-H-DRL (broken tap remove drill) p. C.63

OSG's 1st choice recommended

TYPE	DESCRIPTIONS	
HSSE-V3	› High speed steel with 3% Vanadium, giving better wear resistance	› HSSE Stahl mit 3% Vanadium, für eine scharfe, verscheißfeste Schneide
	› Acciaio superrapido con 3% di Vanadio per una miglior resistenza all'usura	› Acier rapide avec 3% de Vanadium, donne une meilleure résistance à l'usure
	› High speed stål med 3% Vanadium for højere slidstyrke	› HSS med 3% Vanadin, för bättre slitstyrka
	› Acero rápido al 3% de Vanadio para mayor resistencia al desgaste.	› Быстрорежущая сталь с добавкой 3% ванадия для большей износостойкости
CPM	› High performance material selected for use with high cutting speeds › Also for dry applications	› High performance Pulvermetall für sehr hohe Schnittgeschwindigkeiten › Auch für Trockenbearbeitung geeignet
	› Materiali alta performance per lavorazioni ad alta velocità › Anche per lavorazioni a secco	› Matière de haute performancesélectionnée pour de hautes vitesses de coupe › Prévu également pour usinage à sec
	› High performance materiale gør høje skærehastigheder opnåelig › Også velegnet til tørbearbejdning	› High Performance material möjliggör hög skärhastighet › Även bra utan kylvätska
	› Material de altas prestaciones seleccionado para emplear a altas velocidades de corte › También para operaciones en seco	› Высокопроизводительный материал для работы с высокой скоростью резания › Также для работы без СОЖ
XPM	› Specially developped by OSG for all alloyed steels up to 52 HRC and for cast iron	› Speziell von OSG entwickeltes Pulvermetall für legierte Stähle bis 52 HRC und Guss
	› Materiali sviluppati da OSG per lavorazioni di acciai oltre 52 HRC e ghise	› Matière développée par OSG pour tous les aciers alliés jusqu'à 52 HRC et les fontes
	› Specielt udviklet af OSG til alle typer rustfrit stål, titanium leg., stål leg., eksotiske materialer, støbejern samt stål op til 52 HRC	› Special utvecklat till alla rostfria stål, titanium leg., stål leg., exotiska leg,. gjutjärn och stål up til 52 HRC
	› Especialmente desarrollado por OSG para aceros inoxidables, titanio aleado, aceros aleados, aceros exoticos y fundiciones hasta 52HRC	› Специально разработано OSG для всех нержавеющих сталей, титана, легированных сталей, экзотических сплавов стали, чугуна до 52 HRC

C ≤ 0,2%	Low carbon steels	Kohlenstoffstahl	Acciaio a basso contenuto di carbonio	Aciers bas carbone	Kulstofstål	Kolstål	Aceros bajos en carbono	Низкоуглеродистая сталь
0,25 < C ≤ 0,4%	Medium carbon steels	Kohlenstoffstahl	Acciaio a medio contenuto di carbonio	Aciers médium carbone	Kulstofstål	Kolstål	Aceros medios en carbono	Среднеуглеродистая сталь
C ≥ 0,45%	High carbon steels	Kohlenstoffstahl	Acciaio ad alto contenuto di carbonio	Aciers haut carbone	Kulstofstål	Kolstål	Aceros altos en carbono	Высокоуглеродистая сталь
SCM	Alloy steels	Leg. Stahl	Acciaio legato	Aciers alliés	Legeret stål	Legerat stål	Aceros aleados	Легированная сталь
25~45 HRC	Hardened steels	Gehärteter Stahl	Acciaio temprato	Aciers trempé	Hærdet stål	Härdat stål	Aceros endurecidos	Закаленная сталь
35~45 HRC	Hardened steels	Gehärteter Stahl	Acciaio temprato	Aciers trempé	Hærdet stål	Härdat stål	Aceros endurecidos	Закаленная сталь
45 ~ 52 HRC	Hardened steels	Gehärteter Stahl	Acciaio temprato	Aciers trempé	Hærdet stål	Härdat stål	Aceros endurecidos	Закаленная сталь
50 ~ 70 HRC	Hardened steels	Gehärteter Stahl	Acciaio temprato	Aciers trempé	Hærdet stål	Härdat stål	Aceros endurecidos	Закаленная сталь
SC	Cast steels	Stahlguss	Acciaio colato	Aciers coulés	Støbt stål	gjutjärn stål	Fundición de hierro	Чугун
Bs	Brass	Messing	Ottone	Laiton	Messing	Mässing	Latón	Латунь
Bsc	Cast brass	Messinglegierung	Ottone colato	Laiton coulé	Støbt messing	Gjuten mässing	Latón fundido	Медное литье
PB	Bronze	Bronze	Bronzo	Bronze	Bronze	Brons	Bronce	Бронза
MC	Cast Magne. alloys	Magnesiumguss-legierung	Leghe di magnesio colato	Alliages de Magnésium coulé	Støbt magnesium legering	Gjuten magnesium legering	Fundición deMagnesio aleado	Литевые магниевые сплавы
ZDC	Cast zinc alloys	Zinkgusslegierung	Leghe di zinco	Alliages de zinc coulé	Støbt zink legering	Gjuten zink legering	Fundición de cinc aleado	Литевые цинковые сплавы
SUS	Stainless steels	VA Stahl	Acciaio inossidabili	Inox	Rustfrit stål	Rostfria stål	Aceros inoxidables	Нержавеющая сталь
SKD	Tool steels	Werkzeustahl	Acciaio da utensili	Aciers d'outillage	Værktøjsstål	Verktygs stål	Aceros de herramientas	Инструментальная сталь
GG	Cast iron	Grauguss	Ghisa grigia	Fonte	Støbejern	Gjutjärn	Aceros fundidos ~ 350 HB	Чугун ~ 350 HB
GGG	Ductile cast iron	Kugelgraphitguss	Ghisa malleabile	Fonte maléable	Støbejern	Segjärn	Funditiones ductiles	Высокопрочный чугун
Cu	Copper	Kupferlegierung	Rame	Cuivre	Kobber	Koppar	Aleaciones de cobre	Медь
Al	Aluminium	Aluminium	Alluminio	Aluminium	Aluminium	Aluminium	Aluminio	Алюминий
AC	Cast aluminium alloys	Aluminiumlegierung	Leghe di alluminio	Alliages d'alu coulé	Aluminium leg.	Gjut Aluminium	Aluminio aleado fundido	Литейные алюминиевые сплавы
Ni	Nickel alloys	Nickellegierung	Leghe esotiche e a base di nickel	Alliages de nickel	Nikkel	Nickel	Níquel	Никель
Ti	Titanium	Titanium	Titanio	Titane	Titanium	Titanium	Titanio	Титан
TiAll	Titanium alloys	Titaniumlegierung	Leghe di titanio	Alliages de Titane	Titanium leg.	Titanium leg.	Titanio aleado	Титановые сплавы
Inc	Inconel	Inconel	Inconel	Inconel	Inconel	Inconel	Inconel	Inconel
Plast.	Plastics	Kunststoff	Plastiche	Plastiques	Plast	Plast	Plasticos	пластики
Vinyl	Thermoplastics	Thermoplastik	Thermoplastica	Thermoplastiques	Vinyl	Vinyl	Vinilo	Термопластики
○	Good	Gut	Buono	Bon	God	Bra	Utilizable	Хороший
◎	Excellent	Sehr gut	Ottimo	Excellent	Meget god	Mycket bra	Excelente	Превосходный

Type	Product Name		Surface finish	No. of pitches	Hole Type				Work material				
					<1.5D	>1.5D	<1.5D	>1.5D	C≤0.2%	0.25% C≤0.4%	C≥0.45%	SCM	
Thread mill	WH-VM-PNC NEW	B.34-B.35	WXS	3					○	○	○	○	
	WXO-ST-PNC	B.36	WX	-	◎	◎	◎	◎	○	◎	◎	◎	
	WX-PNC	B.37 ~ B.41	WX	-	◎	◎	◎	◎	○	○	○	○	
POT	VA-POT	B.43-B.118-B.135-B.136-B.156-B.157	OX	4	◎	◎			◎	◎	◎	◎	
	POT New Sizes	B.44-B.45-B.119-B.200		4	◎	◎			○	○	○	○	
	1066-POT	B.46-B.137-B.158-B.189-B.192-B.195-B.201-B.210-B.212	OX	4	◎	◎			◎	◎	◎	◎	
	TIN-POT	B.47	TIN	4	◎	◎			○	○	◎	○	
	TICN-POT New Sizes	B.48	V	4	◎	◎			○	○	◎	◎	
	CC-POT NEW	B.49-B.120	CrN	4	◎	◎			◎	◎	◎	○	
	AL-POT	B.50		4	◎	◎							
	CPM-POT	B.51		5	◎	◎					◎		
	H-POT	B.52-B.138-B.159	OX	5	◎	◎					◎		
	VP-H-POT NEW	B.53	V	2/4	◎	◎					◎		
	VPO-H-POT NEW	B.54	V	2/4	◎	◎					◎		
	H-HL-POT	B.175-B.180-B.184	OX	5	◎	◎					◎		
	1066-POT-PLUS	B.55-B.139-B.160-B.196	OX	4	◎	◎					◎		
	E-POT	B.56-B.140-B.161		3	◎	◎							
	WHR-NI-POT NEW	B.57-B.141-B.162	HR	5									
	E-HL-POT	B.176-B.181-B.185		5	◎	◎							
	V-TI-POT	B.58-B.142-B.163	V	5	◎	◎							
SFT	VA-SFT	B.59-B.60-B.121-B.143-B.144-B.164-B.165-B.202	OX	2,5			◎	◎	◎	◎	◎	◎	
	VA-SC-SFT	B.61	OX	1,5			◎	◎	◎	◎	◎	◎	
	SFT	B.62-B.63-B.122-B.203		2,5			◎	◎	○	○	○	○	
	WM-SFT	B.64	OX	2,5			◎	◎	◎	◎	○	○	
	1066-SFT	B.65-B.145-B.166-B.190-B.193-B.197-B.204-B.211-B.213	OX	2,5			◎	◎	◎	◎	◎	◎	
	HXL-SFT	B.66-B.146	OX	2,5			◎	◎	○	○	◎	◎	
	OIL-HXL-SFT	B.67	OX	2,5			◎	◎	○	○	◎	◎	
	VXL-SFT	B.68-B.147	OX	2,5			◎	◎	○	○	◎	◎	
	OIL-VXL-SFT	B.69	OX	2,5			◎	◎	○	○	◎	◎	
	TIN-SFT	B.70	TIN	2,5			◎	◎	○	○	◎	○	
	TICN-SFT New Sizes	B.71	V	2,5			◎	◎	○	○	◎	◎	
	SUS-SFT	B.72-B.123	OX	2,5			◎	◎					
	CC-SFT	B.73-B.124-B.148-B.167	CrN	2,5			◎	◎	◎	◎	◎	○	
	CC-NEO-SFT NEW	B.74	TIN	2/3			◎	◎	◎	○	◎	○	
	CC-HL-SFT	B.179-B.186	CrN	2,5			◎	◎		○		○	
	CC-SFT-SPT	B.205	CrN	2,5			◎	◎		○		○	
	AL-SFT	B.75-B.125		2,5			◎	◎					
	SH-SFT	B.76-B.206		3			◎	◎		○	○	○	
	CPM-SFT	B.77		3			◎	◎			◎	○	
	H-SFT	B.78-B.149-B.168	OX	3			◎	◎			◎	○	
	VP-H-SFT NEW	B.79	V	2/4			◎	◎			◎	○	
	VPO-H-SFT NEW	B.80	V	2/4			◎	◎			◎	○	
	H-HL-SFT	B.177-B.182-B.187	OX	3			◎	◎			◎	○	
	1066-SFT-PLUS	B.81-B.150-B.169-B.198	OX	2,5			◎	◎			◎	○	
	E-SFT	B.82-B.151-B.170		2,5			◎	◎					
	WHR-NI-SFT NEW	B.83-B.152-B.171	HR	3			◎	◎					
	E-HL-SFT	B.178-B.183-B.188		2,5			◎	◎					
	V-TI-SFT	B.84-B.153-B.172	V	2,5			◎	◎					
MT	1066-HT	B.85-B.86-B.154-B.173-B.191-B.194-B.199		2,5/4/8	◎	◎	◎	◎		○			
	1066-TIN-HT	B.87	TIN	2,5/4	◎	◎	◎	◎	○	○	○	○	
	GG-MT	B.88-B.126-B.207	NIOX	2,5	◎	◎	◎	◎					
	OIL-TXL-MT	B.89	OX	2,5	◎	◎	◎	◎	○	○	◎	◎	
	VP-DC-MT New Sizes	B.90-B.127	V	2,5	◎	◎	◎	◎			○	○	
	VP-DC-SC-MT	B.91	V	1,5	◎	◎	◎	◎			○	○	
	VPO-DC-MT New Sizes	B.92-B.128	V	2,5	◎	◎	◎	◎			○	○	
	VPO-DC-SC-MT	B.93	V	1,5	◎	◎	◎	◎			○	○	
	V-XPM-HT	B.94	V	2,5	◎		◎						
	WH55-OT NEW	B.95	V	2,5/5	◎		◎						
	VX-OT	B.96	V	2,5	◎		◎						

Work material - Werkstoff - Materiale - Matière - Materiale - Material - Material de pieza - обрабатываемый материал

◎ Excellent - Sehr gut - Ottimo - Excellent - Meget god - Mycket bra - Excelente - Превосходный

○ Good - Gut - Buono - Bon - God - Bra - Utilizable - Хороший

25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG	Cu	Bs	BsC	PB	Al	AC, ADC	MC	ZDC	Ti	Ni	Bakelite Phenol	Vinyl Chloride Nylon
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Type	Product Name		Surface finish	No. of pitches	Hole Type				Work material			
					<1.5D	>1.5D	<1.5D	>1.5D	C≤0.2%	0.25% C≤0.4%	C≥0.45%	SCM
SPT	VX-OT-SPT NEW	B.209	V									
	S-XPF-SPT NEW	B.210	V		◎	◎	◎	◎	◎	◎	◎	◎
Synchro Tap	Z-POT	B.97-B.129	V	4	◎	◎			◎	◎	◎	○
	Z-OIL-POT	B.98	V	4	◎	◎			◎	◎	◎	○
	HS-RFT-TIN	B.99	TIN	6	◎	◎			◎	◎	◎	◎
	US-AL-RFT	B.100	V	6	◎	◎						
	Z-SFT	B.101-B.130	V	2,5			◎	◎	◎	◎	◎	○
	Z-OIL-SFT	B.102	V	2,5			◎	◎	◎	◎	◎	○
	HS-SFT-TIN	B.103	TIN	3	◎	◎	◎	◎	◎	◎	◎	◎
	US-AL-SFT	B.104	V	3	◎	◎	◎	◎				
Forming Tap	S-XPF New Sizes	B.105-B.131-B.156-B.175	V	2	◎	◎	◎	◎	◎	◎	◎	◎
	OIL-S-XPF New Sizes	B.106-B.132	V	2	◎	◎	◎	◎	◎	◎	◎	◎
	S-XPF-6GX NEW	B.107	V	2	◎	◎	◎	◎	◎	◎	◎	◎
	S-XPF-7GX NEW	B.108	V	2	◎	◎	◎	◎	◎	◎	◎	◎
	S-XPF-P NEW	B.109-B.133	V	4	◎	◎			◎	◎	◎	◎
	S-SC-XPF NEW	B.110	V	1,5	◎	◎	◎	◎	◎	◎	◎	◎
	V-NRT-B	B.111-B.112-B.123	V	2	◎	◎	◎	◎	◎	◎	○	○
	V-NRT-P	B.113-B.114-B.135	V	4	◎	◎			◎	◎	○	○
	1066-NRT-PLUS	B.115	TIN	2	◎	◎	◎	◎	◎	◎	○	○
Other Taps	EX-MCT	B.116	OX	3	◎	◎	◎	◎	◎	◎	○	○
	V-EM-SFT	B.117	V	2,5			◎	◎				
	NPT	B.215		2,5	◎	◎	◎	◎	○	◎	◎	◎
	PG	B.215		2,5	◎	◎	◎	◎	○	○	○	
	HT	B.217		-	◎	◎	◎	◎		○	○	
	HT-VA-OX	B.218	OX	-	◎	◎	◎	◎		○	○	

Work material - Werkstoff - Materiale - Matière - Materiale - Material - Material de pieza - обрабатываемый материал

◎ Excellent - Sehr gut - Ottimo - Excellent - Meget god - Mycket bra - Excelente - Превосходный

○ Good - Gut - Buono - Bon - God - Bra - Utilizable - Хороший

	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG	Cu	Bs	BsC	PB	Al	AC, ADC	MC	ZDC	Ti	Ni	Bakelite Phenol	Vinyl Chloride Nylon
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ICONS

ICONS								
Material - Material - Materiale - Matière outil - Materiale - Material - Material - Обрабатываемый материал								
CARBIDE	Carbide	Vollhartmetall	Carburo	Carbure	Hårdmetal	Hårdmetall	Metal duro	Карбид
HSS-Co	HSS Cobalt (Co8)	HSS Cobalt (Co8)	Cobalto HSS (Co8)	HSS Cobalt (Co8)	HSS kobolt (Co8)	HSS kobolt (Co8)	HSS al cobalto (Co8)	быстрорежущая сталь с 8% кобальта
XPM	High grade Powder Metallurgy HSS (XPM) (Co10 + V5)	Spezial Pulvermetall HSS (XPM) (Co10 + 5)	Alto livello di metallurgia delle polveri sinterizzate (XPM) (Co10 + 5)	Haut niveau de métallurgie des poudres HSS (XPM) (Co10 + 5)	XPM OSG patp. Pulverstål 10%Co 5%V	XPM: HSS extra fin pullver metall	XPM: HSS sinterizado de alto grado (XPM) (Co10 + V5)	Высококачественный порошковый HSS
HSSE	High Vanadium HSS-E V3	HSSE (3% Vanadium) (V3)	HSS-E alto contenuto di vanadio (V3)	HSSE haute teneur en vanadium (V3)	3% vanadium HSS-E V3	HSSE: HSS-E V3 med vanadin 3%	HSSE: HSS-E V3 alto en Vanadio	быстрорежущая сталь с высоким содержанием ванадия HSS-E V3
PM	Powder Metallurgy HSS (PM-T15) (Co5 + V5)	Pulvermetall HSS (PM-T15) (Co5 + V5)	Metallurgia delle polveri sinterizzate HSS (PM-T15) (Co5 + V5)	Métallurgie des poudres HSS (PM-T15) (Co5 + V5)	Pulvermetal HSS (PM-T15) (Co5 + V5)	PM: Pullver metall HSS (PM-T15) (Co5 + V5)	PM: HSS sinterizado HSS (PM-T15) (Co5 + V5)	PM: порошковая металлургия HSS (PM-T15) (Co5 + V5
HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS быстрорежущая сталь
Coating - Beschichtung - Rivestimento - Revêtement - Belægning- Beläggning - Recubrimiento - Покрытие								
TIN	Coating Tin	Beschichtung TiN	Rivestimento TiN	Revêtement TiN	TiN Belægning	TiN: Beläggning med TiN	Recubrimiento TiN	Покрытие TiN
NI-OX	Nitride	Nitrid	Nitrurazione	Nitruration	Nitrid	Nitride	Nitrurado y Vaporizado	Нитрид
V	Multilayer coating TiCN	Mehrlagenbeschichtung TiCN	Multistrato composito TiCN	Revêtement multicouches TiCN	Multilayer belægning TiCN	Multilayer beläggning med TiCN	Recubrimiento TiCN, multicapa	многослойное покрытие TiCN
OX	Steam Oxide	Dampfangelassen	Trattamento al vapore	Traitement vapeur	Damp oxideret	Ångoxiderad	Vaporizado	паровой оксид
WX	Multi layered composite TiAlN	Mehrlagenbeschichtung TiAlN	Multistrato composito TiAlN	Revêtement multicouches composite TiAlN	Multilayer komposit belægning TiALN	Multilayer med TiAlN	Recubrimiento TiAlN multicapa	многослойное покрытие TiAlN
CrN	Chromium nitride	Chromnitrit	Nitruro di cromo	Nitrure de chrome	Crom nitrid	Krom nitride	Recubrimiento Nitruro de Cromo	Хром нитрид
HR	Coating HR	Beschichtung HR	Rivestimento HR	Revêtement HR	HR Belægning	HR: Beläggning med HR	Recubrimiento HR	Покрытие HR
Shank - Schaft - Gambo - Queue - Skaft - Skaft - Mango- Хвостовик								
h6	Shank diameter tolerance	Schaftdurchmesser Toleranz	Tolleranza del diametro del gambo	Tolérance du diamètre de queue	Skaft diameter tolerance	Tolerans på skaft diameter	Tolerancia en diametro de mango	точность диаметра хвостовика
FIT	All shanks are suitable for Hypro-Shrink Fit system	Zum Einschrumpfen geeignet	Adatto al sistema di serraggio a caldo	Toutes les queues des fraises OSG sont adaptées pour le système de frettage	Alle OSG skafter passer til Hypro krympe system	Alla skaft kan användas till OSG Hypro-krymp system	Todos los mangos de metal duro OSG son aptos para fijación térmica	хвостовики пригодны для Hypro термозажимной системы
	Straight shank	Überlaufschaft	Gambo passante	Queue cylindrique	Lige skaft	Rakt skaft	Mango sencillo	Прямой хвостовик
	Reinforced shank	Verstärkter Schaft	Gambo rinforzato	Queue renforcée	Forstærket skaft	Förstärkt skaft	Mango reforzado	Усиленный хвостовик
Helix Angle - Drallwinkel - Angolo d'elica - Angle d'hélice - Spiralvinkel - Spiral vinkel - Angulo de helice- Угол спирали								
30°	Helix Angle	Helix Drall Winkel	Angolo d'elica	Angle d'hélice	Spiralvinkel	Spiral vinkel	Angulo de helice	Угол спирали
Tool tolerance - Werkzeugtoleranz - Tolleranza del diametro - Tolérance outil - Værktøjs tolerance - Verktygs tolerans - Tolerancia de herramienta- точность инструмента								
h8	Tool tolerance	Werkzeugtoleranz	Tolleranza del diametro	Tolérance outil	Værktøjs tolerance	Verktygs tolerans	Tolerancia de herramienta	точность инструмента
Internal cooling - Innere Kühlmittelzuführung - Con fori di lubrificazione centrali - Arosage central - Indvendig køling - Invädig spolning - Refrigeración interna- Внутреннее охлаждение								
	Through Coolant	Innere Kühlmittelzuführung	Con fori di lubrificazione centrali	Arosage central	Indvendig køling	Invädig spolning	Refrigeración interna	внутреннее охлаждение
Standard OSG - Standard OSG - Standard OSG - Standard OSG - Standard OSG - Standard OSG - Estándar OSG - Стандартное для OSG								
OSG	Standard OSG	Standard OSG	Standard OSG	Standard OSG	Standard OSG	Standard OSG	Estándar OSG	Стандартное для OSG

ICONS								
Chamfer lead - Schälanschnitt - Imbocco - Entrée gun - Styrefas - Fas ingång - Chaflán de entrada - заходная фаска								
	1,5 pitch chamfer lead	1,5 Gang. Anschnittlänge	1,5 filetti	1,5 Entrée gun	1,5 x stigning på opløb	Fasingång 1,5 x stigning	Chaflán de entrada 1,5 pasos	заходная фаска 1.5 витка
	2,5 pitch chamfer lead	2,5 Gang. Anschnittlänge	2,5 filetti	2,5 Entrée gun	2,5 x stigning på opløb	Fasingång 2,5 x stigning	Chaflán de entrada 2,5 pasos	заходная фаска 2.5 витка
	4 pitch chamfer lead	4 Gang. Anschnittlänge	4 filetti	4 Entrée gun	4 x stigning på opløb	Fasingång 4 x stigning	Chaflán de entrada 4 pasos	заходная фаска 4 витка
	6 pitch chamfer lead	6 Gang. Anschnittlänge	6 filetti	6 Entrée gun	6 x stigning på opløb	Fasingång 6 x stigning	Chaflán de entrada 6 pasos	заходная фаска 6 витка
	8 pitch chamfer lead	8 Gang. Anschnittlänge	8 filetti	8 Entrée gun	8 x stigning på opløb	Fasingång 8 x stigning	Chaflán de entrada 8 pasos	заходная фаска 8 витка
Threading - Gewinde - Filettatura - Taraudage - Gevindskæring - Gängning - Roscado - Нарезка резьбы								
	For blind holes	Für Sacklöcher	Per fori ciechi	Pour trous borgnes	Til bundhuller	För bottenhål	Para agujeros ciegos	для глухих отверстий
	For through holes	Für Durchgangslöcher	Per fori passanti	Pour trous débouchants	Til gennemgående huller	För genomgående hål	Para agujeros pasantes	для сквозных отверстий
Cutting Conditions - Schnittwerte - Velocità di taglio - Conditions de coupe - Skæredata - Skärdata - Condiciones de corte - Условия резания								
	Cutting Conditions	Schnittwerte	Velocità di taglio	Conditions de coupe	Skæredata	Skärdata	Condiciones de corte	условия резания
Threading depth - Gewindetiefe - Profondità di filettatura - Profondeur taraudage - Gevinddybde - Gäng djup -Profundidad de roscado - Глубина нарезки резьбы								
	Threading depth < 1,5 D	Gewindetiefe < 1,5 D	Profondità di filettatura < 1,5 D	Profondeur taraudage < 1,5 D	Gevinddybde < 1,5 D	Gäng djup < 1,5 D	Profundidad de roscado < 1,5 D	Глубина нарезки резьбы < 1,5 D
	Threading depth ≥ 2 D	Gewindetiefe ≥ 2 D	Profondità di filettatura ≥ 2 D	Profondeur taraudage ≥ 2 D	Gevinddybde ≥ 2 D	Gäng djup ≥ 2 D	Profundidad de roscado ≥ 2 D	Глубина нарезки резьбы ≥ 2 D

NAME		SPECIFICATION	
THREAD MILL			
 **WH-VM-PNC** NEW	M,U, UNJ	Thread milling	Gewindefräser
	WXS	Frese a filettare	Fraise à fileter
 **WXO-ST-PNC**	M,MF	Thread milling	Gewindefräser
	WX	Frese a filettare	Fraise à fileter
 **WX-PNC**	M,MF, UNC, UNF,G, NPT	Thread milling	Gewindefräser
	WX	Frese a filettare	Fraise à fileter
METRIC			
 **VA-POT**	M	DIN 371, DIN 376, general purpose, also for stainless steels	DIN 371, DIN 376, für universelle Anwendungen und für VA - Stahl
	OX	DIN 371, DIN 376, per applicazioni generali e per inox	DIN 371, DIN 376, pour applications générales et pour des aciers inox
 **VA-POT**	M	DIN 371, DIN 376 **6G** general purpose, also for stainless steels	DIN 371, DIN 376 **6G** für universelle Anwendungen und für VA - Stahl
	OX	DIN 371, DIN 376 **6G** per applicazioni generali e per inox	DIN 371, DIN 376 **6G** pour applications générales et pour des aciers inox
 **POT** New Sizes	M	DIN 371, DIN 376 for general purpose	DIN 371, DIN 376 für universelle Anwendungen
		DIN 371, DIN 376 per applicazioni generali	DIN 371, DIN 376 pour applications générales
 **POT**	M	DIN 352 for general purpose	DIN 352 für universelle Anwendungen
		DIN 352 per applicazioni generali	DIN 352 pour applications générales
 **1066-POT**	M	ISO 529, for general purpose	ISO 529, für universelle Anwendungen
	OX	ISO 529, per applicazioni generali	ISO 529, pour applications générales
 **TIN-POT**	M	DIN 371, DIN 376 for steels ≤ 850N/mm²	DIN 371, DIN 376 für Stahl ≤ 850N/mm²
	TIN	DIN 371, DIN 376 per acciai ≤ 850N/mm²	DIN 371, DIN 376 pour aciers ≤ 850N/mm²
 **TICN-POT** New Sizes	M	DIN 371, DIN 376 for steels ≤ 1000N/mm²	DIN 371, DIN 376 für Stahl ≤ 1000N/mm²
	V	DIN 371, DIN 376 per acciai ≤ 1000N/mm²	DIN 371, DIN 376 pour aciers ≤ 1000N/mm²
 **CC-POT** NEW	M	DIN 371, DIN 376 for stainless steels aluminium and steel	DIN 371, DIN 376 für VA - Stahl und Aluminium und Stahl
	CrN	DIN 371, DIN 376 per acciai inox e alluminio, acciai	DIN 371, DIN 376 pour inox et aluminium at aciers
 **AL-POT**	M	DIN 371, DIN 376 for aluminium	DIN 371, DIN 376 für Aluminium
		DIN 371, DIN 376 per alluminio	DIN 371, DIN 376 pour aluminium
 **CPM-POT**	M	DIN 371, DIN 376 for steels ≥ 900N/mm² & cast iron	DIN 371, DIN 376 füt Stahl ≥ 900N/mm² & Gusseisen
		DIN 371, DIN 376 per acciai ≥ 900N/mm² & ghisa	DIN 371, DIN 376 pour aciers ≥ 900N/mm² & fontes
 **H-POT**	M	DIN 371, DIN 376 for steels 25~45 HRC	DIN 371, DIN 376 für Stahl 25~45 HRC
	OX	DIN 371, DIN 376 per acciai 25~45 HRC	DIN 371, DIN 376 pour acier : dureté 25~45 HRC
 **VP-H-POT** NEW	M	DIN 371, DIN 376 for steels 25~45 HRC	DIN 371, DIN 376 für Stahl 25~45 HRC
	V	DIN 371, DIN 376 per acciai 25~45 HRC	DIN 371, DIN 376 pour acier : dureté 25~45 HRC
 **VPO-H-POT** NEW	M	DIN 371, DIN 376 for steels 25~45 HRC, coolant through	DIN 371, DIN 376 für Stahl 25~45 HRC, Innere Kühlmittelzuführung
	V	DIN 371, DIN 376 per acciai 25~45 HRC, lubrificazione centrali	DIN 371, DIN 376 pour acier : dureté 25~45 HRC, arrosage central

SPECIFICATION				RANGE	PAGE
THREAD MILL					
Gevind fræsning	Gängfräsning			1,5 ~ 4	B.34 - B.35
Fresas de roscar	Для нержавеющех сталей				
Gevind fræsning	Gängfräsning			4,5 ~ 20	B.36
Fresas de roscar	Для нержавеющех сталей				
Gevind fræsning	Gängfräsning			4,5 ~ 20	B.37 ~ B.41
Fresas de roscar	Для нержавеющех сталей				
METRIC					
DIN 371, DIN 376, for generelt brug, også til rustfrit stål	DIN 371, DIN 376, för allround bearbetning och för rostfritt stål			M 2 ~ M 36	B.42
DIN 371, DIN 376, para aplicación general, para aceros inoxidables	DIN 371, DIN 376, общего назначения и для нержавеющих сталей				
DIN 371, DIN 376 **6G** for generelt brug, også til rustfrit stål	DIN 371, DIN 376 **6G**, för allround bearbetning och för rostfritt stål			M 2 ~ M 16	B.43
DIN 371, DIN 376 **6G** para aplicación general, para aceros inoxidables	DIN 371, DIN 376 **6G** общего назначения и для нержавеющих сталей				
DIN 371, DIN 376 til generelt brug	DIN 371, DIN 376 För allround bearbetning			M 2 ~ M 36	B.44
DIN 371, DIN 376 para aplicación general	DIN 371, DIN 376 общего назначения				
DIN 352 til generelt brug	DIN 352, För allround bearbetning			M 3 ~ M 10	B.45
DIN 352 para aplicación general	DIN 352 para aplicación general				
ISO 529, til generelt brug	ISO 529, för diverse applikationer			M 1 ~ M 42	B.46
ISO 529, para aplicación general	ISO 529, общего назначения				
DIN 371, DIN 376 til ståltyper ≤ 850N/mm²	DIN 371, DIN 376 för stål ≤ 850N/mm²			M 2 ~ M 30	B.47
DIN 371, DIN 376 para aceros ≤ 850N/mm²	DIN 371, DIN 376 для сталей ≤ 850H/MM²				
DIN 371, DIN 376 til ståltyper ≤ 1000N/mm²	DIN 371, DIN 376 för stål ≤ 1000N/mm²			M 2 ~ M 24	B.48
DIN 371, DIN 376 para aceros ≤ 1000N/mm²	DIN 371, DIN 376 для сталей ≤ 1000H/MM²				
DIN 371, DIN 376 til rustfrit stål og aluminium, og stål	DIN 371, DIN 376 för rostfritt stål och aluminium, stål			M 2 ~ M 30	B.49
DIN 371, DIN 376 para aceros inoxidables y aluminio, aceros	DIN 371, DIN 376 для нержавеющих сталей и алюминия, нержавеющих				
DIN 371, DIN 376 til aluminium	DIN 371, DIN 376 för aluminium			M 2 ~ M 20	B.50
DIN 371, DIN 376 para aluminio	DIN 371, DIN 376 för aluminium				
DIN 371, DIN 376 til ståltyper ≥ 900N/mm² & til støbejern	DIN 371, DIN 376 för stål ≥ 900N/mm² & för gjutjärn			M 3 ~ M 20	B.51
DIN 371, DIN 376 para aceros ≥ 900N/mm² & fundición de hierro	DIN 371, DIN 376 для сталей ≥ 900H/MM2 и для чугуна				
DIN 371, DIN 376 til ståltyper 25~45 HRC	DIN 371, DIN 376 för stål 25~45 HRC			M 2 ~ M 20	B.52
DIN 371, DIN 376 para aceros 25~45 HRC	DIN 371, DIN 376 для сталей 25~45 HRC				
DIN 371, DIN 376 til ståltyper 25~45 HRC	DIN 371, DIN 376 för stål 25~45 HRC			M 2 ~ M 36	B.53
DIN 371, DIN 376 para aceros 25~45 HRC	DIN 371, DIN 376 для сталей 25~45 HRC				
DIN 371, DIN 376 til ståltyper 25~45 HRC, indvendig køling	DIN 371, DIN 376 för stål 25~45 HRC, kylkanaler			M 6 ~ M 36	B.54
DIN 371, DIN 376 para aceros 25~45 HRC, refrigeración interna	DIN 371, DIN 376 для сталей 25~45 HRC, Центральный ирригации				

	NAME		SPECIFICATION	
	METRIC			
POT	 **1066-POT-PLUS**	M	ISO 529, for general purpose, powdered metal	ISO 529, für universelle Anwendungen, Pulvermetall
		OX	ISO 529, per applicazioni generali, metallurgia delle polveri sinterizzate	ISO 529, pour applications générales, métallurgie des poudres
	 **E-POT**	M	DIN 371, DIN 376 for nickel based alloys including Inconel 718	DIN 371, DIN 376 für Nickellegierungen, Inconel 718
			DIN 371, DIN 376 per inconel 718	DIN 371, DIN 376 pour inconel 718 et autres alliages à base de nickel
	 **WHR-NI-POT** *NEW*	M	DIN 371, DIN 376 for nickel based alloys including Inconel 718	DIN 371, DIN 376 für Nickellegierungen, Inconel 718
		HR	DIN 371, DIN 376 per inconel 718	DIN 371, DIN 376 pour inconel 718 et autres alliages à base de nickel
	 **V-TI-POT**	M	DIN 371, DIN 376 for titanium alloys (Ti-6Al-4V), 40~45 HRC	DIN 371, DIN 376 für Titanlegierungen inkl. (Ti-6Al-V) : 40~45 HRC
		V	DIN 371, DIN 376 per leghe di titanio (Ti-6Al-4V), 40~45 HRC	DIN 371, DIN 376 pour alliages de titane (Ti-6Al-4V) : dureté 40~45 HRC
SFT	 **VA-SFT**	M	DIN 371, DIN 376, general purpose, also for stainless steels	DIN 371, DIN 376 für universelle Anwendungen und für VA - Stahl
		OX	DIN 371, DIN 376 per applicazioni generali e per inox	DIN 371, DIN 376 pour applications générales et pour des aciers inox
	 **VA-SFT**	M	DIN 371, DIN 376 **6G**, general purpose, also for stainless steels	DIN 371, DIN 376 **6G** für universelle Anwendungen und für VA - Stahl
		OX	DIN 371, DIN 376 **6G** per applicazioni generali e per inox	DIN 371, DIN 376 **6G** pour applications générales et pour des aciers inox
	 **VA-SC-SFT**	M	DIN 371, DIN 376, short chamfer, general purpose, also for stainless steels	DIN 371, DIN 376, kurzer Anschnitt, für universelle Anwendungen und für VA - Stahl
		OX	DIN 371, DIN 376, Imbocco corto, per applicazioni generali e per inox	DIN 371, DIN 376, entrée courte, pour applications générales et pour des aciers inox
	 **SFT**	M	DIN 371, DIN 376, for general purpose	DIN 371, DIN 376 für universelle Anwendungen
			DIN 371, DIN 376 per applicazioni generali	DIN 371, DIN 376 pour applications générales
	 **SFT**	M	DIN 352 for general purpose	DIN 352, für universelle Anwendungen
			DIN 352, per applicazioni generali	DIN 352, pour applications générales
	 **WM-SFT**	M	DIN 371, DIN 376 for mild steels ≤ 850N/mm²	DIN 371, DIN 376 für unlegierten Stähl ≤ 850N/mm²
		OX	DIN 371, DIN 376 per acciai dolci ≤ 850N/mm²	DIN 371, DIN 376 pour aciers doux ≤ 850N/mm²
	 **1066-SFT**	M	ISO 529, for general purpose	ISO 529, für universelle Anwendungen
		OX	ISO 529, per applicazioni generali	ISO 529, pour applications générales
	 **HXL-SFT**	M	Horizontal applications, oil and energy industry	Für horizontale Bearbeitung, für Öl- und Schwerindustrie
		OX	Per lavorazioni orizzontali, per Industria Petrolifera & Industria Pesante	Pour des opérations horizontales, pour l'industrie lourde et l'énergie
	 **OIL-HXL-SFT**	M	Horizontal applications, coolant through, for oil and energy industry	Für horizontale Bearbeitung, mit innere Kühlmittezuführung, für Öl- und Schwerindustrie
		OX	Per lavorazioni orizzontali, lubrificazioni centrali, per Industria Petrolifera & Industria Pesante	Pour des opérations horizontales, avec arrosage cenral, pour l'industrie lourde et l'énergie
	 **VXL-SFT**	M	Vertical applications, oil and energy industry	Für vertikale Bearbeitung, für Öl- und Schwerindustrie
		OX	Per lavorazioni verticali, per Industria Petrolifera & Industria Pesante	Pour des opérations verticales, pour l'industrie lourde et l'énergie
	 **OIL-VXL-SFT**	M	Vertical applications, coolant through, for oil and energy industry	Für vertikale Bearbeitung, mit innere Kühlmittezuführung, für Öl- und Schwerindustrie
		OX	Per lavorazioni verticali, lubrificazioni centrali, per Industria Petrolifera & Industria Pesante	Pour des opérations verticales, avec arrosage cenral, pour l'industrie lourde et l'énergie
	 **TIN-SFT**	M	DIN 371, DIN 376 for steels ≤ 850N/mm²	DIN 371, DIN 376 für Stahl ≤ 850N/mm²
		TIN	DIN 371, DIN 376 per acciai ≤ 850N/mm²	DIN 371, DIN 376 pour aciers ≤ 850N/mm²
	 **TICN-SFT** *New Sizes*	M	DIN 371, DIN 376 for steels ≤ 850N/mm²	DIN 371, DIN 376 für Stahl ≤ 850N/mm²
		V	DIN 371, DIN 376 per acciai ≤ 850N/mm²	DIN 371, DIN 376 pour aciers ≤ 850N/mm²

SPECIFICATION		RANGE	PAGE
METRIC			
ISO 529, til generelt brug, pulvermetal	ISO 529, för diverse applikationer, pullver metall	M 3 ~ M 12	B.55
ISO 529, para aplicación general, HSS sinterizado	ISO 529, общего назначения, порошковая металлургия		
DIN 371, DIN 376 til nikkellegeringer inklusiv Inconel 718	DIN 371, DIN 376 för nickel legeringar inklusive Inconel 718	M 3 ~ M 12	B.56
DIN 371, DIN 376 para aleaciones de níquel incluido, Inconel 718	DIN 371, DIN 376 для никелевых сплавов, включая Inconel 718		
DIN 371, DIN 376 til nikkellegeringer inklusiv Inconel 718	DIN 371, DIN 376 för nickel legeringar inklusive Inconel 718	M 3 ~ M 12	B.57
DIN 371, DIN 376 para aleaciones de níquel incluido, Inconel 718	DIN 371, DIN 376 для никелевых сплавов, включая Inconel 718		
DIN 371, DIN 376 til Titanium legeringer (Ti-6Al-4V): 40~45 HRC	DIN 371, DIN 376 för Titanlegeringar (Ti-6Al-4V), 40~45 HRC	M 3 ~ M 12	B.58
DIN 371, DIN 376 para aleaciones de Titanio (Ti-6Al-4V) : 40~45 HRC	DIN 371, DIN 376 для титановых сплавов (Ti-6Al-4V) : 40~45 HRC		
DIN 371, DIN 376 til generelt brug, til rustfrit stål	DIN 371, DIN 376, för allround bearbetning och för rostfritt stål	M 2 ~ M 36	B.59
DIN 371, DIN 376 para aplicación general, para aceros inoxidables	DIN 371, DIN 376 общего назначения и для нержавеющих сталей		
DIN 371, DIN 376 **6G** til generelt brug, til rustfrit stål	DIN 371, DIN 376 **6G** för allround bearbetning och för rostfritt stål	M 2 ~ M 16	B.60
DIN 371, DIN 376 **6G** para aplicación general, para aceros inoxidables	DIN 371, DIN 376 **6G** общего назначения и для нержавеющих сталей		
DIN 371, DIN 376, Kort indløb, til generelt brug, til rustfrit stål	DIN 371, DIN 376, Kort fastängd, Allround, Också för rostfritt stål	M 3 ~ M 16	B.61
DIN 371, DIN 376, chaflàn corto, para aplicación general, para aceros inoxidables	DIN 371, DIN 376, Короткий заход, общего назначения и для нержавеющих сталей		
DIN 371, DIN 376 til generelt brug	DIN 371, DIN 376, för allround bearbetning	M 2 ~ M 36	B.62
DIN 371, DIN 376 para aplicación general	DIN 371, DIN 376 общего назначения		
DIN 352 til generelt brug	DIN 352 för allround bearbetning	M 3 ~ M 10	B.63
DIN 352 para aplicación general	DIN 352 общего назначения		
DIN 371, DIN 376 blødt stål ≤ 850N/mm²	DIN 371, DIN 376, För mjukt stål ≤ 850N/mm²	M 4 ~ M 20	B.64
DIN 371, DIN 376 para aceros suaves ≤ 850N/mm²	DIN 371, DIN 376 для мягкой стали ≤ 850N/MM²		
ISO 529, til generelt brug	ISO 529, för allround bearbetning	M 2 ~ M 42	B.65
ISO 529, para aplicación general	ISO 529, Общего назначения		
Til horisontale operationer, til enegisektoren & svær industri	För horisontala applikationer För olje och energi industrin	M 20 ~ M 56	B.66
Para roscado horizontal, para Industria Energetica y Pesada	Для вертикального нарезания резьбы. Для нефтегазовой и энергетической отраслей		
Til horisontale operationer, med indvendig køling, til enegisektoren & svær industri	För horisontala applikationer, kylkanaler för olje och energi industrin	M 20 ~ M 56	B.67
Para roscado horizontal, para refrigeración interna, para Industria Energetica y Pesada	Для горизонтальной нарезки резьбы, внутреннее охлаждение, Для нефтегазовой и энергетической отраслей		
Vertikale operationer, til enegisektoren & svær industri	För vertikala applikationer, för olje och energi industrin	M 20 ~ M 56	B.68
Para roscado vertical, para Industria Energetica y Pesada	Для вертикальной нарезки резьбы, Для нефтегазовой и энергетической отраслей		
Vertikale operationer, til indvendig køling, til enegisektoren & svær industri	För vertikala applikationer, kylkanaler för olje och energi industrin	M 20 ~ M 56	B.69
Para roscado verticall, para refrgeración interna, para Industria Energetica y Pesada	Для вертикальной нарезки резьбы, внутреннее охлаждение		
DIN 371, DIN 376 til stål ≤ 850N/mm²	DIN 371, DIN 376 för stål ≤ 850N/mm²	M 2 ~ M 30	B.70
DIN 371, DIN 376 para aceros ≤ 850N/mm²	DIN 371, DIN 376 для сталей ≤ 850H/MM²		
DIN 371, DIN 376 til stål ≤ 850N/mm²	DIN 371, DIN 376 för stål ≤ 850N/mm²	M 2 ~ M 24	B.71
DIN 371, DIN 376 para aceros ≤ 850N/mm²	DIN 371, DIN 376 для сталей ≤ 850H/MM²		

NAME		SPECIFICATION	
METRIC			
SFT			
 **SUS-SFT**		DIN 371, DIN 376 6HX for stainless steels	DIN 371, DIN 376 6HX für VA - Stahl
	OX	DIN 371, DIN 376 6HX per inox e acciai dolci	DIN 371, DIN 376 6HX également pour inox
 **CC-SFT**		DIN 371, DIN 376 for stainless steels aluminium and steel	DIN 371, DIN 376 für VA - Stahl und Aluminium und Stahl
	CrN	DIN 371, DIN 376 per acciai inox e alluminio, acciai	DIN 371, DIN 376 pour inox et aluminium at aciers
 **CC-NEO-SFT** *NEW*	M	DIN 371, DIN 376 for stainless steels aluminium and steel	DIN 371, DIN 376 für VA - Stahl und Aluminium und Stahl
	TIN	DIN 371, DIN 376 per acciai inox e alluminio, acciai	DIN 371, DIN 376 pour inox et aluminium at aciers
 **AL-SFT**	M	DIN 371, DIN 376 for aluminium	DIN 371, DIN 376 für Aluminium
		DIN 371, DIN 376 per alluminio	DIN 371, DIN 376 pour pour aluminium
 **SH-SFT**	M	DIN 371, DIN 376, low helix, for alloy steels ≥ 1100N/mm²	DIN 371, DIN 376, Leichte Spirale, für legierten Stahl ≥ 1100N/mm²
		DIN 371, DIN 376, elica bassa torsione, per acciai legati ≥ 1100N/mm²	DIN 371, DIN 376, élice réduite, pour aciers alliés ≥ 1100N/mm²
 **CPM-SFT**	M	DIN 371, DIN 376 for steels ≥ 900/mm² & cast iron, forming short chips	DIN 371, DIN 376 per acciai ≥ 900N/mm² e ghisa, formano trucioli corti
		DIN 371, DIN 376 per acciai ≥ 900N/mm² e ghisa, formano trucioli corti	DIN 371, DIN 376 pour aciers ≥ 900N/mm² et fonte, formant des copeaux courts
 **H-SFT**	M	DIN 371, DIN 376, for steels 25~45 HRC	DIN 371, DIN 376, für Stahl 25~45 HRC
	OX	DIN 371, DIN 376, per acciai 25~45 HRC	DIN 371, DIN 376, pour acier : dureté 25~45 HRC
 **VP-H-SFT** *NEW*	M	DIN 371, DIN 376, for steels 25~45 HRC	DIN 371, DIN 376, für Stahl 25~45 HRC
	V	DIN 371, DIN 376, per acciai 25~45 HRC	DIN 371, DIN 376, pour acier : dureté 25~45 HRC
 **VPO-H-SFT** *NEW*	M	DIN 371, DIN 376, for steels 25~45 HRC, coolant through	DIN 371, DIN 376 für Stahl 25~45 HRC, Innere Kühlmittelzuführung
	V	DIN 371, DIN 376 per acciai 25~45 HRC, lubrificazione centrali	DIN 371, DIN 376 pour acier : dureté 25~45 HRC, arrosage central
 **1066-SFT-PLUS**	M	ISO 529, general purpose, powdered metal	ISO 529, für universelle Anwendungen, Pulvermetall
	OX	ISO 529, per applicazioni generali, metallurgia delle polveri sinterizzate	ISO 529, pour applications générales, métallurgie des poudres
 **E-SFT**	M	DIN 371, DIN 376, for nickel based alloys including Inconel 718	DIN 371, DIN 376, für Nickellegierungen, Inconel 718
		DIN 371, DIN 376, per inconel 718 ed altre leghe a base di nickel	DIN 371, DIN 376, pour inconel 718 et autres alliages à base de nickel
 **WHR-NI-SFT** *NEW*	M	DIN 371, DIN 376, for nickel based alloys including Inconel 718	DIN 371, DIN 376, für Nickellegierungen, Inconel 718
	HR	DIN 371, DIN 376, per inconel 718 ed altre leghe a base di nickel	DIN 371, DIN 376, pour inconel 718 et autres alliages à base de nickel
 **V-TI-SFT**	M	DIN 371, DIN 376, for titanium alloys (Ti-6Al-4V), 40~45 HRC	DIN 371, DIN 376, für Titanlegierungen inkl. (Ti-6Al-4V) : 40~45 HRC
	V	DIN 371, DIN 376, per leghe di titanio (Ti-6Al-4V), 40~45 HRC	DIN 371, DIN 376, pour alliages de titane (Ti-6Al-4V) : dureté 40~45 HRC
MT			
 **1066-HT**	M	ISO 529, general purpose	ISO 529, für universelle Anwendungen
		ISO 529, per applicazioni generali	ISO 529, pour applications générales
 **1066-TIN-HT**	M	ISO 529, general purpose	ISO 529, für universelle Anwendungen
	TIN	ISO 529, per applicazioni generali	ISO 529, pour applications générales
 **GG-MT**	M	DIN 371, DIN 376, for grey cast iron & cast aluminium < 11 % Si	DIN 371, DIN 376, für Grauguss und Aluminiumguss < 11 % Si
	NI-OX	DIN 371, DIN 376, per ghisa grigia, ghisa d'alluminio < 11 % Si	DIN 371, DIN 376, pour fonte grise, fonte d'aluminium < 11 % Si
 **OIL-TXL-MT**	M	Through hole applications, coolant through, for oil and energy industry	Durchgangslochbearbeitungen, mit innerer Kühlmittelzufuhr, für Öl und Kraftwerksindustrie
	NI-OX	Per fori passanti,con fori di lubrificazione, per industria petrolifera ed energetica	pour trou débouchant, avec arrosage central, pour industrie de l'énergie et du pétrole

SPECIFICATION		RANGE	PAGE
METRIC			
DIN 371, DIN 376 6HX til rustfrit stål DIN 371, DIN 376 6HX para aceros inoxidables	DIN 371, DIN 376 6HX för rostfritt stål DIN 371, DIN 376 6HX для нержавеющих сталей	M 2 ~ M 24	B.72
DIN 371, DIN 376 til rustfrit stål og aluminium, og stål DIN 371, DIN 376 para aceros inoxidables y aluminio, aceros	DIN 371, DIN 376 för rostfritt stål och aluminium, stål DIN 371, DIN 376 для нержавеющих сталей и алюминия, нержавеющих	M 2 ~ M 36	B.73
DIN 371, DIN 376 til rustfrit stål og aluminium, og stål DIN 371, DIN 376 para aceros inoxidables y aluminio, aceros	DIN 371, DIN 376 för rostfritt stål och aluminium, stål DIN 371, DIN 376 для нержавеющих сталей и алюминия, нержавеющих	M 2 ~ M 16	B.74
DIN 371, DIN 376 til aluminium DIN 371, DIN 376 para aluminio	DIN 371, DIN 376 för aluminium DIN 371, DIN 376 Для алюминия	M 1,6 ~ M 20	B.75
DIN 371, DIN 376, lav helix, til legeret stål ≥ 1100N/mm² DIN 371, DIN 376, helice lenta, para aceros ≥ 1100N/mm²	DIN 371, DIN 376, liten helix, för legerat stål ≥ 1100N/mm² DIN 371, DIN 376, Пологая спираль, для легированных сталей, ≥ 1100N/mm²	M 3 ~ M 20	B.76
DIN 371, DIN 376 til stål ≥ 900N/mm2 & kortspånet støbejern DIN 371, 376 para aceros ≥ 900 N/mm2 formando virutas cortas.	DIN 371, DIN 376 för stål ≥ 900N/mm2 & gjutjärn, gör små spånor DIN 371, DIN 376 для стали ≥ 900 H/MM² и чугуна, Формирует короткую стружку	M 3 ~ M 20	B.77
DIN 371, 376 för stål 25~45 HRC DIN 371, DIN 376 для стали 25~45 HRC	DIN 371, DIN 376, För mjukt stål ≤ 850N/mm² DIN 371, DIN 376 для мягкой стали ≤ 850N/MM²	M 2 ~ M 20	B.78
DIN 371, 376 för stål 25~45 HRC DIN 371, DIN 376 для стали 25~45 HRC	DIN 371, DIN 376, För mjukt stål ≤ 850N/mm² DIN 371, DIN 376 для мягкой стали ≤ 850N/MM²	M 2 ~ M 36	B.79
DIN 371, DIN 376 til ståltyper 25~45 HRC, indvendig køling DIN 371, DIN 376 para aceros 25~45 HRC, refrigeración interna	DIN 371, DIN 376 för stål 25~45 HRC, kylkanaler DIN 371, DIN 376 для сталей 25~45 HRC, Центральный ирригации	M 6 ~ M 36	B.80
ISO 529, til generelt brug, pulvermetal ISO 529, para aplicación general, HSS sinterizado	ISO 529, för diverse applikationer, pullver metall ISO 529, Общего назначения, порошковая металлургия	M 3 ~ M 12	B.81
DIN 371, DIN 376 til nikkellegeringer inklusiv Inconel 718, DIN 371, DIN 376 para aleaciones de níquel incluido Inconel 718	DIN 371, DIN 376 för nickelbaserade legeringar inklusive Inconel 718 DIN 371, DIN 376 для никелевых сплавов, включая Inconel 718	M 3 ~ M 12	B.82
DIN 371, DIN 376 til nikkellegeringer inklusiv Inconel 718, DIN 371, DIN 376 para aleaciones de níquel incluido Inconel 718	DIN 371, DIN 376 för nickelbaserade legeringar inklusive Inconel 718 DIN 371, DIN 376 для никелевых сплавов, включая Inconel 718	M 3 ~ M 12	B.83
DIN 371, DIN 376 til Titanium legeringer (Ti-6Al-4V) : 40~45 HRC DIN 371, DIN 376 para aleaciones de Titanio (Ti-6AL-4V) : 40~45 HRC	DIN 371, DIN 376 för titanium legeringar (Ti-6Al-4V) : 40~45 HRC DIN 371, DIN 376 для титановых сплавов (Ti-6Al-4V) : 40~45 HRC	M 1,6 ~ M 12	B.84
ISO 529, til generelt brug ISO 529, para aplicación general	ISO 529, för diverse applikationer ISO 529, Общего назначения	M 1 ~ M 24	B.85 - B.86
ISO 529, til generelt brug ISO 529, para aplicación general	ISO 529, för diverse applikationer ISO 529, Общего назначения	M 3 ~ M 14	B.87
DIN 371, DIN 376 til støbejern & støbt aluminium < 11 % Si DIN 371, DIN 376 para fundición de hierro y aluminio fundido < 11 % Si	DIN 371, för gråjärn & gjuten aluminium < 11 % Si DIN 371, DIN 376 для серого чугуна и литейных алюминиевых сплавов < 11 % Si	M 4 ~ M 20	B.88
Til gennemgående huller, indvendig køling, Til oile- og energi industrien Para agujeros pasantes aplicación, refrigeración interna para industria Energetica y Pesada	För genomgående hål, kylkanaler, för olje och energi industrin Для сквозных отверстий, с охлаждением через инструмент, для нефтегазовой и энергетической отраслей	M 20 ~ M 56	B.89

NAME		SPECIFICATION	
METRIC			
MT			
 **VP-DC-MT**	M	DIN 371, DIN 376 for stainless steels and aluminium	DIN 371, DIN 376 für VA - Stahl und Aluminium
	V	DIN 371, DIN 376 per acciai inox e alluminio	DIN 371, DIN 376 pour inox et aluminium
 **VP-DC-SC-MT**	M	DIN 371, DIN 376, synchro taps, for cast iron & aluminium,short chamfer	DIN 371, DIN 376, Synchro Bohrer für Grauguss und Aluminium, kurzer Anschnitt
	V	DIN 371, DIN 376, maschi Synchro per ghisa & alluminio,Imbocco corto	DIN 371, DIN 376, tarauds synchro, pour fonte et aluminium, entrée courte
 **VPO-DC-MT**	M	DIN 371, DIN 376, synchro taps, coolant through, for cast iron & aluminium	DIN 371, DIN 376, Synchro Bohrer für Grauguss und Aluminium, Innere Kühlmittelzuführung
	V	DIN 371, DIN 376, maschi Synchro per ghisa & alluminio,lubrificazione centrali	DIN 371, DIN 376, tarauds synchro, pour fonte et aluminium, arrosage central
 **VPO-DC-SC-MT**	M	DIN 371, DIN 376, synchro taps, coolant through, for cast iron & aluminium, short chamfer	DIN 371, DIN 376, Synchro Bohrer für Grauguss und Aluminium, Innere Kühlmittelzuführung, kurzerAnschnitt
	V	DIN 371, DIN 376, maschi Synchro per ghisa & alluminio,lubrificazione centrali	DIN 371, DIN 376, tarauds synchro, pour fonte et aluminium, arrosage central, entrée courte
 **V-XPM-HT**	M	For hardened steels 42~52 HRC	Für gehärteten Stahl HRC 42~52
	V	Per acciai trattati 42~52 HRC	Pour aciers traités à 42~52 HRC
 **WH55-OT** NEW	M	For hardened steels 40~55 HRC	Für gehärteten Stahl HRC 40~55
	V	Per acciai trattati 40~55 HRC	Pour aciers traités à 40~55 HRC
 **VX-OT**	M	For hardened steels <62 HRC	Für gehärteten Stahl HRC <62
	V	Per acciai trattati <62 HRC	Pour aciers traités à <62 HRC
SYNCHRO TAP			
 **Z-POT**	M	DIN 371, DIN 376 for high speed tapping in aluminium, mild steel, die steel & stainless steels	DIN 371, DIN 376 für HSC Gewindeschneiden in Aluminium, unlegierten Stählen, Werkzeugstahl und VA - Stahl
	V	DIN 371, DIN 376 alta velocità per alluminio, acciaio dolce, acciai per stampi e inox	DIN 371, DIN 376 pour haute vitesse dans l'aluminium, l'acier doux, les aciers matrices et l'inox
 **Z-OIL-POT**	M	DIN 371, DIN 376 for high speed tapping in aluminium, mild steel, die steel & stainless steels, coolant through	DIN 371, DIN 376 für HSC Gewindeschneiden in Aluminium, unlegierten Stählen, Werkzeugstahl und VA - Stahl, innere Kühlmittelzuführung
	V	DIN 371, DIN 376 alta velocità per alluminio, acciaio dolce, acciai per stampi e inox, lubrificazione centrali	DIN 371, DIN 376 pour haute vitesse dans l'aluminium, l'acier doux, les aciers matrices et l'inox, arrosage central
 **HS-RFT-TIN**	M	Synchro taps, left hand spiral, for a wide range of materials	Gewindebohrer für synchronisierte Spindeln geeignet für Allroundeinsatz, Linksspirale
	TIN	Maschi Synchro, elica sinistra, per applicazioni generali	Tarauds synchro, pour toutes les matières, élice gauche
 **US-AL-RFT**	M	Synchro taps, left hand spiral, for aluminium	Synchro Bohrer, Gewindeschneiden in Aluminium, Linksspirale
	V	Maschi synchro, elica sinistra, per alluminio	Tarauds synchro, élice gauche, pour aluminium
 **Z-SFT**	M	DIN 371, DIN 376 for high speed tapping in aluminium, mild steel, die steel & stainless steels	DIN 371, DIN 376 für HSC Gewindeschneiden in Aluminium,unlegierten Stählen, Werkzeugstahl und VA - Stahl
	V	DIN 371, DIN 376 alta velocità per alluminio, acciaio dolce,acciai per stampi e inox	DIN 371, DIN 376 pour haute vitesse dans l'aluminium, l'acier doux, les aciers matrices et l'inox
 **Z-OIL-SFT**	M	DIN 371, DIN 376 for high speed tapping in aluminium, mild steel, die steel & stainless steels, coolant through	DIN 371, DIN 376 für HSC Gewindeschneiden in Aluminium,unlegierten Stählen, Werkzeugstahl und VA - Stahl, innere Kühlmittelzuführung
	V	DIN 371, DIN 376 alta velocità per alluminio, acciaio dolce,acciai per stampi e inox, lubrificazioni centrali	DIN 371, DIN 376 pour haute vitesse dans l'aluminium, l'acier doux, les aciers matrices et l'inox, arrosage central
 **HS-SFT-TIN**	M	Synchro taps, for a wide range of materials	Gewindebohrer für synchronisierte Spindeln geeignet für Allroundeinsatz
	TIN	Maschi Synchro, per applicazioni generali	Tarauds synchro, pour toutes les matières
 **US-AL-SFT**	M	Synchro taps, for aluminium	Synchro Bohrer - Gewindeschneiden in Aluminium
	V	Maschi synchro, per alluminio	Tarauds synchro, pour aluminium
FORMING TAP			
 **S-XPF** New Sizes	M	DIN 371, DIN 376, high performance, forming taps	DIN 371, DIN 376, high performance, allgemeine Anwendungen Gewindeformen
	V	DIN 371, DIN 376, alta prestazione, applicazioni generali di rullatura	DIN 371, DIN 376, haute performance, pour des applications universelles de refoulement
 **OIL-S-XPF** New Sizes	M	DIN 371, DIN 376, high performance, forming taps, coolant through	DIN 371, DIN 376, high performance, allgemeine Anwendungen Gewindeformen, innere Kühlmittelzuführung
	V	DIN 371, DIN 376, alta prestazione, applicazioni generali di rullatura, lubrificazione centrali	DIN 371, DIN 376, haute performance, pour des applications universelles de refoulement,arrosage central

SPECIFICATION		RANGE	PAGE
	METRIC		
DIN 371, DIN 376 til rustfrit stål og aluminium	DIN 371, DIN 376 för rostfritt stål och aluminium	M 3 ~ M 20	B.90
DIN 371, DIN 376 para aceros inoxidables y aluminio	DIN 371, DIN 376 для нержавеющих сталей и алюминия		
DIN 371, DIN 376, syncro tappe, til støbejern & aluminium, kort indløb	DIN 371, DIN 376, synchro gängtappar för gjutjärn & aluminium, kort fastängd	M 3 ~ M 16	B.91
DIN 371, DIN 376, Machos Synchro para fundición de hierro y aluminio, chaflàn corto	DIN 371, DIN 376, Синхро метчики для чугуна и алюминия с коротким заходом		
DIN 371, DIN 376, syncro tappe, til støbejern & aluminium, indvendig køling	DIN 371, synchro gängtappar, kylkanaler, för gjutjärn & aluminium	M 6 ~ M 20	B.92
DIN 371, DIN 376, Machos Synchro para fundición de hierro y aluminio, refrigeración interna	DIN 371, DIN 376, Synchro метчики, для чугуна и алюминия, внутреннее охлаждение		
DIN 371, DIN 376, syncro tappe, til støbejern & aluminium, indvendig køling, kort indløb	DIN 371, DIN 376, synchro gängtapparkort, fastängd, för gjutjärn & aluminium, kort fastängd	M 6 ~ M 16	B.93
DIN 371, DIN 376, Machos Synchro para fundición de hierro y aluminio, refrigeración interna, chaflàn corto	DIN 371, DIN 376, Синхро метчики для чугуна и алюминия с внутренним охлаждением		
Til varmebehandlet stål 42~52 HRC	För härdat stål 42~52 HRC	M 3 ~ M 12	B.94
Para aceros tratados 42~52 HRC	Для улучшенных сталей 42~52 HRC		
Til varmebehandlet stål 40~55 HRC	För härdat stål 40~55 HRC	M 3 ~ M 12	B.95
Para aceros tratados 40~55 HRC	Для улучшенных сталей 40~55 HRC		
Til varmebehandlet stål <62 HRC	För härdat stål <62 HRC	M 3 ~ M 12	B.96
Para aceros tratados <62 HRC	Для улучшенных сталей <62 HRC		
DIN 371, DIN 376 til højhastigheds gevindskæring i aluminium, stål, værktøjsstål og rustfrit stål	DIN 371, DIN 376, för high speed gängning i aluminium, mjukt stål, verktygsstål & rostfritt stål	M 2 ~ M 30	B.97
DIN 371, DIN 376 para roscado a alta velocidad en aluminio,aceros suaves, aceros de herramientas y aceros inoxidables	DIN 371, DIN 376 для высокоскоростного нарезания резьбы в алюминии, низкоуглеродистых, инструментальных и нержавеющих сталях		
DIN 371, DIN 376 til højhastigheds gevindskæring i aluminium, stål, værktøjsstål og rustfrit stål, indvendig køling	DIN 371, DIN 376, för high speed gängning i aluminium, mjukt stål, verktygsstål & rostfritt stål, kylkanaler	M 6 ~ M 20	B.98
DIN 371, DIN 376 para roscado a alta velocidad en aluminio, aceros suaves, aceros de herramientas y aceros inoxidables, refrigeración interna	DIN 371, DIN 376 для высокоскоростного нарезания резьбы в алюминии, низкоуглеродистых, инструментальных и нержавеющих сталях		
Synkro tappe, til flere forskellige materialer	Machos Synchro para un abanico amplio de materiales, ranura helicoidal izquierda	M 3 ~ M 12	B.99
Machos Synchro para un abanico amplio de materiales, ranura helicoidal izquierda	Синхро метчики для широкого спектра материалов. Левая спираль		
Synkro tappe, venstresnoet, til aluminium	Synchro gängtappar, vänster spiral för high speed gängning i varierande material	M 3 ~ M 12	B.100
Machos Synchro, ranura helicoidal izquierda, para aluminio	Синхро метчики для широкого спектра материалов. Левая спираль. Для алюминия		
DIN 371, DIN 376 til højhastigheds gevindskæring i aluminium, stål, værktøjsstål og rustfrit stål	DIN 371, DIN 376, för high speed gängning i aluminium, mjukt stål, verktygsstål & rostfritt stål	M 2 ~ M 30	B.101
DIN 371, DIN 376 para roscado a alta velocidad en aluminio, aceros suaves, aceros de herramientas y aceros inoxidables	DIN 371, DIN 376 для высокоскоростного нарезания резьбы в алюминии, низкоуглеродистых, инструментальных и нержавеющих сталях		
DIN 371, DIN 376 til højhastigheds gevindskæring i aluminium, stål, værktøjsstål og rustfrit stål, indvendig køling	DIN 371, DIN 376, för high speed gängning i aluminium, mjukt stål, verktygsstål & rostfritt stål, kylkanaler	M 6 ~ M 20	B.102
DIN 371, DIN 376 para roscado a alta velocidad en aluminio, aceros suaves, aceros de herramientas y aceros inoxidables, refrigeración interna	DIN 371, DIN 376 для высокоскоростного нарезания резьбы в алюминии, низкоуглеродистых, инструментальных и нержавеющих сталях		
Synkro tappe, til flere forskellige materialer	Synchro gängtappar,för de flesta material	M 3 ~ M 12	B.103
Machos Synchro para un abanico amplio de materiales	Синхро метчики для широкого спектра материалов		
Synkro tappe, til aluminium	Synchro gängtappar,för aluminium	M 3 ~ M 12	B.104
Machos Synchro para aluminio	Синхро метчики для алюминия		
DIN 371, DIN 376, high performance, rulletappe	DIN 371, DIN 376, high performance, rullgängtappar	M 3 ~ M 30	B.105
DIN 371, DIN 376, altas prestaciones, macho de laminación	DIN 371, DIN 376, высокопроизводительные накатные метчики		
DIN 371, DIN 376, high performance, rulletappe, indvendig køling	DIN 371, DIN 376, high performance, rullgängtappar, kylkanaler	M 6 ~ M 45	B.106
DIN 371, DIN 376, altas prestaciones, macho de laminación refrigeración interna	DIN 371, DIN 376, высокопроизводительные накатные метчики с внутренним охлаждением		

NAME		SPECIFICATION	
METRIC			
FORMING TAP			
 **S-XPF-6GX** NEW	M	DIN 371, DIN 376, high performance forming tap **6GX**	DIN 374, Hochleistungsgewindeformer **6GX**
	V	DIN 374, maschi a rullare ad Alta Performance **6GX**	DIN 374, tarauds à refouler haute performance **6GX**
 **S-XPF-7GX** NEW	M	DIN 371, DIN 376, high performance forming tap **7GX**	DIN 374, Hochleistungsgewindeformer **7GX**
	V	DIN 374, maschi a rullare ad Alta Performance **7GX**	DIN 374, tarauds à refouler haute performance **7GX**
 **S-XPF-P** NEW	M	DIN 371, DIN 376, high performance forming tap, **4p chamfer**	DIN 374, Hochleistungsgewindeformer, **4 Gang.** Anschnittlänge
	V	DIN 374, maschi a rullare ad Alta Performance, **4 filleti**	DIN 374, tarauds à refouler haute performance, **4 entrée** gun
 **S-SC-XPF** NEW	M	DIN 371, DIN 376, high performance forming tap **1,5p chamfer**	DIN 374, Hochleistungsgewindeformer, **1,5 Gang.** Anschnittlänge
	V	DIN 374, maschi a rullare ad Alta Performance, **1,5 filleti**	DIN 374, tarauds à refouler haute performance, **1,5 entrée** gun
 **V-NRT-B**	M	DIN 371, DIN 376, for blind holes, for stainless steels & steels ≤ 850N/mm²	DIN 371, DIN 376, für Sacklöcher, für Stähl ≤ 850N/mm² und VA Stähle
	V	DIN 371, DIN 376 per fori chieci, per inox e acciai ≤ 850N/mm²	DIN 371, DIN 376, pour trous bornes, pour aciers ≤ 850N/mm² et pour aciers inox
 **V-NRT-B**	M	DIN 371, 6GX, for blind holes, for stainless steels & steels ≤ 850N/mm²	DIN 371, 6GX, für Sacklöcher, für Stähl ≤ 850N/mm² und VA Stähle
	V	DIN 371, 6GX , per fori chieci, per inox e acciai ≤ 850N/mm²	DIN 371, 6GX, pour trous bornes, pour aciers ≤ 850N/mm² et pour aciers inox
 **V-NRT-P**	M	DIN 371, DIN 376, for through holes, for aluminium, stainless steels and steels ≤ 850N/mm²	DIN 371, DIN 376 für Durchgangslöcher, für Aluminium, VA Stähle und für Stähl ≤ 850N/mm²
	V	DIN 371, DIN 376, per fori passanti, per alluminio, inox e acciai ≤ 850N/mm²	DIN 371, DIN 376 pour trous débouchants, pour aluminium, aciers inox et aciers ≤ 850N/mm²
 **V-NRT-P**	M	DIN 371, 6GX, for through holes, for aluminium, stainless steels and steels ≤ 850N/mm²	DIN 371, 6GX, für Durchgangslöcher, für Aluminium, VA Stähle und für Stähl ≤ 850N/mm²
	V	DIN 371, 6GX , per fori passanti, per alluminio, inox e acciai ≤ 850N/mm²	DIN 371, 6GX, pour trous débouchants, pour aluminium, aciers inox et aciers ≤ 850N/mm²
 **1066-NRT-PLUS**	M	ISO 529, for general forming applications	ISO 529, allgemeine Anwendungen Gewindeformen
	TiN	ISO 529, applicazioni generali di rullatura	ISO 529, pour des applications universelles de refoulement
OTHER TAPS			
 **EX-MCT**	M	For cast iron & steels ≤ 850N/mm², low lefthand helix, long shank, forming short chips	Leichte Linksspirale, langer Schaft, für Stahlguss und normale Stähle ≤ 850N/mm², guter Spanbruch
	OX	Per ghisa e acciai ≤ 850N/mm², elica sinistra bassa torsione, gambo lungo, producono trucioli corti	Pour fonte et acier ≤ 850N/mm², hélice faible à gauche, queue longue, pour former des copeaux courts.
 **V-EM-SFT**	M	Synchro taps, with front cut allowing calibration of tapered pilot holes, for cast aluminium	Kombigewindebohrer zum Aufbohren von Kernlöchern mit synchronisierter Spindel in legiertem Aluminium
	V	Maschi con fresa per calibrare fori conici, per aluminio da fusione	Tarauds synchro, coupe frontale pour calibrer les avant-trous coniques, pour alliage d'aluminium
METRIC FINE			
POT			
 **VA-POT**	MF	DIN 374, general purpose, also for stainless steels	DIN 374, für universelle Anwendungen und für VA - Stahll
	OX	DIN 374, per applicazioni generali e per inox	DIN 374, pour applications générales, également pour inox
 **POT**	MF	DIN 374, general purpose	DIN 374, für universelle Anwendungen
		DIN 374, per applicazioni generali	DIN 374, pour applications générales
 **CC-POT** NEW	MF	DIN 371, DIN 376 for stainless steels aluminium and steel	DIN 371, DIN 376 für VA - Stahl und Aluminium und Stahl
	CrN	DIN 371, DIN 376 per acciai inox e alluminio, acciai	DIN 371, DIN 376 pour inox et aluminium at aciers
SFT			
 **VA-SFT**	MF	DIN 374, general purpose, also for stainless steels	DIN 374, für universelle Anwendungen und für VA - Stahll
	OX	DIN 374, per applicazioni generali e per inox	DIN 374, pour applications générales, également pour inox
 **SFT**	MF	DIN 374, general purpose	DIN 374, für universelle Anwendungen
		DIN 374, per applicazioni generali	DIN 374, pour applications générales

SPECIFICATION		RANGE	PAGE
METRIC			
DIN 374, high performance rulletap **6GX**	DIN 374, High performance rullgängtappar **6GX**	M 3 ~ M 16	B.107
DIN 374, altas prestaciones, macho de laminación **6GX**	DIN 374, Высокопроизводительные накатные метчики **6GX**		
DIN 374, high performance rulletap **7GX**	DIN 374, High performance rullgängtappar **7GX**	M 3 ~ M 16	B.108
DIN 374, altas prestaciones, macho de laminación **7GX**	DIN 374, Высокопроизводительные накатные метчики **7GX**		
DIN 374, high performance rulletap, **4 x stigning** på opløb	DIN 374, High performance rullgängtappar, Fasingång **4 x stigning**	M 3 ~ M 16	B.109
DIN 374, altas prestaciones, macho de laminación, chaflàn de entrada **4 pasos**	DIN 374, Высокопроизводительные накатные метчики, заходная фаска **4 витка**		
DIN 374, high performance rulletap, **1,5 x stigning** på opløb	DIN 374, High performance rullgängtappar, Fasingång **1,5 x stigning**	M 3 ~ M 16	B.110
DIN 374, altas prestaciones, macho de laminación, chaflàn de entrada **1,5 pasos**	DIN 374, Высокопроизводительные накатные метчики, заходная фаска **1,5 витка**		
DIN 371, DIN 376, til bundhuller, til rustfrit stål og alle ståltyper ≤ 850N/mm²	DIN 371, DIN 376, För bottenhål, i rostfritt stål & stål ≤ 850N/mm²	M 1 ~ M 12	B.111
DIN 371, DIN 376, para agujeros ciegos, para aceros inoxidables y todos los aceros hasta ≤ 850N/mm²	DIN 371, DIN 376, для глухих отверстий, для нержавеющих сталей и всех сталей ≤ 850Н/мм²		
DIN 371, 6GX til bundhuller, til rustfrit stål og alle ståltyper ≤ 850N/mm²	DIN 371, 6GX, För bottenhål, i rostfritt stål & stål ≤ 850N/mm²	M 2 ~ M 10	B.112
DIN 371, 6GX para agujeros ciegos, para aceros inoxidables y todos los aceros hasta ≤ 850N/mm²	DIN 371, 6GX для глухих отверстий, для нержавеющих сталей и всех сталей ≤ 850Н/мм²		
DIN 371, DIN 376 til gennemgående huller, til Aluminium, rustfrit stål og alle ståltyper ≤ 850N/mm²	DIN 371, DIN 376, För genomgående hål, i aluminium, rostfritt stål och stål ≤ 850N/mm²	M 2~ M 12	B.113
DIN 371, DIN 376 para agujeros pasantes, para aceros inoxidables y todos los aceros hasta ≤ 850N/mm²	DIN 371, DIN 376 для сквозных отверстий, для нержавеющих сталей и всех сталей ≤ 850Н/мм²		
DIN 371, 6GX til gennemgående huller, til Aluminium, rustfrit stål og alle ståltyper ≤ 850N/mm²	DIN 371, 6GX, För genomgående hål, i aluminium, rostfritt stål och stål ≤ 850N/mm²	M 2 ~ M 10	B.114
DIN 371, 6GX para agujeros pasantes, para aceros inoxidables y todos los aceros hasta ≤ 850N/mm²	DIN 371, 6GX для сквозных отверстий, для нержавеющих сталей и всех сталей ≤ 850Н/мм²		
til generelle rulle operationer	ISO 529, rullgängor, allround	M 2 ~ M 12	B.115
ISO 529, aplicación general laminación	ISO 529, накатные метчики общего назначения		
Til støbejern & stål ≤ 850N/mm², svag venstresnoning, langt skaft, giver korte spåner	Machos Synchro para un abanico amplio de materiales, ranura helicoidal izquierda	M 6 ~ M 20	B.116
Para fundición de hierro y aceros ≤ 850N/mm², elice lenta a izquierdas, mango larga, formación de virutas cortas	для чугуна и сталей ≤ 850Н/ММ², левая пологая спираль, длинный хвостовик, Формирует короткую стружку		
Syncro tap med endeskær til gevindskæring i forstøbte huller, til legeret aluminium	Synchro gängtappar, med främre skär för uppstyrning av gjutna koniska hål, för Aluminium legeringar	M 4 ~ M 16	B.117
Machos Synchro, con corte frontal que calibra el agujero previo de roscado, para aluminio aleado	Синхро метчики с передней режущей частью позволяющей калибровать конические пилотные отверстия, для литьевых алюминиевых сплавов		
METRIC FINE			
DIN 374, til generelt brug, også til rustfrit stål	DIN 374, All-round, också för rostfritt	M 3 ~ M 24	B.118
DIN 374, para aplicación general, para aceros inoxidables	DIN 374, Общего назначения, и для нержавеющих сталей		
DIN 374, til generelt brug	DIN 374, All-round	M 4 ~ M 30	B.119
DIN 374, para aplicación general	DIN 374, Общего назначения		
DIN 371, DIN 376 til rustfrit stål og aluminium, og stål	DIN 371, DIN 376 för rostfritt stål och aluminium, stål	M 6 ~ M 24	B.120
DIN 371, DIN 376 para aceros inoxidables y aluminio, aceros	DIN 371, DIN 376 для нержавеющих сталей и алюминия, нержавеющих		
DIN 374, til generelt brug, også til rustfrit stål	DIN 374, All-round, också för rostfritt	M 3 ~ M 24	B.121
DIN 374, para aplicación general, para aceros inoxidables	DIN 374, Общего назначения, и для нержавеющих сталей		
DIN 374, til generelt brug	DIN 374, All-round	M 4 ~ M 30	B.122
DIN 374, para aplicación general	IN 374, Общего назначения		

NAME		SPECIFICATION	
METRIC FINE			
SFT			
 **SUS-SFT**	MF	DIN 374, for stainless steels	DIN 374, für VA-Stahl
	OX	DIN 374, per inox e acciai dolci	DIN 374, également pour inox
 **CC-SFT**	MF	DIN 374, for stainless steel aluminium and steel	DIN 374, für VA-Stahl, Aluminium und Stahl
	CrN	DIN 374, per acciai inox, alluminio e acciai	DIN 374, pour inox, aluminium et aciers
 **AL-SFT**	MF	DIN 374, for aluminium	DIN 374, für Aluminium
		DIN 374, per alluminio	DIN 374, pour aluminium
MT			
 **GG-MT**	MF	DIN 374, for grey cast iron & cast aluminium < 11 % Si	DIN 374, für Grauguss und Aluminiumguss < 11 % Si
	NI-OX	DIN 374, per ghisa grigia, ghisa d'alluminio < 11 % S	DIN 374, pour fonte grise, fonte d'aluminium < 11 % Si
 **VP-DC-MT** New Sizes	MF	DIN 374, synchro taps, for cast iron & aluminium	DIN 374, Synchro Bohrer für Grauguss und Aluminium
	V	DIN 374, Maschi Synchro per ghisa	DIN 374, tarauds synchro, pour fonte et aluminium
 **VPO-DC-MT** New Sizes	MF	DIN 374, synchro taps, coolant through, for cast iron and aluminium	DIN 374, Synchro Bohrer, innere Kühlmittelzuführung, für Grauguss und Aluminium
	V	DIN 374, alta velocità per alluminio, acciaio dolce, acciai per stampi e inox	DIN 374, für HSC Gewindeschneiden in Aluminium, unlegierten Stählen, Werkzeugstahl und VA - Stahl
SYNCHRO TAP			
 **Z-POT**	MF	DIN 374, for high speed tapping in aluminium, mild steel, die steel & stainless steels	DIN 374, für HSC Gewindeschneiden in Aluminium, unlegierten Stählen, Werkzeugstahl und VA - Stahl
	V	DIN 374, alta velocità per alluminio, acciaio dolce, acciai per stampi e inox	DIN 374, pour haute vitesse dans l'aluminium, l'acier doux, les aciers matrices et l'inox
 **Z-SFT**	MF	DIN 374, for high speed tapping in aluminium, mild steel, die steel & stainless steels	DIN 374, für HSC Gewindeschneiden in Aluminium, unlegierten Stählen, Werkzeugstahl und VA - Stahl
	V	DIN 374, alta velocità per alluminio, acciaio dolce, acciai per stampi e inox	DIN 374, pour haute vitesse dans l'aluminium, l'acier doux, les aciers matrices et l'inox
FORMING TAP			
 **S-XPF**	MF	DIN 374, high performance forming tap	DIN 374, Hochleistungsgewindeformer
	V	DIN 374, maschi a rullare ad Alta Performance	DIN 374, tarauds à refouler haute performance
 **OIL-S-XPF** New Sizes	MF	DIN 374, high performance forming tap, coolant through	DIN 374, Hochleistungsgewindeformer, mit innerer Kühlmittelzufuhr
	V	DIN 374, maschi a rullare ad Alta Performance, con fori di lubrificazione	DIN 374, tarauds à refouler haute performance, avec arrosage central
 **S-XPF-P** NEW	MF	DIN 374, high performance forming tap, **4p chamfer**	DIN 374, Hochleistungsgewindeformer, **4 Gang.** Anschnittlänge
	V	DIN 374, maschi a rullare ad Alta Performance, **4 filleti**	DIN 374, tarauds à refouler haute performance, **4 entrée** gun
 **V-NRT-B**	MF	DIN 374, for blind holes, for aluminium, stainless and steels ≤ 850N/mm²	DIN 374, für Sachlöcher, für Stahl ≤ 850 N/mm², Aluminiumund VA - Stahl
	V	DIN 374, per fori ciechi, per alluminio, inox e acciai ≤ 850N/mm²	DIN 374, pour trous bornes, pour aciers ≤ 850N/mm², aluminium et inox
 **V-NRT-P**	MF	DIN 374, for blind holes, for aluminium, stainless and steels ≤ 850N/mm²	DIN 374, für Sachlöcher, für Stahl ≤ 850 N/mm², Aluminiumund VA - Stahl
	V	DIN 374, per fori ciechi, per alluminio, inox e acciai ≤ 850N/mm²	DIN 374, pour trous bornes, pour aciers ≤ 850N/mm², aluminium et inox
UNC / UNJC			
POT			
 **VA-POT**	UNC	DIN 2182, DIN 2183, for general purpose, also for stainless steels	DIN 2182, DIN 2183, für universelle Anwendungen und für VA - Stahl
	OX	DIN 2182, DIN 2183, per applicazioni generali e per inox	DIN 2182, DIN 2183, pour applications générales également pour inox
 **VA-POT**	UNJC	DIN 2182, 3B, for general purpose, also for stainless steels	DIN 2182, 3B, für universelle Anwendungen und für VA - Stahl
	OX	DIN 2182, 3B, per applicazioni generalli e per inox	DIN 2182, 3B,pour applications générales également pour inox
 **1066-POT**	UNC	ISO 529, for general purpose	ISO 529, für universelle Anwendungen
	OX	ISO 529, per applicazioni generali	ISO 529, pour applications générales

SPECIFICATION				RANGE	PAGE
METRIC FINE					
DIN 374, til rustfrit stål	DIN 374, också för rostfritt	M 8 ~ M 24	B.123
DIN 374, para aceros inoxidables	DIN 374, для нержавеющих сталей		
DIN 374, til rustfrit stål, aluminium og stål	DIN 374, för rostfritt stål och aluminium	M 6 ~ M 24	B.124
DIN 374, para aceros inoxidables, aluminio y aceros	DIN 374, для нержавеющих сталей и алюминия		
DIN 374, til aluminium	DIN 374, för rostfritt stål, aluminium och stål	M 8 ~ M 12	B.125
DIN 374, para aluminio	DIN 374, Для нержавеющих сталей и алюминия		
DIN 374, til støbejern & støbt aluminium < 11 % Si	DIN 374, för gråjärn & gjuten aluminium < 11 % Si	M 3 ~ M 24	B.126
DIN 374, para fundición de hierro y aluminio fundido < 11 % Si	DIN 374, для серого чугуна и литейных алюминиевых сплавов < 11 % Si		
DIN 374, Syncro tap til støbejern & til aluminium	DIN 374, synchro gängtappar för gjutjärn & aluminium	M 12 ~ M 20	B.127
DIN 374, Machos Synchro, fundición de hierro y de aluminio	DIN 374, Синхро метчики, для серого чугуна и литейных алюминиевых сплавов		
DIN 374, tarauds synchro, arrosage central, pour fonte et aluminium	DIN 374, för genomgående hål, kylkanaler, för gjutjärn & aluminium	M 12 ~ M 20	B.128
DIN 374, Machos Synchro, refrigeración interna, fundición de hierro y de aluminio	DIN 374, Синхро метчики с внутренним охлаждением для серого чугуна и литейных алюминиевых сплавов		
DIN 374, til højhastigheds gevindskæring i aluminium, stål, værktøjsstål og rustfrit stål	DIN 371, for high speed tapping in aluminium, mild steel, die steel & stainless steel	M 3 ~ M 24	B.129
DIN 374, para roscado a alta velocidad en aluminio, aceros suaves, aceros de herramientas y aceros inoxidables	DIN 374, для высокоскоростного нарезания резьбы в алюминии, низкоуглеродистых, инструментальных и нержавеющих сталях		
DIN 374, til højhastigheds gevindskæring i aluminium, stål, værktøjsstål og rustfrit stål	DIN 371, for high speed tapping in aluminium, mild steel, die steel & stainless steel	M 3 ~ M 24	B.130
DIN 374, para roscado a alta velocidad en aluminio, aceros suaves, aceros de herramientas y aceros inoxidables	DIN 374, для высокоскоростного нарезания резьбы в алюминии, низкоуглеродистых, инструментальных и нержавеющих сталях		
DIN 374, high performance rulletap	DIN 374, High performance rullgängtappar	M 8 ~ M 20	B.131
DIN 374, altas prestaciones, macho de laminación	DIN 374, Высокопроизводительные накатные метчики		
DIN 374, high performance rulletap, indvendig køling	DIN 374, High performance rullgängtappar, kylkanaler	M 8 ~ M 20	B.132
DIN 374, altas prestaciones, macho de laminación, refrigeración interna	DIN 374, Высокопроизводительные накатные метчики с внутренним охлаждением		
DIN 374, high performance rulletap, **4 x stigning** på opløb	DIN 374, High performance rullgängtappar, Fasingång **4 x stigning**	M 8 ~ M 20	B.133
DIN 374, altas prestaciones, macho de laminación, chaflàn de entrada **4 pasos**	DIN 374, Высокопроизводительные накатные метчики заходная фаска **4 витка**		
DIN 374, indvendig køling, til stål ≤ 850N/mm², til aluminium & rustfrit stål	DIN 374, för botten hål, i aluminium, rostfritt stål och stål ≤ 850N/mm²	M 8 ~ M 12	B.134
DIN 374, para aceros inoxidable y aluminio	DIN 374, с внутренним охлаждением. Для сталей ≤ 850H/MM², алюминия и нержавеющих сталей		
DIN 374, indvendig køling, til stål ≤ 850N/mm², til aluminium & rustfrit stål	DIN 374, för botten hål, i aluminium, rostfritt stål och stål ≤ 850N/mm²	M 8 ~ M 12	B.135
DIN 374, para aceros inoxidable y aluminio	DIN 374, с внутренним охлаждением. Для сталей ≤ 850H/MM², алюминия и нержавеющих сталей		
UNC / UNJC			
DIN 2182, DIN 2183, til generelt brug også til rustfrit stål	DIN 2182, DIN 2183, allround och rostfritt stål	N° 4 ~ 1”	B.136
DIN 2182, DIN 2183, para aplicación general y para aceros inoxidables	DIN 2182, DIN 2183, Общего назначения и для нержавеющих сталей		
DIN 2182, 3B, til generelt brug også til rustfrit stål	DIN 2182, 3B, allround och rostfritt stål	N° 4 ~ 8	B.137
DIN 2182, 3B, para aplicación general y para aceros inoxidables	DIN 2182, 3B, Общего назначения и для нержавеющих сталей		
ISO 529, til generelt brug	ISO 529, allround	N° 1 ~ 1¼”	B.138
ISO 529, para aplicación general	ISO 529, Общего назначения		

NAME		SPECIFICATION	
UNC / UNJC			
POT	 **H-POT**	UNJC	DIN 2182, for steels 25~45 HRC
		OX	DIN 2182, per acciai 25~45 HRC
			DIN 2182, per acciai 25~45 HRC
			DIN 2182, pour acier : dureté 25~45 HRC
	 **1066-POT-PLUS**	UNC	ISO 529, general purpose, powdered metal
		OX	ISO 529, per applicazioni generali, metallurgia delle polveri sinterizzate
			ISO 529, für universelle Anwendungen, Pulvermetall
			ISO 529, pour applications générales, métallurgie des poudres
	 **E-POT**	UNJC	DIN 2182, for nickel based alloys including Inconel 718
			DIN 2182, per inconel e altre leghe a base di nickel
			DIN 2182, für Inconel 718 und andere Legierungen aus Nickel
			DIN 2182, pour inconel 718 et autres alliages à base de nickel
	 **WHR-NI-POT** *NEW*	UNC	DIN 2182, for nickel based alloys including Inconel 71
		HR	DIN 2182, per inconel e altre leghe a base di nickel
			DIN 2182, für Inconel 718 und andere Legierungen aus Nickel
			DIN 2182, pour inconel 718 et autres alliages à base de nickel
	 **V-TI-POT**	UNJC	DIN 2182, for titanium alloys (Ti-6Al-4V), 40~45 HRC
		V	DIN 2182, per leghe di titanio (Ti-6Al-4V), 40~45 HRC
			DIN 2182, für Titanlegierungen inkl. (Ti-6Al-V) : 40~45 HRC
			DIN 2182, pour alliages de titane (Ti-6Al-4V) : dureté 40~45 HRC
SFT	 **VA-SFT**	UNC	DIN 2182, DIN 2183, for general purpose, also for stainless steels
		OX	DIN 2182, DIN 2183, per applicazioni generali e per inox
			DIN 2182, DIN 2183, für universelle Anwendungen und für VA - Stahl
			DIN 2182, DIN 2183, pour applications générales également pour inox
	 **VA-SFT**	UNJC	DIN 2182, 3B, for general purpose, also for stainless steels
		OX	DIN 2182, 3B, per applicazioni generali e per inox
			DIN 2182, 3B, für universelle Anwendungen und für VA - Stahl
			DIN 2182, 3B, pour applications générales également pour inox
	 **1066-SFT**	UNC	ISO 529, general purpose
		OX	ISO 529, per applicazioni generali
			ISO 529, für universelle Anwendungen
			ISO 529, pour applications générales
	 **HXL-SFT**	UNC	Horizontal applications, oil and energy industry
		OX	Per lavorazioni orizzontali, per Industria Petrolifera & Industria Pesante
			Für horizontale Bearbeitung, für Öl- und Schwerindustrie
			Pour des opérations horizontales, pour l'industrie lourde et l'énergie
	 **VXL-SFT**	UNC	Vertical applications, oil and energy industry
		OX	Per lavorazioni verticali, per Industria Petrolifera & Industria Pesante
			Für vertikale Bearbeitung, für Öl- und Schwerindustrie
			Pour des opérations verticales, pour l'industrie lourde et l'énergie
	 **CC-SFT**	CrN	DIN 2182, DIN 2183, for stainless steels and aluminium
			DIN 2182, DIN 2183, per acciai inox e alluminio
			DIN 2182, DIN 2183, für VA - Stahl und Aluminium
			DIN 2182, DIN 2183, pour inox et aluminium
	 **H-SFT**	UNJC	DIN 2182, for steels 25~45 HRC
		OX	DIN 2182, per inox a acciai dolci 25~45 HRC
			DIN 2182, für Stahl 25~45 HRC
			DIN 2182, pour acier : dureté 25~45 HRC
	 **1066-SFT-PLUS**	UNC	ISO 529, general purpose, powdered metal
		OX	ISO 529, per applicazioni generali, metallurgia delle polveri sinterizzate
			ISO 529, für universelle Anwendungen, Pulvermetall
			ISO 529, für universelle Anwendungen, métallurgie des poudres
	 **E-SFT**	UNJC	DIN 2182, for nickel based alloys including Inconel 718
			DIN 2182, per inconel e altre leghe a base di nickel
			DIN 2182, für Inconel 718 und andere Legierungen aus Nickel
			DIN 2182, pour inconel 718 et autres alliages à base de nickel
	 **WHR-NI-SFT** *NEW*	UNC	DIN 2182, for nickel based alloys including Inconel 718
		HR	DIN 2182, per inconel e altre leghe a base di nicke
			DIN 2182, für Inconel 718 und andere Legierungen aus Nicke
			DIN 2182, pour inconel 718 et autres alliages à base de nickel
	 **V-TI-SFT**	UNJC	DIN 2182, for titanium alloys (Ti-6Al-4V), 40~45 HRC
		V	DIN 2182, per leghe di titanio (Ti-6Al-4V), 40~45 HRC
			DIN 2182, für Titanlegierungen inkl. (Ti-6Al-V) : 40~45 HRC
			DIN 2182, pour alliages de titane (Ti-6Al-4V) : dureté 40~45 HRC
MT	 **1066-HT**	UNC	ISO 529, general purpose
			ISO 529, per applicazioni generali
			ISO 529, für universelle Anwendungen
			ISO 529, pour applications générales
FORM. TAP	 **S-XPF** *NEW*	UNC	DIN 2182, DIN 2183, high performance forming tap
		V	DIN 2182, DIN 2183, maschi a rullare ad Alta Performance
			DIN 2182, DIN 2183, Hochleistungsgewindeformer
			DIN 2182, DIN 2183, tarauds à refouler haute performance

SPECIFICATION		RANGE	PAGE
UNC / UNJC			
DIN 2182, til stål 25~45 HRC	DIN 2182, för stål 25~45 HRC	N° 4 ~ 8	B.139
DIN 2182, для сталей 25~45 HRC	DIN 2182, для сталей 25~45 HRC		
ISO 529, til generelt brug, Pulvermetall	ISO 529, för diverse applikationer, pullver metall	N° 4 ~ ½”	B.140
ISO 529, para aplicación general, HSS sinterizado	ISO 529, общего назначения, порошковая металлургия		
DIN 2182, til nikkellegeringer inklusiv Inconel 718	DIN 2182, för nickelbaserade legeringar inklusive Inconel 718	N° 4 ~ 8	B.141
DIN 2182, para aleaciones de níquel incluido Inconel 718	DIN 2182, Для никелевых сплавов, включая Inconel 718		
DIN 2182, til nikkellegeringer inklusiv Inconel 718	DIN 2182, för nickelbaserade legeringar inklusive Inconel 718	N° 4 ~ 8	B.142
DIN 2182, para aleaciones de níquel incluido Inconel 718	DIN 2182, Для никелевых сплавов, включая Inconel 718		
DIN 2182, til Titanium legeringer (Ti6Al-4V) : 40~45 HRC	DIN 2182, för titanium legeringar (Ti-6Al-4V), 40~45 HRC	N° 4 ~ 8	B.143
DIN 2182, para aleaciones de Titanio (Ti6Al-4V) : 40~45 HRC	DIN 2182, для титановых сплавов (Ti6Al-4V) : 40~45 HRC		
DIN 2182, DIN 2183, til generelt brug også til rustfrit stål	DIN 2182, DIN 2183, allround och rostfritt stål	N° 4 ~ 1”	B.144
DIN 2182, DIN 2183, para aplicación general y para aceros inoxidables	DIN 2182, DIN 2183, Общего назначения и для нержавеющих сталей		
DIN 2182, 3B, til generelt brug også til rustfrit stål	DIN 2182, 3B, allround och rostfritt stål	N° 4 ~ 8	B.145
DIN 2182, 3B, para aplicación general y para aceros inoxidables	DIN 2182, 3B, Общего назначения и для нержавеющих сталей		
ISO 529, til generelt brug	ISO 529, för diverse applikationer	N° 2 ~ 1¼”	B.146
ISO 529, para aplicación general	ISO 529, общего назначения		
Til horisontale operationer, til enegisektoren & svær industri	För horizontale applikationer För olje och energi industrin	¾ ~2½”	B.147
Para roscado horizontal, para Industria Energetica y Pesada	Для горизонтальной нарезки резьбы, Для нефтегазовой и энергетической отраслей		
Til vertikale operationer, til enegisektoren & svær industri	För vertikale applikationer, För olje och energi industrin	¾” ~ 2½”	B.148
Para roscado vertical, para Industria Energetica y Pesada	Для вертикальной нарезки резьбы, Для нефтегазовой и энергетической отраслей		
DIN 2182, DIN 2183, til rustfrit stål & aluminium	DIN 2182, DIN 2183, för rostfritt stål och aluminium	N° 4 ~ 1”	B.149
DIN 2182, DIN 2183, para aceros inoxidables y aluminio	DIN 2182, DIN 2183, для нержавеющих сталей и алюминия		
DIN 2182, til stål 25~45 HRC	DIN 2182, för stål 25~45 HRC	N° 4 ~ 8	B.150
DIN 2182, para aceros 25~45 HRC	DIN 2182, для сталей 25~45 HRC		
ISO 529, til generelt brug, Pulvermetalll	ISO 529, för diverse applikationer, pullver metall	N° 4 ~ ½”	B.151
ISO 529, para aplicación general, HSS sinterizado	ISO 529, общего назначения, порошковая металлургия		
DIN 2182, til nikkellegeringer inklusiv Inconel 718	DIN 2182, för nickelbaserade legeringar inklusive Inconel 718	N° 4 ~ 8	B.152
DIN 2182, para aleaciones de níquel incluido Inconel 718	DIN 2182, для никелевых сплавов, включая Inconel 718		
DIN 2182, til nikkellegeringer inklusiv Inconel 718	DIN 2182, för nickelbaserade legeringar inklusive Inconel 718	N° 4 ~ 8	B.153
DIN 2182, para aleaciones de níquel incluido Inconel 718	DIN 2182, для никелевых сплавов, включая Inconel 718		
DIN 2182, til Titanium legeringer & (Ti-6Al-V) :40~45 HRC	DIN 2182, för titanium legeringar (Ti-6Al-4V), 40~45 HRC	N° 4 ~ 8	B.154
DIN 2182, para aleaciones de Titanio & (Ti-6Al-V) : 40~45 HRC	DIN 2182, для титановых сплавов & (Ti-6Al-V) : 40~45 HRC		
ISO 529, til generelt brug	ISO 529, för diverse applikationer	N° 1 ~ 1”	B.155
ISO 529, para aplicación general	ISO 529, общего назначения		
DIN 2182, DIN 2183, high performance rulletap	DIN 2182, DIN 2183, High performance rullgängtappar	N° 5 ~ 1	B.156
DIN 2182, DIN 2183, altas prestaciones, macho de laminación	DIN 2182, DIN 2183, Высокопроизводительные накатные метчики		

NAME		SPECIFICATION	
UNF / UNJF			
POT			
 **VA-POT**	UNF	DIN 2182, DIN 2183, for general purpose also for stainless steels	DIN 2182, DIN 2183, für universelle Anwendungen und für VA - Stahl
	OX	DIN 2182, DIN 2183, per applicazioni generali e per inox	DIN 2182, DIN 2183, pour applications générales également pour inox
 **VA-POT**	UNJF	DIN 2182, DIN 2183, 3B, for general purpose also for stainless steels	DIN 2182, DIN 2183, 3B, für universelle Anwendungen und für VA - Stahl
	OX	DIN 2182, DIN 2183, 3B, per applicazioni generali e per inox	DIN 2182, DIN 2183, 3B, pour applications générales également pour inox
 **1066-POT**	UNF	ISO 529, general purpose	ISO 529, für universelle Anwendungen
	OX	ISO 529, per applicazioni generali	ISO 529, pour applications générales
 **H-POT**	UNJF	DIN 2182, DIN 2183, for steels 25~45 HRC	DIN 2182, DIN 2183, für Stahl 25~45 HRC
	OX	DIN 2182, DIN 2183, per acciai 25~45 HRC	DIN 2182, DIN 2183, pour acier : dureté 25~45 HRC
 **1066-POT-PLUS**	UNF	ISO 529, general purpose, powdered metal	ISO 529, für universelle Anwendungen, Pulvermetall
	OX	ISO 529, per applicazioni generali, metallurgia delle polveri sinterizzate	ISO 529, métallurgie des poudres
 **E-POT**	UNJF	DIN 2182, DIN 2183, for nickel based alloys including Inconel 718	DIN 2182, DIN 2183, für Inconel 718 und andere Legierungen aus Nickel
		DIN 2182, DIN 2183, per inconel e altre leghe a base di nickel	DIN 2182, DIN 2183, pour inconel 718 et autres alliages à base de nickel
 **WHR-NI-POT** *NEW*	UNJF	DIN 2182, DIN 2183, for nickel based alloys including Inconel 718	DIN 2182, DIN 2183, für Inconel 718 und andere Legierungen aus Nickel
	HR	DIN 2182, DIN 2183, per inconel e altre leghe a base di nicke	DIN 2182, DIN 2183, pour inconel 718 et autres alliages à base de nickel
 **V-TI-POT**	UNJF	DIN 2182, DIN 2183, for titanium alloys (Ti-6Al-4V), 40~45 HRC	DIN 2182, DIN 2183, für Titanlegierungen inkl. (Ti-6Al-V) : 40~45 HRC
	V	DIN 2182, DIN 2183, per leghe di titanio (Ti-6Al-4V), 40~45 HRC	DIN 2182, DIN 2183, pour alliages de titane (Ti-6Al-4V) : dureté 40~45 HRC
SFT			
 **VA-SFT**	UNF	DIN 2182, DIN 2183, for general purpose also for stainless steels	DIN 2182, DIN 2183, für universelle Anwendungen und für VA - Stahl
	OX	DIN 2182, DIN 2183, per applicazioni generali e per inox	DIN 2182, DIN 2183, pour applications générales également pour inox
 **VA-SFT**	UNJF	DIN 2182, DIN 2183, 3B, for general purpose also for stainless steels	DIN 2182, DIN 2183, 3B, für universelle Anwendungen und für VA - Stahl
	OX	DIN 2182, DIN 2183, 3B, per applicazioni generali e per inox	DIN 2182, DIN 2183, 3B, pour applications générales également pour inox
 **1066-SFT**	UNF	ISO 529, general purpose	ISO 529, für universelle Anwendungen
	OX	ISO 529, per applicazioni generali	ISO 529, pour applications générales
 **CC-SFT**	UNJF	DIN 2182, DIN 2183, for stainless steels and aluminium	DIN 2182, DIN 2183, für VA - Stahl und Aluminium
	CrN	DIN 2182, per acciai inox e alluminio	DIN 2182, DIN 2183, pour inox et aluminium
 **H-SFT**	UNJF	DIN 2182, DIN 2183, for steels 25~45 HRC	DIN 2182, DIN 2183, für Stahl 25~45 HRC
	OX	DIN 2182, DIN 2183, per acciai 25~45 HRC	DIN 2182, DIN 2183, pour acier : dureté 25~45 HRC
 **1066-SFT-PLUS**	UNF	ISO 529, general purpose, powdered metal	ISO 529, für universelle Anwendungen, Pulvermetall
	OX	ISO 529, per applicazioni generali, metallurgia delle polveri sinterizzate	ISO 529, métallurgie des poudres
 **E-SFT**	UNJF	DIN 2182, DIN 2183, for nickel based alloys including Inconel 718	DIN 2182, DIN 2183, für Inconel 718 und andere Legierungen aus Nickel
		DIN 2182, DIN 2183, per inconel e altre leghe a base di nickel	DIN 2182, DIN 2183, pour inconel 718 et autres alliages à base de nickel
 **WHR-NI-SFT** *NEW*	UNJF	DIN 2182, DIN 2183, for nickel based alloys including Inconel 718	DIN 2182, DIN 2183, für Inconel 718 und andere Legierungen aus Nickel
	HR	DIN 2182, DIN 2183, per inconel e altre leghe a base di nickel	DIN 2182, DIN 2183, pour inconel 718 et autres alliages à base de nickel
 **V-TI-SFT**	UNJF	DIN 2182, DIN 2183, for titanium alloys (Ti-6Al-4V), 40~45 HRC	DIN 2182, DIN 2183, für Titanlegierungen inkl. (Ti-6Al-V) : 40~45 HRC
	V	DIN 2182, DIN 2183, per leghe di titanio (Ti-6Al-4V), 40~45 HRC	DIN 2182, DIN 2183, pour alliages de titane (Ti-6Al-4V) : dureté 40~45 HRC

SPECIFICATION		RANGE	PAGE
		UNF / UNJF	
DIN 2182, DIN 2183, til generelt brug også til rustfrit stål	DIN 2182, DIN 2183, allround och rostfritt stål	N° 6 ~ 1”	B.157
DIN 2182, DIN 2183, para aplicación general y para aceros inoxidables	DIN 2182, DIN 2183, Общего назначения и для нержавеющих сталей		
DIN 2182, DIN 2183, 3B til generelt brug også til rustfrit stål	DIN 2182, DIN 2183, 3B allround och rostfritt stål	N° 10 ~ ½	B.158
DIN 2182, DIN 2183, 3B para aplicación general y para aceros inoxidables	DIN 2182, DIN 2183, 3B Общего назначения и для нержавеющих сталей		
ISO 529, til generelt brug	ISO 529, för diverse applikationer	N° 0 ~ 1¼”	B.159
ISO 529, para aplicación general	ISO 529, общего назначения		
DIN 2182, DIN 2183, til stål 25~45 HRC	DIN 2182, för stål 25~45 HRC	N° 10 ~ ½”	B.160
DIN 2182, DIN 2183, para aceros 25~45 HRC	DIN 2182, DIN 2183, для сталей 25~45 HRC		
ISO 529, til generelt brug, Pulvermetalll	ISO 529, för diverse applikationer, pullver metall	N° 10 ~ ½”	B.161
ISO 529, para aplicación general, HSS sinterizado	ISO 529, общего назначения, порошковая металлургия		
DIN 2182, DIN 2183, til nikkellegeringer inklusiv Inconel 718	DIN 2182, för nickelbaserade legeringar inklusive Inconel 718	N° 10 ~ ½”	B.162
DIN 2182, DIN 2183, para aleaciones de níquel incluido Inconel 718	DIN 2182, DIN 2183, для никелевых сплавов, включая Inconel 718		
DIN 2182, DIN 2183, til nikkellegeringer inklusiv Inconel 718	DIN 2182, för nickelbaserade legeringar inklusive Inconel 718	N° 10 ~ ½”	B.163
DIN 2182, DIN 2183, para aleaciones de níquel incluido Inconel 718	DIN 2182, DIN 2183, для никелевых сплавов, включая Inconel 718		
DIN 2182, DIN 2183, til Titanium legeringer 40~45 HRC	DIN 2182, DIN 2183, för titanium legeringar (Ti-6Al-4V), 40~45 HRC	N° 10 ~ ½”	B.164
DIN 2182, DIN 2183, para aleaciones de Titanio 40~45 HRC	DIN 2182, DIN 2183, для титановых сплавов 40~45 HRC		
DIN 2182, DIN 2183, til generelt brug også til rustfrit stål	DIN 2182, DIN 2183, allround och rostfritt stål	N° 6 ~ 1”	B.165
DIN 2182, DIN 2183, para aplicación general y para aceros inoxidables	DIN 2182, DIN 2183, Общего назначения и для нержавеющих сталей		
DIN 2182, DIN 2183, 3B til generelt brug også til rustfrit stål	DIN 2182, DIN 2183, 3B allround och rostfritt stål	N° 10 ~ ½”	B.166
DIN 2182, DIN 2183, 3B para aplicación general y para aceros inoxidables	DIN 2182, DIN 2183, 3B Общего назначения и для нержавеющих сталей		
ISO 529, til generelt brug	ISO 529, för diverse applikationer	N° 2 ~ 1¼”	B.167
ISO 529, para aplicación general	ISO 529, общего назначения		
DIN 2182, DIN 2183, til rustfrit stål, stål & aluminium	DIN 2182, DIN 2183, för rostfritt stål och aluminium	M 10 ~ 1”	B.168
DIN 2182, DIN 2183, para aceros inoxidables, para aceros y aluminio	DIN 2182, DIN 2183, för rostfritt stål och aluminium		
DIN 2182, DIN 2183, til stål 25~45 HRC	DIN 2182, för stål 25~45 HRC	N° 10 ~ ½”	B.169
DIN 2182, DIN 2183, para aceros 25~45 HRC	DIN 2182, DIN 2183, для сталей 25~45 HRC		
ISO 529, til generelt brug, Pulvermetalll	ISO 529, för diverse applikationer, pullver metall	N° 10 ~ ½”	B.170
ISO 529, para aplicación general, HSS sinterizado	ISO 529, общего назначения, порошковая металлургия		
DIN 2182, DIN 2183, til nikkellegeringer inklusiv Inconel 718	DIN 2182, för nickelbaserade legeringar inklusive Inconel 718	N° 10 ~ ½”	B.171
DIN 2182, DIN 2183, para aleaciones de níquel incluido Inconel 718	DIN 2182, DIN 2183, для никелевых сплавов, включая Inconel 718		
DIN 2182, DIN 2183, til nikkellegeringer inklusiv Inconel 718	DIN 2182, för nickelbaserade legeringar inklusive Inconel 718	N° 10 ~ ½”	B.172
DIN 2182, DIN 2183, para aleaciones de níquel incluido Inconel 718	DIN 2182, DIN 2183, для никелевых сплавов, включая Inconel 718		
DIN 2182, DIN 2183, til Titanium legeringer 40~45 HRC	DIN 2182, DIN 2183, för titanium legeringar (Ti-6Al-4V), 40~45 HRC	N° 10 ~ ½”	B.173
DIN 2182, DIN 2183, para aleaciones de Titanio 40~45 HRC	DIN 2182, DIN 2183, для титановых сплавов 40~45 HRC		

	NAME		SPECIFICATION	
UNF / UNJF				
MT	 **1066-HT**	UNF	ISO 529, general purpose	ISO 529, für universelle Anwendungen
			ISO 529, per applicazioni generali	ISO 529, pour applications générales
FORM. TAP	 **S-XPF** NEW	UNF	DIN 2182, DIN 2183, high performance forming tap	DIN 2182, DIN 2183, Hochleistungsgewindeformer
		V	DIN 2182, DIN 2183, maschi a rullare ad Alta Performance	DIN 2182, DIN 2183, tarauds à refouler haute performance
UN				
SFT	 **HXL-SFT**	UN	Horizontal applications, oil and energy industry	Für horizontale Bearbeitung, für Öl- und Schwerindustrie
		OX	Per lavorazioni orizzontali, per Industria Petrolifera & Industria Pesante	Pour des opérations horzontales, pour l'industrie lourde et l'énergie
	 **VXL-SFT**	UN	Vertical applications, oil and energy industry	Für vertikale Bearbeitung, für Öl- und Schwerindustrie
		OX	Per lavorazioni verticali, per Industria Petrolifera & Industria Pesante	Pour des opérations verticales, pour l'industrie lourde et l'énergie
Helicoil - MJ				
POT	 **H-HL-POT**	MJ	DIN 371, for steels 25~45 HRC	DIN 371, für Stahl 25~45 HRC
		OX	DIN 371, per acciai 25~45 HRC	DIN 371, pour acier : dureté 25~45 HRC
	 **E-HL-POT**	MJ	DIN 371, for nickel based alloys including Inconel 718	DIN 371, für Inconel 718 und andere Legierungen aus Nickel
			DIN 371, per inconel e altre leghe a base di nickel	DIN 371, pour inconel 718 et autres alliages à base de nickel
SFT	 **H-HL-SFT**	MJ	DIN 371, for steels 25~45 HRC	DIN 371, für Stahl 25~45 HRC
		OX	DIN 371, per acciai 25~45 HRC	DIN 371, pour acier : dureté 25~45 HRC
	 **E-HL-SFT**	MJ	DIN 371, for nickel based alloys including Inconel 718	DIN 371, für Inconel 718 und andere Legierungen aus Nickel
			DIN 371, per inconel e altre leghe a base di nickel	DIN 371, pour inconel 718 et autres alliages à base de nickel
Helicoil - Metric				
SFT	 **CC-HL-SFT**	M	DIN 371, DIN 376, for stainless steels and aluminium	DIN 371, DIN 376, für VA - Stahl und Aluminium
		CrN	DIN 371, DIN 376, per acciai inox e alluminio	DIN 371, DIN 376, pour inox et aluminium
Helicoil - UNJC				
POT	 **H-HL-POT**	UNJC	DIN 2182, for steels 25~45 HRC	DIN 2182, für Stahl 25~45 HRC
		OX	DIN 2182, per acciai 25~45 HRC	DIN 2182, pour acier : dureté 25~45 HRC
	 **E-HL-POT**	UNJC	DIN 2182, for nickel based alloys including Inconel 718	DIN 2182, für Inconel 718 und andere Legierungen aus Nickel
			DIN 2182, per inconel e altre leghe a base di nickel	DIN 2182, pour inconel 718 et autres alliages à base de nickel
SFT	 **H-HL-SFT**	UNJC	DIN 2182, for steels 25~45 HRC	DIN 2182, für Stahl 25~45 HRC
		OX	DIN 2182, per acciai 25~45 HRC	DIN 2182, pour acier : dureté 25~45 HRC
	 **E-HL-SFT**	UNJC	DIN 2182, for nickel based alloys including Inconel 718	DIN 2182, für Inconel 718 und andere Legierungen aus Nickel
			DIN 2182, per inconel e altre leghe a base di nickel	DIN 2182, pour inconel 718 et autres alliages à base de nickel

SPECIFICATION				RANGE	PAGE
UNF / UNJF					
	ISO 529, til generelt brug		ISO 529, för diverse applikationer	N° 0 ~ 1”	B.174
	ISO 529, para aplicación general		ISO 529, общего назначения		
	DIN 2182, DIN 2183, high performance rulletap		DIN 2182, DIN 2183, High performance rullgängtappar	N° 6 ~ 1”	B.175
	DIN 2182, DIN 2183, altas prestaciones, macho de laminación		DIN 2182, DIN 2183, Высокопроизводительные накатные метчики		
UN					
	Til horisontale operationer, til enegisektoren & svær industri		För horisontala applikationer För olje och energi industrin	11/8” ~ 2 ½”	B.147
	Para roscado horizontal, para Industria Energetica y Pesada		Для горизонтальной нарезки резьбы, Для нефтегазовой и энергетической отраслей		
	Til vertikale operationer, til enegisektoren & svær industri		För vertikala applikationer, För olje och energi industrin	11/8” ~ 2 ½”	B.148
	Para roscado vertical, para Industria Energetica y Pesada		Для вертикальной нарезки резьбы, Для нефтегазовой и энергетической отраслей		
Helicoil - MJ					
	DIN 371, til stål 25~45 HRC		DIN 371, för stål 25~45 HRC	MJ 2 ~ MJ 10	B.176
	DIN 371, para aceros 25~45 HRC		DIN 371, Для стали 25~45 HRC		
	DIN 371, til nikkellegeringer inklusiv Inconel 718		DIN 371, för nickelbaserade legeringar inklusive Inconel 718	MJ 2 ~ MJ 10	B.177
	DIN 371, para aleaciones de níquel incluido Inconel 718		DIN 371, для никелевых сплавов, включая Inconel 718,		
	DIN 371, til stål 25~45 HRC		DIN 371, för stål 25~45 HRC	MJ 2 ~ MJ 10	B.178
	DIN 371, para aceros 25~45 HRC		DIN 371, Для стали 25~45 HRC		
	DIN 371, til nikkellegeringer inklusiv Inconel 718		DIN 371, för nickelbaserade legeringar inklusive Inconel 718	MJ 2 ~ MJ 10	B.179
	DIN 371, para aleaciones de níquel incluido Inconel 718		DIN 371, для никелевых сплавов, включая Inconel 718,		
Helicoil - Metric					
	DIN 371, DIN 376, til rustfrit stål & aluminium		DIN 371, DIN 376, för rostfritt stål och aluminium	M3 ~ M12	B.180
	DIN 371, DIN 376, para aceros inoxidables y aluminio		DIN 371, DIN 376, для нержавеющих сталей и алюминия		
Helicoil - UNJC					
	DIN 2182, til stål 25~45 HRC		DIN 2182, för stål 25~45 HRC	N° 4 ~ 8	B.181
	DIN 2182, para aceros 25~45 HRC		DIN 2182, Для стали 25~45 HRC		
	DIN 2182, til nikkellegeringer inklusiv Inconel 718		DIN 2182, för nickelbaserade legeringar inklusive Inconel 718	N° 4 ~ 8	B.182
	DIN 2182, para aleaciones de níquel incluido Inconel 718		DIN 2182, для никелевых сплавов, включая Inconel 718,		
	DIN 2182, til stål 25~45 HRC		DIN 2182, för stål 25~45 HRC	N° 4 ~ 8	B.183
	DIN 2182, para aceros 25~45 HRC		DIN 2182, Для стали 25~45 HRC		
	DIN 2182, til nikkellegeringer inklusiv Inconel 718		DIN 2182, för nickelbaserade legeringar inklusive Inconel 718	N° 4 ~ 8	B.184
	DIN 2182, para aleaciones de níquel incluido Inconel 718		DIN 2182, для никелевых сплавов, включая Inconel 718,		

	NAME		SPECIFICATION	
Helicoil - UNJF				
POT	 **H-HL-POT**	UNJF	DIN 2182, DIN 2183, for steels 25~45 HRC	DIN 2182, DIN 2183, für Stahl 25~45 HRC
		OX	DIN 2182, DIN 2183, per acciai 25~45 HRC	DIN 2182, DIN 2183, pour acier : dureté 25~45 HRC
	 **E-HL-POT**	UNJF	DIN 2182, DIN 2183 for nickel based alloys including Inconel 718	DIN 2182, DIN 2183 für Inconel 718 und andere Legierungen aus Nickel
			DIN 2182, DIN 2183 per inconel e altre leghe a base di nickel	DIN 2182, DIN 2183 pour inconel 718 et autres alliages à base de nickel
SFT	 **CC-HL-SFT**	UNJF	DIN 2182, DIN 2183, for stainless steels and aluminium	DIN 2182, DIN 2183, für VA - Stahl und Aluminium
		CrN	DIN 2182, DIN 2183, per acciai inox e alluminio	DIN 2182, DIN 2183, pour inox et aluminium
	 **H-HL-SFT**	UNJF	DIN 2182, DIN 2183, for steels 25~45 HRC	DIN 2182, DIN 2183, für Stahl 25~45 HRC
		OX	DIN 2182, DIN 2183, per acciai 25~45 HRC	DIN 2182, DIN 2183, pour acier : dureté 25~45 HRC
	 **E-HL-SFT**	UNJF	DIN 2182, DIN 2183 for nickel based alloys including Inconel 718	DIN 2182, DIN 2183, für Inconel 718 und andere Legierungen aus Nickel
			DIN 2182, DIN 2183, per inconel e altre leghe a base di nickel	DIN 2182, DIN 2183,pour inconel 718 et autres alliages à base de nickel
BSW				
POT	 **1066-POT**	BSW	ISO 529, general purpose	ISO 529, für universelle Anwendungen
		OX	ISO 529, per applicazioni generali	ISO 529, pour applications générales
SFT	 **1066-SFT**	BSW	ISO 529, general purpose	ISO 529, für universelle Anwendungen
		OX	ISO 529, per applicazioni generali	ISO 529, pour applications générales
MT	 **1066-HT**	BSW	ISO 529, general purpose	ISO 529, für universelle Anwendungen
			ISO 529, per applicazioni generali	ISO 529, pour applications générales
BSF				
POT	 **1066-POT**	BSF	ISO 529, general purpose	ISO 529, für universelle Anwendungen
		OX	ISO 529, per applicazioni generali	ISO 529, pour applications générales
SFT	 **1066-SFT**	BSF	ISO 529, general purpose	ISO 529, für universelle Anwendungen
		OX	ISO 529, per applicazioni generali	ISO 529, pour applications générales
MT	 **1066-HT**	BSF	ISO 529, general purpose	ISO 529, für universelle Anwendungen
			ISO 529, per applicazioni generali	ISO 529, pour applications générales
BA				
POT	 **1066-POT**	BA	ISO 529, general purpose	ISO 529, für universelle Anwendungen
		OX	ISO 529, per applicazioni generali	ISO 529, pour applications générales
	 **1066-POT-PLUS**	BA	ISO 529, general purpose, powdered metal	ISO 529, für universelle Anwendungen, Pulvermetall
		OX	ISO 529, per applicazioni generali, metallurgia delle polveri sinterizzate	ISO 529, pour applications générales, métallurgie des poudres

SPECIFICATION				RANGE	PAGE
Helicoil - UNJF					
DIN 2182, DIN 2183, til stål 25~45 HRC		DIN 2182, DIN 2183, för stål 25~45 HRC		N° 10 ~ ½”	B.185
DIN 2182, DIN 2183, para aceros 25~45 HRC		DIN 2182, DIN 2183, Для стали 25~45 HRC			
DIN 2182,DIN 2183 til nikkellegeringer inklusiv Inconel 718		DIN 2182, DIN 2183 för nickelbaserade legeringar inklusive Inconel 718		N° 10 ~ ½”	B.186
DIN 2182, DIN 2183 para aleaciones de níquel incluido Inconel 718		DIN 2182, DIN 2183 для никелевых сплавов, включая Inconel 718			
DIN 2182, DIN 2183, til rustfrit stål, stål & aluminium		DIN 2182, DIN 2183, för rostfritt stål och aluminium		N° 10 ~ 3/8”	B.187
DIN 2182, DIN 2183, para aceros inoxidables, para aceros & aluminio		DIN 2182, DIN 2183, для нержавеющих сталей, сталей и алюминия			
DIN 2182, DIN 2183, til stål 25~45 HRC		DIN 2182, DIN 2183, för stål 25~45 HRC		N° 10 ~ ½”	B.188
DIN 2182, DIN 2183, para aceros 25~45 HRC		DIN 2182, DIN 2183, Для стали 25~45 HRC			
DIN 2182, DIN 2183, til rustfrit stål, stål & aluminium		DIN 2182, DIN 2183, för nickelbaserade legeringar inklusive Inconel 718		N° 10 ~ ½”	B.189
DIN 2182, DIN 2183, para aleaciones de níquel incluido Inconel 718		DIN 2182, DIN 2183, для никелевых сплавов, включая Inconel 718			
BSW					
ISO 529, til generelt brug		ISO 529, för diverse applikationer		BSW 3/32 ~ 1¼	B.190
ISO 529, para aplicación general		ISO 529, общего назначения			
ISO 529, til generelt brug		ISO 529, för diverse applikationer		BSW 1/8 ~ 1¼	B.191
ISO 529, para aplicación general		ISO 529, общего назначения			
ISO 529, til generelt brug		ISO 529, för diverse applikationer		BSW 1/16 ~ 1	B.192
ISO 529, para aplicación general		ISO 529, общего назначения			
BSF					
ISO 529, til generelt brug		ISO 529, för diverse applikationer		BSF 3/16 ~ BSF 11/4	B.193
ISO 529, para aplicación general		ISO 529, общего назначения			
ISO 529, til generelt brug		ISO 529, för diverse applikationer		BSF 3/16 ~ BSF 11/4	B.194
ISO 529, para aplicación general		ISO 529, общего назначения			
ISO 529, til generelt brug		ISO 529, för diverse applikationer		BSF 3/16 ~ BSF 1	B.195
ISO 529, para aplicación general		ISO 529, общего назначения			
BA					
ISO 529, til generelt brug		ISO 529, för diverse applikationer		BA 0 ~ BA 14	B.196
ISO 529, para aplicación general		ISO 529, общего назначения			
ISO 529, til generelt brug, pulvermetal		ISO 529, för diverse applikationer, pullver metall		BA 2 ~ BA 6	B.197
ISO 529, para aplicación general, HSS sinterizado		ISO 529, общего назначения, порошковая металлургия			

	NAME		SPECIFICATION	
BA				
SFT	 1066-SFT	BA	SO 529, general purpose	ISO 529, für universelle Anwendungen
		OX	ISO 529, per applicazioni generali	ISO 529, pour applications générales
	 1066-SFT-PLUS	BA	SO 529, general purpose	ISO 529, für universelle Anwendungen
		OX	ISO 529, per applicazioni generali	ISO 529, pour applications générales
MT	 1066-HT	BA	ISO 529, general purpose	ISO 529, für universelle Anwendungen
			ISO 529, per applicazioni generali	ISO 529, pour applications générales
G (BSP)				
POT	 POT	G	DIN 5156, general purpose	DIN 5156, für universelle Anwendungen
			DIN 5156, per applicazioni generali	DIN 5156, pour applications générales
	 1066-POT	G	ISO 529, general purpose	ISO 529, für universelle Anwendungen
		OX	ISO 529, per applicazioni generali	ISO 529, pour applications générales
SFT	 VA-SFT	G	DIN 5156, general purpose, also for stainless steels	DIN 5156, für universelle Anwendungen und für VA - Stahl
		OX	DIN 5156, per applicazioni generali,e per inox	DIN 5156, pour applications générales également pour inox
	 SFT	G	DIN 5156, general purpose	DIN 5156, für universelle Anwendungen
			DIN 5156, per applicazioni generali	DIN 5156, pour applications générales
	 1066-SFT	G	ISO 529, general purpose	ISO 529, für universelle Anwendungen
		OX	ISO 529, per applicazioni generali	ISO 529, pour applications générales
	 CC-SFT-SPT	G	DIN 5156, for stainless steels aluminium and steel	DIN 5156, für VA-Stahl, Aluminium und Stahl
		CrN	DIN 5156, per acciai inox, alluminio e acciai	DIN 5156, pour inox, aluminium et aciers
	 SH-SFT	G	DIN 5156, low helix, for steels ≥ 1100N/mm²	DIN 5156,Leichte Spirale, für Stahl ≥ 1100N/mm²
			DIN 5156, elica bassa torsione, per acciai ≥ 1100N/mm²	DIN 5156, élice réduite, pour aciers ≥ 1100N/mm²
MT	 GG-MT	G	DIN 5156 , for grey cast iron & cast aluminium < 11 % si	DIN 5156 , für Grauguss und Aluminiumguss < 11 % si
		OX	DIN 5156 , per ghise grige, ghise d'alluminio < 11 % si	DIN 5156 , pour fonte grise, fonte d'aluminium < 11 % si
SPT	 VX-OT-SPT NEW	G	DIN 5156, for hardened steels < 62 HRC	DIN 5156, für gehärtete Stähle < 62HRC
		V	DIN 5156, per acciai temprati < 62 HRC	Din 5156 pour les aciers supérieur à 62Hrc
	 S-XPF-SPT NEW	G	DIN 5156, high performance forming tap	DIN 5156, Hochleistungsgewindeformer
		V	DIN 5156, maschi a rullare ad Alta Performance	DIN 5156, tarauds à refouler haute performance
RC (BSPT)				
POT	 1066-POT	RC	ISO 529, general purpose	ISO 529, für universelle Anwendungen
		OX	ISO 529, per applicazioni generali	ISO 529, pour applications générales
SFT	 1066-SFT	RC	ISO 529, general purpose	ISO 529, für universelle Anwendungen
		OX	ISO 529, per applicazioni generali	ISO 529, pour applications générales

SPECIFICATION			RANGE	PAGE
BA				
ISO 529, til generelt brug ISO 529, para aplicación general	ISO 529, för diverse applikationer ISO 529, общего назначения		BA 0 ~ BA 10	B.198
ISO 529, til generelt brug ISO 529, para aplicación general	ISO 529, för diverse applikationer ISO 529, общего назначения		BA 2 ~ BA 6	B.199
ISO 529, til generelt brug ISO 529, para aplicación general	ISO 529, för diverse applikationer ISO 529, общего назначения		BA 0 ~ BA 16	B.200
G (BSP)				
DIN 5156, til generelt brug DIN 5156, para aplicación general	DIN 5156, för diverse applikationer DIN 5156, общего назначения		G 1/8 ~ G 1	B.201
ISO 529, til generelt brug ISO 529, para aplicación general	ISO 529, för diverse applikationer ISO 529, общего назначения		G 1/8 ~ G 1	B.202
DIN 5156, til generelt brug også til rustfrit stål DIN 5156, para aplicación general y para aceros inoxidables	DIN 5156, allround och rostfritt stål DIN 5156, Общего назначения и для нержавеющих сталей		G 1/8 ~ G 1	B.203
DIN 5156, til generelt brug DIN 5156, para aplicación general	DIN 5156, för diverse applikationer DIN 5156, общего назначения		G 1/8 ~ G 1	B.204
ISO 529, til generelt brug ISO 529, para aplicación general	ISO 529, för diverse applikationer ISO 529, общего назначения		G 1/8 ~ G 1	B.205
DIN 5156, til rustfrit stål, aluminium og stål DIN 5156, para aceros inoxidables, aluminio y aceros	DIN 5156, för rostfritt stål, aluminium och stål DIN 5156, Для нержавеющих сталей и алюминия		G 1/8 ~ G 1/2	B.206
DIN 5156, lav helix, til stål ≥ 1100N/mm² DIN 5156, helice lenta, para aceros ≥ 1100N/mm²	DIN 5156, liten helix, för stål ≥ 1100N/mm² DIN 5156, пологая спираль, для сталей ≥ 1100H/MM²		G 1/8 ~ G 1/2	B.207
DIN 5156 , til støbejern & støbt aluminium < 11 % si DIN 5156 , para fundición de hierro y aluminio fundido < 11 % si	DIN 5156, för gråjärn & gjuten aluminium < 11 % si DIN 5156 , для серого чугуна и литейных алюминиевых сплавов < 11 % si		G 1/8 ~ G 1/2	B.208
DIN 5156, for hærdet stål < 62 HRC DIN 5156, para aceros templados hasta 62 HRC	DIN 5156, för härdat stål < 62 HRC DIN 5156, Для закаленной стали <62 HRC		G 1/8 ~ G 1/2	B.209
DIN 5156, high performance rulletap DIN 5156, altas prestaciones, macho de laminación	DIN 5156, High performance rullgängtappar DIN 5156, Высокопроизводительные накатные метчики		G 1/8 ~ G 1/2	B.210
RC (BSPT)				
ISO 529, til generelt brug ISO 529, para aplicación general	ISO 529, för diverse applikationer ISO 529, общего назначения		RC 1/8 ~ RC1	B.211
ISO 529, til generelt brug ISO 529, para aplicación general	ISO 529, för diverse applikationer ISO 529, общего назначения		RC 1/8 ~ RC1	B.212

	NAME		SPECIFICATION	
NPT				
POT	 1066-POT	NPT	ISO 529, general purpose	ISO 529, für universelle Anwendungen
		OX	ISO 529, per applicazioni generali	ISO 529, pour applications générales
SFT	 1066-SFT	NPT	ISO 529, general purpose	ISO 529, für universelle Anwendungen
		OX	ISO 529, per applicazioni generali	ISO 529, pour applications générales
MT	 NPT	NPT	DIN 2181, american taper pipe thread	DIN 2181, Amerikanisches kegeliges Rohrgewinde
			DIN 2181, filettatura americana con trattamento anti-incollaggio truciolo	DIN 2181, filetage américain avec garniture d'étanchéité
PG				
MT	 PG	PG	DIN 374, general purpose	DIN 374, für universelle Anwendungen
			DIN 374, per applicazioni generali	DIN 374, pour applications générales
Serial Form				
MT	 HT	M	DIN 352, HSS, general purpose	DIN 352, HSS, für universelle Anwendungen
			DIN 352, HSS, per applicazioni generali	DIN 352, HSS, pour applications générales
	 HT-VA-OX	M	DIN 352, HSSE-V3, general purpose	DIN 352, HSSE-V3, für universelle Anwendungen
		OX	DIN 352, HSSE-V3, per applicazioni generali	DIN 352, HSSE-V3, pour applications générales
Solid Circular Dies				
		M	DIN 352, HSS, general purpose	DIN 352, HSS, für universelle Anwendungen
			DIN 352, HSS, per applicazioni generali	DIN 352, HSS, pour applications générales
		G	DIN 352, HSSE-V3, general purpose	DIN 352, HSSE-V3, für universelle Anwendungen
			DIN 352, HSSE-V3, per applicazioni generali	DIN 352, HSSE-V3, pour applications générales
Drills for removing broken taps				
	 EX-H-DRL		Solid Carbide, for removing broken taps	Zum entfernen von abgebrochenen Gewindebohrern
			Carburo micrograna-distruggi - maschi	Carbure, pour extraction de tarauds cassés

SPECIFICATION			RANGE	PAGE
NPT				
ISO 529, til generelt brug	ISO 529, för diverse applikationer	ISO 529, para aplicación general	ISO 529, общего назначения	NPT 1/8 ~ NPT 1	B.213
ISO 529, til generelt brug	ISO 529, för diverse applikationer	ISO 529, para aplicación general	ISO 529, общего назначения	NPT 1/8 ~ NPT 1	B.214
DIN 2181, amerikansk rørgevind	DIN 2181, NPT konisk rörgänga	DIN 2181, rosca americana cónica para tuberia	DIN 2181, Американская коническая трубная резьба	NPT 1/16 ~ 1	B.215
PG				
DIN 374, til generelt brug	DIN 374, för diverse applikationer	DIN 374, para aplicación general	DIN 374, общего назначения	PG 7 ~ PG 48	B.216
Serial Form				
DIN 352, HSS, til generelt brug	DIN 352, HSS, för diverse applikationer	DIN 352, HSS, para aplicación general	DIN 352, HSS, общего назначения	M 2 ~ M 20	B.217
DIN 352, HSSE-V, til generelt brug	DIN 352, HSSE-V, för diverse applikationer	DIN 352, HSSE-V, para aplicación general	DIN 352, HSSE-V, общего назначения	M 2 ~ M 20	B.218
Solid Circular Dies				
DIN 352, HSS, til generelt brug	DIN 352, HSS, för diverse applikationer	DIN 352, HSS, para aplicación general	DIN 352, HSS, общего назначения	M 2 ~ M 20	B.219
DIN 352, HSSE-V, til generelt brug	DIN 352, HSSE-V, för diverse applikationer	DIN 352, HSSE-V, para aplicación general	DIN 352, HSSE-V, общего назначения	G 1/8 ~ G 1/2	B.220
Drills for removing broken taps				
Til fjernelse af brudte gevindtappe	För borttagning av brutna gängtappar	Para extraer machos rotos	Для удаления сломанных метчиков	2 ~ 12 (≤ 2 D)	C.63



METRIC, U & UNC
- Thread mill for small size
- M2 - M5

METRISCH, U & UNC
- Gewindefräser für kleine Abmessungen
- M2 - M5

METRICO, U & UNC
- Micro Frese a filettare
- M2 - M5

MÉTRIQUE, U & UNC
- Fraises à fileter de petites dimensions
- M2 - M5

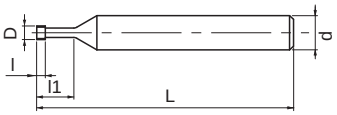
METRISK, U & UNC
- Gevindfræser for små størrelser
- M2 - M5

METRISK, U & UNC
- Gängfräsar för små diametrar
- M2 - M5

METRICO, U & UNC
- Fresado de roscas pequeñas
- M2 - M5

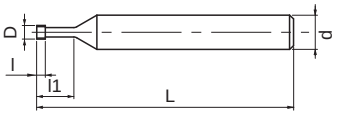
МЕТРИЧЕСКИЙ, U & UNC
- Резьбофреза для малых серий
- M2 - M5





EDP	Thread	D	P	L	l	l1	d	Min. Cutting bore dia.	ZΔ	Stock	Price
3900500	M	1,5	0,40	40	1,2	4,4	6	M2	3	●	
3900501	M	1,9	0,45	40	1,4	5,6	6	M2,5 - M2,6	3	●	
3900502	M	2,4	0,50	40	1,5	6,5	6	M3	3	●	
3900503	M	3,1	0,70	40	2,1	8,7	6	M4	3	●	
3900504	M	4,0	0,80	40	2,4	10,8	6	M5	3	●	





EDP	Thread	D	P	L	l	l1	d	Min. Cutting bore dia.	ZΔ	Stock	Price
3900513	U, UNJ	3,2	32	40	2,4	9,1	6	N°.8	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

WH-VM-PNC

WORK MATERIAL		TAPPING SPEED (m/min)	FEED (mm/tooth)
LOW TENSILE STRENGTH STEELS	C~0,25%	60~90	0,02~0,08
MEDIUM TENSILE STRENGTH STEELS	C~0,25% ~ 0,45%	60~90	0,02~0,08
HIGH TENSILE STRENGTH STEELS	C0,45%~	60~90	0,02~0,08
ALLOY STEELS	SCM	30~60	0,01~0,03
HARDENED STEELS	25~45 HRC	30~60	0,01~0,03
	45~55 HRC	30~60	0,01~0,03
	50~60 HRC	-	-
STAINLESS STEELS	SUS	60~90	0,02~008
TOOL STEELS	SKD	-	-
CAST STEELS	SC	40~65	0,02~0,09
CAST IRON	FC	50~100	0,03~0,1
DUCTILE CAST IRON	FCD	50~70	0,03~0,1
COPPER	Cu	-	-
BRASS	Bs	-	-
BRASS CASTING	BsC	50~100	0,02~0,06
BRONZE	PB	50~100	0,02~0,06
ALUMUNIUM ROLLED STEELS	AL	50~100	0,02~0,06
ALUMINIUM ALLOY CASTING	AC, ADC	50~100	0,02~0,06
MAGNESIUM ALLOY CASTING	MC	50~100	0,02~0,06
ZINC ALLOY CASTING	ZDC	50~100	0,02~0,06
TITANIUM ALLOYS	Ti-6AL-4V	20~60	0,01~0,03
NICKEL ALLOYS	Inconel®	20~60	0,01~0,03
THERMO SETTING PLASTIC	-	50~100	0,02~0,06
THERMO PLASTIC	-	50~100	0,02~0,06

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
○ 60~90 m/min	○ 60~90 m/min	○ 60~90 m/min	○ 30~60 m/min	◎ 30~60 m/min	◎ 30~60 m/min	◎ 30~60 m/min		○ 60~90 m/min		○ 40~65 m/min	○ 50~100 m/min	○ 50~70 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
		○ 50~100 m/min		○ 50~100 m/min	○ 50~100 m/min	○ 50~100 m/min	○ 50~100 m/min	◎ 20~60 m/min	◎ 20~60 m/min	○ 50~100 m/min	○ 50~100 m/min	

● Delivery from stock
○ Available on short notice

Diversification of work materials

Due to use of high-hardness materials exceeding 50HRC,heat resistant steels, and even brittle materials, small-diameter internal threads are becoming

Machining equipment constaints

Along with the need for ultra-high speed and high precision operations, small machining centers without reverse function (tap cycles) have emerged.

High precision and high quality of internal threads

The demands for internal threads are becoming increasingly difficult, such as "no room in pilot holes", "high quality with no burrs", and "high precision internal threads".

Coolant constaints

Standard taps have difficulty machining nickel-based alloys with water-soluble coolant.



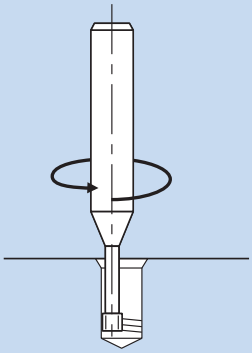
WH-VM-PNC

OSG'S answer to couter these various problems is WH-VM-PNC.

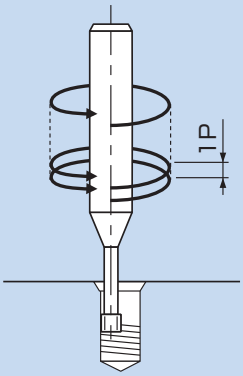
1. **The 3-crest thread lenght reduces cutting forces and applies a low load to the tool and equipment**
2. **A short overall lenght of 40mm for superb ease of use.**
3. **It use WXS Coating, with a proven track record on end mills for high hardness materials, and a exclusive carbide base material.**

Here is a new lineup of products that you can trust for machining operations that ordinary taps are unable to satisfy.

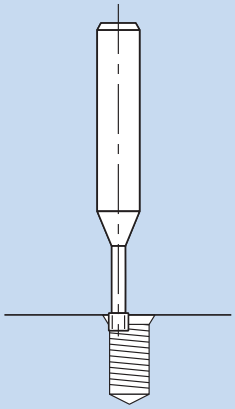
Machining method (Heat resistant alloys/High hardness materials



1. **Machine three pitches at the bottom of the hole**



2. **Repeat arc cutting movement only 1P in the Z axial direction for each rotation.**



2. **To finish, machine the entrance of the hole.**

Recommended Cutting Conditions

WORK MATERIAL		TAPPING SPEED (m/mm)	FEED (mm/t)
NICKEL ALLOYS	Inconel®	20~60	0,01~0,03
TITANIUM ALLOYS	Ti-6Al-4V	20~60	0,01~0,03

WXO-ST-PNC



Type 1 Type 2

METRIC & METRIC FINE
- Higher speed due to spiral
- Threaded LG 2 x D
- **d1** = min. hole diameter
- For use with standard collet chuck
- For making thread until bottom of blind hole
- For internal thread to left and right.

METRISCH & METRISCH FEIN
- Höhere Schnittgeschwindigkeit durch gedrallte Spannut
- Max. Gewindetiefe : 2 x D
- **d1** = min. dia. des Gewindes
- Geeignet für den Einsatz auch mit Spannzangen
- Bearbeitung bis auf Kernloch-grund möglich
- Geeignet für Rechts- und Linksgewinde

METRICO & METRICO FINE
- Maggiore velocità di taglio grazie all'inclinazione dell'elica
- Filettatura : 2 x D
- **d1**= diametro minimo di filettatura
- Si utilizza con un mandrino a pinza
- Esecuzione di filetti senza imbocco
- Filettature destre e sinistre

MÉTRIQUE & MÉTRIQUE FIN
- Vitesse de coupe plus élevée par l'hélice
- Longueur filetée 2 x D
- **d1** = diamètre min. de trou
- La fraise à fileter s'utilise dans un mandrin standard à pinces
- Permet de faire un filet jusqu'au fond du trou borgne
- Pour filets intérieurs à gauche et à droite

METRISK & METRISK FINGEVIND
- Højere hastighed grundet spiral
- Gevind LG 2 x D
- **d1** = min hul diameter
- Bruges med standard spændetænger
- Til gevindskæring til bunden af bundhul
- Til indvendigt gevind til højre og venstre

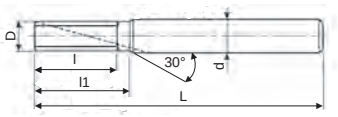
METRISK & METRISK FIN
- Högre varvtal på grund av spiralen
- För gängdjup < 2D
- **d1** = mil hål diameter
- För användning med standard hylschuckar
- Vid gänging av bottenhål
- Höger och vänster gänga vid invändig gänging

METRICO Y METRICO FINO
- Mayor velocidad debido a la hélice.
- Longitud roscada 2 x D
- **d1**= diametro de nucleo
- Para usar con porta-pinzas
- Para producir rosca hasta el fondo de agujero ciego
- Para roscado interior a derecha e izquierda

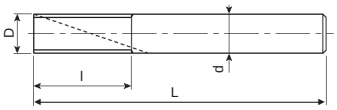
МЕТРИЧЕСКИЙ & МЕТРИЧЕСКАЯ МЕЛКАЯ
- Более высокая скорость благодаря спирали
- Резьба LG 2 x D
- **d1** — минимальный диаметр отверстия
- Для использования с цанговым патроном
- Для нарезания резьбы до дна глухого отверстия
- Для внутренней, левой и правой резьб

M MF CARBIDE WX

11° h6



Type 1



Type 2

EDP	d1	D	P	L	l	l1	d	ZΔ	Type	Stock	Price
8304700	6	4,5	0,75	60	12,8	15	6	4	1	●	
8304701	6	4,5	1	60	13,0	15	6	4	1	●	
8304710	8	6,0	0,5	65	16,5	-	6	4	2	●	
8304711	8	6,0	1	65	17,0	-	6	4	2	●	
8304712	8	6,0	1,25	65	17,5	-	6	4	2	●	
8304721	10	7,5	1	70	21,0	26	8	4	1	●	
8304723	10	7,5	1,5	70	22,5	26	8	4	1	●	
8304732	12	9,5	1,25	85	26,3	28	10	5	1	●	
8304733	12	9,5	1,5	85	25,5	28	10	5	1	●	
8304734	12	9,5	1,75	85	26,3	28	10	5	1	●	
8304740	14	10	0,5	85	28,5	-	10	5	2	●	
8304741	14	10	0,75	85	29,3	-	10	5	2	●	
8304742	14	10	1	85	29,0	-	10	5	2	●	
8304743	14	10	1,5	85	30,0	-	10	5	2	●	
8304744	14	10	2	85	30,0	-	10	5	2	●	
8304752	16	12	1	95	33,0	-	12	5	2	●	
8304753	16	12	1,5	95	34,5	-	12	5	2	●	
8304754	16	12	2	95	34,0	-	12	5	2	●	
8304773	20	16	1,5	105	42,0	-	16	5	2	●	
8304775	20	16	2,5	105	42,5	-	16	5	2	●	
8304783	27	20	1,5	120	49,5	-	20	6	2	●	
8304784	27	20	2	120	50,0	-	20	6	2	●	
8304786	27	20	3	120	51,0	-	20	6	2	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

WXO-ST-PNC

WORK MATERIAL		TAPPING SPEED (m/min)	FEED (mm/tooth)
LOW TENSILE STRENGTH STEELS	C~0,25%	80~120	0,04~0,1
MEDIUM TENSILE STRENGTH STEELS	C~0,25% ~ 0,45%	80~120	0,04~0,1
HIGH TENSILE STRENGTH STEELS	C0,45%~	80~120	0,04~0,1
ALLOY STEELS	SCM	80~120	0,02~0,08
HARDENED STEELS	25~45 HRC	60~100	0,02~0,08
	45~55 HRC	-	-
	50~60 HRC	-	-
STAINLESS STEELS	SUS	40~80	0,02~0,06
TOOL STEELS	SKD	-	-
CAST STEELS	SC	40~65	0,02~0,09
CAST IRON	FC	50~100	0,03~0,1
DUCTILE CAST IRON	FCD	50~65	0,03~0,1
COPPER	Cu	65~130	0,03~0,1
BRASS	Bs	65~130	0,03~0,1
BRASS CASTING	BsC	65~130	0,03~0,1
BRONZE	PB	65~130	0,03~0,1
ALUMUNIUM ROLLED STEELS	AL	50~70	0,03~0,1
ALUMINIUM ALLOY CASTING	AC, ADC	65~130	0,03~0,1
MAGNESIUM ALLOY CASTING	MC	65~130	0,03~0,1
ZINC ALLOY CASTING	ZDC	65~130	0,03~0,1
TITANIUM ALLOYS	Ti-6AL-4V	20~60	0,02~0,06
NICKEL ALLOYS	Inconel®	20~60	0,01~0,03
THERMO SETTING PLASTIC	-	65~130	0,03~0,13
THERMO PLASTIC	-	65~130	0,03~0,13

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
○ 80~120 m/min	◎ 80~120 m/min	◎ 80~120 m/min	◎ 80~120 m/min	◎ 60~100 m/min	◎ 60~100 m/min			○ 40~80 m/min		○ 40~65 m/min	○ 50~100 m/min	○ 50~65 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 65~130 m/min	○ 65~130 m/min	○ 65~130 m/min	○ 65~130 m/min	○ 50~70 m/min	○ 65~130 m/min	○ 65~130 m/min	○ 65~130 m/min			○ 65~130 m/min	○ 65~130 m/min	

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice



METRIC & METRIC FINE
- Higher speed due to spiral
- Threaded LG 2 x D
- **d1** = min. hole diameter
- For use with standard collet chuck
- For making thread until bottom of blind hole
- For internal thread to left and right.

METRISCH & METRISCH FEIN
- Höhere Schnittgeschwindigkeit durch gedrallte Spannut
- Max. Gewindetiefe : 2 x D
- **d1** = min. dia. des Gewindes
- Geeignet für den Einsatz auch mit Spannzangen
- Bearbeitung bis auf Kernloch-grund möglich
- Geeignet für Rechts- und Linksgewinde

METRICO & METRICO FINE
- Maggiore velocità di taglio grazie all'inclinazione dell'elica
- Filettatura : 2 x D
- **d1**= diametro minimo di filettatura
- Si utilizza con un mandrino a pinza
- Esecuzione di filetti senza imbocco
- Filettature destre e sinistre

MÉTRIQUE & MÉTRIQUE FIN
- Vitesse de coupe plus élevée par l'hélice
- Longueur filetée 2 x D
- **d1** = diamètre min. de trou
- La fraise à fileter s'utilise dans un mandrin standard à pinces
- Permet de faire un filet jusqu'au fond du trou borgne
- Pour filets intérieurs à gauche et à droite

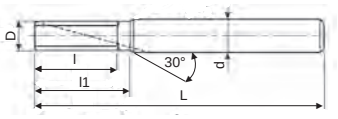
METRISK & METRISK FINGEVIND
- Højere hastighed grundet spiral
- Gevind lgd. 2 x D
- **d1** = min hul diameter
- Bruges med standard spændetænger
- Til gevindskæring til bunden af bundhul
- Til indvendigt gevind til højre og venstre

METRISK & METRISK FIN
- Högre varvtal på grund av spiralen
- För gängdjup < 2D
- **d1** = mil hål diameter
- För användning med standard hylschuckar
- Vid gänging av bottenhål
- Höger och vänster gänga vid invändig gänging

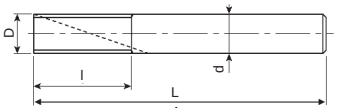
METRICO Y METRICO FINO
- Mayor velocidad debido a la hélice.
- Longitud roscada 2 x D
- **d1**= diametro de nucleo
- Para usar con porta-pinzas
- Para producir rosca hasta el fondo de agujero ciego
- Para roscado interior a derecha e izquierda

МЕТРИЧЕСКИЙ & МЕТРИЧЕСКАЯ МЕЛКАЯ
- Более высокая скорость благодаря спирали
- Резьба LG 2 x D
- **d1** — минимальный диаметр отверстия
- Для использования с цанговым патроном
- Для нарезания резьбы до дна глухого отверстия
- Для внутренней, левой и правой резьб

M MF CARBIDE WX 30° h6



Type 1



Type 2

EDP	d1	D	P	L	l	l1	d	ZΔ	Type	Stock	Price
3900001	6	4,5	1	60	13,0	15	6	3	1	●	
3900011	8	6.0	1	65	17,0	-	6	3	2	●	
3900012	8	6.0	1,25	65	17,5	-	6	3	2	●	
3900021	10	7,5	1	70	21,0	26	8	3	1	●	
1004470640	10	7,5	1,25	70	21,3	26	8	3	1	●	
3900023	10	7,5	1,5	70	22,5	26	8	3	1	●	
3900032	12	9,5	1,25	85	26,3	28	10	4	1	●	
3900033	12	9,5	1,5	85	25,5	28	10	4	1	●	
3900034	12	9,5	1,75	85	26,3	28	10	4	1	●	
3900042	14	10	1	85	29,0	-	10	4	2	●	
3900043	14	10	1,5	85	30,0	-	10	4	2	●	
3900044	14	10	2	85	30,0	-	10	4	2	●	
3900052	16	12	1	95	33,0	-	12	4	2	●	
3900053	16	12	1,5	95	34,5	-	12	4	2	●	
3900054	16	12	2	95	34,0	-	12	4	2	●	
3900073	20	16	1,5	105	42,0	-	16	4	2	●	
3900075	20	16	2,5	105	42,5	-	16	4	2	●	
3900083	27	20	1,5	120	49,5	-	20	5	2	●	
3900084	27	20	2	120	50,0	-	20	5	2	●	
3900086	27	20	3	120	51,0	-	20	5	2	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

WX-PNC

WORK MATERIAL		TAPPING SPEED (m/min)	FEED (mm/tooth)
LOW TENSILE STRENGTH STEELS	C~0,25%	50~75	0,01~0,11
MEDIUM TENSILE STRENGTH STEELS	C~0,25% ~ 0,45%	40~70	0,01~0,11
HIGH TENSILE STRENGTH STEELS	C0,45%~	40~70	0,01~0,01
ALLOY STEELS	SCM	15~30	0,01~0,03
HARDENED STEELS	25~45 HRC	15~30	0,01~0,03
	45~55 HRC	-	-
	50~60 HRC	-	-
STAINLESS STEELS	SUS	20~40	0,01~0,06
TOOL STEELS	SKD	-	-
CAST STEELS	SC	40~65	0,02~0,09
CAST IRON	FC	50~100	0,03~0,1
DUCTILE CAST IRON	FCD	50~65	0,03~0,1
COPPER	Cu	65~130	0,03~0,1
BRASS	Bs	65~130	0,03~0,1
BRASS CASTING	BsC	65~130	0,03~0,1
BRONZE	PB	65~130	0,03~0,1
ALUMUNIUM ROLLED STEELS	AL	50~70	0,03~0,1
ALUMINIUM ALLOY CASTING	AC, ADC	65~130	0,03~0,1
MAGNESIUM ALLOY CASTING	MC	65~130	0,03~0,1
ZINC ALLOY CASTING	ZDC	65~130	0,03~0,1
TITANIUM ALLOYS	Ti-6AL-4V	20~60	0,02~0,06
NICKEL ALLOYS	Inconel®	20~60	0,01~0,03
THERMO SETTING PLASTIC	-	65~130	0,03~0,13
THERMO PLASTIC	-	65~130	0,03~0,13

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
○ 50~75 m/min	○ 40~70 m/min	○ 40~70 m/min	○ 15~30 m/min	○ 15~30 m/min	○ 15~30 m/min			○ 20~40 m/min		○ 40~65 m/min	○ 50~100 m/min	○ 50~65 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 65~130 m/min	○ 65~130 m/min	○ 65~130 m/min	○ 65~130 m/min	○ 50~70 m/min	○ 65~130 m/min	○ 65~130 m/min	○ 65~130 m/min	◎ 20~60 m/min	◎ 20~60 m/min	○ 65~130 m/min	○ 65~130 m/min	

WX-PNC



UNC
UNF

GO TO LIVE STOCK CHECK

UN

- Higher speed due to spiral
- Threaded LG 2 x D
- **d1** = min. hole diameter
- For use with standard collet chuck
- For making thread until bottom of blind hole
- For internal thread to left and right.

UN

- Höhere Schnittgeschwindigkeit durch gedrallte Spannut
- Max. Gewindetiefe : 2 x D
- **d1** = min. dia. des Gewindes
- Geeignet für den Einsatz auch mit Spannzangen
- Bearbeitung bis auf Kernloch-grund möglich
- Geeignet für Rechts- und Linksgewinde

UN

- Maggiore velocità di taglio grazie all'inclinazione dell'elica
- Filettatura : 2 x D
- **d1**= diametro minimo di filettatura
- Si utilizza con un mandrino a pinza
- Esecuzione di filetti senza imbocco
- Filettature destre e sinistre

UN

- Vitesse de coupe plus élevée par l'hélice
- Longueur filetée 2 x D
- **d1** = diamètre min. de trou
- La fraise à fileter s'utilise dans un mandrin standard à pinces
- Permet de faire un filet jusqu'au fond du trou borgne
- Pour filets intérieurs à gauche et à droite

UN

- Højere hastighed grundet spiral
- Gevind lgd. 2 x D
- **d1** = min hul diameter
- Bruges med standard spændetænger
- Til gevindskæring til bunden af bundhul
- Til indvendigt gevind til højre og venstre

UN

- Högre varvtal på grund av spiralen
- För gängdjup < 2D
- **d1** = mil hål diameter
- För användning med standard hylschuckar
- Vid gänging av bottenhål
- Höger och vänster gänga vid invändig gänging

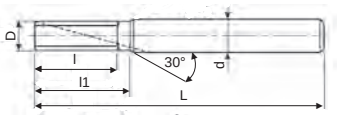
UN

- Mayor velocidad debido a la hélice.
- Longitud roscada 2 x D
- **d1**= diametro de nucleo
- Para usar con porta-pinzas
- Para producir rosca hasta el fondo de agujero ciego
- Para roscado interior a derecha e izquierda

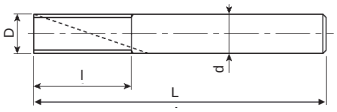
UN

- Более высокая скорость благодаря спирали
- Резьба LG 2 x D
- **d1** — минимальный диаметр отверстия
- Для использования с цанговым патроном
- Для нарезания резьбы до дна глухого отверстия
- Для внутренней, левой и правой резьб

UNF UNC CARBIDE WX 30° h6



Type 1



Type 2

EDP	d1	D	P	L	l	l1	d	ZΔ	Type	Stock	Price
3900350	1/4	4,55	20	60	10,2	11,4	6	3	1	●	
3900351	1/4	4,55	28	60	10,0	10,9	6	3	1	●	
3900355	5/16	6,20	18	65	12,7	14,1	8	3	1	●	
3900356	5/16	6,20	24	65	12,7	14,1	8	3	1	●	
3900360	5/16	7,60	16	65	14,3	-	8	3	2	●	
3900361	5/16	7,60	24	65	14,8	-	8	3	2	●	
3900365	7/16	8,80	14	75	18,1	19,9	10	3	1	●	
3900366	7/16	8,80	20	75	17,8	19,1	10	3	1	●	
3900370	1/2	9,40	13	75	19,5	21,5	10	4	1	●	
3900371	1/2	9,40	20	75	19,1	20,4	10	4	1	●	
3900375	9/16	10,90	12	85	23,3	25,4	12	4	1	●	
3900380	9/16	11,40	18	85	22,6	24,0	12	4	1	●	
3900390	7/8	18,90	12	110	33,9	36,0	20	4	1	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

WX-PNC

WORK MATERIAL		TAPPING SPEED (m/min)	FEED (mm/tooth)
LOW TENSILE STRENGTH STEELS	C~0,25%	50~75	0,01~0,11
MEDIUM TENSILE STRENGTH STEELS	C~0,25% ~ 0,45%	40~70	0,01~0,11
HIGH TENSILE STRENGTH STEELS	C0,45%~	40~70	0,01~0,01
ALLOY STEELS	SCM	15~30	0,01~0,03
HARDENED STEELS	25~45 HRC	15~30	0,01~0,03
	45~55 HRC	-	-
	50~60 HRC	-	-
STAINLESS STEELS	SUS	20~40	0,01~0,06
TOOL STEELS	SKD	-	-
CAST STEELS	SC	40~65	0,02~0,09
CAST IRON	FC	50~100	0,03~0,1
DUCTILE CAST IRON	FCD	50~65	0,03~0,1
COPPER	Cu	65~130	0,03~0,1
BRASS	Bs	65~130	0,03~0,1
BRASS CASTING	BsC	65~130	0,03~0,1
BRONZE	PB	65~130	0,03~0,1
ALUMUNIUM ROLLED STEELS	AL	50~70	0,03~0,1
ALUMINIUM ALLOY CASTING	AC, ADC	65~130	0,03~0,1
MAGNESIUM ALLOY CASTING	MC	65~130	0,03~0,1
ZINC ALLOY CASTING	ZDC	65~130	0,03~0,1
TITANIUM ALLOYS	Ti-6AL-4V	20~60	0,02~0,06
NICKEL ALLOYS	Inconel®	20~60	0,01~0,03
THERMO SETTING PLASTIC	-	65~130	0,03~0,13
THERMO PLASTIC	-	65~130	0,03~0,13

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
○ 50~75 m/min	○ 40~70 m/min	○ 40~70 m/min	○ 15~30 m/min	○ 15~30 m/min	○ 15~30 m/min			○ 20~40 m/min		○ 40~65 m/min	○ 50~100 m/min	○ 50~65 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 65~130 m/min	○ 65~130 m/min	○ 65~130 m/min	○ 65~130 m/min	○ 50~70 m/min	○ 65~130 m/min	○ 65~130 m/min	○ 65~130 m/min	◎ 20~60 m/min	◎ 20~60 m/min	○ 65~130 m/min	○ 65~130 m/min	

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RC (PT)

- Higher speed due to spiral
- Threaded LG 2 x D
- **d1** = min. hole diameter
- For use with standard collet chuck
- For making thread until bottom of blind hole
- For internal thread to left and right.

RC (PT)

- Höhere Schnittgeschwindigkeit durch gedrallte Spannut
- Max. Gewindetiefe : 2 x D
- **d1** = min. dia. des Gewindes
- Geeignet für den Einsatz auch mit Spannzangen
- Bearbeitung bis auf Kernloch-grund möglich
- Geeignet für Rechts- und Linksgewinde

RC (PT)

- Maggiore velocità di taglio grazie all'inclinazione dell'elica
- Filettatura : 2 x D
- **d1**= diametro minimo di filettatura
- Si utilizza con un mandrino a pinza
- Esecuzione di filetti senza imbocco
- Filettature destre e sinistre

RC (PT)

- Vitesse de coupe plus élevée par l'hélice
- Longueur filetée 2 x D
- **d1** = diamètre min. de trou
- La fraise à fileter s'utilise dans un mandrin standard à pinces
- Permet de faire un filet jusqu'au fond du trou borgne
- Pour filets intérieurs à gauche et à droite

RC (PT)

- Højere hastighed grundet spiral
- Gevind lgd. 2 x D
- **d1** = min hul diameter
- Bruges med standard spændetænger
- Til gevindskæring til bunden af bundhul
- Til indvendigt gevind til højre og venstre

RC (PT)

- Högre varvtal på grund av spiralen
- För gängdjup < 2D
- **d1** = mil hål diameter
- För användning med standard hylschuckar
- Vid gänging av bottenhål

- Höger och vänster gänga vid invändig gänging

RC (PT)

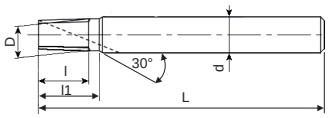
- Mayor velocidad debido a la hélice.
- Longitud roscada 2 x D
- **d1**= diametro de nucleo

- Para usar con porta-pinzas Para producir rosca hasta el fondo de agujero ciego Para roscado interior a derecha e izquierda

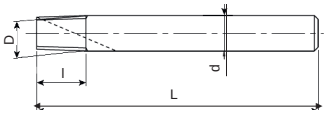
RC (PT)

- Более высокая скорость благодаря спирали
- Резьба LG 2 x D
- **d1** — минимальный диаметр отверстия
- Для использования с цанговым патроном
- Для нарезания резьбы до дна глухого отверстия
- Для внутренней, левой и правой резьб

Rc (PT) | CARBIDE | WX | 30° | h6



Type 1



Type 2

EDP	d1	D	P	L	l	l1	d	ZΔ	Type	Stock	Price
3900201	1/8	7,5	28	60	9,1	12,7	8	3	1	●	
3900211	1/4-3/8	10	19	75	14,7	-	10	4	2	●	
3900214	1/2-3/4	12	14	85	20,0	-	12	4	2	●	
3900218	1~2	20	11	95	27,7	-	20	5	2	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

WX-PNC

WORK MATERIAL		TAPPING SPEED (m/min)	FEED (mm/tooth)
LOW TENSILE STRENGTH STEELS	C~0,25%	50~75	0,01~0,11
MEDIUM TENSILE STRENGTH STEELS	C~0,25% ~ 0,45%	40~70	0,01~0,11
HIGH TENSILE STRENGTH STEELS	C0,45%~	40~70	0,01~0,01
ALLOY STEELS	SCM	15~30	0,01~0,03
HARDENED STEELS	25~45 HRC	15~30	0,01~0,03
	45~55 HRC	-	-
	50~60 HRC	-	-
STAINLESS STEELS	SUS	20~40	0,01~0,06
TOOL STEELS	SKD	-	-
CAST STEELS	SC	40~65	0,02~0,09
CAST IRON	FC	50~100	0,03~0,1
DUCTILE CAST IRON	FCD	50~65	0,03~0,1
COPPER	Cu	65~130	0,03~0,1
BRASS	Bs	65~130	0,03~0,1
BRASS CASTING	BsC	65~130	0,03~0,1
BRONZE	PB	65~130	0,03~0,1
ALUMUNIUM ROLLED STEELS	AL	50~70	0,03~0,1
ALUMINIUM ALLOY CASTING	AC, ADC	65~130	0,03~0,1
MAGNESIUM ALLOY CASTING	MC	65~130	0,03~0,1
ZINC ALLOY CASTING	ZDC	65~130	0,03~0,1
TITANIUM ALLOYS	Ti-6AL-4V	20~60	0,02~0,06
NICKEL ALLOYS	Inconel®	20~60	0,01~0,03
THERMO SETTING PLASTIC	-	65~130	0,03~0,13
THERMO PLASTIC	-	65~130	0,03~0,13

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
○ 50~75 m/min	○ 40~70 m/min	○ 40~70 m/min	○ 15~30 m/min	○ 15~30 m/min	○ 15~30 m/min			○ 20~40 m/min		○ 40~65 m/min	○ 50~100 m/min	○ 50~65 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 65~130 m/min	○ 65~130 m/min	○ 65~130 m/min	○ 65~130 m/min	○ 50~70 m/min	○ 65~130 m/min	○ 65~130 m/min	○ 65~130 m/min	◎ 20~60 m/min	◎ 20~60 m/min	○ 65~130 m/min	○ 65~130 m/min	

WX-PNC



NPT

- Higher speed due to spiral
- Threaded LG 2 x D
- **d1** = min. hole diameter
- For use with standard collet chuck
- For making thread until bottom of blind hole
- For internal thread to left and right.

NPT

- Höhere Schnittgeschwindigkeit durch gedrallte Spannut
- Max. Gewindetiefe : 2 x D
- **d1** = min. dia. des Gewindes
- Geeignet für den Einsatz auch mit Spannzangen
- Bearbeitung bis auf Kernloch-grund möglich
- Geeignet für Rechts- und Linksgewinde

NPT

- Maggiore velocità di taglio grazie all'inclinazione dell'elica
- Filettatura : 2 x D
- **d1**= diametro minimo di filettatura
- Si utilizza con un mandrino a pinza
- Esecuzione di filetti senza imbocco
- Filettature destre e sinistre

NPT

- Vitesse de coupe plus élevée par l'hélice
- Longueur filetée 2 x D
- **d1** = diamètre min. de trou
- La fraise à fileter s'utilise dans un mandrin standard à pinces
- Permet de faire un filet jusqu'au fond du trou borgne
- Pour filets intérieurs à gauche et à droite

NPT

- Højere hastighed grundet spiral
- Gevind lgd 2 x D
- **d1** = min hul diameter
- Bruges med standard spændetænger
- Til gevindskæring til bunden af bundhul
- Til indvendigt gevind til højre og venstre

NPT

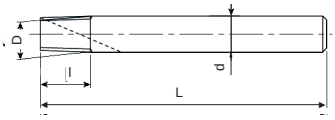
- Högre varvtal på grund av spiralen
- För gängdjup < 2D
- **d1** = mil hål diameter
- För användning med standard hylschuckar
- Vid gänging av bottenhål
- Höger och vänster gänga vid invändig gänging

NPT

- Mayor velocidad debido a la hélice.
- Longitud roscada 2 x D
- **d1**= diametro de nucleo
- Para usar con porta-pinzas
- Para producir rosca hasta el fondo de agujero ciego
- Para roscado interior a derecha e izquierda

NPT

- Более высокая скорость благодаря спирали
- Резьба LG 2 x D
- **d1** — минимальный диаметр отверстия
- Для нарезания резьбы до дна глухого отверстия
- Для нарезки резьбы до дна глухого отверстия
- Для внутренней, левой и правой резьб



EDP	d1	D	P	L	l	d	ZΔ	Stock	Price
3900259	1/16~1/8	5,9	27	60	10,3	6	3	●	
3900261	1/4~3/8	10	18	75	15,5	10	4	●	
3900265	1/2~3/4	16	14	85	20,0	16	4	●	
3900268	1~2	20	11 1/2	95	24,3	20	5	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

WX-PNC

WORK MATERIAL		TAPPING SPEED (m/min)	FEED (mm/tooth)
LOW TENSILE STRENGTH STEELS	C~0,25%	50~75	0,01~0,11
MEDIUM TENSILE STRENGTH STEELS	C~0,25% ~ 0,45%	40~70	0,01~0,11
HIGH TENSILE STRENGTH STEELS	C0,45%~	40~70	0,01~0,01
ALLOY STEELS	SCM	15~30	0,01~0,03
HARDENED STEELS	25~45 HRC	15~30	0,01~0,03
	45~55 HRC	-	-
	50~60 HRC	-	-
STAINLESS STEELS	SUS	20~40	0,01~0,06
TOOL STEELS	SKD	-	-
CAST STEELS	SC	40~65	0,02~0,09
CAST IRON	FC	50~100	0,03~0,1
DUCTILE CAST IRON	FCD	50~65	0,03~0,1
COPPER	Cu	65~130	0,03~0,1
BRASS	Bs	65~130	0,03~0,1
BRASS CASTING	BsC	65~130	0,03~0,1
BRONZE	PB	65~130	0,03~0,1
ALUMUNIUM ROLLED STEELS	AL	50~70	0,03~0,1
ALUMINIUM ALLOY CASTING	AC, ADC	65~130	0,03~0,1
MAGNESIUM ALLOY CASTING	MC	65~130	0,03~0,1
ZINC ALLOY CASTING	ZDC	65~130	0,03~0,1
TITANIUM ALLOYS	Ti-6AL-4V	20~60	0,02~0,06
NICKEL ALLOYS	Inconel®	20~60	0,01~0,03
THERMO SETTING PLASTIC	-	65~130	0,03~0,13
THERMO PLASTIC	-	65~130	0,03~0,13

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
○ 50~75 m/min	○ 40~70 m/min	○ 40~70 m/min	○ 15~30 m/min	○ 15~30 m/min	○ 15~30 m/min			○ 20~40 m/min		○ 40~65 m/min	○ 50~100 m/min	○ 50~65 m/min

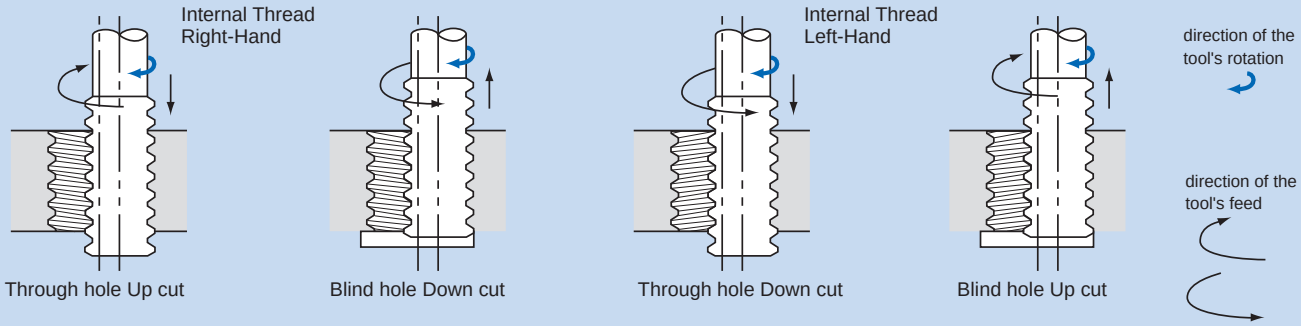
Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 65~130 m/min	○ 65~130 m/min	○ 65~130 m/min	○ 65~130 m/min	○ 50~70 m/min	○ 65~130 m/min	○ 65~130 m/min	○ 65~130 m/min	◎ 20~60 m/min	◎ 20~60 m/min	○ 65~130 m/min	○ 65~130 m/min	

● Delivery from stock
○ Available on short notice

Technical Process

Machining Technique

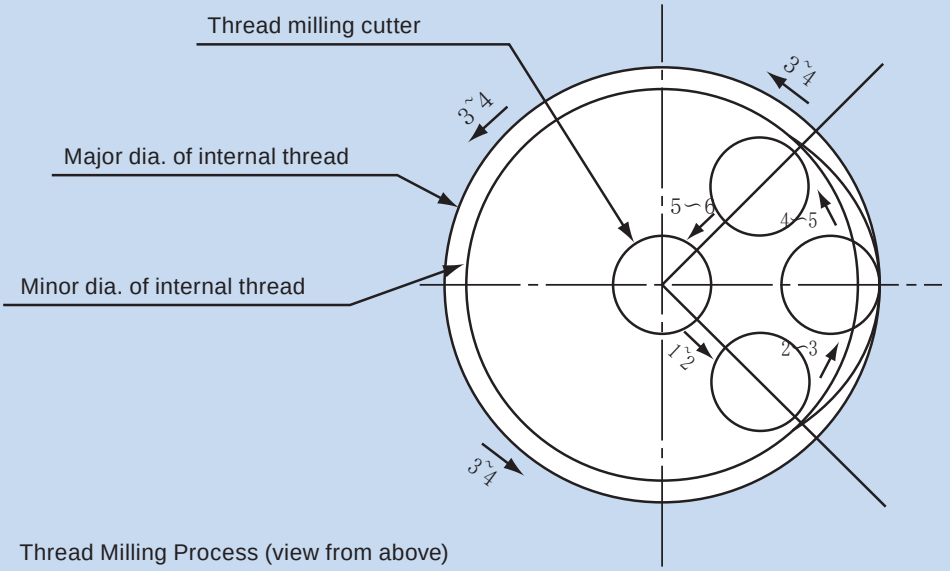
OSG's Thread Mills are developed for thread milling on a 3-Axis CNC controlled machine tool.
Threads are produced by advancing one pitch feed per revolution in the axial direction, utilizing the planet-like rotation and revolution movements of the tool. Internal/external and right/left hand threads can all be produced with this one tool by simply changing the direction of rotation and/or feed.



Threading Process

1-2 Move to edge (maintain clearance)
2-3 Cut with helical milling
3-4 Mill the circumference of the circle
4-5 Pull away from the edge
5-6 Remove tool

The transition between the start and finish of the milling operation must be smooth and the appropriate amount of feed is essential for minimizing milling resistance. There are many different methods for using this tool, but our research has shown that this technique provides the most precise and efficient operation.



Thread Milling Process (view from above)



METRIC
- General purpose, also for stainless steel

METRISCH
- Für universelle Anwendungen und für VA - Stahl

METRICO
- Per applicazioni generali e per inox

MÉTRIQUE
- Pour applications générales et pour des aciers inox

METRISK
- Til generelt brug, også til rustfrit stål

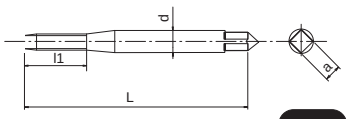
METRISK
- För allround bearbetning och för rostfritt stål

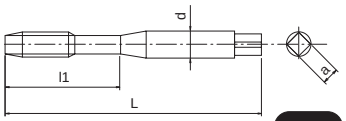
METRICO
- Para aplicación general, para aceros inoxidables

МЕТРИЧЕСКИЙ
- Общего назначения и для нержавеющих сталей



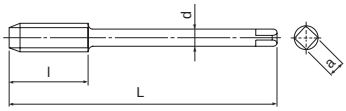
M | HSSE | OX | ISO 2 6H | 4 | DIN 371





EDP	M	P	L	l1	d	a	ZΔ	Type	Stock	Price
63812560	2,0	0,4	45	8	2,8	2,1	2	1	●	
63812860	2,2	0,45	45	9	2,8	2,1	2	1	●	
63813360	2,5	0,45	50	9	2,8	2,1	2	1	●	
63813860	3,0	0,5	56	18	3,5	2,7	3	2	●	
63814060	3,5	0,6	56	20	4,0	3,0	3	2	●	
63814460	4,0	0,7	63	21	4,5	3,4	3	2	●	
63814960	5,0	0,8	70	25	6,0	4,9	3	2	●	
63815560	6,0	1	80	30	6,0	4,9	3	2	●	
63816160	8,0	1,25	90	35	8,0	6,2	3	2	●	
63816960	10,0	1,5	100	39	10,0	8,0	3	2	●	

M | HSSE | OX | ISO 2 6H | 4 | DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
63913860	3,0	0,5	56	11	2,2	-	3	●	
63914460	4,0	0,7	63	13	2,8	2,1	3	●	
63914960	5,0	0,8	70	16	3,5	2,7	3	●	
63915560	6,0	1	80	19	4,5	3,4	3	●	
63916160	8,0	1,25	90	22	6,0	4,9	3	●	
63916960	10,0	1,5	100	24	7,0	5,5	3	●	
63917960	12,0	1,75	110	29	9,0	7,0	3	●	
63919160	14,0	2	110	30	11,0	9,0	3	●	
63920260	16,0	2	110	32	12,0	9,0	3	●	
63921460	18,0	2,5	125	34	14,0	11,0	3	●	
63922860	20,0	2,5	140	34	16,0	12,0	3	●	
63923860	22,0	2,5	140	34	18,0	14,5	3	●	
63924760	24,0	3	160	38	18,0	14,5	3	●	
63926260	27,0	3	160	38	20,0	16,0	4	●	
63927160	30,0	3,5	180	45	22,0	18,0	4	●	
63928160	33,0	3,5	180	50	25,0	20,0	4	●	
63929460	36,0	4	200	56	28,0	22,0	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~24 m/min	◎ 10~15 m/min	◎ 8~13 m/min	◎ 10~15 m/min					◎ 8~16 m/min	○ 10~15 m/min	○ 10~15 m/min		○ 10~15 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 12~17 m/min											○ 10~20 m/min	

● Delivery from stock
○ Available on short notice



METRIC
- General purpose, also for stainless steel

METRISCH
- Für universelle Anwendungen und für VA - Stahl

METRICO
- Per applicazioni generali e per inox

MÉTRIQUE
- Pour applications générales et pour des aciers inox

METRISK
- Til generelt brug, også til rustfrit stål

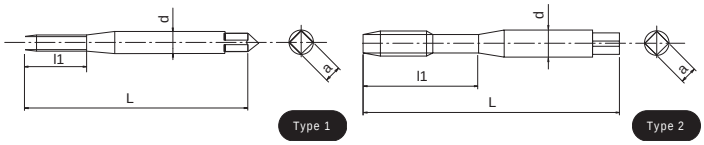
METRISK
- För allround bearbetning och för rostfritt stål

METRICO
- Para aplicación general, para aceros inoxidables

МЕТРИЧЕСКИЙ
- Общего назначения и для нержавеющих сталей

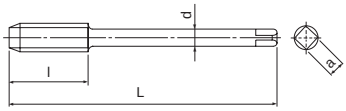


M | HSSE | OX | ISO 3 6G | 4 | DIN 371



EDP	M	P	L	l1	d	a	ZΔ	Type	Stock	Price
63812599	2,0	0,4	45	8	2,8	2,1	2	1	●	
63813399	2,5	0,45	50	9	2,8	2,1	2	1	●	
63813899	3,0	0,5	56	18	3,5	2,7	3	2	●	
63814499	4,0	0,7	63	21	4,5	3,4	3	2	●	
63814999	5,0	0,8	70	25	6,0	4,9	3	2	●	
63815599	6,0	1	80	30	6,0	4,9	3	2	●	
63816199	8,0	1,25	90	35	8,0	6,2	3	2	●	
63816999	10,0	1,5	100	39	10,0	8,0	3	2	●	

M | HSSE | OX | ISO 3 6G | 4 | DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
63917999	12,0	1,75	110	29	9	7	3	●	
63919199	14,0	2	110	30	11	9	3	●	
63920299	16,0	2	110	32	12	9	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~24 m/min	◎ 10~15 m/min	◎ 8~13 m/min	◎ 10~15 m/min					◎ 8~16 m/min	○ 10~15 m/min	○ 10~15 m/min		○ 10~15 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 12~17 m/min											○ 10~20 m/min	



METRIC
- For general purposes application

METRISCH
- Für universelle Anwendungen

METRICO
- Per applicazioni generali

MÉTRIQUE
- Pour applications générales

METRISK
- Til generelt brug

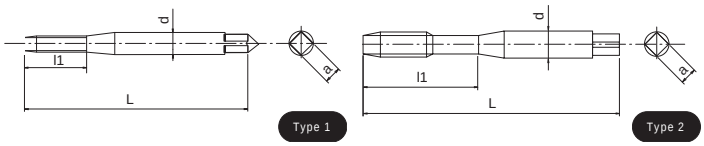
METRISK
- För diverse applikationer

METRICO
- Para aplicación general

МЕТРИЧЕСКИЙ
- Общего назначения

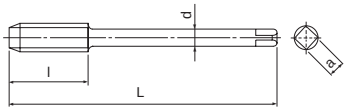
GO TO LIVE STOCK CHECK

M HSSE ISO 2 6H 4 DIN 371



EDP	M	P	L	l1	d	a	ZΔ	Type	Stock	Price
60712560	2,0	0,4	45	8	2,8	2,1	2	1	●	
60713360	2,5	0,45	50	9	2,8	2,1	2	1	●	
60713860	3,0	0,5	56	18	3,5	2,7	3	2	●	
60714060	3,5	0,6	56	20	4,0	3,0	3	2	●	
60714460	4,0	0,7	63	21	4,5	3,4	3	2	●	
60714960	5,0	0,8	70	25	6,0	4,9	3	2	●	
60715560	6,0	1	80	30	6,0	4,9	3	2	●	
60716160	8,0	1,25	90	35	8,0	6,2	3	2	●	
60716960	10,0	1,5	100	39	10,0	8,0	3	2	●	

M HSSE ISO 2 6H 4 DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
60813860	3	0,5	56	11	2,2	-	3	●	
60814460	4	0,7	63	13	2,8	2,1	3	●	
60814960	5	0,8	70	16	3,5	2,7	3	●	
60815560	6	1	80	19	4,5	3,4	3	●	
60816160	8	1,25	90	22	6,0	4,9	3	●	
60816960	10	1,5	100	24	7,0	5,5	3	●	
60817960	12	1,75	110	29	9,0	7,0	3	●	
60819160	14	2	110	30	11,0	9,0	3	●	
60820260	16	2	110	32	12,0	9,0	3	●	
60821460	18	2,5	125	34	14,0	11,0	3	●	
60822860	20	2,5	140	34	16,0	12,0	3	●	
60823860	22	2,5	140	34	18,0	14,5	3	●	
60824760	24	3	160	38	18,0	14,5	3	●	
60826260	27	3	160	38	20,0	16,0	4	●	
60827160	30	3,5	180	45	22,0	18,0	4	●	
New Sizes 60828160	33	3,5	180	50	25,0	20,0	4	●	
New Sizes 60829460	36	4	200	56	28,0	22,0	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
○ 12~20 m/min	○ 8~12 m/min	○ 7~12 m/min	○ 8~12 m/min							○ 8~12 m/min		○ 8~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 10~15 m/min	○ 15~25 m/min	○ 15~25 m/min	○ 10~20 m/min	○ 15~25 m/min	◎ 15~20 m/min	○ 10~15 m/min	◎ 10~15 m/min				○ 8~16 m/min	

● Delivery from stock
○ Available on short notice



METRIC
- For general purposes application

METRISCH
- Für universelle Anwendungen

METRICO
- Per applicazioni generali

MÉTRIQUE
- Pour applications générales

METRISK
- Til generelt brug

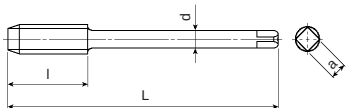
METRISK
- För diverse applikationer

METRICO
- Para aplicación general

МЕТРИЧЕСКИЙ
- Общего назначения



M | HSSE | ISO 2 6H | 4 | DIN 352



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
60513860	3	0,5	40	11	3,5	2,7	3	●	
60514460	4	0,7	45	13	4,5	3,4	3	●	
60514960	5	0,8	50	24	6,0	4,9	3	●	
60515560	6	1	50	27	6,0	4,9	3	●	
60516160	8	1,25	63	22	6,0	4,9	3	●	
60516960	10	1,5	70	24	7,0	5,5	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
○ 12~20 m/min	○ 8~12 m/min	○ 7~12 m/min	○ 8~12 m/min							○ 8~12 m/min		○ 8~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 10~15 m/min	○ 15~25 m/min	○ 15~25 m/min	○ 10~20 m/min	○ 15~25 m/min	◎ 15~20 m/min	○ 10~15 m/min	◎ 10~15 m/min				○ 8~16 m/min	

● Delivery from stock
○ Available on short notice



METRIC
- General purpose applications

METRISCH
- Für universelle Anwendungen

METRICO
- Per applicazioni generali

MÉTRIQUE
- Pour applications générales

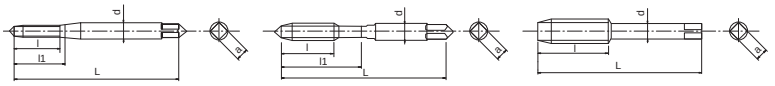
METRISK
- Til generelt brug

METRISK
- För diverse applikationer

METRICO
- Para aplicación general

МЕТРИЧЕСКИЙ
- Общего назначения

M | HSSE | OX | ISO 2 6H | 4 | ISO 529



Type 1 | Type 2 | Type 3

EDP	M	P	L	l	l1	d	a	ZΔ	Type	Stock	Price
22101114	1,0	0,25	38,5	8,0	-	2,50	2,00	2	1	○	
22101134	1,2	0,25	38,5	8,0	-	2,50	2,00	2	1	○	
22101154	1,4	0,3	38,5	8,0	-	2,50	2,00	2	1	○	
22101184	1,6	0,35	38,5	8,0	-	2,50	2,00	2	1	○	
22101234	1,8	0,35	41,0	8,0	-	2,50	2,00	2	1	○	
22101254	2,0	0,4	41,0	8,0	-	2,50	2,00	2	1	○	
T101022045	2,2	0,45	41,0	8,0	-	2,80	2,24	2	1	○	
22101334	2,5	0,45	44,5	9,5	-	2,80	2,24	2	1	○	
22101384	3,0	0,5	48,0	11,0	18	3,15	2,50	3	2	○	
22101404	3,5	0,6	50,0	13,0	20	3,55	2,80	3	2	○	
22101444	4,0	0,7	53,0	13,0	21	4,00	3,15	3	2	○	
22101464	4,5	0,75	53,0	13,0	21	4,50	3,55	3	2	○	
22101494	5,0	0,8	58,0	16,0	25	5,00	4,00	3	2	○	
22101554	6,0	1	66,0	19,0	30	6,30	5,00	3	2	○	
22101584	7,0	1	66,0	19,0	30	7,10	5,00	3	2	○	
22101614	8,0	1,25	72,0	22,0	35	8,00	6,30	3	2	○	
22101654	9,0	1,25	72,0	22,0	36	9,00	7,10	3	2	○	
22101694	10,0	1,5	80,0	24,0	39	10,00	8,00	3	2	○	
22101744	11,0	1,5	85,0	25,0	-	8,00	6,30	3	3	○	
22101794	12,0	1,75	89,0	29,0	-	9,00	7,10	3	3	○	
22101914	14,0	2	95,0	30,0	-	11,20	9,00	3	3	○	
22102024	16,0	2	102,0	32,0	-	12,50	10,00	3	3	○	
22102144	18,0	2,5	112,0	37,0	-	14,00	11,20	3	3	○	
22102284	20,0	2,5	112,0	37,0	-	14,00	11,20	3	3	○	
22102384	22,0	2,5	118,0	38,0	-	16,00	12,50	3	3	○	
22102474	24,0	3	130,0	45,0	-	18,00	14,00	3	3	○	
22102624	27,0	3	135,0	45,0	-	20,00	16,00	4	3	○	
22102714	30,0	3,5	151,0	51,0	-	22,40	18,00	4	3	○	
22102814	33,0	3,5	151,0	51,0	-	22,40	18,00	4	3	○	
22102944	36,0	4	162,0	57,0	-	25,00	20,00	4	3	○	
22103044	39,0	4	170,0	60,0	-	28,00	22,40	4	3	○	
22103144	42,0	4,5	187,0	67,0	-	31,50	28,00	4	3	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~24 m/min	◎ 10~15 m/min	◎ 8~13 m/min	◎ 10~15 m/min	○ 7~11 m/min				◎ 8~16 m/min	○ 10~15 m/min	○ 10~15 m/min		○ 10~15 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	

● Delivery from stock
○ Available on short notice



METRIC
- For steel ≤ 850 N/mm²

METRISCH
- Für Stähl ≤ 850 N/mm²

METRICO
- Per acciai ≤ 850 N/mm²

MÉTRIQUE
- Pour aciers ≤ 850 N/mm²

METRISK
- Til stål ≤ 850 N/mm²

METRISK
- För stål ≤ 850 N/mm²

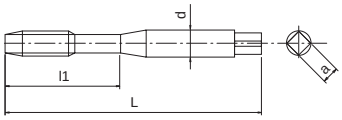
METRICO
- Para aceros ≤ 850 N/mm²

МЕТРИЧЕСКИЙ
- Для сталей ≤ 850 Н/мм²

GO TO LIVE STOCK CHECK

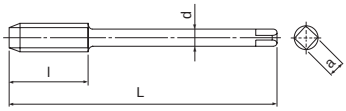


M | HSSE | TIN | ISO 2 6H | 4 | DIN 371



EDP	M	P	L	l1	d	a	ZΔ	Stock	Price
6071256001	2,0	0,4	45	-	2,8	2,1	2	●	
6071336001	2,5	0,45	50	-	2,8	2,1	2	●	
6071386001	3,0	0,5	56	18	3,5	2,7	3	●	
6071406001	3,5	0,6	56	20	4,0	3,0	3	●	
6071446001	4,0	0,7	63	21	4,5	3,4	3	●	
6071496001	5,0	0,8	70	25	6,0	4,9	3	●	
6071556001	6,0	1	80	30	6,0	4,9	3	●	
6071616001	8,0	1,25	90	35	8,0	6,2	3	●	
6071696001	10,0	1,5	100	39	10,0	8,0	3	●	

M | HSSE | TIN | ISO 2 6H | 4 | DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
6081386001	3	0,5	56	11	2,2	-	3	●	
6081446001	4	0,7	63	13	2,8	2,1	3	●	
6081496001	5	0,8	70	16	3,5	2,7	3	●	
6081556001	6	1	80	19	4,5	3,4	3	●	
6081616001	8	1,25	90	22	6,0	4,9	3	●	
6081696001	10	1,5	100	24	7,0	5,5	3	●	
6081796001	12	1,75	110	29	9,0	7,0	3	●	
6081916001	14	2	110	30	11,0	9,0	3	●	
6082026001	16	2	110	32	12,0	9,0	3	●	
6082146001	18	2,5	125	34	14,0	11,0	3	●	
6082286001	20	2,5	140	34	16,0	12,0	3	●	
6082386001	22	2,5	140	34	18,0	14,5	3	●	
6082476001	24	3	160	38	18,0	14,5	3	●	
6082626001	27	3	160	38	20,0	16,0	4	●	
6082716001	30	3,5	180	45	22,0	18,0	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
○ 15~24 m/min	○ 10~15 m/min	◎ **8~13 m/min**	○ 10~15 m/min					◎ 8~16 m/min	○ 8~12 m/min	○ 8~12 m/min		○ 10~15 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 12~17 m/min	○ 15~25 m/min	○ 15~25 m/min	○ 10~20 m/min	○ 15~25 m/min	○ 15~20 m/min	○ 10~15 m/min	○ 10~15 m/min	○ 6~9 m/min			○ 10~20 m/min	

TICN-POT



METRIC
■ For steel ≤ 1000 N/mm²

METRISCH
■ Für Stahl ≤ 1000 N/mm²

METRICO
■ Per acciai ≤ 1000 N/mm²

MÉTRIQUE
■ Pour aciers ≤ 1000 N/mm²

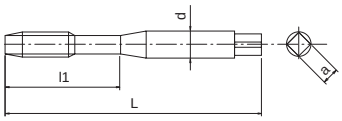
METRISK
■ Til stål ≤ 1000 N/mm²

METRISK
■ För Stål ≤ 1000N/mm²

METRICO
■ Para aceros ≤ 1000 N/mm²

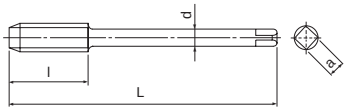
МЕТРИЧЕСКИЙ
■ Для сталей ≤ 1000 Н/мм²

M | HSSE | TiCN | ISO 2 6H | 4 | DIN 371



EDP	M	P	L	l1	d	a	ZΔ	Stock	Price
6071256002	2	0,4	45	-	2,8	2,1	2	●	
6071386002	3	0,5	56	18	3,5	2,7	3	●	
6071446002	4	0,7	63	21	4,5	3,4	3	●	
6071496002	5	0,8	70	25	6,0	4,9	3	●	
6071556002	6	1	80	30	6,0	4,9	3	●	
6071616002	8	1,25	90	35	8,0	6,2	3	●	
6071696002	10	1,5	100	39	10,0	8,0	3	●	

M | HSSE | TiCN | ISO 2 6H | 4 | DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
6081796002	12	1,75	110	29	9	7,0	3	●	
New Sizes 6081916002	14	2	110	30	11	9,0	3	●	
New Sizes 6082026002	16	2	110	32	12	9,0	3	●	
New Sizes 6082146002	18	2,5	125	34	14	11,0	3	●	
New Sizes 6082286002	20	2,5	140	34	16	12,0	3	●	
New Sizes 6082386002	22	2,5	140	34	18	14,5	3	●	
New Sizes 6082476002	24	3	160	38	18	14,5	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
○ 15~24 m/min	○ 10~15 m/min	◎ **8~13 m/min**	◎ 10~15 m/min					○ 8~16 m/min	○ 8~12 m/min	○ 8~12 m/min		○ 10~15 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 12~17 m/min	○ 15~25 m/min	○ 15~25 m/min	○ 10~20 m/min	○ 15~25 m/min	○ 15~20 m/min	○ 10~15 m/min	○ 10~15 m/min	○ 6~9 m/min			○ 10~20 m/min	

● Delivery from stock
○ Available on short notice



GO TO LIVE STOCK CHECK

METRIC
- For stainless steels, aluminium and steel
- Developed for CNC machines equipped with rigid tapping
- For pilot hole use OSG EX-SUS-GDS (p.C.70)

METRISCH
- Für Va-Stahl, Aluminium und Stahl
- Für CNC Maschinen mit Synchronspindeln
- Für die Kernlochbearbeitung EX-SUS-GDS verwenden(p.C.70)

METRICO
- Per acciai inox, alluminio, e acciai
- Per le macchine CNC che hanno un programma di sincronizzazione tra la velocità e l'avanzamento
- Utilizzate OSG EX-SUSGDS per foro pilota (p.C.70)

MÉTRIQUE
- Pour inox, aluminium et aciers
- Développé pour les machines CNC qui ont le "taraudage rigide"
- Pour trou pilote utiliser OSG EX-SUS-GDS (p.C.70)

METRISK
- Til rustfrit stål, aluminium og stål
- Udviklet til CNC maskine udstyret med fast tapholder
- For boring af pilot hul brug OSG EX-SUS-GDS (p.C.70)

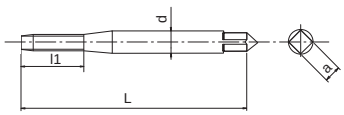
METRISK
- För rostfritt stål, aluminium och stål
- Utvecklat för CNC-maskiner som är utrustade med gängfunktion
- För pilot hål använd OSG EX-SUS-GDS (p.C.70)

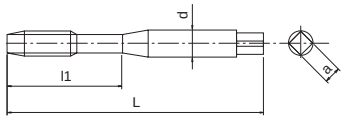
METRICO
- Para aceros inoxidables, aluminio y aceros
- Desarrollados para máquinas CNC aptas para roscado rígido
- Para agujero previo use EX-SUS-GDS (p.C.70)

МЕТРИЧЕСКИЙ
- Для нержавеющих сталей и алюминия
- Разработаны для ЧПУ станков имеющих циклы жесткой нарезки резьбы
- Для пилотного отверстия используйте OSG EX-SUS-GDS (p.C.70)



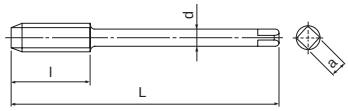
M | HSSE | CrN | ISO 2 6HX | 4 | DIN 371





EDP	M	P	L	l1	d	a	ZΔ	Type	Stock	Price
48059125	2	0,4	45	8	2,8	2,1	2	1	●	
48059133	2,5	0,45	50	9	2,8	2,1	2	1	●	
48059138	3	0,5	56	18	3,5	2,7	3	2	●	
48059144	4	0,7	63	21	4,5	3,4	3	2	●	
48059149	5	0,8	70	25	6,0	4,9	3	2	●	
48059155	6	1	80	30	6,0	4,9	3	2	●	
48059161	8	1,25	90	35	8,0	6,2	3	2	●	
48059169	10	1,5	100	39	10,0	8,0	3	2	●	

M | HSSE | CrN | ISO 2 6H | 4 | DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
48060138	3	0,5	56	11	2,20	-	3	●	
48060144	4	0,7	63	13	2,80	2,1	3	●	
48060149	5	0,8	70	16	3,50	2,7	3	●	
48060155	6	1	80	19	4,50	3,4	3	●	
48060161	8	1,25	90	22	6,00	4,9	3	●	
48060169	10	1,5	100	24	7,00	5,5	3	●	
48060179	12	1,75	110	29	9,00	7,0	3	●	
48060191	14	2	110	30	11,00	9,0	3	●	
48060202	16	2	110	32	12,00	9,0	3	●	
48060214	18	2,5	125	34	14,00	11,0	3	●	
48060228	20	2,5	140	34	16,00	12,0	3	●	
48060238	22	2,5	140	34	18,00	14,5	3	●	
48060247	24	3	160	38	18,00	14,5	3	●	
48060262	27	3	160	38	20,00	16,0	4	●	
48060271	30	3,5	180	45	22,00	18,0	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~25 m/min	◎ 15~25 m/min	◎ 10~25 m/min	○ 10~25 m/min					◎ 6~15 m/min				

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 15~25 m/min				○ 20~40 m/min								



METRIC
- For aluminium

METRISCH
- Für Aluminium

METRICO
- Per alluminio

MÉTRIQUE
- Pour aluminium

METRISK
- Til aluminium

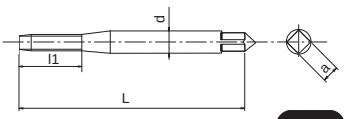
METRISK
- För alminium

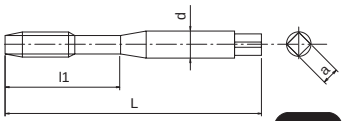
METRICO
- Para aluminio

МЕТРИЧЕСКИЙ
- Для алюминия

M | HSSE | ISO 2 6H | 4 | DIN 371

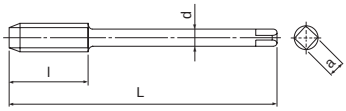






EDP	M	P	L	l1	d	a	ZΔ	Type	Stock	Price
48019125	2,0	0,4	45	8	2,8	2,1	2	1	●	
48019133	2,5	0,45	50	9	2,8	2,1	2	1	●	
66113860	3,0	0,5	56	18	3,5	2,7	3	2	●	
66114460	4,0	0,7	63	21	4,5	3,4	3	2	●	
66114960	5,0	0,8	70	25	6,0	4,9	3	2	●	
66115560	6,0	1	80	30	6,0	4,9	3	2	●	
66116160	8,0	1,25	90	35	8,0	6,2	3	2	●	
66116960	10,0	1,5	100	39	10,0	8,0	3	2	●	

M | HSSE | ISO 2 6H | 4 | DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
48019179	12	1,75	110	29	9	7	3	●	
48019191	14	2	110	30	11	9	3	●	
48019202	16	2	110	32	12	9	3	●	
48019214	18	2,5	125	34	14	11	3	●	
48019228	20	2,5	140	34	16	12	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 10~15 m/min				◎ 15~25 m/min	◎ 15~20 m/min	○ 10~15 m/min	◎ 10~15 m/min					

● Delivery from stock
○ Available on short notice



METRIC
- For steel ≥ 900 N/mm² & cast iron

METRISCH
- Für Stahl ≥ 900 N/mm² & Guss

METRICO
- Per acciai ≥ 900 N/mm² e ghisa

MÉTRIQUE
- Pour acier ≥ 900 N/mm² & fonte

METRISK
- Til stål ≥ 900 N/mm² & støbejern

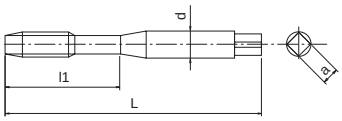
METRISK
- För stål ≥ 900 N/mm² & gjutjärn

METRICO
- Para aceros ≥ 900 N/mm² y fundiciones

МЕТРИЧЕСКИЙ
- Для стали ≥ 900 Н/мм² и чугуна

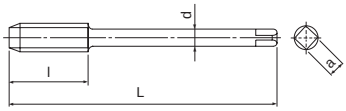


M | PM | ISO 2 6H | 5 | DIN 371



EDP	M	P	L	l1	d	a	ZΔ	Stock	Price
80713860	3	0,5	56	11	3,5	2,7	3	●	
80714460	4	0,7	63	13	4,5	3,4	3	●	
80714960	5	0,8	70	16	6,0	4,9	3	●	
80715560	6	1	80	19	6,0	4,9	3	●	
80716160	8	1,25	90	22	8,0	6,2	3	●	
80716960	10	1,5	100	24	10,0	8,0	3	●	

M | PM | ISO 2 6H | 4 | DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
80815560	6	1	80	19	4,5	3,4	3	●	
80816160	8	1,25	90	22	6,0	4,9	3	●	
80816960	10	1,5	100	24	7,0	5,5	3	●	
80817960	12	1,75	110	29	9,0	7,0	3	●	
80819160	14	2	110	30	11,0	9,0	3	●	
80820260	16	2	110	32	12,0	9,0	4	●	
80821460	18	2,5	125	34	14,0	11,0	4	●	
80822860	20	2,5	140	34	16,0	12,0	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
		◎ 8~13 m/min		◎ 6~10 m/min	◎ 6~10 m/min				○ 7~10 m/min			○ 10~15 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	



HIGH PERFORMANCE
- Metric
- **Serie H** : for steels 25~45 HRC

HIGH PERFORMANCE
- Metrisch
- **Serie H** : Für Stahl 25~45 HRC

ALTA PRESTAZIONE
- Metrico
- **Serie H** : per acciai di durezza tra 25~45 HRC

HAUTE PERFORMANCE
- Métrique
- **Série H** : pour acier de dureté entre 25~45 HRC

HIGH PERFORMANCE
- Metrisk
- **Serie H**: Til stål 25 - 45 HRC

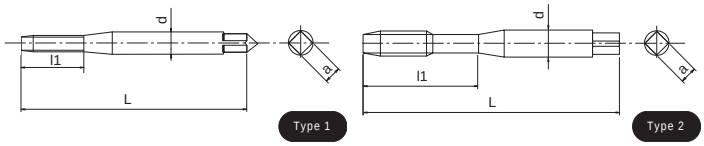
HIGH PERFORMANCE
- Metrisk
- Serie H: för stål 25 ~ 45 HRC

ALTAS PRESTACIONES
- Metrico
- **Serie H** (H-CPM): para aceros 25 ÷ 45 HrC

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Метрический
- **Серия P**: для сталей 25 ~ 45 HRC

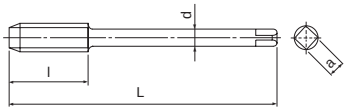


M | PM | OX | ISO 2 6H | 5 | DIN 371



EDP	M	P	L	l1	d	a	ZΔ	Type	Stock	Price
88412560	2,0	0,4	45	8	2,8	2,1	2	1	●	
88413360	2,5	0,45	50	9	2,8	2,1	2	1	●	
88413860	3,0	0,5	56	18	3,5	2,7	3	2	●	
88414460	4,0	0,7	63	21	4,5	3,4	3	2	●	
88414960	5,0	0,8	70	25	6,0	4,9	3	2	●	
88415560	6,0	1	80	30	6,0	4,9	3	2	●	
88416160	8,0	1,25	90	35	8,0	6,2	3	2	●	
88416960	10,0	1,5	100	39	10,0	8,0	3	2	●	

M | PM | OX | ISO 2 6H | 5 | DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
88517960	12	1,75	110	29	9	7	3	●	
88519160	14	2	110	30	11	9	3	●	
88520260	16	2	110	32	12	9	4	●	
88521460	18	2,5	125	34	14	11	4	●	
88522860	20	2,5	140	34	16	12	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
		◎ 8~13 m/min		◎ 6~10 m/min	◎ 6~10 m/min				◎ 7~10 m/min			○ 10~15 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
								○ 4~6 m/min	○ 2~4 m/min			

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE
- Metric
- **Serie H** : for steels 25~45 HRC

HIGH PERFORMANCE
- Metrisch
- **Serie H** : Für Stahl 25~45 HRC

ALTA PRESTAZIONE
- Metrico
- **Serie H** : per acciai di durezza tra 25~45 HRC

HAUTE PERFORMANCE
- Métrique
- **Série H** : pour acier de dureté entre 25~45 HRC

HIGH PERFORMANCE
- Metrisk
- **Serie H**: Til stål 25 - 45 HRC

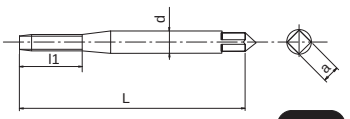
HIGH PERFORMANCE
- Metrisk
- Serie H: för stål 25 ~ 45 HRC

ALTAS PRESTACIONES
- Metrico
- **Serie H** (H-CPM): para aceros 25 ÷ 45 HrC

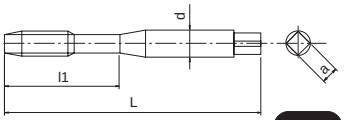
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Метрический
- **Серия P**: для сталей 25 ~ 45 HRC



M | PM | V | ISO 2 6HX | 5 | DIN 371



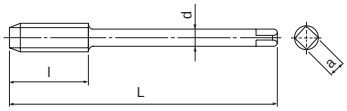
Type 1



Type 2

EDP	M	P	L	l1	d	a	ZΔ	Type	Stock	Price
48084125	2	0,4	45	8	2,8	2,1	2	1	●	
48084133	2,5	0,45	50	9	2,8	2,1	2	1	●	
48084138	3	0,5	56	18	3,5	2,7	3	2	●	
48084144	4	0,7	63	21	4,5	3,4	3	2	●	
48084149	5	0,8	70	25	6	4,9	3	2	●	
48084155	6	1	80	30	6	4,9	3	2	●	
48084161	8	1,25	90	35	8	6,2	3	2	●	
48084169	10	1,5	100	39	10	8	3	2	●	

M | PM | V | ISO 2 6HX | 5 | DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
48084179	12	1,75	110	29	9	7	3	●	
48084191	14	2	110	30	11	9	3	●	
48084202	16	2	110	32	12	9	4	●	
48084214	18	2,5	125	34	14	11	4	●	
48084228	20	2,5	140	34	16	12	4	●	
48084238	22	2,5	140	34	18	14,5	4	●	
48084247	24	3	160	38	18	14,5	4	●	
48084262	27	3	160	38	20	16	4	●	
48084271	30	3,5	180	45	22	18	4	●	
48084281	33	3,5	180	50	25	20	4	●	
48084294	36	4	200	56	28	22	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
		◎ 8~13 m/min		◎ 6~10 m/min	◎ 6~10 m/min				◎ 7~10 m/min			○ 10~15 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
								○ 4~6 m/min	○ 2~4 m/min			

VPO-H-POT



HIGH PERFORMANCE
- Metric
- **Serie H** : for steels 25~45 HRC

HIGH PERFORMANCE
- Metrisch
- **Serie H** : Für Stahl 25~45 HRC

ALTA PRESTAZIONE
- Metrico
- **Serie H** : per acciai di durezza tra 25~45 HRC

HAUTE PERFORMANCE
- Métrique
- **Série H** : pour acier de dureté entre 25~45 HRC

HIGH PERFORMANCE
- Metrisk
- **Serie H**: Til stål 25 - 45 HRC

HIGH PERFORMANCE
- Metrisk
- Serie H: för stål 25 ~ 45 HRC

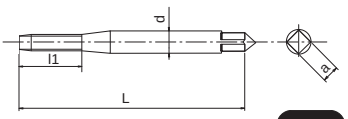
ALTAS PRESTACIONES
- Metrico
- **Serie H** (H-CPM): para aceros 25 ÷ 45 HrC

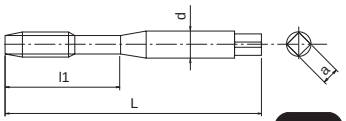
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Метрический
- **Серия P**: для сталей 25 ~ 45 HRC



M | PM | V | ISO 2 6H | 5

DIN 371

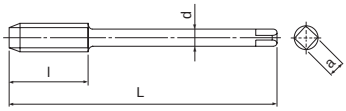




EDP	M	P	L	l1	d	a	ZΔ	Type	Stock	Price
48085155	6	1	80	30	6	4,9	3	2	●	
48085161	8	1,25	90	35	8	6,2	3	2	●	
48085169	10	1,50	100	39	10	8	3	2	●	

M | PM | V | ISO 2 6H | 5

DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
48085179	12	1,75	110	29	9	7	3	●	
48085191	14	2	110	30	11	9	3	●	
48085202	16	2	110	32	12	9	4	●	
48085214	18	2,5	125	34	14	11	4	●	
48085228	20	2,5	140	34	16	12	4	●	
48085238	22	2,5	140	34	18	14,5	4	●	
48085247	24	3	160	38	18	14,5	4	●	
48085262	27	3	160	38	20	16	4	●	
48085271	30	3,5	180	45	22	18	4	●	
48085281	33	3,5	180	50	25	20	4	●	
48085294	36	4	200	56	28	22	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
		◎ 8~13 m/min		◎ 6~10 m/min	◎ 6~10 m/min				◎ 7~10 m/min			○ 10~15 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
								○ 4~6 m/min	○ 2~4 m/min			

● Delivery from stock
○ Available on short notice



METRIC
- For steels 25~45 HRC

METRISCH
- Für Stahl 25 ~ 45 HRC

METRICO
- Per acciai 25 ~ 45 HRC

MÉTRIQUE
- Pour acier 25 ~ 45 HRC

METRISK
- Til stål 25~45 HRC

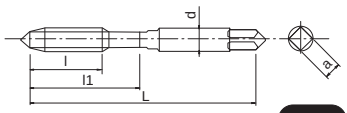
METRISK
- För stål 25 ~ 45 HRC

METRICO
- Para aceros 25 ÷ 45 HrC

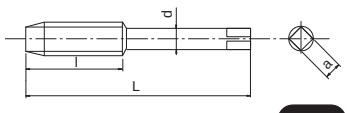
МЕТРИЧЕСКИЙ
- Для сталей 25 ~ 45 HRC



M | PM | OX | ISO 2 6H | 5 | ISO 529



Type 2



Type 3

EDP	M	P	L	l	l1	d	a	ZΔ	Type	Stock	Price
23101384	3	0,5	48	11	18	3,15	2,50	3	2	○	
23101444	4	0,7	53	13	21	4,00	3,15	3	2	○	
23101494	5	0,8	58	16	25	5,00	4,00	3	2	○	
23101554	6	1	66	19	30	6,30	5,00	3	2	○	
23101614	8	1,25	72	22	35	8,00	6,30	3	2	○	
23101694	10	1,5	80	24	39	10,00	8,00	3	2	○	
23101794	12	1,75	89	29	-	9,00	7,10	3	3	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
		◎ 8~13 m/min		◎ 6~10 m/min	◎ 6~10 m/min				◯ 7~10 m/min			◯ 10~15 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	



HIGH PERFORMANCE

- Metric
- **Serie E** : for nickel based alloys including Inconel 718

HIGH PERFORMANCE

- Metrisch
- **Serie E** : für Nickelbasislegierungen inkl. Inconel 718

ALTA PRESTAZIONE

- Metrico
- **Serie E** : per Inconel 718 ed altre leghe a base di Nickel

HAUTE PERFORMANCE

- Métrique
- **Série E** : pour Inconel 718 et autres alliages sur base de Nickel

HIGH PERFORMANCE

- Metrisk
- **Serie E**: Til nikkellegeringer inklusiv Inconel 718

HIGH PERFORMANCE

- Metrisk
- **Serie E**: för nickel legeringar inklusive Inconel 718

ALTAS PRESTACIONES

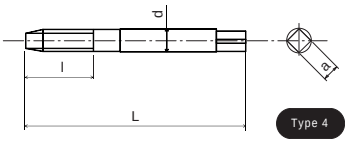
- Metrico
- **Serie E** (Ni): para aleaciones de níquel incluido Inconel 718

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- Метрический
- **Серия E**: для никелевых сплавов, включая Inconel 718

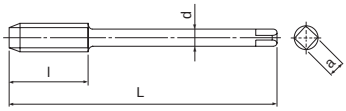


M | PM | ISO 2 6H | 5 | DIN 371



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
89313860	3	0,5	56	12	3,5	2,7	3	●	
89314460	4	0,7	63	16	4,5	3,4	3	●	
89314960	5	0,8	70	19	6,0	4,9	3	●	
89315560	6	1	80	23	6,0	4,9	3	●	
89316160	8	1,25	90	30	8,0	6,2	3	●	
89316960	10	1,5	100	38	10,0	8,0	3	●	

M | PM | ISO 2 6H | 5 | DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
89417960	12	1,75	110	29	10	8	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
									◎ 2~4 m/min			

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE
- Metric
- For nickel based alloys including Inconel 718

HIGH PERFORMANCE
- Metrisch
- Für Nickelbasislegierungen inkl. Inconel 718

ALTA PRESTAZIONE
- Metrico
- Per Inconel 718 ed altre leghe a base di Nickel

HAUTE PERFORMANCE
- Métrique
- Pour Inconel 718 et autres alliages sur base de Nickel

HIGH PERFORMANCE
- Metrisk
- Til nikkellegeringer inklusiv Inconel 718

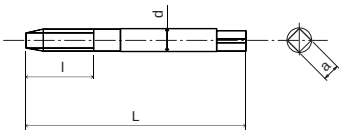
HIGH PERFORMANCE
- Metrisk
- För nickel legeringar inklusive Inconel 718l

ALTAS PRESTACIONES
- Metrico
- Para aleaciones de níquel incluido Inconel 718 .

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Метрический
- для никелевых сплавов, включая Inconel 718

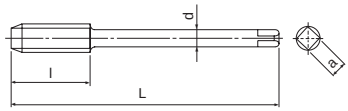






EDP	M	P	L	l	d	a	ZΔ	Stock	Price
48079138	3	0,5	56	12	3,5	2,7	3	●	
48079144	4	0,7	63	16	4,5	3,4	3	●	
48079149	5	0,8	70	19	6	4,9	3	●	
48079155	6	1,0	80	23	6	4,9	3	●	
48079161	8	1,25	90	30	8	6,2	3	●	
48079169	10	1,50	100	38	10	8,0	3	●	





EDP	M	P	L	l	d	a	ZΔ	Stock	Price
48079179	12	1,75	110	29	10	8	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
									◎ 2~4 m/min			



HIGH PERFORMANCE
- Metric
- For titanium alloys (Ti-6Al-4V), 40~45 HRC

HIGH PERFORMANCE
- Metrisch
- Für Titanlegierungen inkl. (Ti-6Al-4V), 40~45 HRC

ALTA PRESTAZIONE
- Metrico
- Per leghe di Titanio (Ti-6Al-4V) di durezza tra 40~45 HRC

HAUTE PERFORMANCE
- Métrique
- Pour alliages de Titane (Ti-6Al-4V) : dureté 40~45 HRC

HIGH PERFORMANCE
- Metrisk
- Til Titanium legeringer (Ti-6Al-4V), 40~45 HRC

HIGH PERFORMANCE
- Metrisk
- För Titanlegeringar (Ti-6Al-4V), 40~45 HRC

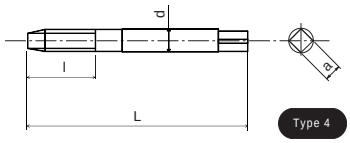
ALTAS PRESTACIONES
- Metrico
- Para aleaciones de Titanio (Ti-6Al-4V), 40~45 HRC

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Метрический
- Для титановых сплавов (Ti-6Al-4V), 40~45 HRC



M PM V ISO 2 6H

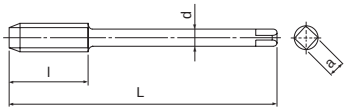
5 DIN 371



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
48012138	3	0,5	56	12	3,5	2,7	3	●	
48012144	4	0,7	63	16	4,5	3,4	3	●	
48012149	5	0,8	70	19	6,0	4,9	3	●	
48012155	6	1	80	23	6,0	4,9	3	●	
48012161	8	1,25	90	30	8,0	6,2	3	●	
48012169	10	1,5	100	38	10,0	8,0	3	●	

M PM V ISO 2 6H

5 DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
48012179	12	1,75	110	29	10	8	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
								4~6 m/min				

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice



METRIC
- General purpose, also for stainless steels

METRISCH
- Für universelle Anwendungen und VA - Stähl

METRICO
- Per applicazioni generalli e per inox

MÉTRIQUE
- Pour applications générales et pour des aciers inox

METRISK
- Til generelt brug, også til rustfrit stål

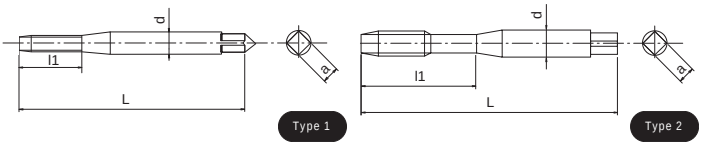
METRISK
- För allround bearbetning och för rostfritt stål

METRICO
- Para aplicación general, para aceros inoxidables

МЕТРИЧЕСКИЙ
- Общего назначения и для нержавеющих сталей

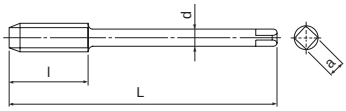


M | HSSE | OX | 40° | ISO 2 6H | 2,5 | DIN 371



EDP	M	P	L	l1	d	a	ZΔ	Type	Stock	Price
65312560	2,0	0,4	45	8	2,8	2,1	2	1	●	
65312860	2,2	0,45	45	9	2,8	2,1	2	1	●	
65313360	2,5	0,45	50	9	2,8	2,1	2	1	●	
65313860	3,0	0,5	56	18	3,5	2,7	3	2	●	
65314060	3,5	0,6	56	20	4,0	3,0	3	2	●	
65314460	4,0	0,7	63	21	4,5	3,4	3	2	●	
65314960	5,0	0,8	70	25	6,0	4,9	3	2	●	
65315560	6,0	1	80	30	6,0	4,9	3	2	●	
65316160	8,0	1,25	90	35	8,0	6,2	3	2	●	
65316960	10,0	1,5	100	39	10,0	8,0	3	2	●	

M | HSSE | OX | 40° | ISO 2 6H | 2,5 | DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
65413860	3	0,5	56	5	2,2	-	3	●	
65414460	4	0,7	63	7	2,8	2,1	3	●	
65414960	5	0,8	70	8	3,5	2,7	3	●	
65415560	6	1	80	10	4,5	3,4	3	●	
65416160	8	1,25	90	13	6,0	4,9	3	●	
65416960	10	1,5	100	15	7,0	5,5	3	●	
65417960	12	1,75	110	18	9,0	7,0	3	●	
65419160	14	2	110	20	11,0	9,0	3	●	
65420260	16	2	110	20	12,0	9,0	3	●	
65421460	18	2,5	125	25	14,0	11,0	4	●	
65422860	20	2,5	140	25	16,0	12,0	4	●	
65423860	22	2,5	140	25	18,0	14,5	4	●	
65424760	24	3	160	30	18,0	14,5	4	●	
65426260	27	3	160	30	20,0	16,0	4	●	
65427160	30	3,5	180	35	22,0	18,0	4	●	
65428160	33	3,5	180	35	25,0	20,0	4	●	
65429460	36	4	200	40	28,0	22,0	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 10~15 m/min	◎ 8~14 m/min	◎ 7~11 m/min	◎ 8~14 m/min					◎ 7~12 m/min	○ 7~11 m/min	○ 7~14 m/min		○ 7~14 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 7~14 m/min											◎ 10~15 m/min	



METRIC
- General purpose, also for stainless steels

METRISCH
- Für universelle Anwendungen und VA - Stähl

METRICO
- Per applicazioni generalli e per inox

MÉTRIQUE
- Pour applications générales et pour des aciers inox

METRISK
- Til generelt brug, også til rustfrit stål

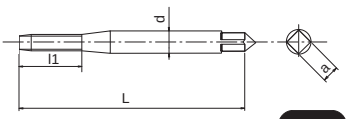
METRISK
- För allround bearbetning och för rostfritt stål

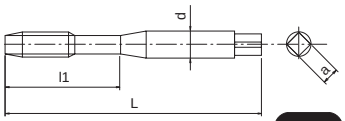
METRICO
- Para aplicación general, para aceros inoxidables

МЕТРИЧЕСКИЙ
- Общего назначения и для нержавеющих сталей



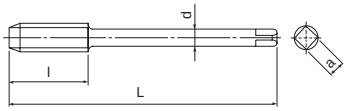
M | HSSE | OX | 40° | ISO 3 6G | 2,5 | DIN 371





EDP	M	P	L	l1	d	a	ZΔ	Type	Stock	Price
65312599	2,0	0,4	45	8	2,8	2,1	2	1	●	
65313399	2,5	0,45	50	9	2,8	2,1	2	1	●	
65313899	3,0	0,5	56	18	3,5	2,7	3	2	●	
65314499	4,0	0,7	63	21	4,5	3,4	3	2	●	
65314999	5,0	0,8	70	25	6,0	4,9	3	2	●	
65315599	6,0	1	80	30	6,0	4,9	3	2	●	
65316199	8,0	1,25	90	35	8,0	6,2	3	2	●	
65316999	10,0	1,5	100	39	10,0	8,0	3	2	●	

M | HSSE | OX | 40° | ISO 3 6G | 2,5 | DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
65417999	12	1,75	110	18	9	7	3	●	
65419199	14	2	110	20	11	9	3	●	
65420299	16	2	110	20	12	9	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 10~15 m/min	◎ 8~14 m/min	◎ 7~11 m/min	◎ 8~14 m/min					◎ 7~12 m/min	○ 7~11 m/min	○ 7~14 m/min		○ 7~14 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 7~14 m/min											◎ 10~15 m/min	

● Delivery from stock
○ Available on short notice



METRIC
- General purpose, also for stainless steel
- Short chamfer

METRISCH
- Für universelle Anwendungen und VA - Stähl
- kurzer Anschnitt

METRICO
- Per applicazioni generali e per inox
- Imbocco corto

MÉTRIQUE
- Pour applications générales et pour des aciers inox
- entrée courte

METRISK
- Til generelt brug, også til rustfrit stål
- Kort indløb

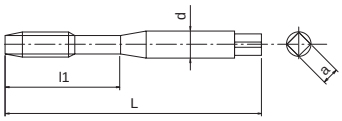
METRISK
- För allround bearbetning och för rostfritt stål
- Kort faslängd

METRICO
- Para aplicación general, para aceros inoxidables
- Chaflán corto

МЕТРИЧЕСКИЙ
- Общего назначения и для нержавеющих сталей
- Короткий заход

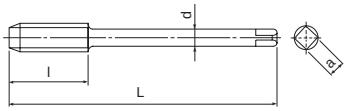


M | HSSE | OX | 40° | ISO 2 6H | ≤1,5 | ≥2D | DIN 371



EDP	M	P	L	l1	d	a	ZΔ	Stock	Price
48036138	3	0,5	56	18	3,5	2,7	3	●	
48036144	4	0,7	63	21	4,5	3,4	3	●	
48036149	5	0,8	70	25	6,0	4,9	3	●	
48036155	6	1	80	30	6,0	4,9	3	●	
48036161	8	1,25	90	35	8,0	6,2	3	●	
48036169	10	1,5	100	39	10,0	8,0	3	●	

M | HSSE | OX | 40° | ISO 2 6H | ≤1,5 | ≥2D | DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
48036179	12	1,75	110	18	9	7	3	●	
48036191	14	2	110	20	11	9	3	●	
48036202	16	2	110	20	12	9	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 10~15 m/min	◎ 8~14 m/min	◎ 7~11 m/min	◎ 8~14 m/min					◎ 7~12 m/min	○ 7~11 m/min	○ 7~14 m/min		○ 7~14 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 7~14 m/min											◎ 10~15 m/min	



METRIC
- For general purposes application

METRISCH
- Für universelle Anwendungen

METRICO
- Per applicazioni generali

MÉTRIQUE
- Pour applications générales

METRISK
- Til generelt brug

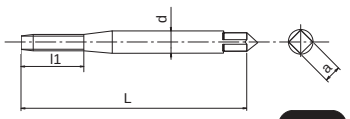
METRISK
- För allround bearbetning

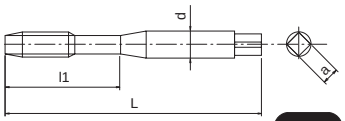
METRICO
- Para aplicación general

МЕТРИЧЕСКИЙ
- Общего назначения



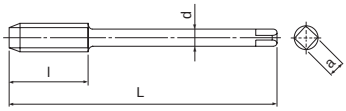
M | HSSE | 40° | ISO 2 6H
2,5D | | | DIN 371





EDP	M	P	L	l1	d	a	ZΔ	Type	Stock	Price
61312560	2,0	0,4	45	8	2,8	2,1	2	1	●	
61313360	2,5	0,45	50	9	2,8	2,1	2	1	●	
61313860	3,0	0,5	56	18	3,5	2,7	3	2	●	
61314060	3,5	0,6	56	20	4,0	3,0	3	2	●	
61314460	4,0	0,7	63	21	4,5	3,4	3	2	●	
61314960	5,0	0,8	70	25	6,0	4,9	3	2	●	
61315560	6,0	1	80	30	6,0	4,9	3	2	●	
61316160	8,0	1,25	90	35	8,0	6,2	3	2	●	
61316960	10,0	1,5	100	39	10,0	8,0	3	2	●	

M | HSSE | 40° | ISO 2 6H
2,5D | | | DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
61413860	3	0,5	56	5	2,2	-	3	●	
61414460	4	0,7	63	7	2,8	2,1	3	●	
61414960	5	0,8	70	8	3,5	2,7	3	●	
61415560	6	1	80	10	4,5	3,4	3	●	
61416160	8	1,25	90	13	6,0	4,9	3	●	
61416960	10	1,5	100	15	7,0	5,5	3	●	
61417960	12	1,75	110	18	9,0	7,0	3	●	
61419160	14	2	110	20	11,0	9,0	3	●	
61420260	16	2	110	20	12,0	9,0	3	●	
61421460	18	2,5	125	25	14,0	11,0	4	●	
61422860	20	2,5	140	25	16,0	12,0	4	●	
61423860	22	2,5	140	25	18,0	14,5	4	●	
61424760	24	3	160	30	18,0	14,5	4	●	
61426260	27	3	160	30	20,0	16,0	4	●	
61427160	30	3,5	180	35	22,0	18,0	4	●	
61428160	33	3,5	180	35	25,0	20,0	4	●	
61429460	36	4	200	40	28,0	22,0	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
○ 8~13 m/min	○ 7~12 m/min	○ 6~9 m/min	○ 7~12 m/min							○ 6~11 m/min		○ 6~8 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 6~11 m/min	○ 10~20 m/min	○ 10~20 m/min	○ 6~11 m/min	○ 10~20 m/min	○ 10~15 m/min	○ 7~12 m/min	○ 7~12 m/min				○ 10~15 m/min	

● Delivery from stock
○ Available on short notice



METRIC
- For general purposes application

METRISCH
- Für universelle Anwendungen

METRICO
- Per applicazioni generali

MÉTRIQUE
- Pour applications générales

METRISK
- Til generelt brug

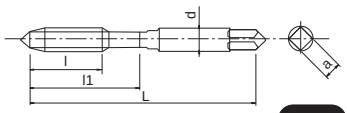
METRISK
- För allround bearbetning

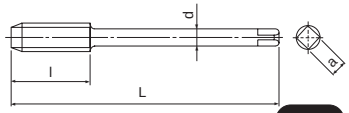
METRICO
- Para aplicación general

МЕТРИЧЕСКИЙ
- Общего назначения



M | HSSE | 40° | ISO 2 6H | 2,5 | DIN 352





EDP	M	P	L	l	d	a	ZΔ	Type	Stock	Price
60413860	3	0,5	40	18	3,5	2,7	3	2	●	
60414460	4	0,7	45	21	4,5	3,4	3	2	●	
60414960	5	0,8	50	24	6,0	4,9	3	2	●	
60415560	6	1	50	27	6,0	4,9	3	2	●	
60416160	8	1,25	63	13	6,0	4,9	3	3	●	
60416960	10	1,5	70	15	7,0	5,5	3	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
○ 8~13 m/min	○ 7~12 m/min	○ 6~9 m/min	○ 7~12 m/min							○ 6~11 m/min		○ 6~8 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 6~11 m/min	○ 10~20 m/min	○ 10~20 m/min	○ 6~11 m/min	○ 10~20 m/min	○ 10~15 m/min	○ 7~12 m/min	○ 7~12 m/min				○ 10~15 m/min	



METRIC
- For mild steel

METRISCH
- Für unlegierten Stähl

METRICO
- Per acciai dolci

MÉTRIQUE
- Pour aciers doux

METRISK
- Til blødt stål

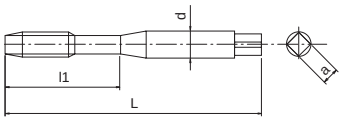
METRISK
- För mjukt stål

METRICO
- Para aceros suaves

МЕТРИЧЕСКИЙ
- для мягкой стали

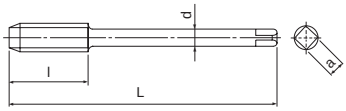


M | HSSE | OX | 40° | ISO 2 6H | 2,5 | DIN 371



EDP	M	P	L	l1	d	a	ZΔ	Stock	Price
61614460	4	0,7	63	21	4,5	3,4	3	●	
61614960	5	0,8	70	25	6,0	4,9	3	●	
61615560	6	1	80	30	6,0	4,9	3	●	
61616160	8	1,25	90	35	8,0	6,2	3	●	
61616960	10	1,5	100	39	10,0	8,0	3	●	

M | HSSE | OX | 40° | ISO 2 6H | 2,5 | DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
61717960	12	1,75	110	18	9	7	3	●	
61719160	14	2	110	20	11	9	3	●	
61720260	16	2	110	20	12	9	3	●	
61721460	18	2,5	125	25	14	11	4	●	
61722860	20	2,5	140	25	16	12	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 8~13 m/min	◎ 7~12 m/min	○ 6~9 m/min	○ 7~12 m/min							○ 6~11 m/min		

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 6~11 m/min												

● Delivery from stock
○ Available on short notice



METRIC
- General purpose applications

METRISCH
- Für universelle Anwendungen

METRICO
- Per applicazioni generali

MÉTRIQUE
- Pour applications générales

METRISK
- Til generelt brug

METRISK
- För diverse applikationer

METRICO
- Para aplicación general

МЕТРИЧЕСКИЙ
- Общего назначения





EDP	M	P	L	l	l1	d	a	ZΔ	Type	Stock	Price
22201254	2	0,4	41	8	-	2,50	2,00	2	1	○	
T102022045	2,2	0,45	41	8	-	2,80	2,24	2	1	○	
22201334	2,5	0,45	44,5	9,5	-	2,80	2,24	2	1	○	
22201384	3	0,5	48	11	18	3,15	2,50	3	2	○	
22201404	3,5	0,6	50	13	20	3,55	2,80	3	2	○	
22201444	4	0,7	53	13	21	4,00	3,15	3	2	○	
22201464	4,5	0,75	53	13	21	4,50	3,55	3	2	○	
22201494	5	0,8	58	16	25	5,00	4,00	3	2	○	
22201554	6	10	66	19	30	6,30	5,00	3	2	○	
22201584	7	1	66	19	30	7,10	5,60	3	2	○	
22201614	8	1,25	72	22	35	8,00	6,30	3	2	○	
22201654	9	1,25	72	22	36	9,00	7,10	3	2	○	
22201694	10	1,5	80	24	39	10,00	8,00	3	2	○	
22201744	11	1,5	85	25	-	8,00	6,30	3	3	○	
22201794	12	1,75	89	29	-	9,00	7,10	3	3	○	
22201914	14	2	95	30	-	11,20	9,00	3	3	○	
22202024	16	2	102	32	-	12,50	10,00	3	3	○	
22202144	18	2,5	112	37	-	14,00	11,20	4	3	○	
22202284	20	2,5	112	37	-	14,00	11,20	4	3	○	
22202384	22	2,5	118	38	-	16,00	12,50	4	3	○	
22202474	24	3	130	45	-	18,00	14,00	4	3	○	
22202624	27	3	135	45	-	20,00	16,00	4	3	○	
22202714	30	3,5	151	51	-	22,40	18,00	4	3	○	
22202814	33	3,5	151	51	-	22,40	18,00	4	3	○	
22202944	36	4	162	57	-	25,00	20,00	4	3	○	
22203044	39	4	170	60	-	28,00	22,40	4	3	○	
22203144	42	4,5	187	67	-	31,50	28,00	4	3	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 10~15 m/min	◎ 8~14 m/min	◎ 7~11 m/min	◎ 8~14 m/min	○ 7~11 m/min				◎ 7~12 m/min	○ 6~9 m/min	○ 7~14 m/min		○ 7~14 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	

HXL-SFT



METRIC
- For oil and energy industry
- For horizontal operations

METRISCH
- Für Öl- und Schwerindustrie
- Für horizontale Bearbeitung

METRICO
- Per industria petrolifera ed energetica
- Per lavorazioni orizzontali

MÉTRIQUE
- Pour l'industrie lourde et l'énergie
- Pour applications horizontales

METRISK
- For olie og energy industrien
- Til horisontale operationer

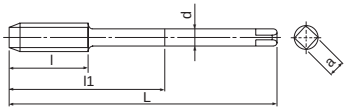
METRISK
- För olje och energi industrin
- För horisontala applikationer

METRICO
- para Industria Energetica y Pesada
- Para roscado horizontal

МЕТРИЧЕСКИЙ
- внутреннее охлаждение
- Горизонтального нарезки резьбы



M | HSSE | OX | 15° | ISO 6HX | 2,5-3



EDP	M	P	L	l	l1	d	a	ZΔ	Stock	Price
48045228	20	2,5	140	20	69	16	12	5	●	
48045247	24	3	160	24	81	18	14,5	5	●	
48045262	27	3	160	24	90	20	16	5	●	
48045271	30	3,5	250	28	161	22	18	5	●	
48045281	33	3,5	250	28	176	25	20	5	●	
48045294	36	4	250	32	174	28	22	5	●	
48045304	39	4	300	32	188	32	24	5	●	
48045314	42	4,5	300	36	203	32	24	6	●	
48045325	48	5	300	40	183	36	29	6	●	
48045337	52	5	300	40	197	40	32	6	●	
48045347	56	5,5	300	44	213	45	35	6	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
○ 8~13 m/min	○ 7~12 m/min	◎ 6~9 m/min	◎ 7~12 m/min	○ 3~5 m/min				○ 5~8 m/min	○ 6~9 m/min	○ 6~11 m/min	◎ 7~12 m/min	◎ 7~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

OIL-HXL-SFT



METRIC
- For oil and energy industry
- For horizontal operations

METRISCH
- Für Öl- und Schwerindustrie
- Für horizontale Bearbeitung

METRICO
- Per industria petrolifera ed energetica
- Per lavorazioni orizzontali

MÉTRIQUE
- Pour l'industrie lourde et l'énergie
- Pour applications horizontales

METRISK
- For olie og energi industrien
- Til horisontale operationer

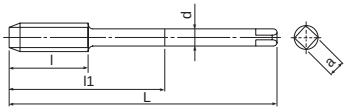
METRISK
- För olje och energi industrin
- För horisontala applikationer

METRICO
- para Industria Energetica y Pesada
- Para roscado horizontal

МЕТРИЧЕСКИЙ
- внутреннее охлаждение
- Горизонтального нарезки резьбы







EDP	M	P	L	l	l1	d	a	ZΔ	Stock	Price
48048228	20	2,5	140	20	69	16	12	5	●	
48048247	24	3	160	24	81	18	14,5	5	●	
48048262	27	3	160	24	90	20	16	5	●	
48048271	30	3,5	250	28	161	22	18	5	●	
48048281	33	3,5	250	28	176	25	20	5	●	
48048294	36	4	250	32	174	28	22	5	●	
48048304	39	4	300	32	188	32	24	5	●	
48048314	42	4,5	300	36	203	32	24	6	●	
48048325	48	5	300	40	183	36	29	6	●	
48048337	52	5	300	40	197	40	32	6	●	
48048347	56	5,5	300	44	213	45	35	6	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
○ 8~13 m/min	○ 7~12 m/min	◎ 6~9 m/min	◎ 7~12 m/min	○ 3~5 m/min				○ 5~8 m/min	○ 6~9 m/min	○ 6~11 m/min	◎ 7~12 m/min	◎ 7~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	



METRIC
- For oil and energy industry
- For vertical operations

METRISCH
- Für Öl - und Schwerindustrie
- Für vertikale Bearbeitung

METRICO
- Per industria petrolifera ed energetica
- Per lavorazioni verticali

MÉTRIQUE
- Pour l'industrie lourde et l'energie
- Pour applications verticales

METRISK
- Til olie og energi industrien
- Til vertikale operationer

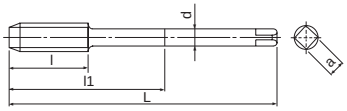
METRISK
- För olje och energi industrin
- För vertikala applikationer

METRICO
- Para industria Energetica y Pesada
- Para roscado vertical

МЕТРИЧЕСКИЙ
- внутреннее охлаждение
- Для вертикального нарезания резьбы



M | HSSE | OX | 45° | ISO 6HX | 2,5-3



EDP	M	P	L	l	l1	d	a	ZΔ	Stock	Price
48046228	20	2,5	140	20	69	16	12	4	●	
48046247	24	3	160	24	81	18	14,5	4	●	
48046262	27	3	160	24	90	20	16	4	●	
48046271	30	3,5	250	28	161	22	18	5	●	
48046281	33	3,5	250	28	176	25	20	5	●	
48046294	36	4	250	32	174	28	22	5	●	
48046304	39	4	300	32	188	32	24	5	●	
48046314	42	4,5	300	36	203	32	24	6	●	
48046325	48	5	300	40	183	36	29	6	●	
48046337	52	5	300	40	197	40	32	6	●	
48046347	56	5,5	300	44	213	45	35	6	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
○ 8~13 m/min	○ 7~12 m/min	◎ 6~9 m/min	◎ 7~12 m/min	○ 3~5 m/min				○ 5~8 m/min	○ 6~9 m/min	○ 6~11 m/min		

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	

● Delivery from stock
○ Available on short notice



METRIC
- Coolant through, for oil and energy industry
- For vertical operations

METRISCH
- Mit innerer Kühlmittelzuführung für Öl - und Schwerindustrie
- Für vertikale Bearbeitung

METRICO
- Per lubrificazione centrali, per industria petrolifera ed energetica
- Per lavorazioni verticali

MÉTRIQUE
- Avec arrosage centrale, pour l'industrie lourde et l'energie
- Pour applications verticales

METRISK
- Kølekanaler, til olie og energi industrien
- Til vertikale operationer

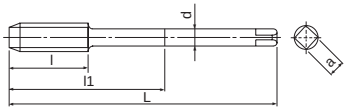
METRISK
- Kylkanaler, för olje och energi industrin
- För vertikala applikationer

METRICO
- Para refrigeración interna, para industria Energetica y Pesada
- Para roscado vertical

МЕТРИЧЕСКИЙ
- Сверло нормальной
- Для вертикального нарезания резьбы







EDP	M	P	L	l	l1	d	a	ZΔ	Stock	Price
48049228	20	2,5	140	20	69	16	12	4	●	
48049247	24	3	160	24	81	18	14,5	4	●	
48049262	27	3	160	24	90	20	16	4	●	
48049271	30	3,5	250	28	161	22	18	5	●	
48049281	33	3,5	250	28	176	25	20	5	●	
48049294	36	4	250	32	174	28	22	5	●	
48049304	39	4	300	32	188	32	24	5	●	
48049314	42	4,5	300	36	203	32	24	6	●	
48049325	48	5	300	40	183	36	29	6	●	
48049337	52	5	300	40	197	40	32	6	●	
48049347	56	5,5	300	44	213	45	35	6	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◯ 8~13 m/min	◯ 7~12 m/min	◎ 6~9 m/min	◎ 7~12 m/min	◯ 3~5 m/min				◯ 5~8 m/min	◯ 6~9 m/min	◯ 6~11 m/min		

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	



METRIC
- For steel ≤ 850 N/mm²

METRISCH
- Für Stähl ≤ 850 N/mm²

METRICO
- Per acciai ≤ 850 N/mm²

MÉTRIQUE
- Pour aciers ≤ 850 N/mm²

METRISK
- Til stål ≤ 850 N/mm²

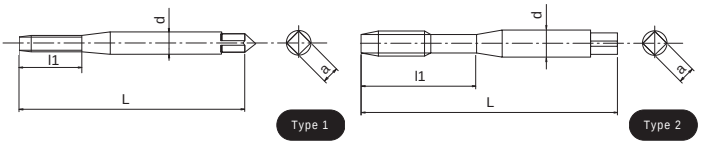
METRISK
- För stål ≤ 850 N/mm²

METRICO
- Para aceros ≤ 850 N/mm²

МЕТРИЧЕСКИЙ
- Для сталей ≤ 850 Н/мм²

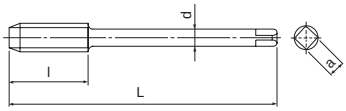


M | HSSE | TIN | 40° | ISO 2 6H | 2,5 | DIN 371



EDP	M	P	L	l1	d	a	ZΔ	Type	Stock	Price
6131256001	2	0,4	45	8	2,8	2,1	2	1	●	
6131336001	2,5	0,45	50	9	2,8	2,1	2	1	●	
6131386001	3	0,5	56	18	3,5	2,7	3	2	●	
6131406001	3,5	0,6	56	20	4,0	3,0	3	2	●	
6131446001	4	0,7	63	21	4,5	3,4	3	2	●	
6131496001	5	0,8	70	25	6,0	4,9	3	2	●	
6131556001	6	1	80	30	6,0	4,9	3	2	●	
6131616001	8	1,25	90	36	8,0	6,2	3	2	●	
6131696001	10	1,5	100	39	10,0	8,0	3	2	●	

M | HSSE | TIN | 40° | ISO 2 6H | 2,5 | DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
6141386001	3	0,5	56	5	2,2	-	3	●	
6141446001	4	0,7	63	7	2,8	2,1	3	●	
6141496001	5	0,8	70	8	3,5	2,7	3	●	
6141556001	6	1	80	10	4,5	3,4	3	●	
6141616001	8	1,25	90	13	6,0	4,9	3	●	
6141696001	10	1,5	100	15	7,0	5,5	3	●	
6141796001	12	1,75	110	18	9,0	7,0	3	●	
6141916001	14	2	110	20	11,0	9,0	3	●	
6142026001	16	2	110	20	12,0	9,0	3	●	
6142146001	18	2,5	125	25	14,0	11,0	4	●	
6142286001	20	2,5	140	25	16,0	12,0	4	●	
6142386001	22	2,5	140	25	18,0	14,5	4	●	
6142476001	24	3	160	30	18,0	14,5	4	●	
6142626001	27	3	160	30	20,0	16,0	4	●	
6142716001	30	3,5	180	35	22,0	18,0	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
○ 8~13 m/min	○ 7~12 m/min	◎ 6~9 m/min	○ 7~12 m/min					○ 5~8 m/min	○ 6~9 m/min	○ 6~11 m/min		○ 7~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 6~11 m/min	○ 10~20 m/min	○ 10~20 m/min	○ 6~11 m/min	○ 10~20 m/min	○ 10~15 m/min	○ 7~12 m/min	○ 7~12 m/min	○ 4~6 m/min			○ 10~15 m/min	

● Delivery from stock
○ Available on short notice



METRIC
- For steel ≤ 850 N/mm²

METRISCH
- Für Stähl ≤ 850 N/mm²

METRICO
- Per acciai ≤ 850 N/mm²

MÉTRIQUE
- Pour aciers ≤ 850 N/mm²

METRISK
- Til stål ≤ 850 N/mm²

METRISK
- För stål ≤ 850 N/mm²

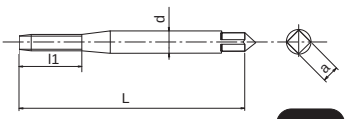
METRICO
- Para aceros ≤ 850 N/mm²

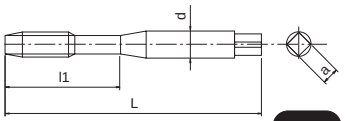
МЕТРИЧЕСКИЙ
- Для сталей ≤ 850 Н/мм²

GO TO LIVE STOCK CHECK



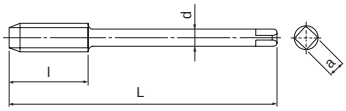
M | HSSE | V | 40° | ISO 2 6H | 2,5 | DIN 371





EDP	M	P	L	l1	d	a	ZΔ	Type	Stock	Price
6131256002	2	0,4	45	8	2,8	2,1	2	1	●	
6131386002	3	0,5	56	18	3,5	2,7	3	2	●	
6131446002	4	0,7	63	21	4,5	3,4	3	2	●	
6131496002	5	0,8	70	25	6,0	4,9	3	2	●	
6131556002	6	1	80	30	6,0	4,9	3	2	●	
6131616002	8	1,25	90	36	8,0	6,2	3	2	●	
6131696002	10	1,5	100	39	10,0	8,0	3	2	●	

M | HSSE | V | 40° | ISO 2 6H | 2,5 | DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
6141796002	12	1,75	110	18	9	7	3	●	
New Sizes 6141916002	14	2	110	20	11	9	3	●	
New Sizes 6142026002	16	2	110	20	12	9	3	●	
New Sizes 6142146002	18	2,5	125	25	14	11	4	●	
New Sizes 6142286002	20	2,5	140	25	16	12	4	●	
New Sizes 6142386002	22	2,5	140	25	18	14,5	4	●	
New Sizes 6142476002	24	3	160	30	18	14,5	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
○ 8~13 m/min	○ 7~12 m/min	◎ 6~9 m/min	○ 7~12 m/min					○ 5~8 m/min	○ 6~9 m/min	○ 6~11 m/min		○ 7~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 6~11 m/min	○ 10~20 m/min	○ 10~20 m/min	○ 6~11 m/min	○ 10~20 m/min	○ 10~15 m/min	○ 7~12 m/min	○ 7~12 m/min	○ 4~6 m/min			○ 10~15 m/min	



METRIC
- For stainless steel

METRISCH
- Für VA -Stähl

METRICO
- Per inox

MÉTRIQUE
- Pour les aciers inoxydables

METRISK
- Til rustfrit stål

METRISK
- För rostfritt stål

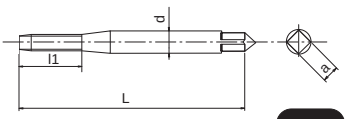
METRICO
- Para aceros inoxidables

МЕТРИЧЕСКИЙ
- Для нержавеющих сталей

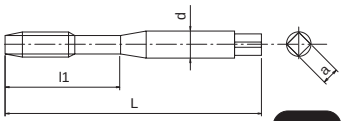


M | HSSE | OX | 50° | ISO 2 6HX

2,5D | <1,5D | DIN 371



Type 1

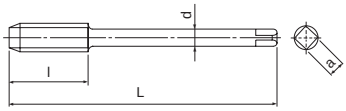


Type 2

EDP	M	P	L	l1	d	a	ZΔ	Type	Stock	Price
48025125	2,0	0,4	45	8	2,8	2,1	2	1	●	
48025128	2,2	0,45	45	9	2,8	2,1	2	1	●	
48025133	2,5	0,45	50	9	2,8	2,1	2	1	●	
48025138	3,0	0,5	56	18	3,5	2,7	3	2	●	
48025140	3,5	0,6	56	20	4,0	3,0	3	2	●	
48025144	4,0	0,7	63	21	4,5	3,4	3	2	●	
48025149	5,0	0,8	70	25	6,0	4,9	3	2	●	
48025155	6,0	1	80	30	6,0	4,9	3	2	●	
48025161	8,0	1,25	90	35	8,0	6,2	3	2	●	
48025169	10,0	1,5	100	39	10,0	8,0	3	2	●	

M | HSSE | OX | 50° | ISO 2 6HX

2,5D | <1,5D | DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
48026179	12	1,75	110	18	9	7,0	3	●	
48026191	14	2	110	20	11	9,0	3	●	
48026202	16	2	110	20	12	9,0	3	●	
48026214	18	2,5	125	25	14	11,0	4	●	
48026228	20	2,5	140	25	16	12,0	4	●	
48026238	22	2,5	140	25	18	14,5	4	●	
48026247	24	3	160	30	18	14,5	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
								◎ 7~12 m/min				

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 6~11 m/min											◎ 10~15 m/min	

● Delivery from stock
○ Available on short notice



METRIC

- For stainless steels, aluminium and steel
- For threading depth ≥ 2 D
- Developed for CNC machines equipped with rigid tapping
- For pilot hole use OSG EX-SUS-GDS (p.C.70)

METRISCH

- Für Va-Stahl, Aluminium und Stahl
- Für Gewindetiefe ≥ 2 D
- Für CNC Maschinen mit Synchronspindeln
- Für die Kernlochbearbeitung EX-SUS-GDS verwenden(p.C.70)

METRICO

- Per acciai inox, alluminio e acciai
- Per profondità di filettatura ≥ 2 D
- Per le macchine CNC che hanno un programma di sincronizzazione tra la velocità e l'avanzamento
- Utilizzate OSG EX-SUSGDS per foro pilota (p.C.70)

MÉTRIQUE

- Pour inox, aluminium et aciers
- Profondeur de taraudage ≥ 2 D
- Développé pour les machines CNC qui ont le "taraudage rigide"
- Pour trou pilote utiliser OSG EX-SUS-GDS (p.C.70)

METRISK

- Til rustfrit stål, aluminium og stål
- Til gevinddybde < 2D
- Udviklet til CNC maskine udstyret med fast tapholder
- For boring af pilot hul brug OSG EX-SUS-GDS (p.C.70)

METRISK

- För rostfritt stål, aluminium och stål
- För gängdjup < 2D
- Utvecklat för CNC-maskiner som är utrustade med gängfunktion
- För pilot hål använd OSG EX-SUS-GDS (p.C.70)

METRICO

- Para aceros inoxidables, aluminio y aceros
- Para roscado < 2D
- Desarrollados para máquinas CNC aptas para roscado rígido
- Para agujero previo use EX-SUS-GDS (p.C.70)

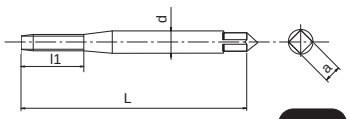
МЕТРИЧЕСКИЙ

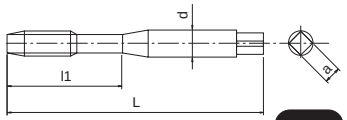
- Для нержавеющих сталей и алюминия
- Для резьб глубиной < 2D
- Разработаны для ЧПУ станков имеющих циклы жесткой нарезки резьбы
- Для пилотного отверстия используйте OSG EX-SUS-GDS (p.C.70)



M | HSSE | CrN | 45° | ISO 2 6HX

≤2,5D | ≥2D | DIN 371

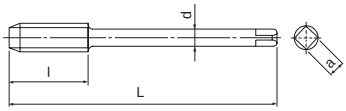




EDP	M	P	L	l1	d	a	ZΔ	Type	Stock	Price
48032125	2,0	0,4	45	8	2,8	2,1	2	1	●	
48032133	2,5	0,45	50	10	2,8	2,1	2	1	●	
48032138	3,0	0,5	56	12	3,5	2,7	3	1	●	
48032144	4,0	0,7	63	16	4,5	3,4	3	1	●	
48032149	5,0	0,8	70	20	6,0	4,9	3	1	●	
48032155	6,0	1	80	24	6,0	4,9	3	1	●	
48032161	8,0	1,25	90	11	8,0	6,2	3	2	●	
48032169	10,0	1,5	100	14	10,0	8,0	4	2	●	

M | HSSE | CrN | 45° | ISO 2 6HX

≤2,5D | ≥2D | DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
48035138	3	0,5	56	5	2,2	-	3	●	
48035144	4	0,7	63	7	2,8	2,1	3	●	
48035149	5	0,8	70	8	3,5	2,7	3	●	
48035155	6	1	80	10	4,5	3,4	3	●	
48035161	8	1,25	90	11	6	4,9	3	●	
48035169	10	1,5	100	14	7	5,5	4	●	
48032179	12	1,75	110	16	9	7	4	●	
48032191	14	2	110	18	11	9	4	●	
48032202	16	2	110	18	12	9	4	●	
48032214	18	2,5	125	23	14	11	4	●	
48032228	20	2,5	140	23	16	12	4	●	
48032238	22	2,5	140	23	18	14,5	4	●	
48032247	24	3	160	27	18	14,5	4	●	
48032262	27	3	160	27	20	16	4	●	
48032271	30	3,5	180	32	22	18	4	●	
48032294	36	4	200	36	28	22	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~25 m/min	◎ 15~25 m/min	◎ 10~25 m/min	○ 10~25 m/min					◎ 6~10 m/min				

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 15~24 m/min				◎ 15~35 m/min								



METRIC
- Variable lead spiral flute for better chip evacuation
- For stainless steels aluminium and steels
- For threading depth ≥ 2 D
- For pilot hole use OSG EX-SUS-GDS (p.C.70)

METRISCH
- ungleich gedrallter Spiralwinkel für eine bessere Spanabfuhr
- Für Va-Stahl und Aluminium und Stahl
- Für Gewindetiefe ≥ 2 D
- Für die Kernlochbearbeitung EX-SUS-GDS verwenden (p.C.70)

METRICO
- Elica variabile per una migliore evacuazione dei trucioli
- Per acciai inox e alluminio, acciai
- Per profondità di filettatura ≥ 2 D
- Utilizzate OSG EX-SUSGDS per foro pilota (p.C.70)

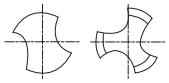
MÉTRIQUE
- hélice variable pour une meilleure évacuation des copeaux
- Pour inox, aluminium et aciers
- Profondeur de taraudage ≥ 2 D
- Pour trou pilote utiliser OSG EX-SUS (p.C.70)

METRISK
- Variabel snoning for bedre spånafgang
- Til rustfrit stål og aluminium, og stål
- Til gevinddybde < 2D
- For boring af pilot hul brug OSG EX-SUS-GDS (p.C.70)

METRISK
- Variabel helix för bättre spånevakuering
- För rostfritt stål och aluminium, stål
- För gängdjup < 2D
- För pilot hål använd OSG EX-SUS-GDS (p.C.70)

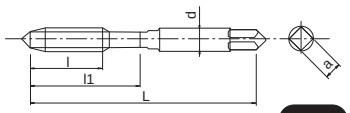
METRICO
- Ranura helicoidal de paso variable para mejor evacuación de virutas
- Para aceros inoxidables y aluminio, aceros
- Para roscado < 2D
- Para agujero previo use EX-SUS-GDS (p.C.70)

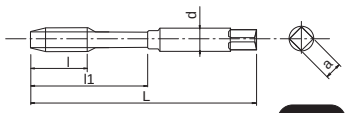
МЕТРИЧЕСКИЙ
- Переменная спиральная канавка для лучшего удаления стружки
- Для нержавеющих сталей и алюминия
- Для резьб глубиной < 2D
- Для пилотного отверстия используйте OSG EX-SUS-GDS (p.C.70)



M | HSSE | TIN | 45° | ISO 2 6HX

≤2,5 | ≥2D | DIN 371

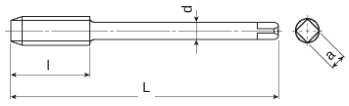




EDP	M	P	L	l1	d	a	ZΔ	Type	Stock	Price
48081125	2	0,4	45	8	2,8	2,1	2	1	●	
48081133	2,5	0,45	50	9	2,8	2,1	2	1	●	
48081138	3	0,5	56	18	3,5	2,7	2	2	●	
48081144	4	0,7	63	21	4,5	3,4	2	2	●	
48081149	5	0,8	70	25	6	4,9	2	2	●	
48081155	6	1	80	30	6	4,9	2	2	●	
48081161	8	1,25	90	35	8	6,2	3	2	●	
48081169	10	1,5	100	39	10	8	3	2	●	

M | HSSE | TIN | 45° | ISO 2 6HX

≤2,5 | DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
48081179	12	1,75	110	18	9	7	3	●	
48081191	14	2	110	20	11	9	3	●	
48081202	16	2	110	20	12	9	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~25 m/min	◎ 15~25 m/min	◎ 10~25 m/min	○ 10~25 m/min					◎ 6~10 m/min				

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 15~24 m/min				◎ 15~35 m/min								

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice



METRIC
- For aluminium

METRISCH
- Für Aluminium

METRICO
- Per alluminio

MÉTRIQUE
- Pour aluminium

METRISK
- Til aluminium

METRISK
- För alminium

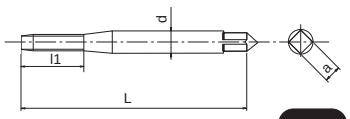
METRICO
- Para aluminio

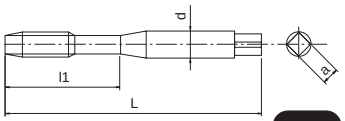
МЕТРИЧЕСКИЙ
- Для алюминия



M | HSSE | 50° | ISO 2 6H

2,5 | | | DIN 371

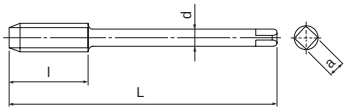




EDP	M	P	L	l1	d	a	ZΔ	Type	Stock	Price
70211860	1,6	0,35	40	8	2,5	2,1	2	1	●	
70212560	2,0	0,4	45	8	2,8	2,1	2	1	●	
70212860	2,2	0,45	45	9	2,8	2,1	2	1	●	
70213360	2,5	0,45	50	9	2,8	2,1	2	1	●	
70213860	3,0	0,5	56	18	3,5	2,7	2	2	●	
70214060	3,5	0,6	56	20	4,0	3,0	2	2	●	
70214460	4,0	0,7	63	21	4,5	3,4	2	2	●	
70214960	5,0	0,8	70	25	6,0	4,9	2	2	●	
70215560	6,0	1	80	30	6,0	4,9	2	2	●	
70216160	8,0	1,25	90	35	8,0	6,2	2	2	●	
70216960	10,0	1,5	100	39	10,0	8	2	2	●	

M | HSSE | 50° | ISO 2 6H

2,5 | | | DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
70317960	12	1,75	110	18	9	7	2	●	
70319160	14	2	110	20	11	9	2	●	
70320260	16	2	110	20	12	9	2	●	
70321460	18	2,5	125	25	14	11	2	●	
70322860	20	2,5	140	25	16	12	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
				◎ 10~20 m/min	◎ 10~15 m/min	◯ 7~12 m/min						

● Delivery from stock
○ Available on short notice



METRIC
- For alloyed steels ≥ 1100 N/mm²
- Forming short chips

METRISCH
- Für legierten Stahl ≥ 1100 N/mm²
- Für kurzspanende Werkstoffe

METRICO
- Per acciai legati ≥ 1100 N/mm²
- Formano trucioli corti

MÉTRIQUE
- Pour aciers alliés ≥ 1100 N/mm²
- Formant des copeaux courts

METRISK
- Til legeret stål ≥ 1100 N/mm²
- Giver korte spåner

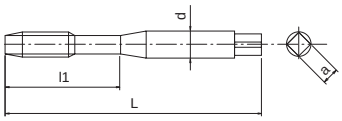
METRISK
- För legerade stål ≥ 1100 N/mm²
- Formar korta spånor

METRICO
- Para aceros aleados ≥ 1100 N/mm²
- Formación de virutas cortas

МЕТРИЧЕСКИЙ
- Для легированных сталей ≥ 1100 Н/мм²
- Формирует короткую стружку

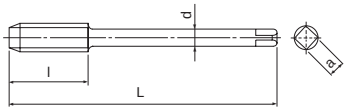


M | HSSE | 15° | ISO 2 6H | 3 | DIN 371



EDP	M	P	L	l1	d	a	ZΔ	Stock	Price
72313860	3	0,5	56	18	3,5	2,7	3	●	
72314460	4	0,7	63	21	4,5	3,4	3	●	
72314960	5	0,8	70	25	6,0	4,9	3	●	
72315560	6	1	80	30	6,0	4,9	3	●	
72316160	8	1,25	90	35	8,0	6,2	3	●	
72316960	10	1,5	100	39	10,0	8,0	3	●	

M | HSSE | 15° | ISO 2 6H | 2 | DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
72017960	12	1,75	110	18	9	7	3	●	
72019160	14	2	110	20	11	9	3	●	
72020260	16	2	110	20	12	9	3	●	
72021460	18	2,5	125	25	14	11	4	●	
72022860	20	2,5	140	25	16	12	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
	○ 7~12 m/min	○ 6~9 m/min	○ 7~12 m/min								○ 7~12 m/min	○ 6~8 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
	○ 10~20 m/min	○ 10~20 m/min	○ 6~11 m/min		○ 10~15 m/min		○ 7~12 m/min				○ 7~12 m/min	

● Delivery from stock
○ Available on short notice



METRIC
- For steel ≥ 900 N/mm² & cast iron
- Forming short chips

METRISCH
- Für Stahl ≥ 900 N/mm² & Guss
- Für kurzspanende Werkstoffe

METRICO
- Per acciai ≥ 900 N/mm² e ghisa
- Formano trucioli corti

MÉTRIQUE
- Pour acier ≥ 900 N/mm² & fonte
- Formant des copeaux courts

METRISK
- Til stål ≥ 900 N/mm² & støbejern
- Giver korte spåner

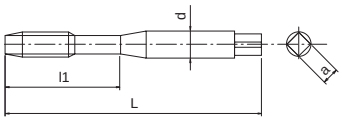
METRISK
- För stål ≥ 900 N/mm² & gjutjärn
- Formar korta spånor

METRICO
- Para aceros ≥ 900 N/mm² y fundiciones
- Formación de virutas cortas

МЕТРИЧЕСКИЙ
- Для стали ≥ 900 Н/мм² и чугуна
- Формирует короткую стружку

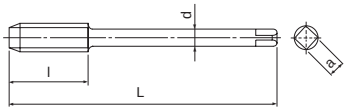


M | PM | 15° | ISO 2 6H | 3 | DIN 371



EDP	M	P	L	l1	d	a	ZΔ	Stock	Price
81913860	3	0,5	56	18	3,5	2,7	3	●	
81914460	4	0,7	63	21	4,5	3,4	3	●	
81914960	5	0,8	70	25	6,0	4,9	3	●	
81915560	6	1	80	30	6,0	4,9	3	●	
81916160	8	1,25	90	35	8,0	6,2	3	●	
81916960	10	1,5	100	39	10,0	8,0	3	●	

M | PM | 15° | ISO 2 6H | 3 | DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
82016160	8	1,25	90	13	6	4,9	3	●	
82016960	10	1,5	100	15	7	5,5	3	●	
82017960	12	1,75	110	18	9	7,0	3	●	
82019160	14	2	110	20	11	9,0	3	●	
82020260	16	2	110	20	12	9,0	3	●	
82021460	18	2,5	125	25	14	11,0	4	●	
82022860	20	2,5	140	25	16	12,0	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
		◎ 6~12 m/min	○ 7~12 m/min	◎ 4~8 m/min	◎ 4~8 m/min				○ 6~12 m/min	○ 7~15 m/min	○ 7~12 m/min	○ 7~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	



HIGH PERFORMANCE
- Metric
- **Serie H** : for steels 25~45 HRC

HIGH PERFORMANCE
- Metrisch
- **Serie H** : Für Stahl 25~45 HRC

ALTA PRESTAZIONE
- Metrico
- **Serie H** : per acciai di durezza tra 25~45 HRC

HAUTE PERFORMANCE
- Métrique
- **Série H** : pour acier de dureté entre 25~45 HRC

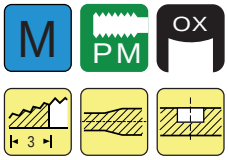
HIGH PERFORMANCE
- Metrisk
- **Serie H**: Til stål 25 - 45 HRC

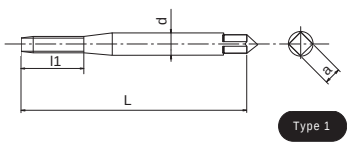
HIGH PERFORMANCE
- Metrisk
- **Serie H**: för stål 25 ~ 45 HRC

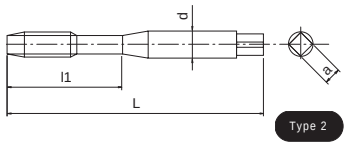
ALTAS PRESTACIONES
- Metrico
- **Serie H** (H-CPM): para aceros 25 ÷ 45 HrC

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Метрический
- **Серия P**: для сталей 25 ~ 45 HRC

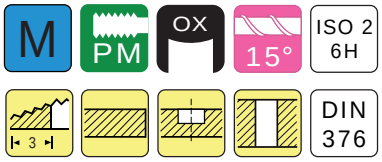


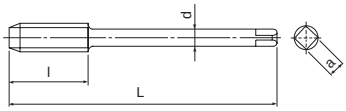






EDP	M	P	L	l1	d	a	ZΔ	Type	Stock	Price
83212560	2,0	0,4	45	8	2,8	2,1	2	1	●	
83213360	2,5	0,45	50	9	2,8	2,1	2	1	●	
83213860	3,0	0,5	56	18	3,5	2,7	3	2	●	
83214460	4,0	0,7	63	21	4,5	3,4	3	2	●	
83214960	5,0	0,8	70	25	6,0	4,9	3	2	●	
83215560	6,0	1	80	30	6,0	4,9	3	2	●	
83216160	8,0	1,25	90	35	8,0	6,2	3	2	●	
83216960	10,0	1,5	100	39	10,0	8,0	3	2	●	





EDP	M	P	L	l	d	a	ZΔ	Stock	Price
83317960	12	1,75	110	18	9	7	3	●	
83319160	14	2	110	20	11	9	3	●	
83320260	16	2	110	20	12	9	3	●	
83321460	18	2,5	125	25	14	11	4	●	
83322860	20	2,5	140	25	16	12	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
		◎ 6~12 m/min	○ 7~12 m/min	◎ 4~8 m/min	◎ 4~8 m/min				◎ 6~12 m/min			○ 7~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
								○ 3~5 m/min	○ 1~3 m/min			

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE
- Metric
- **Serie H** : for steels 25~45 HRC

HIGH PERFORMANCE
- Metrisch
- **Serie H** : Für Stahl 25~45 HRC

ALTA PRESTAZIONE
- Metrico
- **Serie H** : per acciai di durezza tra 25~45 HRC

HAUTE PERFORMANCE
- Métrique
- **Série H** : pour acier de dureté entre 25~45 HRC

HIGH PERFORMANCE
- Metrisk
- **Serie H**: Til stål 25 - 45 HRC

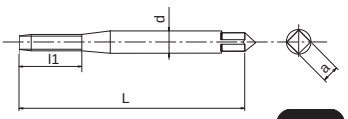
HIGH PERFORMANCE
- Metrisk
- **Serie H**: för stål 25 ~ 45 HRC

ALTAS PRESTACIONES
- Metrico
- **Serie H** (H-CPM): para aceros 25 ÷ 45 HrC

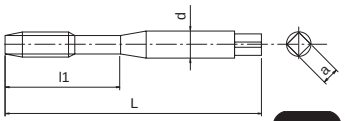
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Метрический
- **Серия P**: для сталей 25 ~ 45 HRC



M | PM | V | 15° | ISO 2 6HX | 3 | DIN 371



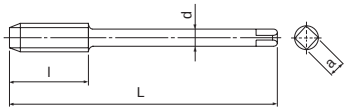
Type 1



Type 2

EDP	M	P	L	l1	d	a	ZΔ	Type	Stock	Price
48082125	2	0,4	45	8	2,8	2,1	2	1	●	
48082133	2,5	0,45	50	9	2,8	2,1	2	1	●	
48082138	3	0,5	56	18	3,5	2,7	3	2	●	
48082144	4	0,7	63	21	4,5	3,4	3	2	●	
48082149	5	0,8	70	25	6	4,9	3	2	●	
48082155	6	1	80	30	6	4,9	3	2	●	
48082161	8	1,25	90	35	8	6,2	3	2	●	
48082169	10	1,5	100	39	10	8	3	2	●	

M | PM | V | 15° | ISO 2 6HX | 3 | DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
48082179	12	1,75	110	18	9	7	3	●	
48082191	14	2	110	20	11	9	3	●	
48082202	16	2	110	20	12	9	3	●	
48082214	18	2,5	125	25	14	11	4	●	
48082228	20	2,5	140	25	16	12	4	●	
48082238	22	2,5	140	25	18	14,5	4	●	
48082247	24	3	160	30	18	14,5	4	●	
48082262	27	3	160	30	20	16	4	●	
48082271	30	3,5	180	35	22	18	4	●	
48082281	33	3,5	180	35	25	20	4	●	
48082294	36	4	200	40	28	22	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
		◎ 6~12 m/min	○ 7~12 m/min	◎ 4~8 m/min	◎ 4~8 m/min				◎ 6~12 m/min			○ 7~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
								○ 3~5 m/min	○ 1~3 m/min			



HIGH PERFORMANCE
- Metric
- **Serie H** : for steels 25~45 HRC

HIGH PERFORMANCE
- Metrisch
- **Serie H** : Für Stahl 25~45 HRC

ALTA PRESTAZIONE
- Metrico
- **Serie H** : per acciai di durezza tra 25~45 HRC

HAUTE PERFORMANCE
- Métrique
- **Série H** : pour acier de dureté entre 25~45 HRC

HIGH PERFORMANCE
- Metrisk
- **Serie H**: Til stål 25 - 45 HRC

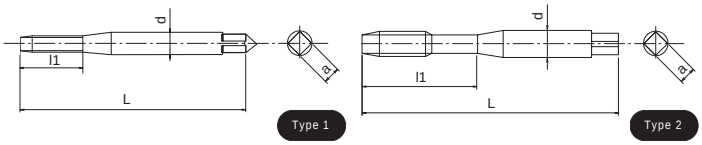
HIGH PERFORMANCE
- Metrisk
- **Serie H**: för stål 25 ~ 45 HRC

ALTAS PRESTACIONES
- Metrico
- **Serie H** (H-CPM): para aceros 25 ÷ 45 HrC

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Метрический
- **Серия P**: для сталей 25 ~ 45 HRC

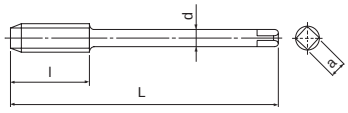


M | PM | V | 15° | ISO 2 6HX | 3 | DIN 371



EDP	M	P	L	l1	d	a	ZΔ	Type	Stock	Price
48083155	6	1	80	30	6	4,9	3	2	●	
48083161	8	1,25	90	35	8	6,2	3	2	●	
48083169	10	1,50	100	39	10	8	3	2	●	

M | PM | V | 15° | ISO 2 6HX | 3 | DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
48083179	12	1,75	110	18	9	7	3	●	
48083191	14	2	110	20	11	9	3	●	
48083202	16	2	110	20	12	9	3	●	
48083214	189	2,5	125	25	14	11	4	●	
48083228	20	2,5	140	25	16	12	4	●	
48083238	22	2,5	140	25	18	14,5	4	●	
48083247	24	3	160	30	18	14,5	4	●	
48083262	27	3	160	30	20	16	4	●	
48083271	30	3,5	180	35	22	18	4	●	
48083281	33	3,5	180	35	25	20	4	●	
48083294	36	4	200	40	28	22	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
		◎ 6~12 m/min	○ 7~12 m/min	◎ 4~8 m/min	◎ 4~8 m/min				◎ 6~12 m/min			○ 7~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
								○ 3~5 m/min	○ 1~3 m/min			

● Delivery from stock
○ Available on short notice



METRIC
- For steels 25~45 HRC

METRISCH
- Für Stahl 25 ~ 45 HRC

METRICO
- Per acciai 25 ~ 45 HRC

MÉTRIQUE
- Pour acier 25 ~ 45 HRC

METRISK
- Til stål 25~45 HRC

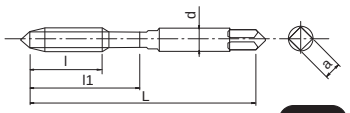
METRISK
- För stål 25 ~ 45 HRC

METRICO
- Para aceros 25 ~ 45 HRC

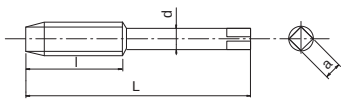
МЕТРИЧЕСКИЙ
- Для сталей 25 ~ 45 HRC



M | PM | OX | 15° | ISO 2 6H | 3



Type 2



Type 3

EDP	M	P	L	l	l1	d	a	ZΔ	Type	Stock	Price
23201384	3	0,5	48	11	18	3,15	2,50	3	2	○	
23201444	4	0,7	53	13	21	4,00	3,15	3	2	○	
23201494	5	0,8	58	16	25	5,00	4,00	3	2	○	
23201554	6	1	66	19	30	6,30	5,00	3	2	○	
23201614	8	1,25	72	22	35	8,00	6,30	3	2	○	
23201694	10	1,5	80	24	39	10,00	8,00	3	2	○	
23201794	12	1,75	89	29	-	9,00	7,10	3	3	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
		◎ 6~12 m/min	○ 7~12 m/min	◎ 4~8 m/min	◎ 4~8 m/min				○ 6~12 m/min	○ 7~15 m/min	○ 7~12 m/min	○ 7~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	



HIGH PERFORMANCE
- Metric
- **Serie E** : for nickel based alloys including Inconel 718

HIGH PERFORMANCE
- Metrisch
- **Serie E** : für Nickelbasislegierungen inkl. Inconel 718

ALTA PRESTAZIONE
- Metrico
- **Serie E** : per Inconel 718 ed altre leghe a base di Nickel

HAUTE PERFORMANCE
- Métrique
- **Série E** : pour Inconel 718 et autres alliages sur base de Nickel

HIGH PERFORMANCE
- Metrisk
- **Serie E**: Til nikkellegeringer inklusiv Inconel 718

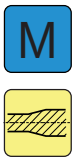
HIGH PERFORMANCE
- Metrisk
- **Serie E**: för nickel legeringar inklusive Inconel 718

ALTAS PRESTACIONES
- Metrico
- **Serie E** (Ni): para aleaciones de níquel incluido Inconel 718

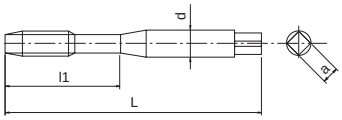
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Метрический
- **Серия E:** для никелевых сплавов, включая Inconel 718



M | PM | 10° | ISO 2 6H



DIN 371

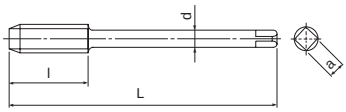


EDP	M	P	L	l1	d	a	ZΔ	Stock	Price
89513860	3	0,5	56	11	3,5	2,7	3	●	
89514460	4	0,7	63	14	4,5	3,4	3	●	
89514960	5	0,8	70	18	6,0	4,9	3	●	
89515560	6	1	80	21	6,0	4,9	3	●	
89516160	8	1,25	90	28	8,0	6,2	3	●	
89516960	10	1,5	100	35	10,0	8,0	3	●	

M | PM | 10° | ISO 2 6H



DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
89617960	12	1,75	110	18	10	8	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
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Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
									◎ 1~3 m/min			

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE
- Metric
- For nickel based alloys including Inconel 718

HIGH PERFORMANCE
- Metrisch
- Für Nickelbasislegierungen inkl. Inconel 718

ALTA PRESTAZIONE
- Metrico
- Per Inconel 718 ed altre leghe a base di Nickel

HAUTE PERFORMANCE
- Métrique
- Pour Inconel 718 et autres alliages sur base de Nickel

HIGH PERFORMANCE
- Metrisk
- Til nikkellegeringer inklusiv Inconel 718

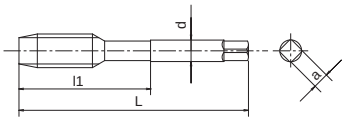
HIGH PERFORMANCE
- Metrisk
- För nickel legeringar inklusive Inconel 718l

ALTAS PRESTACIONES
- Metrico
- Para aleaciones de níquel incluido Inconel 718 .

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Метрический
- для никелевых сплавов, включая Inconel 718

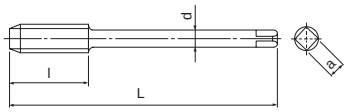


M | PM | 11° | HR | ISO 2 6HX | 5 | DIN 371



EDP	M	P	L	l1	d	a	ZΔ	Stock	Price
48078138	3	0,5	56	11	3,5	2,7	3	●	
48078144	4	0,7	63	14	4,5	3,4	3	●	
48078149	5	0,8	70	18	6	4,9	3	●	
48078155	6	1	80	21	6	4,9	3	●	
48078161	8	1,25	90	28	8	6,2	3	●	
48078169	10	1,50	100	35	10	8	3	●	

M | PM | 11° | HR | ISO 2 6HX | 5 | DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
48078179	12	1,75	110	18	10	8	3	●	

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Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
									◎ 1~3 m/min			



HIGH PERFORMANCE
- Metric
- For titanium alloys (Ti-6Al-4V), 40~45 HRC

HIGH PERFORMANCE
- Metrisch
- Für Titanlegierungen inkl. (Ti-6Al-4V), 40~45 HRC

ALTA PRESTAZIONE
- Metrico
- Per leghe di Titanio (Ti-6Al-4V) di durezza tra 40~45 HRC

HAUTE PERFORMANCE
- Métrique
- Pour alliages de Titane (Ti-6Al-4V) : dureté 40~45 HRC

HIGH PERFORMANCE
- Metrisk
- Til Titanium legeringer (Ti-6Al-4V), 40~45 HRC

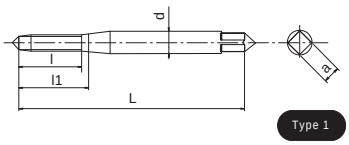
HIGH PERFORMANCE
- Metrisk
- För Titanlegeringar (Ti-6Al-4V), 40~45 HRC

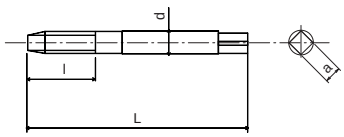
ALTAS PRESTACIONES
- Metrico
- Para aleaciones de Titanio (Ti-6Al-4V), 40~45 HRC

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Метрический
- Для титановых сплавов (Ti-6Al-4V), 40~45 HRC



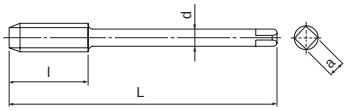
M | PM | V | 10° | ISO 2 6H | 2,5 | DIN 371





EDP	M	P	L	l1	d	a	ZΔ	Type	Stock	Price
48011118	1,6	0,35	40	8	2,5	2,1	2	1	●	
48011125	2,0	0,4	45	8	2,8	2,1	2	1	●	
48011133	2,5	0,45	50	9	2,8	2,1	2	4	●	
48011138	3,0	0,5	56	11	3,5	2,7	3	4	●	
48011144	4,0	0,7	63	14	4,5	3,4	3	4	●	
48011149	5,0	0,8	70	17	6,0	4,9	3	4	●	
48011155	6,0	1	80	21	6,0	4,9	3	4	●	
48011161	8,0	1,25	90	28	8,0	6,2	3	4	●	
48011169	10,0	1,5	100	35	10,0	8,0	3	4	●	

M | PM | V | 10° | ISO 2 6H | 2,5 | DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
48011179	12	1,75	110	18	10	8	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
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Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
								3~5 m/min				

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice



METRIC
- Handtaps
- For general purpose application

METRISCH
- Hand Gewindebohrer
- Für universelle Anwendungen

METRICO
- Maschi a mano
- Per applicazioni generali

MÉTRIQUE
- Tarauds à main
- Pour applications générales

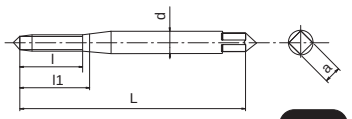
METRISK
- Håndtappe
- Til generelt brug

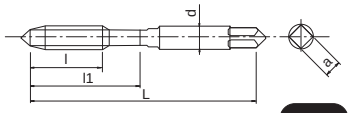
METRISK
- Manuella gängtappar
- För allround bearbetning

METRICO
- Machos de mano
- Para aplicación general

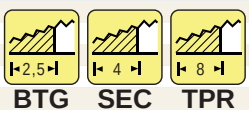
МЕТРИЧЕСКИЙ
- Ручной метчик
- Общего назначения

M | HSSE | ISO 1 5H <M 1,4 | ISO 2 6H | ISO 529





EDP	M	P	L	l	l1	d	a	Chamfer	ZΔ	Type	Stock	Price
22031110	1,0	0,25	38,5	8,0	-	2,50	2,00	BTG	3	1	○	
22031130	1,2	0,25	38,5	8,0	-	2,50	2,00	BTG	3	1	○	
22021130	1,2	0,25	38,5	8,0	-	2,50	2,00	SEC	3	1	○	
22011130	1,2	0,25	38,5	8,0	-	2,50	2,00	TPR	3	1	○	
22031150	1,4	0,3	38,5	8,0	-	2,50	2,00	BTG	3	1	○	
22021150	1,4	0,3	38,5	8,0	-	2,50	2,00	SEC	3	1	○	
22011150	1,4	0,3	38,5	8,0	-	2,50	2,00	TPR	3	1	○	
22031180	1,6	0,35	38,5	8,0	-	2,50	2,00	BTG	3	1	○	
22021180	1,6	0,35	3,85	8,0	-	2,50	2,00	SEC	3	1	○	
22011180	1,6	0,35	38,5	8,0	-	2,50	2,00	TPR	3	1	○	
22031230	1,8	0,35	41,0	8,0	-	2,50	2,00	BTG	3	1	○	
22021230	1,8	0,35	41,0	8,0	-	2,50	2,00	SEC	3	1	○	
22011230	1,8	0,35	41,0	8,0	-	2,50	2,00	TPR	3	1	○	
22031250	2,0	0,4	41,0	8,0	-	2,50	2,00	BTG	3	1	○	
22021250	2,0	0,4	41,0	8,0	-	2,50	2,00	SEC	3	1	○	
22011250	2,0	0,4	41,0	8,0	-	2,50	2,00	TPR	3	1	○	
T100022045B	2,2	0,45	41,0	8,0	-	2,80	2,24	BTG	3	1	○	
T100022045S	2,2	0,45	41,0	8,0	-	2,80	2,24	SEC	3	1	○	
T100022045T	2,2	0,45	41,0	8,0	-	2,80	2,24	TPR	3	1	○	
22031330	2,5	0,45	44,5	9,5	-	2,80	2,24	BTG	3	1	○	
22021330	2,5	0,45	44,5	9,5	-	2,80	2,24	SEC	3	1	○	
22011330	2,5	0,45	44,5	9,5	-	2,80	2,24	TPR	3	1	○	
22031380	3,0	0,5	48,0	11,0	18	3,15	2,50	BTG	3	2	○	
22021380	3,0	0,5	48,0	11,0	18	3,15	2,50	SEC	3	2	○	
22011380	3,0	0,5	48,0	11,0	18	3,15	2,50	TPR	3	1	○	
22031400	3,5	0,6	50,0	13,0	20	3,55	2,80	BTG	3	2	○	
22021400	3,5	0,6	50,0	13,0	20	3,55	2,80	SEC	3	2	○	
22011400	3,5	0,6	50,0	13,0	20	3,55	2,80	TPR	3	1	○	
22031440	4,0	0,7	53,0	13,0	21	4,00	3,15	BTG	3	2	○	
22021440	4,0	0,7	53,0	13,0	21	4,00	3,15	SEC	3	2	○	
22011440	4,0	0,7	53,0	13,0	21	4,00	3,15	TPR	3	1	○	
22031460	4,5	0,75	53,0	13,0	21	4,50	3,55	BTG	3	2	○	
22021460	4,5	0,75	53,0	13,0	21	4,50	3,55	SEC	3	2	○	
22011460	4,5	0,75	53,0	13,0	21	4,50	3,55	TPR	3	1	○	
22031490	5,0	0,8	58,0	16,0	25	5,00	4,00	BTG	3	2	○	
22021490	5,0	0,8	58,0	16,0	25	5,00	4,00	SEC	3	2	○	
22011490	5,0	0,8	58,0	16,0	25	5,00	4,00	TPR	3	1	○	
22031550	6,0	1	66,0	19,0	30	6,30	5,00	BTG	3	2	○	
22021550	6,0	1	66,0	19,0	30	6,30	5,00	SEC	3	2	○	
22011550	6,0	1	66,0	19,0	30	6,30	5,00	TPR	3	1	○	
22031580	7,0	1	66,0	19,0	30	7,10	5,60	BTG	4	2	○	



BTG SEC TPR

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
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Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
	○ 7~12 m/min											○ 7~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
	○ 10~15 m/min	○ 10~15 m/min	○ 6~11 m/min	○ 10~20 m/min	○ 10~15 m/min	○ 7~12 m/min	○ 7~12 m/min					



METRIC
- Handtaps
- For general purpose application

METRISCH
- Hand Gewindebohrer
- Für universelle Anwendungen

METRICO
- Maschi a mano
- Per applicazioni generali

MÉTRIQUE
- Tarauds à main
- Pour applications générales

METRISK
- Håndtappe
- Til generelt brug

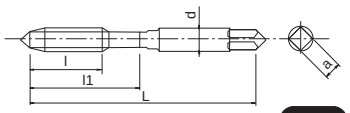
METRISK
- Manuella gängtappar
- För allround bearbetning

METRICO
- Machos de mano
- Para aplicación general

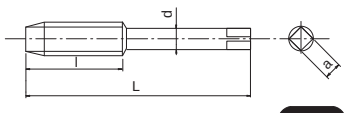
МЕТРИЧЕСКИЙ
- Ручной метчик
- Общего назначения

M HSSE

ISO 2 6H



Type 2



Type 3

EDP	M	P	L	l	l1	d	a	Chamfer	ZΔ	Type	Stock	Price
22021580	7	1	66	19	30	7,1	5,6	SEC	4	2	○	
22011580	7	1	66	19	30	7,1	5,6	TPR	4	2	○	
22031610	8	1,25	72	22	35	8,0	6,3	BTG	4	2	○	
22021610	8	1,25	72	22	35	8,0	6,3	SEC	4	2	○	
22011610	8	1,25	72	22	35	8,0	6,3	TPR	4	2	○	
22031650	9	1,25	72	22	36	9,0	7,1	BTG	4	2	○	
22021650	9	1,25	72	22	36	9,0	7,1	SEC	4	2	○	
22011650	9	1,25	72	22	36	9,0	7,1	TPR	4	2	○	
22031690	10	1,5	80	24	39	10,0	8,0	BTG	4	2	○	
22021690	10	1,5	80	24	39	10,0	8,0	SEC	4	2	○	
22011690	10	1,5	80	24	39	10,0	8,0	BTR	4	2	○	
22031740	11	1,5	84	24	-	8,0	6,3	BTG	4	3	○	
22021740	11	1,5	84	24	-	8,0	6,3	SEC	4	3	○	
22011740	11	1,5	84	24	-	8,0	6,3	BTR	4	3	○	
22031790	12	1,75	85	25	-	9,0	7,1	BTG	4	3	○	
22021790	12	1,75	85	25	-	9,0	7,1	SEC	4	3	○	
22011790	12	1,75	85	25	-	9,0	7,1	TPR	4	3	○	
22031910	14	2	95	30	-	11,2	9,0	BTG	4	3	○	
22021910	14	2	95	30	-	11,2	9,0	SEC	4	3	○	
22011910	14	2	95	30	-	11,2	9,0	TPR	4	3	○	
22032020	16	2	102	32	-	12,5	10,0	BTG	4	3	○	
22022020	16	2	102	32	-	12,5	10,0	SEC	4	3	○	
22012020	16	2	102	32	-	12,5	10,0	TPR	4	3	○	
22032140	18	2	112	37	-	14,0	11,2	BTG	4	3	○	
22022140	18	2	112	37	-	14,0	11,2	SEC	4	3	○	
22012140	18	2	112	37	-	14,0	11,2	TPR	4	3	○	
22032280	20	2,5	112	37	-	14,0	11,2	BTG	4	3	○	
22022280	20	2,5	112	37	-	14,0	11,2	SEC	4	3	○	
22012280	20	2,5	112	37	-	14,0	11,2	TPR	4	3	○	
22032380	22	2,5	118	38	-	16,0	12,5	BTG	4	3	○	
22022380	22	2,5	118	38	-	16,0	12,5	SEC	4	3	○	
22012380	22	2,5	118	38	-	16,0	12,5	TPR	4	3	○	
22032470	24	3	130	45	-	18,0	14,0	BTG	4	3	○	
22022470	24	3	130	45	-	18,0	14,0	SEC	4	3	○	
22012470	24	3	130	45	-	18,0	14,0	TPR	4	3	○	



BTG **SEC** **TPR**

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
	○ 7~12 m/min											○ 7~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
	○ 10~15 m/min	○ 10~15 m/min	○ 6~11 m/min	○ 10~20 m/min	○ 10~15 m/min	○ 7~12 m/min	○ 7~12 m/min					

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice



METRIC
- Handtaps
- For general purpose application

METRISCH
- Hand Gewindebohrer
- Für universelle Anwendungen

METRICO
- Maschi a mano
- Per applicazioni generali

MÉTRIQUE
- Tarauds à main
- Pour applications générales

METRISK
- Håndtappe
- Til generelt brug

METRISK
- Manuella gängtappar
- För allround bearbetning

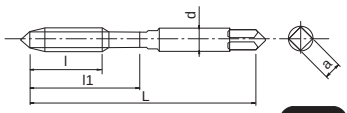
METRICO
- Machos de mano
- Para aplicación general

МЕТРИЧЕСКИЙ
- Ручной метчик
- Общего назначения

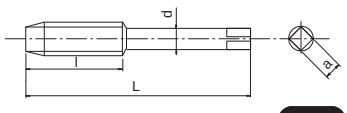


M | HSSE | TIN

ISO 2 6H | ISO 529

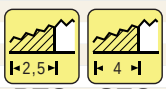


Type 2



Type 3

EDP	M	P	L	l	l1	d	a	Chamfer	ZΔ	Type	Stock	Price
22031387	3	0,5	48	11	18	3,15	2,5	BTG	3	2	○	
22021387	3	0,5	48	11	18	3,15	2,5	SEC	3	2	○	
22031447	4	0,7	53	13	21	4	3,15	BTG	3	2	○	
22021447	4	0,7	53	13	21	4	3,15	SEC	3	2	○	
22031497	5	0,8	58	16	25	5	4	BTG	3	2	○	
22021497	5	0,8	58	16	25	5	4	SEC	3	2	○	
22031557	6	1	66	19	30	6,3	5	BTG	3	2	○	
22021557	6	1	66	19	30	6,3	5	SEC	3	2	○	
22031587	7	1	66	19	30	7,1	5,6	BTG	4	2	○	
22031617	8	1,25	72	22	35	8	6,3	BTG	4	2	○	
22021617	8	1,25	72	22	35	8	6,3	SEC	4	2	○	
22031697	10	1,5	80	24	39	10	8	BTG	4	2	○	
22021697	10	1,5	80	24	39	10	8	SEC	4	2	○	
22031797	12	1,75	89	29	-	9	7,1	BTG	4	3	○	
22021797	12	1,75	89	29	-	9	7,1	SEC	4	3	○	
22031917	14	2	95	30	-	11,2	9	BTG	4	3	○	



BTG **SEC**

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
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Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
○ 8~13 m/min	○ 7~12 m/min	○ 6~9 m/min	○ 7~12 m/min									○ 7~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
	○ 10~15 m/min	○ 10~15 m/min	○ 6~11 m/min	○ 10~20 m/min	○ 10~15 m/min	○ 7~12 m/min	○ 7~12 m/min					



METRIC
- For gray cast iron & cast aluminium < 11 % Si

METRISCH
- Für Grauguss und Aluminiumguss < 11 % Si

METRICO
- Per ghisa grigia, ghisa d'alluminio < 11 % Si

MÉTRIQUE
- Pour fonte grise, fonte d'aluminium < 11 % Si

METRISK
- Til støbejern & støbt aluminium

METRISK
- För gråjärn & gjuten aluminium < 11 % Si

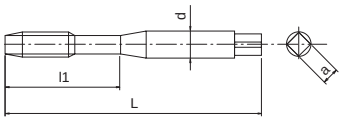
METRICO
- Para fundición de hierro y aluminio fundido < 11 % Si

МЕТРИЧЕСКИЙ
- Для серого чугуна и литейных алюминиевых сплавов < 11 % Si

GO TO LIVE STOCK CHECK

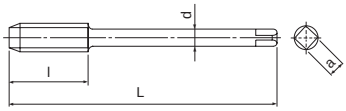


M | HSSE | NI-OX | ISO 2 6HX | 2,5 | DIN 371



EDP	M	P	L	l1	d	a	ZΔ	Stock	Price
62214460	4	0,7	63	21	4,5	3,4	3	●	
62214960	5	0,8	70	25	6,0	4,9	3	●	
62215560	6	1	80	30	6,0	4,9	3	●	
62216160	8	1,25	90	35	8,0	6,2	4	●	
62216960	10	1,5	100	39	10,0	8,0	4	●	

M | HSSE | NI-OX | ISO 2 6HX | 2,5 | DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
62314460	4	0,7	63	13	2,8	2,1	3	●	
62314960	5	0,8	70	16	3,5	2,7	3	●	
62315560	6	1	80	19	4,5	3,4	3	●	
62316160	8	1,25	90	22	6,0	4,9	4	●	
62316960	10	1,5	100	24	7,0	5,5	4	●	
62317960	12	1,75	110	29	9,0	7,0	4	●	
62319160	14	2	110	30	11,0	9,0	4	●	
62320260	16	2	110	32	12,0	9,0	4	●	
62321460	18	2,5	125	34	14,0	11,0	4	●	
62322860	20	2,5	140	34	16,0	12,0	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
											◎ 10~15 m/min	◎ 7~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
	○ 10~15 m/min	○ 10~15 m/min	○ 6~11 m/min									

● Delivery from stock
○ Available on short notice



METRIC
- For horizontal & vertical operations
- For oil and energy industry

METRISCH
- Für horizontale und vertikale Bearbeitung
- Mit innere Kühlmittezuführung für Öl - und Schwerindustrie

METRICO
- Per lavorazioni orizzontali e verticali
- Per industria petrolifera ed energetica

MÉTRIQUE
- Pour applications horizontales et verticales
- Avec arrosage centrale, pour l'industrie lourde et l'energie

METRISK
- Til horisontale og vertikale operationer
- Til olie og energi industrien

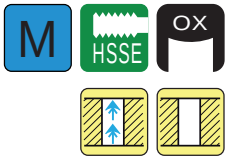
METRISK
- För horisontala och vertikala applikationer
- För olje och energi industrin

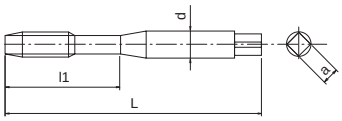
METRICO
- Para roscado horizontal y vertical
- Para refrigeración interna, para industria Energetica y Pesada

МЕТРИЧЕСКИЙ
- Для горизонтальной и вертикальной обработки
- внутреннее охлаждение



M | HSSE | OX | ISO 6HX





EDP	M	P	L	l	l1	d	a	ZΔ	Stock	Price
48052228	20	2,5	140,0	20	69	16	12,0	5	●	
48052247	24	3,0	160,0	24	81	18	14,5	5	●	
48052262	27	3,0	160,0	24	90	20	16,0	5	●	
48052271	30	3,5	250,0	28	161	22	18,0	6	●	
48052281	33	3,5	250,0	28	176	25	20,0	6	●	
48052294	36	4,0	250,0	32	174	28	22,0	6	●	
48052304	39	4,0	300,0	32	188	32	24,0	6	●	
48052314	42	4,5	300,0	36	203	32	24,0	6	●	
48052325	48	5,0	300,0	40	183	36	29,0	6	●	
48052337	52	5,0	300,0	40	197	40	32,0	6	●	
48052347	56	5,5	300,0	44	213	45	35,0	6	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
○ 8~13 m/min	○ 7~12 m/min	◎ 6~9 m/min	◎ 7~12 m/min	○ 3~5 m/min					○ 6~9 m/min	○ 6~11 m/min	◎ 10~15 m/min	◎ 7~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	



HIGH PERFORMANCE
- Metric
- Synchro taps when speed can be > 30 m/min
- For cast iron and aluminium

HIGH PERFORMANCE
- Metrisch
- Synchro Bohrer > 30 m/min
- Für Grauguss und Aluminium

ALTA PRESTAZIONE
- Metrico Maschi synchro. La
- velocità può essere > 30 m/min
- Per ghisa e alluminio

HAUTE PERFORMANCE
- Métrique
- Tarauds synchro où la vitesse peut être > 30 m/min
- Pour fonte et aluminium

HIGH PERFORMANCE
- Metrisk
- Synkro tappe når skærehastighed kan være > 30 m/min
- Til støbejern & aluminium

HIGH PERFORMANCE
- Metrisk
- Synkro gängtappar när skärhastigheten är > 30 m / min
- För gjutjärn och aluminium

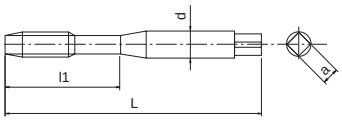
ALTAS PRESTACIONES
- Metrico
- Machos Synchro cuando la velocidad puede ser >30 m/min.
- Para fundición de hierro y aluminio

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Метрический
- Синхро метчики со скоростью резания > 30 м/мин
- для чугуна и алюминия



M PM V ISO 2 6HX 2,5

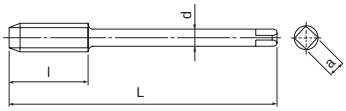
DIN 371



EDP	M	P	L	l1	d	a	ZΔ	Stock	Price
48020138	3	0,5	56	18	3,5	2,7	3	●	
48020144	4	0,7	63	21	4,5	3,4	3	●	
48020149	5	0,8	70	25	6,0	4,9	3	●	
48020155	6	1	80	30	6,0	4,9	3	●	
48020161	8	1,25	90	35	8,0	6,2	4	●	
48020169	10	1,5	100	39	10,0	8,0	4	●	

M PM V ISO 2 6HX 2,5

DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
48020179	12	1,75	110	21	9	7	4	●	
48022191	14	2	110	24	11	9	4	●	
48022202	16	2	110	24	12	9	4	●	
48022214	18	2,5	125	30	14	11	4	●	
48022228	20	2,5	140	30	16	12	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
		○ 10~25 m/min	○ 10~20 m/min	○ 8~20 m/min	○ 8~20 m/min						◎ 15~60 m/min	◎ 15~40 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
	◎ 15~60 m/min	◎ 15~60 m/min	◎ 15~60 m/min		◎ 25~70 m/min	◎ 25~70 m/min	◎ 25~70 m/min					

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE
- Metric
- Synchro taps when speed can be > 30 m/min
- For cast iron and aluminium
- **Short chamfer**

HIGH PERFORMANCE
- Metrisch
- Synchro Bohrer > 30 m/min
- Für Grauguss und Aluminium
- **kurzer Anschnitt**

ALTA PRESTAZIONE
- Metrico Maschi synchro. La velocità può essere > 30 m/min
- Per ghisa e alluminio
- **Imbocco corto**

HAUTE PERFORMANCE
- Métrique
- Tarauds synchro où la vitesse peut être > 30 m/min
- Pour fonte et aluminium
- **Entrée courte**

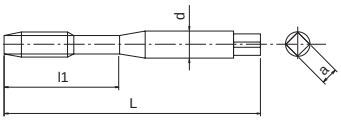
HIGH PERFORMANCE
- Metrisk
- Synkro tappe når skærehastighed kan være > 30 m/min
- Til støbejern & aluminium
- **Kort indløb**

HIGH PERFORMANCE
- Metrisk
- Synkro gängtappar när skärhastigheten är > 30 m / min
- För gjutjärn och aluminium
- **Kort faslängd**

ALTAS PRESTACIONES
- Metrico
- Machos Synchro cuando la velocidad puede ser >30 m/min.
- Para fundición de hierro y aluminio
- **Chaflán corto**

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Метрический
- Синхро метчики со скоростью резания > 30 м/мин
- для чугуна и алюминия
- **Короткий заход**

M | PM | ISO 2 6HX | 1,5 | ≥2D | DIN 371



EDP	M	P	L	l1	d	a	ZΔ	Stock	Price
48037138	3	0,5	56	18	3,5	2,7	3	●	
48037144	4	0,7	63	21	4,5	3,4	3	●	
48037149	5	0,8	70	25	6	4,9	3	●	
48037155	6	1	80	30	6	4,9	3	●	
48037161	8	1,25	90	35	8	6,2	4	●	
48037169	10	1,5	100	39	10	8,0	4	●	

M | PM | V | ISO 2 6HX | 1,5 | ≥2D | DIN 376

EDP	M	P	L	l	d	a	ZΔ	Stock	Price
48037179	12	1,75	110	21	9	7	4	●	
48037191	14	2	110	24	11	9	4	●	
48037202	16	2	110	24	12	9	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
		○ 10~25 m/min	○ 10~20 m/min	○ 8~20 m/min	○ 8~20 m/min						◎ 15~60 m/min	◎ 15~40 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
	◎ 15~60 m/min	◎ 15~60 m/min	◎ 15~60 m/min		◎ 25~70 m/min	◎ 25~70 m/min	◎ 25~70 m/min					



HIGH PERFORMANCE
- Metric
- Synchro taps when speed can be > 30 m/min
- For cast iron and aluminium

HIGH PERFORMANCE
- Metrisch
- Synchro Bohrer > 30 m/min
- Für Grauguss und Aluminium

ALTA PRESTAZIONE
- Metrico Maschi synchro. La
- velocità può essere > 30 m/min
- Per ghisa e alluminio

HAUTE PERFORMANCE
- Métrique
- Tarauds synchro où la vitesse peut être > 30 m/min
- Pour fonte et aluminium

HIGH PERFORMANCE
- Metrisk
- Synkro tappe når skærehastighed kan være > 30 m/min
- Til støbejern & aluminium

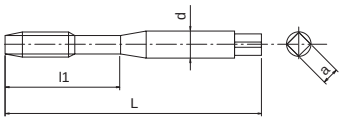
HIGH PERFORMANCE
- Metrisk
- Synkro gängtappar när skärhastigheten är > 30 m / min
- För gjutjärn och aluminium

ALTAS PRESTACIONES
- Metrico
- Machos Synchro cuando la velocidad puede ser >30 m/min.
- Para fundición de hierro y aluminio

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Метрический
- Синхро метчики со скоростью резания > 30 м/мин
- для чугуна и алюминия

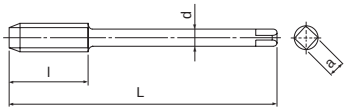


M | PM | V | ISO 2 6HX | 2,5 | ≥2D | DIN 371



EDP	M	P	L	l1	d	a	ZΔ	Stock	Price
48021155	6	1	80	30	6	4,9	3	●	
48021161	8	1,25	90	35	8	6,2	4	●	
48021169	10	1,5	100	39	10	8	4	●	

M | PM | V | ISO 2 6HX | 2,5 | ≥2D | DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
48021179	12	1,75	110	21	9	7	4	●	
48024191	14	2	110	24	11	9	4	●	
48024202	16	2	110	24	12	9	4	●	
48024214	18	2,5	125	30	14	11	4	●	
48024228	20	2,5	140	30	16	12	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
		○ 10~25 m/min	○ 10~20 m/min	○ 8~20 m/min	○ 8~20 m/min						◎ 15~60 m/min	◎ 15~40 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
	◎ 15~60 m/min	◎ 15~60 m/min	◎ 15~60 m/min		◎ 25~70 m/min	◎ 25~70 m/min	◎ 25~70 m/min					

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE
- Metric
- Synchro taps when speed can be > 30 m/min
- For cast iron and aluminium
- **Short chamfer**

HIGH PERFORMANCE
- Metrisch
- Synchro Bohrer > 30 m/min
- Für Grauguss und Aluminium
- **kurzer Anschnitt**

ALTA PRESTAZIONE
- Metrico Maschi synchro. La velocità può essere > 30 m/min
- Per ghisa e alluminio
- **Imbocco corto**

HAUTE PERFORMANCE
- Métrique
- Tarauds synchro où la vitesse peut être > 30 m/min
- Pour fonte et aluminium
- **Entrée courte**

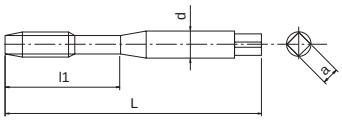
HIGH PERFORMANCE
- Metrisk
- Synkro tappe når skærehastighed kan være > 30 m/min
- Til støbejern & aluminium
- **Kort indløb**

HIGH PERFORMANCE
- Metrisk
- Synkro gängtappar när skärhastigheten är > 30 m / min
- För gjutjärn och aluminium
- **kort faslängd**

ALTAS PRESTACIONES
- Metrico
- Machos Synchro cuando la velocidad puede ser >30 m/min.
- Para fundición de hierro y aluminio
- **Chaflán corto**

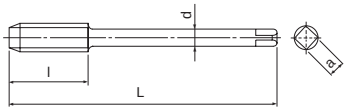
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Метрический
- Синхро метчики со скоростью резания > 30 м/мин
- для чугуна и алюминия
- **Короткий заход**

M | PM | V | ISO 2 6HX | 1,5 | ≥2D | DIN 371



EDP	M	P	L	l1	d	a	ZΔ	Stock	Price
48038155	6	1	80	30	6	4,9	3	●	
48038161	8	1,25	90	35	8	6,2	4	●	
48038169	10	1,5	100	39	10	8	4	●	

M | PM | ISO 2 6HX | 1,5 | ≥2D | DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
48038179	12	1,75	110	21	9	7	4	●	
48038191	14	2	110	24	11	9	4	●	
48038202	16	2	110	24	12	9	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
		○ 10~25 m/min	○ 10~20 m/min	○ 8~20 m/min	○ 8~20 m/min						◎ 15~60 m/min	◎ 15~40 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
	◎ 15~60 m/min	◎ 15~60 m/min	◎ 15~60 m/min		◎ 25~70 m/min	◎ 25~70 m/min	◎ 25~70 m/min					

V-XPM-HT



HIGH PERFORMANCE
- Metric
- Tapping speed 1 - 3 m/min
- For heat treated steels 42~52 HRC

HIGH PERFORMANCE
- Metrisch
- Schnittgeschwindigkeit 1 - 3 m/min
- Für gehärteten Stahl HRC 42~52

ALTA PRESTAZIONE
- Metrico
- Velocità di maschiatura tra 1 e 3 m/min
- Per acciai da 42~52 HRC

HAUTE PERFORMANCE
- Métrique
- Vitesse de coupe entre 1 et 3 m/min
- Pour aciers traités à HRC 42~52

HIGH PERFORMANCE
- Metrisk
- Skærehastighed 1 - 3 m/min
- Til hærdet stål 42~52 HRC

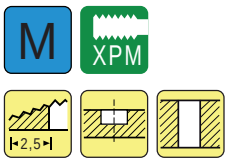
HIGH PERFORMANCE
- Metrisk
- Gänghastighet 1 - 3 m/min
- För värmebehandlat stål 42~52 HRC

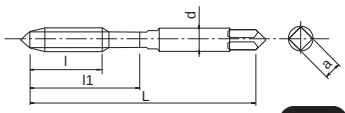
ALTAS PRESTACIONES
- Metrico
- Velocidad de roscado 1 - 3 m/min.
- Para aceros tratados 42~52 HRC

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Метрический
- Скорость резания 1 - 3 м/мин
- Для улучшенных сталей 42~52 HRC

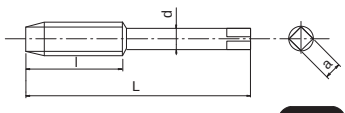


M XPM ISO 2 6HX





Type 2



Type 3

EDP	M	P	L	l1	d	a	ZΔ	Type	Stock	Price
89913868	3	0,5	46	19	3,5	2,7	4	2	●	
89914468	4	0,7	52	21	4,5	3,4	4	2	●	
89914968	5	0,8	60	24	6,0	4,9	4	2	●	
89915568	6	1	62	29	6,0	4,9	5	2	●	
89916168	8	1,25	70	22	6,0	4,9	5	3	●	
89916968	10	1,5	75	24	7,0	5,5	5	3	●	
89917968	12	1,75	82	29	9,0	7,0	5	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
						◎ 1~3 m/min						
Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

WH55-OT



HIGH PERFORMANCE
- Metric
- For heat treated steels 40~55 HRC
- With water soluble coolant

HIGH PERFORMANCE
- Metrisch
- für wärmebehandelte Stähle zwischen 40~55 HRC
- Auch für Emulsion geeignet

ALTA PRESTAZIONE
- Metrico
- Per acciai trattati a caldo 40~55 HRC
- Con raffreddamento ad emulsione

HAUTE PERFORMANCE
- Métrique
- Pour aciers traités à 40~55 HRC
- Avec huile soluble

HIGH PERFORMANCE
- Metrisk
- For varmebehandlet stål 40-55 HRC
- Med vandbaseret kølemiddel

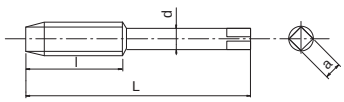
HIGH PERFORMANCE
- Metrisk
- För stål 40-55 HRC
- Med vattenbaserad kylvätska

ALTAS PRESTACIONES
- Metrico
- Para acero tratado de 40~55 HRC
- Con taladrina

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Метрический
- Для улучшенных сталей 40~55 HRC
- С охлаждением эмульсией

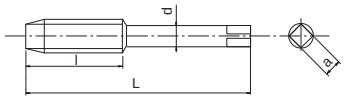


M CARBIDE V 2,5



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
3901011	3	0,5	46	11	4	3,2	4	●	
3901015	4	0,7	52	13	5	4	4	●	
3901019	5	0,8	60	16	5,5	4,5	4	●	
3901023	6	1	62	19	6	4,5	4	●	
3901027	8	1,25	70	22	6,2	5	5	●	
3901031	10	1,50	75	24	7	5,5	5	●	
3901035	12	1,75	82	29	8,5	6,5	5	●	

M CARBIDE V 5



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
3901010	3	0,5	46	11	4	3,2	4	●	
3901014	4	0,7	52	13	5	4	4	●	
3901018	5	0,8	60	16	5,5	4,5	4	●	
3901022	6	1	62	19	6	4,5	4	●	
3901026	8	1,25	70	22	6,2	5	5	●	
3901030	10	1,5	75	24	7	5,5	5	●	
3901034	12	1,75	82	29	8,5	6,5	5	●	

40~50 HRC	50~55 HRC
2~4 m/min.	1~3 m/min.

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
						◎ 1~3 m/min						

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	

VX-OT



HIGH PERFORMANCE

- Metric
- Tapping speed 1 - 3 m/min
- Use max. possible tapping drill size
- Use oil coolant
- For hardened steels below < 62 HRC

HIGH PERFORMANCE

- Metrisch
- Schnittgeschwindigkeit 1 - 3 m/min
- Max. Kernloch Durchmesser benutzen
- Schneidöl verwenden
- Für gehärteten Stahl < 62 HRC

ALTA PRESTAZIONE

- Metrico
- Velocità di taglio tra 1 e 3 m/min
- Preforo più grande possibile
- Lubrificazione ad olio
- Per acciai fino a < 62 HRC

HAUTE PERFORMANCE

- Métrique
- Vitesse de coupe entre 1 et 3 m/min
- Préforage le plus grand possible
- Arrosage à l'huile
- Pour aciers jusque 62 HRC

HIGH PERFORMANCE

- Metrisk
- Skærehastighed 1-3 m/min
- Anvend størst muligt gevindbor
- Anvend olie køling
- Til hærdet stål < 62 HRC

HIGH PERFORMANCE

- Metrisk
- Gänghastighet 1-3 m/min
- Använd största möjliga hål diameter
- Använd olje kylning
- För härdat stål < 62 HRC

ALTAS PRESTACIONES

- Metrico
- Velocidad de roscado 1 - 3 m/min.
- Use el mayor diametro de broca posible
- Use aceite de corte
- Para aceros endurecidos <62 HrC

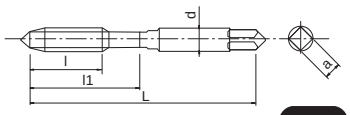
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- Метрический
- Скорость резания 1-3 м/мин
- Используйте максимально возможный диаметр пилотного отверстия
- используйте масло для охлаждения
- Для закаленных сталей < 62 HRC

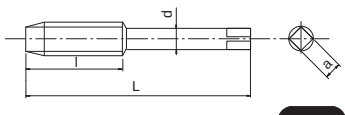


M | CARBIDE | V | ISO 2 6HX





Type 2



Type 3

EDP	M	P	L	l1	d	a	ZΔ	Type	Stock	Price
93413868	3	0,5	46	19	3,5	2,7	4	2	●	
93414468	4	0,7	52	21	4,5	3,4	4	2	●	
93414968	5	0,8	60	24	6,0	4,9	4	2	●	
93415568	6	1	62	29	6,0	4,9	5	2	●	
93416168	8	1,25	70	22	6,0	4,9	5	3	●	
93416968	10	1,5	75	24	7,0	5,5	5	3	●	
93417968	12	1,75	82	29	9,0	7,0	5	3	●	

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Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
							◎ 1~3 m/min					

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE

- Metric
- **Serie Z** : for high speed tapping in aluminium, mild steel, die steel & stainless steels

HIGH PERFORMANCE

- Metrisch
- **Serie Z** : für HSC Gewindeschneiden in Aluminium, unlegierten Stählen, Werkzeugstahl und VA-Stahl

ALTA PRESTAZIONE

- Metrico
- **Serie Z** : ad alta velocità per alluminio, acciai dolci, acciai per stampi e inox

HAUTE PERFORMANCE

- Métrique
- **Série Z** : pour haute vitesse dans l'aluminium, l'acier doux, les aciers matrices et l'inox

HIGH PERFORMANCE

- Metrisk
- **Serie Z**: til højhastigheds gevindskæring i aluminium, stål, værktøjsstål og rustfrit stål

HIGH PERFORMANCE

- Metrisk
- **Serie Z**: För high speed gängning i aluminium, mjukt stål, verktygsstå & rostfritt stål

ALTAS PRESTACIONES

- Metrico
- **Serie Z** (V-VA-CPM, V-O-VA-CPM): para roscado a alta velocidad en aluminio, aceros suaves y aceros inoxidables

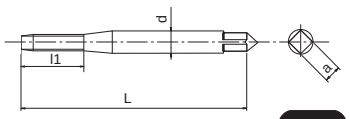
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

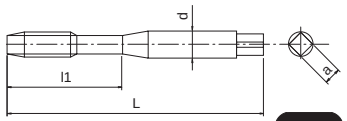
- Метрический
- **Серия Z:** для высокоскоростного нарезания резьбы в алюминии, низкоуглеродистых, инструментальных и нержавеющих сталях



M PM V ISO 2 6HX

4 DIN 371

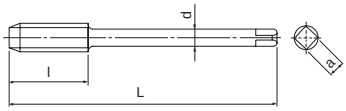




EDP	M	P	L	l1	d	a	ZΔ	Type	Stock	Price
83812568	2,0	0,4	45	8	2,8	2,1	2	1	●	
83813368	2,5	0,45	50	9	2,8	2,1	2	1	●	
83813868	3,0	0,5	56	18	3,5	2,7	3	2	●	
83814468	4,0	0,7	63	21	4,5	3,4	3	2	●	
83814968	5,0	0,8	70	25	6,0	4,9	3	2	●	
83815568	6,0	1	80	30	6,0	4,9	3	2	●	
83816168	8,0	1,25	90	35	8,0	6,2	3	2	●	
83816968	10,0	1,5	100	39	10,0	8;0	3	2	●	

M PM V ISO 2 6HX

4 DIN 376



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
83913868	3	0,5	56	11	2,20	-	3	●	
83914468	4	0,7	63	13	2,80	2,1	3	●	
83914968	5	0,8	70	16	3,50	2,7	3	●	
83915568	6	1	80	19	4,50	3,4	3	●	
83916168	8	1,25	90	22	6,00	4,9	3	●	
83916968	10	1,5	100	24	7,00	5,5	3	●	
83917968	12	1,75	110	29	9,00	7,0	3	●	
83919168	14	2	110	30	11,00	9,0	3	●	
83920268	16	2	110	32	12,00	9,0	3	●	
83921468	18	2,5	125	34	14,00	11,0	3	●	
83922868	20	2,5	140	34	16,00	12,0	3	●	
83923868	22	2,5	140	34	18,00	14,5	3	●	
83924768	24	3	160	38	18,00	14,5	3	●	
83926268	27	3	160	38	20,00	16,0	4	●	
83927168	30	3,5	180	45	22,00	18,0	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~24 m/min	◎ 15~24 m/min	◎ 15~24 m/min	○ 8~20 m/min	○ 8~15 m/min				◎ 8~20 m/min				

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 15~24 m/min		○ 16~30 m/min		○ 20~40 m/min	○ 20~40 m/min	○ 15~35 m/min	○ 15~35 m/min	○ 10~15 m/min			○ 10~20 m/min	



HIGH PERFORMANCE

- Metric
- **Serie Z** : for high speed tapping in aluminium, mild steel, die steel & stainless steels

HIGH PERFORMANCE

- Metrisch
- **Serie Z** : für HSC Gewindeschneiden in Aluminium, unlegierten Stählen, Werkzeugstahl und VA-Stahl

ALTA PRESTAZIONE

- Metrico
- **Serie Z** : ad alta velocità per alluminio, acciai dolci, acciai per stampi e inox

HAUTE PERFORMANCE

- Métrique
- **Série Z** : pour haute vitesse dans l'aluminium, l'acier doux, les aciers matrices et l'inox

HIGH PERFORMANCE

- Metrisk
- **Serie Z**: til højhastigheds gevindskæring i aluminium, stål, værktøjsstål og rustfrit stål

HIGH PERFORMANCE

- Metrisk
- **Serie Z**: För high speed gängning i aluminium, mjukt stål, verktygsstå & rostfritt stål

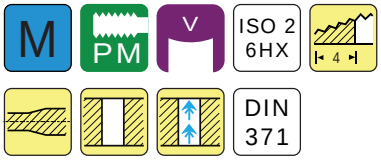
ALTAS PRESTACIONES

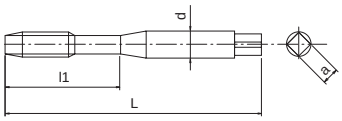
- Metrico
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ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

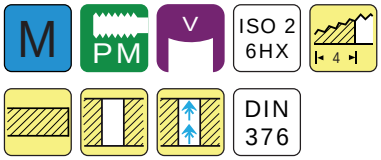
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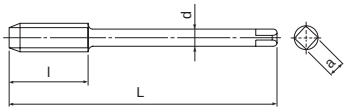






EDP	M	P	L	l1	d	a	ZΔ	Stock	Price
83815588	6	1	80	30	6	4,9	3	●	
83816188	8	1,25	90	35	8	6,2	3	●	
83816988	10	1,5	100	39	10	8,0	3	●	





EDP	M	P	L	l	d	a	ZΔ	Stock	Price
83917988	12	1,75	110	29	9	7	3	●	
83919188	14	2	110	30	11	9	3	●	
83920288	16	2	110	32	12	9	3	●	
83921488	18	2,5	125	34	14	11	3	●	
83922888	20	2,5	140	34	16	12	3	●	

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◎ 15~24 m/min	◎ 15~24 m/min	◎ 15~24 m/min	○ 8~20 m/min	○ 8~15 m/min				◎ 8~20 m/min				

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 15~24 m/min		○ 16~30 m/min		○ 20~40 m/min	○ 20~40 m/min	○ 15~35 m/min	○ 15~35 m/min	○ 10~15 m/min			○ 10~20 m/min	

● Delivery from stock
○ Available on short notice

HS-RFT-TIN



METRIC
- Developed for CNC machines equipped with rigid tapping
- Left hand spiral
- For high speed tapping in various materials

METRISCH
- Für CNC Maschinen mit Synchronspindeln
- Linksspirale
- Für HSC - Gewindeschneiden für allgemeine Anwending

METRICO
- Studiato per le macchine CNC che hanno un programma di sincronizzazione tra la velocità e l'avanzamento
- Elica sinistra
- Per maschiatura ad alta velocità materiali vari

MÉTRIQUE
- Synchro-Tap est développé pour les machines CNC qui ont le "taraudage rigide"
- Elice gauche
- Pour taraudage haute vitesse dans des matières diverses

METRISK
- Udviklet til CNC maskine udstyret med fast tapholder
- Venstresnoet
- Til højhastigheds gevindskæring i mange forskellige materialer

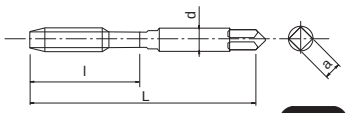
METRISK
- Utvecklat för CNC-maskiner som är utrustade med gängfunktion
- Vänster spiral
- För high speed gängning i varierande material

METRICO
- Desarrollados para máquinas CNC aptas para roscado rígido
- Ranura helicoidal izquierda
- Para roscado a alta velocidad en varios materiales

МЕТРИЧЕСКИЙ
- Разработаны для ЧПУ станков имеющих циклы жесткой нарезки резьбы
- Левая спираль
- Для высокоскоростного нарезания резьбы в алюминии



M | HSSE | TIN | 20° | ISO 2 6H | 6



EDP	M	P	L	l	d	a	ZΔ	Type	Stock	Price
20710	3	0,5	46	19	4	3,2	3	2	●	
20714	4	0,7	52	21	6	4,5	3	2	●	
20718	5	0,8	60	24	6	4,5	3	2	●	
20722	6	1	62	29	6	4,5	3	2	●	
20728	8	1,25	70	37	8	6,0	3	2	●	
20734	10	1,5	75	24	8	6,0	3	3	●	
20739	12	1,75	82	29	10	8,0	3	3	●	

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C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 27~32 m/min	◎ 27~32 m/min	◎ 22~27 m/min	◎ 22~27 m/min					○ 15~20 m/min		○ 17~22 m/min		

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 27~32 m/min	○ 27~32 m/min			○ 50~100 m/min	○ 40~100 m/min		○ 27~100 m/min				○ 27~32 m/min	



METRIC

- Developed for CNC machines equipped with rigid tapping
- Left hand spiral
- For high speed tapping in aluminium

METRISCH

- Für CNC Maschinen mit Synchronspindeln
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- Für HSC - Gewindeschneiden für Aluminium

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- Per maschiatura ad alta velocità su alluminio

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- Venstresnoet
- Til højhastigheds gevindskæring i aluminium

METRISK

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- Vänster spiral
- För high speed gängning i aluminium

METRICO

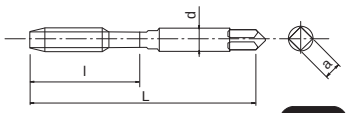
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- Para roscado a alta velocidad en aluminio

МЕТРИЧЕСКИЙ

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- Левая спираль
- Для высокоскоростного нарезания резьбы в алюминии



M | HSSE | V | 20° | ISO 2 6H | 6



EDP	M	P	L	l	d	a	ZΔ	Type	Stock	Price
8311269	3	0,5	46	19	4	3,2	2	2	●	
8311283	4	0,7	52	21	6	4,5	2	2	●	
8311297	5	0,8	60	24	6	4,5	2	2	●	
8311311	6	1	62	29	6	4,5	2	2	●	
8311325	8	1,25	70	37	8	6,0	2	2	●	
8311339	10	1,5	75	24	8	6,0	2	3	●	
8311357	12	1,75	82	29	10	8,0	2	3	●	

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C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
				◎ 100~400 m/min	◎ 100~400 m/min	○ 27~100 m/min	○ 27~200 m/min					

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE

- Metric
- **Serie Z** : for high speed tapping in aluminium, mild steel, die steel & stainless steels

HIGH PERFORMANCE

- Metrisch
- **Serie Z** : für HSC Gewindeschneiden in Aluminium, unlegierten Stählen, Werkzeugstahl und VA-Stahl

ALTA PRESTAZIONE

- Metrico
- **Serie Z** : ad alta velocità per alluminio, acciai dolci, acciai per stampi e inox

HAUTE PERFORMANCE

- Métrique
- **Série Z** : pour haute vitesse dans l'aluminium, l'acier doux, les aciers matrices et l'inox

HIGH PERFORMANCE

- Metrisk
- **Serie Z**: til højhastigheds gevindskæring i aluminium, stål, værktøjsstål og rustfrit stål

HIGH PERFORMANCE

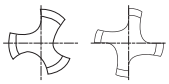
- Metrisk
- **Serie Z**: För high speed gängning i aluminium, mjukt stål, verktygsstål & rostfritt stål

ALTAS PRESTACIONES

- Metrico
- **Serie Z** (V-VA-CPM, V-O-VA-CPM): para roscado a lata velocidad en aluminio, aceros suaves y aceros inoxidables

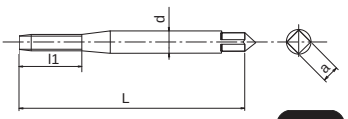
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

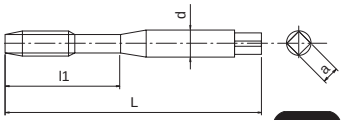
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M PM V 50° ISO 2 6H

2,5 DIN 371





EDP	M	P	L	l1	d	a	ZΔ	Type	Stock	Price
80512568	2,0	0,4	45	8	2,8	2,1	2	1	●	
80513368	2,5	0,45	50	9	2,8	2,1	2	1	●	
80513868	3,0	0,5	56	18	3,5	2,7	3	2	●	
80514468	4,0	0,7	63	21	4,5	3,4	3	2	●	
80514968	5,0	0,8	70	25	6,0	4,9	3	2	●	
80515568	6,0	1	80	30	6,0	4,9	3	2	●	
80516168	8,0	1,25	90	35	8,0	6,2	3	2	●	
80516968	10,0	1,5	100	39	10,0	8,0	3	2	●	

M V 50° ISO 2 6H

2,5 DIN 376

EDP	M	P	L	l	d	a	ZΔ	Stock	Price
80613868	3	0,5	56	5	2,2	-	3	●	
80614468	4	0,7	63	7	2,8	2,1	3	●	
80614968	5	0,8	70	8	3,5	2,7	3	●	
80615568	6	1	80	10	4,5	3,4	3	●	
80616168	8	1,25	90	13	6,0	4,9	3	●	
80616968	10	1,5	100	15	7,0	5,5	3	●	
80617968	12	1,75	110	18	9,0	7,0	4	●	
80619168	14	2	110	20	11,0	9,0	4	●	
80620268	16	2	110	20	12,0	9,0	4	●	
80621468	18	2,5	125	25	14,0	11,0	4	●	
80622868	20	2,5	140	25	16,0	12,0	4	●	
81623868	22	2,5	140	25	18,0	14,5	4	●	
81624768	24	3	160	30	18,0	14,5	4	●	
81626268	27	3	160	30	20,0	16,0	4	●	
81627168	30	3,5	180	35	22,0	18,0	4	●	

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◎ 10~25 m/min	◎ 10~25 m/min	◎ 10~25 m/min	○ 8~20 m/min	○ 8~15 m/min				◎ 8~20 m/min				

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 15~35 m/min		○ 16~30 m/min		○ 15~35 m/min	○ 15~35 m/min	○ 15~35 m/min	○ 15~35 m/min	○ 5~10 m/min			○ 15~20 m/min	

Z-OIL-SFT



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- Metric
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HIGH PERFORMANCE

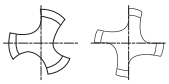
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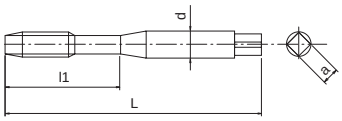
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M PM V 50° ISO 2 6H

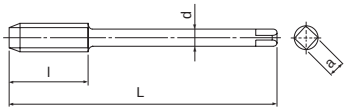
2,5 DIN 371



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2,5 DIN 376



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Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 15~35 m/min		○ 16~30 m/min		○ 15~35 m/min	○ 15~35 m/min	○ 15~35 m/min	○ 15~35 m/min	○ 5~10 m/min			○ 15~20 m/min	

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- Synchro-Tap est développé pour les machines CNC qui ont le "taraudage rigide"
- Pour taraudage haute vitesse dans des matières diverses

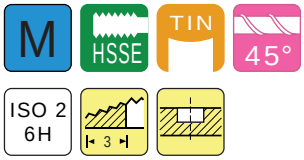
METRISK
- Udviklet til CNC maskine udstyret med fast tapholder
- Til højhastigheds gevindskæring i mange forskellige materialer

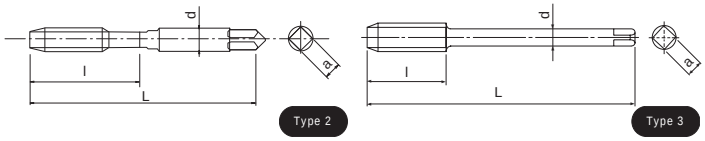
METRISK
- Utvecklat för CNC-maskiner som är utrustade med gängfunktion
- För high speed gängning i varierande material

METRICO
- Desarrollados para máquinas CNC aptas para roscado rígido
- Para roscado a alta velocidad en varios materiales

МЕТРИЧЕСКИЙ
- Разработаны для ЧПУ станков имеющих циклы жесткой нарезки резьбы
- Для высокоскоростного нарезания резьбы в алюминии







EDP	M	P	L	l	d	a	ZΔ	Type	Stock	Price
20810	3	0,5	46	19,0	4	3,2	3	2	●	
20814	4	0,7	52	21,0	6	4,5	3	2	●	
20818	5	0,8	60	24,0	6	4,5	3	2	●	
20822	6	1	62	29,0	6	4,5	3	2	●	
20828	8	1,25	70	37,0	8	6,0	3	2	●	
20834	10	1,5	75	12,0	8	6,0	3	3	●	
20839	12	1,75	82	14,0	10	8,0	3	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 27~32 m/min	◎ 27~32 m/min	◎ 22~27 m/min	◎ 22~27 m/min							○ 17~22 m/min		

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 27~32 m/min				○ 50~100 m/min	○ 40~100 m/min						◎ 27~32 m/min	



METRIC
- Developed for CNC machines equipped with rigid tapping
- For use with collet chuck
- For high speed tapping in aluminium

METRISCH
- Für CNC Maschinen mit Synchronspindeln
- Geeignet für den Einsatz auch mit Spannzangen
- Für HSC - Gewindeschneiden in Aluminium

METRICO
- Studiato per le macchine CNC che hanno un programma di sincronizzazione tra la velocità e l'avanzamento
- Si utilizza con un mandrino a pinza
- Per maschiatura ad alta velocità su alluminio

MÉTRIQUE
- Synchro-Tap est développé pour les machines CNC qui ont le "taraudage rigide"
- S'utilise dans un mandrin à pinces
- Pour taraudage haute vitesse dans l'aluminium

METRISK
- Udviklet til CNC maskine udstyret med fast tapholder
- Til brug ved spændetangs holder
- Til højhastigheds gevindskæring i aluminium

METRISK
- Utvecklat för CNC-maskiner som är utrustade med gängfunktion
- För användning med hylschuckar
- För high speed gängning i aluminium

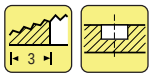
METRICO
- Desarrollados para máquinas CNC aptas para roscado rígido
- Para usar con porta-pinzas
- Para roscado a alta velocidad en aluminio

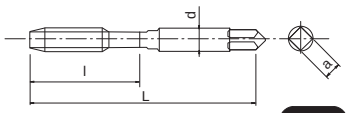
МЕТРИЧЕСКИЙ
- Разработаны для ЧПУ станков имеющих циклы жесткой нарезки резьбы
- Для использования с цанговым патроном
- Для высокоскоростного нарезания резьбы в алюминии

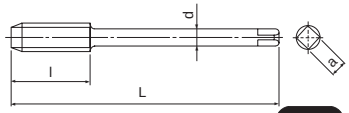


M HSSE

ISO 2 6H







EDP	M	P	L	l	d	a	ZΔ	Type	Stock	Price
8311669	3	0,5	46	19,0	4	3,2	2	2	●	
8311683	4	0,7	52	21,0	6	4,5	2	2	●	
8311697	5	0,8	60	24,0	6	4,5	2	2	●	
8311711	6	1	62	29,0	6	4,5	2	2	●	
8311725	8	1,25	70	37,0	8	6,0	2	2	●	
8311739	10	1,5	75	12,0	8	6,0	2	3	●	
8311757	12	1,75	82	14,0	10	8,0	2	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
				◎ 100~400 m/min	◎ 100~400 m/min	○ 27~100 m/min	○ 27~200 m/min					

● Delivery from stock
○ Available on short notice



METRIC
- High performance forming tap

METRISCH
- Hochleistungsgewindeformer

METRICO
- Maschio a rullare ad alta performance

MÉTRIQUE
- Taraud à refoulé à haute performance

METRISK
- High Performance rulletap

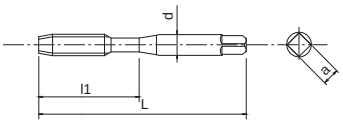
METRISK
- High performance pressgängtapp

METRICO
- Alta prestaciones, macho de laminación

МЕТРИЧЕСКИЙ
- Высокопроизводительные накатные метчики

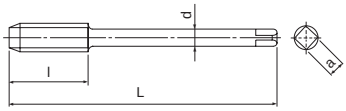
GO TO LIVE STOCK CHECK

M HSS-Co V ISO 2 6HX 2 DIN 371



	EDP	M	P	L	l1	d	a	Drill Hole Size	ZΔ	Stock	Price
New Sizes	48030138	3	0,5	56	18	3,5	3,5	2,77 ~ 2,81	4	●	
New Sizes	48030144	4	0,7	63	21	4,5	4,5	3,66 ~ 3,72	4	●	
New Sizes	48030149	5	0,8	70	25	6,0	6,0	4,61 ~ 4,68	5	●	
	48030155	6	1	80	30	6,0	4,9	5,51 ~ 5,59	5	●	
	48030161	8	1,25	90	35	8,0	6,2	7,37 ~ 7,45	5	●	
	48030169	10	1,5	100	39	10,0	8,0	9,24 ~ 9,33	8	●	

M HSS-Co V ISO 2 6HX 2 DIN 376



	EDP	M	P	L	l	d	a	Drill Hole Size	ZΔ	Stock	Price
	48030179	12	1,75	110	17	9	7	11,1 ~ 11,2	8	●	
	48030191	14	2	110	20	11	9	12,96 ~ 13,08	8	●	
	48030202	16	2	110	20	12	9	14,96 ~ 15,08	8	●	
New Sizes	48069214	18	2,5	125	20	14	11	16,66 ~ 16,81	8	●	
New Sizes	48069228	20	2,5	140	20	16	12	18,66 ~ 18,81	8	●	
New Sizes	48069238	22	2,5	140	20	18	14,5	20,66 ~ 20,81	8	●	
New Sizes	48069247	24	3	160	24	18	14,5	22,39 ~ 22,56	8	●	
New Sizes	48069262	27	3	160	18	20	16	25,39 ~ 25,56	8	●	
New Sizes	48069271	30	3,5	180	21	22	18	28,09 ~ 28,28	8	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~40 m/min	◎ 15~40 m/min	◎ 15~30 m/min	◎ 15~30 m/min	◎ 5~20 m/min				◎ 8~20 m/min		○ 15~40 m/min		

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
◎ 10~30 m/min	◎ 10~30 m/min	◎ 10~30 m/min		◎ 20~50 m/min	◎ 20~40 m/min		○ 10~30 m/min					

● Delivery from stock
○ Available on short notice



METRIC
- High performance forming tap

METRISCH
- Hochleistungsgewindeformer

METRICO
- Maschio a rullare ad alta performance

MÉTRIQUE
- Taraud à refoulé à haute performance

METRISK
- High Performance rulletap

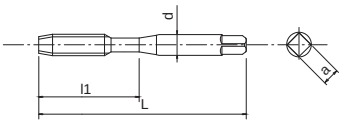
METRISK
- High performance pressgängtapp

METRICO
- Alta prestaciones, macho de laminación

МЕТРИЧЕСКИЙ
- Высокопроизводительные накатные метчики

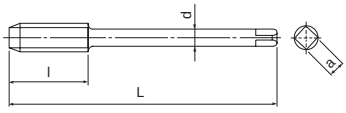
GO TO LIVE STOCK CHECK

M HSS-Co V ISO 2 6HX 2 DIN 371



EDP	M	P	L	l1	d	a	Drill Hole Size	ZΔ	Stock	Price
48042155	6	1	80	30	6	4,9	5,51 ~ 5,59	5	●	
48042161	8	1,25	90	35	8	6,2	7,37 ~ 7,45	5	●	
48042169	10	1,5	100	39	10	8,0	9,24 ~ 9,33	8	●	

M HSS-Co V ISO 2 6HX 2 DIN 376



EDP	M	P	L	l	d	a	Drill Hole Size	ZΔ	Stock	Price
48042179	12	1,75	110	17	9	7	11,1 ~ 11,2	8	●	
48042191	14	2	110	20	11	9	12,96 ~ 13,08	8	●	
48042202	16	2	110	20	12	9	14,96 ~ 15,08	8	●	
48071214	18	2,5	125	20	14	11	16,66 ~ 16,81	8	●	
48071228	20	2,5	140	20	16	12	18,66 ~ 18,81	8	●	
48071238	22	2,5	140	20	18	14,5	20,66 ~ 20,81	8	●	
48071247	24	3	160	24	18	14,5	22,39 ~ 22,56	8	●	
48071262	27	3	160	18	20	16	25,39 ~ 25,56	8	●	
48071271	30	3,5	180	21	22	18	28,09 ~ 28,28	8	●	
48071281	33	3,5	180	21	25	20	31,09 ~ 31,28	8	○	
48071294	36	4	200	24	28	22	33,80 ~ 34,01	8	○	
48071304	39	4	200	24	32	24	36,80 ~ 37,01	9	○	
48071314	42	4,5	200	27	32	24	39,52 ~ 39,73	9	○	
48071319	45	4,5	220	27	36	29	42,52 ~ 42,73	9	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~40 m/min	◎ 15~40 m/min	◎ 15~30 m/min	◎ 15~30 m/min	◎ 5~20 m/min				◎ 8~20 m/min		○ 15~40 m/min		

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
◎ 10~30 m/min	◎ 10~30 m/min	◎ 10~30 m/min		◎ 20~50 m/min	◎ 20~40 m/min		○ 10~30 m/min					

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

S-XPF-6GX



METRIC
- High performance forming tap

METRISCH
- Hochleistungsgewindeformer

METRICO
- Maschio a rullare ad alta performance

MÉTRIQUE
- Taraud à refoulé à haute performance

METRISK
- High Performance rulletap

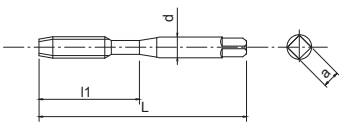
METRISK
- High performance pressgängtapp

METRICO
- Alta prestaciones, macho de laminación

МЕТРИЧЕСКИЙ
- Высокопроизводительные накатные метчики

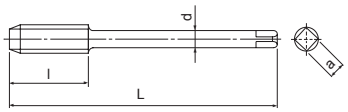
GO TO LIVE STOCK CHECK

M HSS-Co V ISO 2 6GX DIN 371



EDP	M	P	L	l1	d	a	Drill Hole Size	ZΔ	Stock	Price
48086138	3	0,5	56	18	3,5	3,5	2,79 ~ 2,82	4	●	
48086144	4	0,7	63	21	4,5	4,5	3,69 ~ 3,75	4	●	
48086149	5	0,8	70	25	6	6	4,64 ~ 4,71	5	●	
48086155	6	1	80	30	6	4,9	5,55 ~ 5,63	5	●	
48086161	8	1,25	90	35	8	6,2	7,40 ~ 7,47	5	●	
48086169	10	1,50	100	39	10	8	9,26 ~ 9,35	8	●	

M HSS-Co V ISO 2 6GX DIN 376



EDP	M	P	L	l	d	a	Drill Hole Size	ZΔ	Stock	Price
48086179	12	1,75	110	17	9	7	11,14 ~ 11,24	8	●	
48086191	14	2	110	17	11	9	13,00 ~ 13,12	8	●	
48086202	16	2	110	20	12	9	15,00 ~ 15,12	8	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
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Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~40 m/min	◎ 15~40 m/min	◎ 15~30 m/min	◎ 15~30 m/min	◎ 5~20 m/min				◎ 8~20 m/min		○ 15~40 m/min		

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
◎ 10~30 m/min	◎ 10~30 m/min	◎ 10~30 m/min		◎ 20~50 m/min	◎ 20~40 m/min		○ 10~30 m/min					



METRIC
- High performance forming tap

METRISCH
- Hochleistungsgewindeformer

METRICO
- Maschio a rullare ad alta performance

MÉTRIQUE
- Taraud à refoulé à haute performance

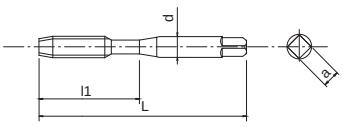
METRISK
- High Performance rulletap

METRISK
- High performance pressgängtapp

METRICO
- Alta prestaciones, macho de laminación

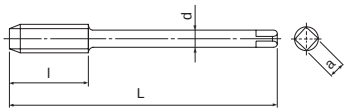
МЕТРИЧЕСКИЙ
- Высокопроизводительные накатные метчики

M | HSS-Co | V | ISO 2 7GX | 2 | DIN 371



EDP	M	P	L	l1	d	a	Drill Hole Size	ZΔ	Stock	Price
48087138	3	0,5	56	18	3,5	3,5	2,81 ~ 2,85	4	●	
48087144	4	0,7	63	21	4,5	4,5	3,71 ~ 3,77	4	●	
48087149	5	0,8	70	25	6	6	4,66 ~ 4,73	5	●	
48087155	6	1	80	30	6	4,9	5,56 ~ 5,64	5	●	
48087161	8	1,25	90	35	8	6,2	7,42 ~ 7,50	5	●	
48087169	10	1,50	100	39	10	8	9,30 ~ 9,39	8	●	

M | HSS-Co | V | ISO 2 7GX | 2 | DIN 376



EDP	M	P	L	l	d	a	Drill Hole Size	ZΔ	Stock	Price
48087179	12	1,75	110	17	9	7	11,17 ~ 11,28	8	●	
48087191	14	2	110	20	11	9	13,04 ~ 13,16	8	●	
48087202	16	2	110	20	12	9	15,04 ~ 15,16	8	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
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Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~40 m/min	◎ 15~40 m/min	◎ 15~30 m/min	◎ 15~30 m/min	◎ 5~20 m/min				◎ 8~20 m/min		○ 15~40 m/min		

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
◎ 10~30 m/min	◎ 10~30 m/min	◎ 10~30 m/min		◎ 20~50 m/min	◎ 20~40 m/min		○ 10~30 m/min					

● Delivery from stock
○ Available on short notice



METRIC
- High performance forming tap
- **4P chamfer**

METRISCH
- Hochleistungsgewindeformer
- **4 Gang. Anschnittlänge**

METRICO
- Maschio a rullare ad alta performance
- **4 filleti**

MÉTRIQUE
- Taraud à refoulé à haute performance
- **4 entrée gun**

METRISK
- High Performance rulletap
- **4 x stigning på opløb**

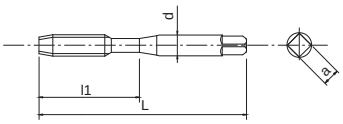
METRISK
- High performance pressgängtapp
- **4 x stigning**

METRICO
- Alta prestaciones, macho de laminación
- **4 pasos**

МЕТРИЧЕСКИЙ
- Высокопроизводительные накатные метчики
- **4 витка**

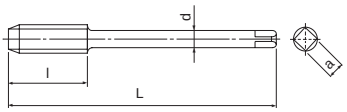
GO TO LIVE STOCK CHECK

M HSS-Co V ISO 2 6HX 4 DIN 371



EDP	M	P	L	l1	d	a	Drill Hole Size	ZΔ	Stock	Price
48088138	3	0,5	56	18	3,5	3,5	2,77~2,81	4	●	
48088144	4	0,7	63	21	4,5	4,5	3,66~3,72	4	●	
48088149	5	0,8	70	25	6	6	4,61~4,68	5	●	
48088155	6	1	80	30	6	4,9	5,51~5,59	5	●	
48088161	8	1,25	90	35	8	6,2	7,37~7,45	5	●	
48088169	10	1,50	100	39	10	8	9,24~9,33	8	●	

M HSS-Co V ISO 2 6HX 4 DIN 376



EDP	M	P	L	l	d	a	Drill Hole Size	ZΔ	Stock	Price
48088179	12	1,75	110	17	9	7	11,1~11,2	8	●	
48088191	14	2	110	20	11	9	12,96~13,08	8	●	
48088202	16	2	110	20	12	9	14,96~15,08	8	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~40 m/min	◎ 15~40 m/min	◎ 15~30 m/min	◎ 15~30 m/min	◎ 5~20 m/min				◎ 8~20 m/min		○ 15~40 m/min		

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
◎ 10~30 m/min	◎ 10~30 m/min	◎ 10~30 m/min		◎ 20~50 m/min	◎ 20~40 m/min		○ 10~30 m/min					

S-SC-XPF



METRIC
- High performance forming tap
- **Short chamfer**

METRISCH
- Hochleistungsgewindeformer
- **kurzer Anschnitt**

METRICO
- Maschio a rullare ad alta performance
- **Imbocco corto**

MÉTRIQUE
- Taraud à refoulé à haute performance
- **Entrée courte**

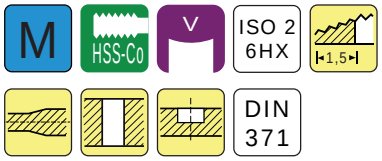
METRISK
- High Performance rulletap
- **Kort indløb**

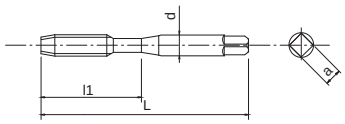
METRISK
- High performance pressgängtapp
- **Kort faslängd**

METRICO
- Alta prestaciones, macho de laminación
- **Chaflán corto**

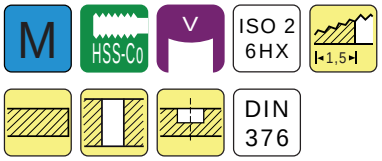
МЕТРИЧЕСКИЙ
- Высокопроизводительные накатные метчики
- **Короткий заход**

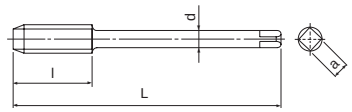
GO TO LIVE STOCK CHECK





EDP	M	P	L	l1	d	a	Drill Hole Size	ZΔ	Stock	Price
48089138	3	0,5	56	18	3,5	3,5	2,77~2,81	4	●	
48089144	4	0,7	63	21	4,5	4,5	3,66~3,72	4	●	
48089149	5	0,8	70	25	6	6	4,61~4,68	5	●	
48089155	6	1	80	30	6	4,9	5,51~5,59	5	●	
48089161	8	1,25	90	35	8	6,2	7,37~7,45	5	●	
48089169	10	1,50	100	39	10	8	9,24~9,33	8	●	





EDP	M	P	L	l	d	a	Drill Hole Size	ZΔ	Stock	Price
48089179	12	1,75	110	17	9	7	11,1~11,2	8	●	
48089191	14	2	110	20	11	9	12,96~13,08	8	●	
48089202	16	2	110	20	12	9	14,96~15,08	8	●	

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Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~40 m/min	◎ 15~40 m/min	◎ 15~30 m/min	◎ 15~30 m/min	◎ 5~20 m/min				◎ 8~20 m/min		○ 15~40 m/min		

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
◎ 10~30 m/min	◎ 10~30 m/min	◎ 10~30 m/min		◎ 20~50 m/min	◎ 20~40 m/min		○ 10~30 m/min					

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice



METRIC
- ISO 2/4HX for M1 and M1,2
- No problems associated with swarf ejection
- Oil groove with M ≥ 3
- For aluminium, stainless & steels ≤ 850 N/mm²

METRISCH
- ISO 2/4HX für M1 und M1,2
- Keine Probleme mit Spänen
- Mit Ölnut für M ≥ 3
- Für Stahl ≤ 850 N/mm², Aluminium, VA Stahl

METRICO
- ISO 2/4HX per M1 e M1,2
- Maschiatura a Rullare
- Maschi con scanalatura di lubrificazione per M ≥ 3
- Per acciai ≤ 850 N/mm², alluminio, inox

MÉTRIQUE
- ISO 2/4HX pour M1 et M1,2
- Taraudage sans enlèvement de copeaux
- Tarauds avec rainure d'huile pour M ≥ 3
- Pour aciers ≤ 850 N/mm², aluminium, inox

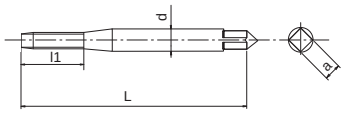
METRISK
- ISO 2/4 HX til M1 & M 1,2
- Ingen problemer med spån evakuering
- Med oliespor M ≥ 3
- Til aluminium, rustfrit stål & stål ≤ 850 N/mm²

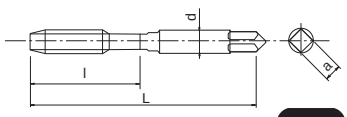
METRISK
- ISO 2/4 HX för M1 och M 1,2
- Inga problem med spåntransport
- Oil sporr for M ≥ 3
- För alminium, rostfritt stål & stål ≤ 850 N/mm²

METRICO
- ISO 2 (4HX para M1 y M1,2)
- Sin problemas asociados a la proyección de virutas
- Ranuras de lubricación con M ≥ 3
- Para aluminio, para aceros inoxidables y aceros ≤ 850 N/mm²

МЕТРИЧЕСКИЙ
- ISO 2/4 HX для M1 и M 1,2
- Нет проблем связанных с выводом стружки
- Канавки для смазки с M ≥ 3
- Для алюминия, нержавеющихсталей и сталей ≤ 850 Н/мм²

M | HSS-Co | V | ISO 2 6HX | 2 | DIN 371

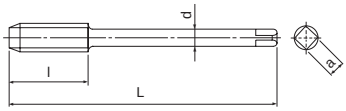




Type 2

EDP	M	P	L	l1	d	a	Drill hole Size	ZΔ	Type	Stock	Price
48003111	1,0	0,25	40	5,5	2,5	2,1	0,87 ~ 0,89	0	1	●	
48003113	1,2	0,25	40	5,5	2,5	2,1	1,07 ~ 1,09	0	1	●	
66711568	1,4	0,3	40	7	2,5	2,1	1,244 ~ 1,263	0	1	●	
66711868	1,6	0,35	40	8	2,5	2,1	1,45 ~ 1,47	0	1	●	
66712568	2,0	0,4	45	8	2,8	2,1	1,82 ~ 1,84	0	1	●	
66712868	2,2	0,45	45	9	2,8	2,1	2,01 ~ 2,04	0	1	●	
66713368	2,5	0,45	50	9	2,8	2,1	2,31 ~ 2,34	0	1	●	
66713868	3,0	0,5	56	18	3,5	2,7	2,77 ~ 2,81	2	2	●	
66714068	3,5	0,6	56	20	4,0	3,0	3,23 ~ 3,27	2	2	●	
66714468	4,0	0,7	63	21	4,5	3,4	3,66 ~ 3,72	2	2	●	
66714968	5,0	0,8	70	25	6,0	4,9	4,61 ~ 4,68	2	2	●	
66715568	6,0	1	80	30	6,0	4,9	5,51 ~ 5,59	2	2	●	
66716168	8,0	1,25	90	35	8,0	6,2	7,37 ~ 7,45	3	2	●	
66716968	10,0	1,5	100	39	10,0	8,0	9,24 ~ 9,33	4	2	●	

M | HSS-Co | ISO 2 6HX | 2 | DIN 376



EDP	M	P	L	l	d	a	Drill hole Size	ZΔ	Stock	Price
69117968	12	1,75	110	29	9	7	11,10 ~ 11,20	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 10~15 m/min	◎ 10~15 m/min	○ 10~15 m/min	○ 8~12 m/min					◎ 5~10 m/min				

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
◎ 10~20 m/min	◎ 10~20 m/min	◎ 10~20 m/min		◎ 10~20 m/min	◎ 10~20 m/min		○ 10~15 m/min					



METRIC
- No problems associated with swarf ejection
- Oil groove with M ≥ 3
- For aluminium, stainless & steels ≤ 850 N/mm²
- For 6 G

METRISCH
- Keine Probleme mit Spänen
- Mit Ölnut für M ≥ 3
- Für Stahl ≤ 850 N/mm², Aluminium, VA Stahl
- Für 6 G

METRICO
- Maschiatura a Rullare
- Maschi con scanalatura di lubrificazione per M ≥ 3
- Per acciai ≤ 850 N/mm², alluminio, inox
- Per 6 G

MÉTRIQUE
- Taraudage sans enlèvement de copeaux
- Tarauds avec rainure d'huile pour M ≥ 3
- Pour aciers ≤ 850 N/mm², aluminium, inox
- Pour 6 G

METRISK
- Ingen problemer med spån evakuering
- Med oliespor M ≥ 3
- Til aluminium, rustfrit stål & stål ≤ 850 N/mm²
- Til 6 G

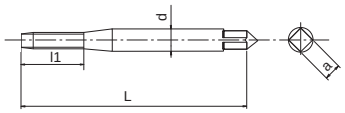
METRISK
- Inga problem med spåntransport
- Oil sporr for M ≥ 3
- För alminium, rostfritt stål & stål ≤ 850 N/mm²
- För 6 G

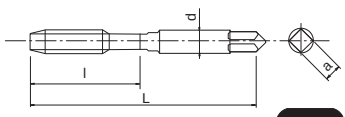
METRICO
- Sin problemas asociados a la proyección de virutas
- Ranuras de lubricación con M ≥ 3
- Para aluminio, aceros inoxidables y aceros ≤ 850 N/mm²
- Para 6 G

МЕТРИЧЕСКИЙ
- Нет проблем связанных с выводом стружки
- Канавки для смазки с M ≥ 3
- Для алюминия, нержавеющих сталей и сталей ≤ 850 Н/мм²
- Для 6 G

M | HSS-Co | V | ISO 3 6GX

2 | DIN 371





Type 2

EDP	M	P	L	l1	d	a	Drill hole Size	ZΔ	Type	Stock	Price
48003125	2,0	0,4	45	8	2,8	2,1	1,82 ~ 1,84	0	1	●	
48003128	2,2	0,45	45	9	2,8	2,1	2,01 ~ 2,04	0	1	●	
48003133	2,5	0,45	50	9	2,8	2,1	2,31 ~ 2,34	0	1	●	
48003138	3,0	0,5	56	18	3,5	2,7	2,77 ~ 2,81	2	2	●	
48003140	3,5	0,6	56	20	4,0	3,0	3,23 ~ 3,27	2	2	●	
48003144	4,0	0,7	63	21	4,5	3,4	3,66 ~ 3,72	2	2	●	
48003149	5,0	0,8	70	25	6,0	4,9	4,61 ~ 4,68	2	2	●	
48003155	6,0	1	80	30	6,0	4,9	5,51 ~ 5,59	2	2	●	
48003161	8,0	1,25	90	35	8,0	6,2	7,37 ~ 7,45	3	2	●	
48003169	10,0	1,5	100	39	10,0	8,0	9,24 ~ 9,33	4	2	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 10~15 m/min	◎ 10~15 m/min	○ 10~15 m/min	○ 8~12 m/min					◎ 5~10 m/min				

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
◎ 10~20 m/min	◎ 10~20 m/min	◎ 10~20 m/min		◎ 10~20 m/min	◎ 10~20 m/min		○ 10~15 m/min					

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice



METRIC
- No problems associated with swarf ejection
- Oil groove with M ≥ 3
- For aluminium, stainless & steels ≤ 850 N/mm²

METRISCH
- Keine Probleme mit Spänen
- Mit Ölnut für M ≥ 3
- Für Stahl ≤ 850 N/mm², Aluminium, VA Stahl

METRICO
- Maschiatura a Rullare
- Maschi con scanalatura di lubrificazione per M ≥ 3
- Per acciai ≤ 850 N/mm², alluminio, inox

MÉTRIQUE
- Taraudage sans enlèvement de copeaux
- Tarauds avec rainure d'huile pour M ≥ 3
- Pour aciers ≤ N/mm², aluminium, inox

METRISK
- Ingen problemer med spån evakuering
- Med oliespor M ≥ 3
- Til aluminium, rustfrit stål & stål ≤ 850 N/mm²

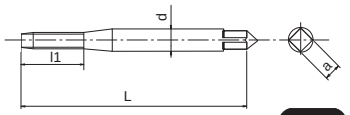
METRISK
- Inga problem med spåntransport
- Oil sporr for M ≥ 3
- För alminium, rostfritt stål & stål ≤ 850 N/mm²

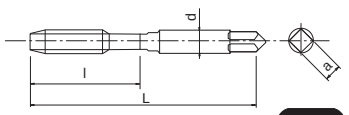
METRICO
- Sin problemas asociados a la proyección de virutas
- Ranuras de lubricación con M ≥ 3
- Para aluminio, aceros inoxidables y aceros ≤ 850 N/mm²

МЕТРИЧЕСКИЙ
- Нет проблем связанных с выводом стружки
- Канавки для смазки с M ≥ 3
- ДДля алюминия, нержавеющих сталей и сталей ≤ 850 Н/мм²

M | HSS-Co | V | ISO 2 6HX

4 | DIN 371

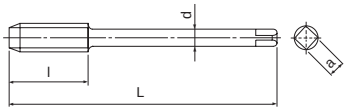




EDP	M	P	L	l1	d	a	Drill hole Size	ZΔ	Type	Stock	Price
66612568	2,0	0,4	45	8	2,8	2,1	1,82 ~ 1,84	0	1	●	
66612868	2,2	0,45	45	9	2,8	2,1	2,01 ~ 2,04	0	1	●	
66613368	2,5	0,45	50	9	2,8	2,1	2,31 ~ 2,34	0	1	●	
66613868	3,0	0,5	56	18	3,5	2,7	2,77 ~ 2,81	2	2	●	
66614068	3,5	0,6	56	20	4,0	3,0	3,23 ~ 3,27	2	2	●	
66614468	4,0	0,7	63	21	4,5	3,4	3,66 ~ 3,72	2	2	●	
66614968	5,0	0,8	70	25	6,0	4,9	4,61 ~ 4,68	2	2	●	
66615568	6,0	1	80	30	6,0	4,9	5,51 ~ 5,59	2	2	●	
66616168	8,0	1,25	90	35	8,0	6,2	7,37 ~ 7,45	3	2	●	
66616968	10,0	1,5	100	39	10,0	8,0	9,24 ~ 9,33	4	2	●	

M | HSS-Co | V | ISO 2 6HX

4 | DIN 376



EDP	M	P	L	l	d	a	Drill hole Size	ZΔ	Stock	Price
69017968	12	1,75	110	29	9	7	11,10 ~ 11,20	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

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◎ 10~15 m/min	◎ 10~15 m/min	○ 10~15 m/min	○ 8~12 m/min					◎ 5~10 m/min				

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
◎ 10~20 m/min	◎ 10~20 m/min	◎ 10~20 m/min		◎ 10~20 m/min	◎ 10~20 m/min		○ 10~15 m/min					



METRIC
- No problems associated with swarf ejection
- Oil groove with M ≥ 3
- For aluminium, stainless & steels ≤ 850 N/mm²
- For 6 G

METRISCH
- Keine Probleme mit Spänen
- Mit Ölnut für M ≥ 3
- Für Stahl ≤ 850 N/mm², Aluminium, VA Stahl
- Für 6 G

METRICO
- Maschiatura a Rullare
- Maschi con scanalatura di lubrificazione per M ≥ 3
- Per acciai ≤ 850 N/mm², alluminio, inox
- Per 6 G

MÉTRIQUE
- Taraudage sans enlèvement de copeaux
- Tarauds avec rainure d'huile pour M ≥ 3
- Pour aciers ≤ 850 N/mm², aluminium, inox
- Pour 6 G

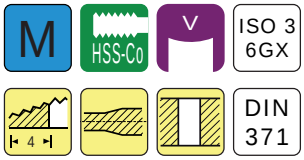
METRISK
- Ingen problemer med spån evakuering
- Med oliespor M ≥ 3
- il aluminium, rustfrit stål & stål ≤ 850 N/mm²
- Til 6 G

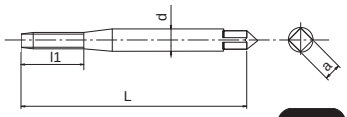
METRISK
- Inga problem med spåntransport
- Oil sporr for M ≥ 3
- För alminium, rostfritt stål & stål ≤ 850 N/mm²
- För 6 G

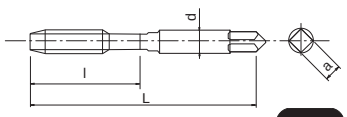
METRICO
- Sin problemas asociados a la proyección de virutas
- Ranuras de lubricación con M ≥ 3
- Para aluminio, aceros inoxidables y aceros ≤ 850 N/mm²
- Para 6 G

МЕТРИЧЕСКИЙ
- Нет проблем связанных с выводом стружки
- Канавки для смазки с M ≥ 3
- Для алюминия, нержавеющих сталей и сталей ≤ 850 Н/мм²
- Для 6 G









EDP	M	P	L	l1	d	a	Drill hole Size	ZΔ	Type	Stock	Price
48004125	2,0	0,4	45	8	2,8	2,1	1,82 ~ 1,84	0	1	●	
48004128	2,2	0,45	45	9	2,8	2,1	2,01 ~ 2,04	0	1	●	
48004133	2,5	0,45	50	9	2,8	2,1	2,31 ~ 2,34	0	1	●	
48004138	3,0	0,5	56	18	3,5	2,7	2,77 ~ 2,81	0	2	●	
48004140	3,5	0,6	56	20	4,0	3,0	3,23 ~ 3,27	2	2	●	
48004144	4,0	0,7	63	21	4,5	3,4	3,66 ~ 3,72	2	2	●	
48004149	5,0	0,8	70	25	6,0	4,9	4,61 ~ 4,68	2	2	●	
48004155	6,0	1	80	30	6,0	4,9	5,51 ~ 5,59	2	2	●	
48004161	8,0	1,25	90	35	8,0	6,2	7,37 ~ 7,45	3	2	●	
48004169	10,0	1,5	100	39	10,0	8,0	9,24 ~ 9,33	4	2	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 10~15 m/min	◎ 10~15 m/min	○ 10~15 m/min	○ 8~12 m/min					◎ 5~10 m/min				

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
◎ 10~20 m/min	◎ 10~20 m/min	◎ 10~20 m/min		◎ 10~20 m/min	◎ 10~20 m/min		○ 10~15 m/min					

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

1066-NRT-PLUS



METRIC
- Fluteless Tap
- Oil groove with M ≥ 3
- General forming applications

METRISCH
- Gewinde Former
- Mit Ölnut für M ≥ 3
- allgemeine Anwendungen Gewindeformen

METRICO
- Maschi a Rullare
- Maschi con scanalatura di lubrificazione per M ≥ 3
- Applicazioni generali di rullatura

MÉTRIQUE
- Tarauds à refouler
- Tarauds avec rainure d'huile pour M ≥ 3
- Pour des applications universelles de refoulement

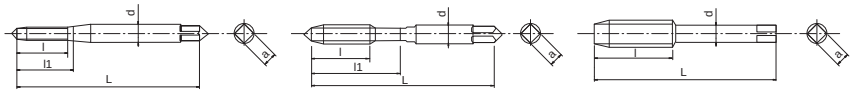
METRISK
- Rulletappe
- Med oliespor M ≥ 3
- For gevindrulning i mange materialer

METRISK
- Rullgängtapp
- Oil sporr for M ≥ 3
- Pressgängtappar för olika material

METRICO
- Machos laminadores
- Ranuras de lubricación con M ≥ 3
- Aplicación general laminación.

МЕТРИЧЕСКИЙ
- Накатные метчики
- Канавки для смазки с M ≥ 3
- Общего назначения

M | HSSE | TIN | ISO 2 6HX | 2 | ISO 529



Type 1 | Type 2 | Type 3

EDP	M	P	L	l	l1	d	a	Drill hole Size	ZΔ	Type	Stock	Price
22331257	2	0,4	41,0	8,0	-	2,50	2,00	1,82 ~ 1,84	0	1	○	
22331337	2,5	0,45	44,5	9,5	-	2,80	2,24	2,01 ~ 2,04	0	1	○	
22331387	3	0,5	48,0	11,0	18	3,15	2,50	2,31 ~ 2,34	1	2	○	
22331407	3,5	0,6	50,0	13,0	20	3,55	2,80	2,77 ~ 2,81	1	2	○	
22331447	4	0,7	53,0	13,0	21	4,00	3,15	3,23 ~ 3,27	1	2	○	
22331497	5	0,8	58,0	16,0	25	5,00	4,00	3,66 ~ 3,72	1	2	○	
22331557	6	1	66,0	19,0	30	6,30	5,00	4,61 ~ 4,68	1	2	○	
22331617	8	1,25	72,0	22,0	35	8,00	6,30	5,51 ~ 5,59	1	2	○	
22331697	10	1,	80,0	24,0	39	10,00	8,00	7,37 ~ 7,45	1	2	○	
22331797	12	1,75	89,0	29,0	-	9,00	7,10	9,24 ~ 9,33	1	3	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 10~15 m/min	◎ 10~15 m/min	○ 10~15 m/min	○ 8~12 m/min					◎ 5~10 m/min				

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
◎ 10~20 m/min	◎ 10~20 m/min	◎ 10~20 m/min		◎ 10~20 m/min	◎ 10~20 m/min		○ 10~15 m/min					



METRIC
- For alloyed steels ≥ 1100 N/mm²
- Forming short chips
- Left hand spiral

METRISCH
- Für legierten Stahl ≥ 1100 N/mm²
- Für kurzspanende Werkstoffe
- Linksspirale

METRICO
- Per acciai legati ≥ 1100 N/mm²
- Formano trucioli corti
- Elica sinistra

MÉTRIQUE
- Pour aciers alliés ≥ 1100 N/mm²
- Formant des copeaux courts
- Hélice gauche

METRISK
- Til legeret stål ≥ 1100 N/mm²
- Giver korte spåner
- Venstresnoet

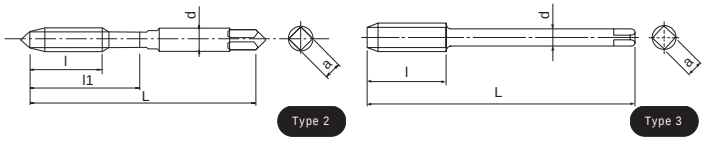
METRISK
- För legerade stål ≥ 1100 N/mm
- Formar korta spånor
- Vänster spiral

METRICO
- Para aceros aleados ≥ 1100 N/mm
- Formación de virutas cortas
- Ranura helicoidal izquierda

МЕТРИЧЕСКИЙ
- Для легированных сталей ≥ 1100 Н/мм²
- Формирует короткую стружку
- Левая спираль







EDP	M	P	L	l	l1	d	a	ZΔ	Type	Stock	Price
84015560	6	1	120	-	28	6	4,9	2	2	●	
84016160	8	1,25	120	-	35	8	6,2	3	2	●	
84016960	10	1,5	150	24	-	7	5,5	3	3	●	
84017960	12	1,75	150	29	-	9	7,0	3	3	●	
84019160	14	2	150	30	-	11	9,0	3	3	●	
84020260	16	2	150	32	-	12	9,0	3	3	●	
84021460	18	2,5	200	34	-	14	11,0	4	3	●	
84022860	20	2,5	200	34	-	16	12,0	4	3	●	

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Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 8~13 m/min	◎ 7~12 m/min	○ 6~9 m/min	○ 7~12 m/min							◎ 6~11 m/min	○ 10~15 m/min	○ 7~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
					◎ 10~15 m/min		○ 7~12 m/min					

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● Delivery from stock
○ Available on short notice

V-EM-SFT



HIGH PERFORMANCE

- Metric
- Synchro taps, with front cut allowing calibration of tapered pilot holes
- For cast aluminium

HIGH PERFORMANCE

- Metrisch
- Kombigewindebohrer mit Kernlochaufbohrer
- Für legiertem Aluminium

ALTA PRESTAZIONE

- Metrico
- Maschi synchro, con taglio frontale per calibrare i prefori conici
- Per alluminio da fusione

HAUTE PERFORMANCE

- Métrique
- Tarauds synchro, coupe frontale pour calibrer les avant-trous coniques
- Pour alliages d'aluminium

HIGH PERFORMANCE

- Metrisk
- Syncro tap med endeskær til gevindskæring i forstøbte huller
- Til støbt aluminium

HIGH PERFORMANCE

- Metrisk
- Synchro gängtappar med skärfunktion i främre änden för centrering av koniska förgjutna hål
- För gjuten aluminium

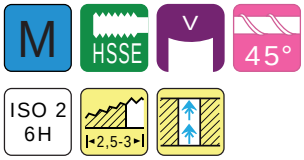
ALTAS PRESTACIONES

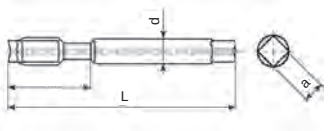
- Metrico
- Machos Synchro, con corte frontal para calibrar el agujero previo de roscado
- Para aluminio aleado

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- Метрический
- Synchro метчики с передней режущей частью позволяющей калибровать конические пилотные отверстия
- Для легированного алюминия







EDP	M	P	L	l1	d	a	ZΔ	Stock	Price
1001480570	4	0,7	80	21	6	4,5	3	●	
1001480580	5	0,8	80	24	6	4,5	3	●	
1001480450	6	1	100	29	6	4,5	3	●	
1001480210	8	1,25	100	37	8	6,0	3	●	
1001480590	10	1,5	100	41	8	6,0	3	●	
1001480610	12	1,75	100	48	10	8,0	3	●	
1001480640	14	2	120	48	12	10,0	3	●	
1001480650	16	2	120	52	16	12,0	3	●	

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C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
					◎ 10~15 m/min	○ 7~12 m/min	◎ 7~12 m/min					



METRIC FINE
- General purpose, also for stainless steel

METRISCH FEIN
- Für universelle Anwendungen und VA - Stähl

METRICO FINE
- Per applicazioni generali e per inox

MÉTRIQUE FIN
- Pour applications générales et pour des aciers inox

METRISK FINGEVIND
- Til generelt brug, til rustfrit stål

METRISK FIN
- För allround bearbetning och för rostfritt stål

METRICO FINO
- Para aplicación general, para aceros inoxidables

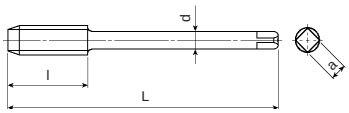
МЕТРИЧЕСКАЯ МЕЛКАЯ
- Общего назначения и для нержавеющей сталей



MF | HSSE | OX | ISO 2 6H



DIN 374



EDP	MF	P	L	l	d	a	ZΔ	Stock	Price
63713960	3	0,35	56	9	2,2	-	3	●	
63714560	4	0,5	63	10	2,8	2,1	3	●	
63715160	5	0,5	70	12	3,5	2,7	3	●	
63715760	6	0,5	80	14	4,5	3,4	3	●	
63715660	6	0,75	80	14	4,5	3,4	3	●	
63716360	8	0,75	80	19	6,0	4,9	3	●	
63716260	8	1	90	22	6,0	4,9	3	●	
63717160	10	1	90	20	7,0	5,5	3	●	
63717060	10	1,25	100	24	7,0	5,5	3	●	
63718260	12	1	100	22	9,0	7,0	3	●	
63718160	12	1,25	100	22	9,0	7,0	3	●	
63718060	12	1,5	100	22	9,0	7,0	3	●	
63719260	14	1,5	100	22	11,0	9,0	3	●	
63720360	16	1,5	100	22	12,0	9,0	3	●	
63721660	18	1,5	110	25	14,0	11,0	3	●	
63723060	20	1,5	125	25	16,0	12,0	3	●	
63724060	22	1,5	125	25	18,0	14,5	3	●	
63725060	24	1,5	140	28	18,0	14,5	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
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C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~24 m/min	◎ 10~15 m/min	◎ 8~13 m/min	◎ 10~15 m/min					◎ 8~16 m/min	○ 10~15 m/min	○ 10~15 m/min		○ 10~15 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 12~17 m/min											○ 10~20 m/min	

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

MF

MF

GO TO LIVE STOCK CHECK



METRIC FINE
- For general purpose application

METRISCH FEIN
- Für universelle Anwendungen

METRICO FINE
- Per applicazioni generali

MÉTRIQUE FIN
- Pour applications générales

METRISK FINGEVIND
- Til generelt brug

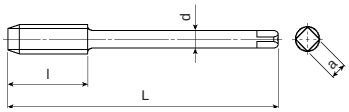
METRISK FIN
- För allround bearbetning

METRICO FINO
- Para aplicación general

МЕТРИЧЕСКАЯ МЕЛКАЯ
- Общего назначения



MF | HSSE | ISO 2 6H | 4 | DIN 374



EDP	MF	P	L	l	d	a	ZΔ	Stock	Price
60614560	4	0,5	63	10	2,8	2,1	3	●	
60615160	5	0,5	70	12	3,5	2,7	3	●	
60615660	6	0,75	80	14	4,5	3,4	3	●	
60616360	8	0,75	80	19	6,0	4,9	3	●	
60616260	8	1	90	22	6,0	4,9	3	●	
60617260	10	0,75	90	18	7,0	5,5	3	●	
60617160	10	1	90	20	7,0	5,5	3	●	
60617060	10	1,25	100	24	7,0	5,5	3	●	
60618260	12	1	100	22	9,0	7,0	3	●	
60618160	12	1,25	100	22	9,0	5,0	3	●	
60618060	12	1,5	100	22	9,0	7,0	3	●	
60619460	14	1	100	18	11,0	9,0	3	●	
60619360	14	1,25	100	22	11,0	9,0	3	●	
60619260	14	1,5	100	22	11,0	9,0	3	●	
60620460	16	1	100	18	12,0	9,0	3	●	
60620360	16	1,5	100	22	12,0	9,0	3	●	
60621860	18	1	110	20	14,0	11,0	3	●	
60621660	18	1,5	110	25	14,0	11,0	3	●	
60621560	18	2	125	26	14,0	11,0	3	●	
60623260	20	1	125	20	16,0	12,0	3	●	
60623060	20	1,5	125	25	16,0	12,0	3	●	
60622960	20	2	140	27	16,0	12,0	3	●	
60624060	22	1,5	125	25	18,0	14,5	3	●	
60623960	22	2	140	27	18,0	14,5	3	●	
60625060	24	1,5	140	28	18,0	14,5	3	●	
60624960	24	2	140	27	18,0	14,5	3	●	
60627360	30	2	150	30	22,0	18,0	4	●	

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C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
○ 12~20 m/min	○ 8~12 m/min	⊙ 7~12 m/min	○ 8~12 m/min							○ 8~12 m/min		○ 8~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 10~15 m/min	○ 15~25 m/min	○ 15~25 m/min	○ 10~20 m/min	○ 15~25 m/min	◎ 15~20 m/min	○ 10~15 m/min	◎ 10~15 m/min				○ 8~16 m/min	

● Delivery from stock
○ Available on short notice



MF

GO TO LIVE STOCK CHECK

METRIC
- For stainless steels, aluminium and steel
- Developed for CNC machines equipped with rigid tapping
- For pilot hole use OSG EX-SUS-GDS (p.C.70)

METRISCH
- Für Va-Stahl, Aluminium und Stahl
- Für CNC Maschinen mit Synchronspindeln
- Für die Kernlochbearbeitung EX-SUS-GDS verwenden (p.C.70)

METRICO
- Per acciai inox, alluminio, e acciai
- Per le macchine CNC che hanno un programma di sincronizzazione tra la velocità e l'avanzamento
- Utilizzate OSG EX-SUSGDS per foro pilota (p.C.70)

MÉTRIQUE
- Pour inox, aluminium et aciers
- Développé pour les machines CNC qui ont le "taraudage rigide"
- Pour trou pilote utiliser OSG EX-SUS-GDS (p.C.70)

METRISK
- Til rustfrit stål, aluminium og stål
- Udviklet til CNC maskine udstyret med fast tapholder
- For boring af pilot hul brug OSG EX-SUS-GDS (p.C.70)

METRISK
- För rostfritt stål, aluminium och stål
- Utvecklat för CNC-maskiner som är utrustade med gängfunktion
- För pilot hål använd OSG EX-SUS-GDS (p.C.70)

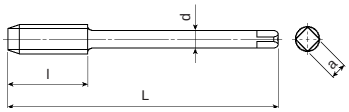
METRICO
- Para aceros inoxidables, aluminio y aceros
- Desarrollados para máquinas CNC aptas para roscado rígido
- Para agujero previo use EX-SUS-GDS (p.C.70)

МЕТРИЧЕСКИЙ
- Для нержавеющих сталей и алюминия
- Разработаны для ЧПУ станков имеющих циклы жесткой нарезки резьбы
- Для пилотного отверстия используйте OSG EX-SUS-GDS (p.C.70)



MF | HSSE | CrN | ISO 2 6HX

4 | DIN 374



EDP	MF	P	L	l	d	a	ZΔ	Stock	Price
48061156	6	0,75	80	14	4,5	3,4	3	●	
48061163	8	0,75	80	19	6,0	4,9	3	●	
48061162	8	1	90	22	6,0	4,9	3	●	
48061171	10	1	90	20	7,0	5,5	3	●	
48061170	10	1,25	100	24	7,0	5,5	3	●	
48061182	12	1	100	22	9,0	7,0	3	●	
48061181	12	1,25	100	22	9,0	7,0	3	●	
48061180	12	1,5	100	22	9,0	7,0	3	●	
48061192	14	1,5	100	22	11,0	9,0	3	●	
48061203	16	1,5	100	22	12,0	9,0	3	●	
48061216	18	1,5	110	25	14,0	11,0	3	●	
48061230	20	1,5	125	25	16,0	12,0	3	●	
48061240	22	1,5	125	25	18,0	14,5	3	●	
48061250	24	1,5	140	28	18,0	14,5	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~25 m/min	◎ 15~25 m/min	◎ 10~25 m/min	○ 10~25 m/min					◎ 8~16 m/min				

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 15~25 m/min				◎ 20~40 m/min								

● Delivery from stock
○ Available on short notice



METRIC FINE
- General purpose, also for stainless steel

METRISCH FEIN
- Für universelle Anwendungen und VA - Stähl

METRICO FINE
- Per applicazioni generali e per inox

MÉTRIQUE FIN
- Pour applications générales et pour des aciers inox

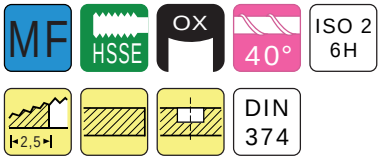
METRISK FINGEVIND
- Til generelt brug, til rustfrit stål

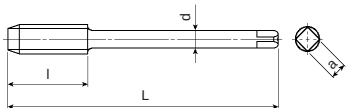
Metrisk fin
- För allround bearbetning och för rostfritt stål

METRICO FINO
- Para aplicación general, para aceros inoxidables

МЕТРИЧЕСКАЯ МЕЛКАЯ
- Общего назначения для нержавеющей сталей







EDP	MF	P	L	l	d	a	ZΔ	Stock	Price
65513960	3	0,35	56	4	2,2	-	3	●	
65514560	4	0,5	63	6	2,8	2,1	3	●	
65515160	5	0,5	70	7	3,5	2,7	3	●	
65515760	6	0,5	80	8	4,5	3,4	3	●	
65515660	6	0,75	80	8	4,5	3,4	3	●	
65516360	8	0,75	80	10	6,0	4,9	3	●	
65516260	8	1	90	10	6,0	4,9	3	●	
65517160	10	1	90	12	7,0	5,5	3	●	
65517060	10	1,25	100	12	7,0	5,5	3	●	
65518260	12	1	100	14	9,0	7,0	4	●	
65518160	12	1,25	100	14	9,0	7,0	4	●	
65518060	12	1,5	100	14	9,0	7,0	4	●	
65519260	14	1,5	100	16	11,0	9,0	4	●	
65520360	16	1,5	100	16	12,0	9,0	4	●	
65521660	18	1,5	110	20	14,0	11,0	4	●	
65523060	20	1,5	125	20	16,0	12,0	4	●	
65524060	22	1,5	125	20	18,0	14,5	4	●	
65525060	24	1,5	140	24	18,0	14,5	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 10~15 m/min	◎ 8~14 m/min	◎ 7~11 m/min	◎ 8~14 m/min					◎ 7~12 m/min	○ 7~11 m/min	○ 7~14 m/min		○ 7~14 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 7~14 m/min											◎ 10~15 m/min	



METRIC FINE
- For general purpose application

METRISCH FEIN
- Für universelle Anwendungen

METRICO FINE
- Per applicazioni generali

MÉTRIQUE FIN
- Pour applications générales

METRISK FINGEVIND
- Til generelt brug

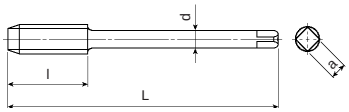
METRISK FIN
- För allround bearbetning

METRICO FINO
- Para aplicación general

МЕТРИЧЕСКАЯ МЕЛКАЯ
- Общего назначения



MF | HSSE | 40° | ISO 2 6H | 2,5 | DIN 374



EDP	MF	P	L	l	d	a	ZΔ	Stock	Price
61214560	4	0,5	63	6	2,8	2,1	3	●	
61215160	5	0,5	70	7	3,5	2,7	3	●	
61215660	6	0,75	80	8	4,5	3,4	3	●	
61216360	8	0,75	80	10	6,0	4,9	3	●	
61216260	8	1	90	10	6,0	4,9	3	●	
61217260	10	0,75	90	10	7,0	4,9	3	●	
61217160	10	1	90	12	7,0	5,5	3	●	
61217060	10	1,25	100	12	7,0	5,5	3	●	
61218260	12	1	100	14	9,0	7,0	3	●	
61218160	12	1,25	100	14	9,0	7,0	3	●	
61218060	12	1,5	100	14	9,0	7,0	3	●	
61219460	14	1	100	11	11,0	9,0	3	●	
61219360	14	1,25	100	15	11,0	9,0	3	●	
61219260	14	1,5	100	16	11,0	9,0	3	●	
61220460	16	1	100	12	12,0	9,0	3	●	
61220360	16	1,5	100	16	12,0	9,0	3	●	
61221860	18	1	110	13	14,0	11,0	4	●	
61221660	18	1,5	110	20	14,0	11,0	4	●	
61221560	18	2	125	20	14,0	11,0	4	●	
61223260	20	1	125	14	16,0	12,0	4	●	
61223060	20	1,5	125	20	16,0	12,0	4	●	
61222960	20	2	140	20	16,0	12,0	4	●	
61224060	22	1,5	125	20	18,0	14,5	4	●	
61223960	22	2	140	20	18,0	14,5	4	●	
61225060	24	1,5	140	20	18,0	14,5	4	●	
61224960	24	2	140	20	18,0	14,5	4	●	
61227360	30	2	150	22	22,0	18,0	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
○ 8~13 m/min	○ 7~12 m/min	○ 6~9 m/min	○ 7~12 m/min							○ 6~11 m/min		○ 6~8 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 6~11 m/min	○ 10~20 m/min	○ 10~20 m/min	○ 6~11 m/min	○ 10~20 m/min	○ 10~15 m/min	○ 7~12 m/min	○ 7~12 m/min				○ 10~15 m/min	

● Delivery from stock
○ Available on short notice



METRIC FINE
- For stainless steel

METRISCH FEIN
- Für VA - Stähle

METRICO FINE
- Per inox

MÉTRIQUE FIN
- Pour les aciers inoxydables

METRISK FINGEVIND
- Til rustfrit stål

METRISK FIN
- För rostfritt stål

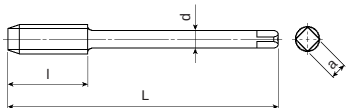
METRICO FINO
- Para aceros inoxidables

МЕТРИЧЕСКАЯ МЕЛКАЯ
- Для нержавеющих сталей



MF | HSSE | OX | 50° | ISO 2 6HX

2,5D | <1,5D | DIN 374



EDP	MF	P	L	l	d	a	ZΔ	Stock	Price
48027163	8	0,75	80	10	6	4,9	3	●	
48027162	8	1	90	10	6	4,9	3	●	
48027171	10	1	90	12	7	5,5	3	●	
48027170	10	1,25	100	12	7	5,5	3	●	
48027182	12	1	100	9	9	7,0	3	●	
48027181	12	1,25	100	14	9	7,0	3	●	
48027180	12	1,5	100	14	9	7,0	3	●	
48027192	14	1,5	100	16	11	9,0	3	●	
48027203	16	1,5	100	16	12	9,0	3	●	
48027216	18	1,5	110	20	14	11,0	4	●	
48027230	20	1,5	125	20	16	12,0	4	●	
48027240	22	1,5	125	20	18	14,5	4	●	
48027250	24	1,5	140	24	18	14,5	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
								◎ 7~12 m/min				

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 6~11 m/min											○ 10~15 m/min	



METRIC FINE

- For stainless steels and aluminium
- For threading depth ≥ 2 D
- Developed for CNC machines equipped with rigid tapping
- For pilot hole use OSG EX-SUS-GDS (p.C.70)

METRISCH FEIN

- Für VA-Stahl und Aluminium
- Für Gewindetiefen ≥ 2 D
- Für CNC Maschinen mit Synchronspindeln
- Für die Kernlochbearbeitung EX-SUS-GDS verwenden (p.C.70)

METRICO FINE

- Per acciai inox e alluminio
- Per profondità di filettatura ≥ 2 D
- Per le macchine CNC che hanno un programma di sincronizzazione tra la velocità e l'avanzamento
- Utilizzate OSG EX-SUSGDS per foro pilota (p.C.70)

MÉTRIQUE FIN

- Pour inox et aluminium
- Profondeur de taraudage ≥ 2 D
- Développé pour les machines CNC qui ont le "taraudage rigide"
- Pour trou pilote utiliser OSG EX-SUS-GDS (p.C.70)

METRISK FINGEVIND

- Til rustfrit stål og aluminium
- Til gevinddybde ≥ 2D
- Udviklet til CNC maskine udstyret med fast tapholder
- For boring af pilot hul brug OSG EX-SUS-GDS (p.C.70)

METRISK FIN

- För rostfritt stål och aluminium
- För gängdjup ≥ 2D
- Utvecklat för CNC-maskiner som är utrustade med gängfunktion
- För pilot hål använd OSG EX-SUS-GDS (p.C.70)

METRICO FINO

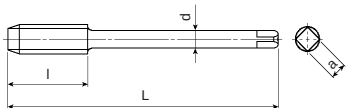
- Para aceros inoxidables y aluminio
- Para roscado ≥ 2D
- Desarrollados para máquinas CNC aptas para roscado rígido
- Para agujero previo use EX-SUS-GDS (p.C.70)

МЕТРИЧЕСКАЯ МЕЛКАЯ

- Для нержавеющих сталей и алюминия
- Для резьб глубиной ≥ 2D
- Разработаны для ЧПУ станков имеющих циклы жесткой нарезки резьбы
- Для пилотного отверстия используйте OSG EX-SUS-GDS (p.C.70)

MF | HSSE | CrN | 45° | ISO 2 6HX

2,5 | ≥2D | DIN 374



EDP	MF	P	L	l	d	a	ZΔ	Stock	Price
48032157	6	0,5	80	7,2	4,5	3,4	3	●	
48032156	6	0,75	80	7,2	4,5	3,4	3	●	
48032163	8	0,75	80	9,0	6,0	4,9	3	●	
48032162	8	1	90	9,0	6,0	4,9	3	●	
48032170	10	1,25	100	11,0	7,0	5,5	4	●	
48032171	10	1	90	11,0	7,0	5,5	4	●	
48032180	12	1,5	100	13,0	9,0	7,0	4	●	
48032181	12	1,25	100	13,0	9,0	7,0	4	●	
48032182	12	1	100	13,0	9,0	7,0	4	●	
48032192	14	1,5	100	14,0	11,0	9,0	4	●	
48032203	16	1,5	100	14,0	12,0	9,0	4	●	
48032216	18	1,5	110	18,0	14,0	11,0	4	●	
48032230	20	1,5	125	18,0	16,0	12,0	4	●	
48032240	22	1,5	125	18,0	18,0	14,5	4	●	
48032250	24	1,5	140	22,0	18,0	14,5	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~25 m/min	◎ 15~25 m/min	◎ 10~25 m/min	○ 10~25 m/min					◎ 6~10 m/min				

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 15~24 m/min				◎ 15~35 m/min								

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

AL-SFT



METRIC
- For aluminium

METRISCH
- Für Aluminium

METRICO
- Per alluminio

MÉTRIQUE
- Pour aluminium

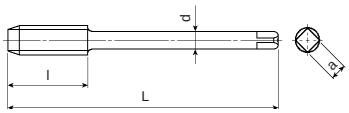
METRISK
- Til aluminium

METRISK
- För alminium

METRICO
- Para aluminio

МЕТРИЧЕСКИЙ
- Для алюминия

MF | HSSE | 50° | ISO 2 6H | 2,5 | DIN 374



EDP	MF	P	L	l	d	a	ZΔ	Stock	Price
70416260	8	1,00	90	10	6	4,9	2	●	
70417160	10	1,00	90	12	7	5,5	2	●	
70417060	10	1,25	100	12	7	5,5	2	●	
70418260	12	1,00	100	14	9	7,0	2	●	
70418160	12	1,25	100	14	9	7,0	2	●	
70418060	12	1,50	100	14	9	7,0	2	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
				10~20 m/min	10~15 m/min	7~12 m/min						



METRIC FINE
- For gray cast iron & cast aluminium < 11 % Si

METRISCH FEIN
- Für Grauguss und Aluminiumguss < 11 % Si

METRICO FINE
- Per ghisa grigia, ghisa d'alluminio < 11 % Si

MÉTRIQUE FIN
- Pour fonte grise, fonte d'aluminium < 11 % Si

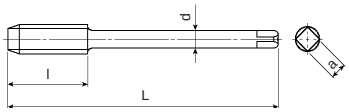
METRISK FINGEVIND
- Til støbejern & støbt aluminium < 11 % Si

METRISK FIN
- För gråjärn & gjuten aluminium < 11 % Si

METRICO FINO
- Para fundición de hierro y aluminio fundido < 11 % Si

МЕТРИЧЕСКАЯ МЕЛКАЯ
- Для серого чугуна и литейных алюминиевых сплавов < 11 % Si

MF | HSSE | NI-OX | ISO 2 6HX | 2,5 | DIN 374



EDP	MF	P	L	l	d	a	ZΔ	Stock	Price
62113960	3	0,35	56	9	2,2	-	3	●	
62114260	3,5	0,35	56	10	2,5	-	3	●	
62114560	4	0,5	63	10	2,8	2,1	3	●	
62115160	5	0,5	70	12	3,5	2,7	3	●	
62115760	6	0,5	80	14	4,5	3,4	3	●	
62115660	6	0,75	80	12	4,5	3,4	3	●	
62116360	8	0,75	80	19	6,0	4,9	4	●	
62116260	8	1	90	22	6,0	4,9	4	●	
62117160	10	1	90	20	7,0	5,5	4	●	
62117060	10	1,25	100	24	7,0	5,5	4	●	
62118260	12	1	90	20	7,0	7,0	4	●	
62118160	12	1,25	100	22	9,0	5,0	4	●	
62118060	12	1,5	100	22	9,0	7,0	4	●	
62119460	14	1	100	22	11,0	9,0	4	●	
62119260	14	1,5	100	22	11,0	9,0	4	●	
62120460	16	1	100	22	12,0	9,0	4	●	
62120360	16	1,5	100	22	12,0	9,0	4	●	
62121660	18	1,5	110	25	14,0	11,0	4	●	
62121560	18	2	125	34	14,0	11,0	4	●	
62123060	20	1,5	125	25	16,0	12,0	4	●	
62124060	22	1,5	125	25	18,0	14,5	4	●	
62125060	24	1,5	140	28	18,0	14,5	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
											◎ 10~15 m/min	◎ 7~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
	○ 10~15 m/min	○ 10~15 m/min	○ 6~11 m/min									

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice



MF

GO TO LIVE STOCK CHECK

HIGH PERFORMANCE

- Metric fine
- Synchro machine taps where speed can be > 30 m/min
- For cast iron & aluminium

HIGH PERFORMANCE

- Metrisch fein
- Synchro Bohrer > 30 m/min
- Für Gusseisen und Aluminium

ALTA PRESTAZIONE

- Metrico fine
- Maschi synchro. La velocità può essere > 30 m/min
- Per ghisa e alluminio

HAUTE PERFORMANCE

- Métrique fin
- Tarauds synchro pour avances > 30 m/min
- Pour fonte et aluminium

HIGH PERFORMANCE

- Metrisk fingevind
- Synkro tappe når skærehastighed kan være > 30 m/min
- Til støbejern & aluminium

HIGH PERFORMANCE

- METRISK FIN
- Synkro gängtappar när skärhastigheten kan vara > 30 m/min
- För gjutjärn och aluminium

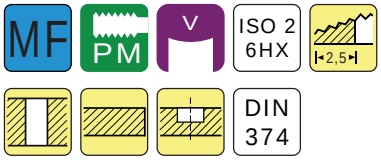
ALTAS PRESTACIONES

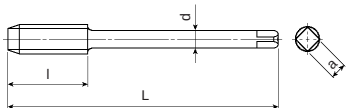
- Metrico fino
- Machos Synchro cuando la velocidad puede ser >30 m/min.
- Para fundición de hierro y aluminio

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- Метрическая мелкая
- Синхро метчики со скоростью резания > 30 м/мин
- Для чугуна и алюминия







EDP	MF	P	L	l	d	a	ZΔ	Stock	Price
48023162	8	1	90	15	6	4,9	4	●	
48023171	10	1	90	18	7	5,5	4	●	
48023170	10	1,25	100	18	7	5,5	4	●	
48023181	12	1,25	100	21	9	7	4	●	
48023180	12	1,5	100	21	9	7	4	●	
48023192	14	1,5	100	24	11	9	4	●	
48023203	16	1,5	100	24	12	9	4	●	
48023216	18	1,5	110	30	14	11	4	●	
48023230	20	1,5	125	30	16	12	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
		○ 10~25 m/min	○ 10~20 m/min	○ 8~20 m/min	○ 8~20 m/min						◎ 15~60 m/min	◎ 15~40 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
	◎ 15~60 m/min	◎ 15~60 m/min	◎ 15~60 m/min		◎ 25~70 m/min	◎ 25~70 m/min	◎ 25~70 m/min					

VPO-DC-MT



MF

GO TO LIVE STOCK CHECK

HIGH PERFORMANCE
- Metric fine
- Synchro machine taps where speed can be > 30 m/min
- For cast iron & aluminium

HIGH PERFORMANCE
- Metrisch fein
- Synchro Bohrer > 30 m/min
- Für Gusseisen und Aluminium

ALTA PRESTAZIONE
- Metrico fine
- Maschi synchro. La velocità può essere > 30 m/min
- Per ghisa e alluminio

HAUTE PERFORMANCE
- Métrique fin
- Tarauds synchro pour avances > 30 m/min
- Pour fonte et aluminium

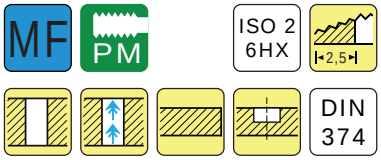
HIGH PERFORMANCE
- Metrisk fingevind
- Synkro tappe når skærehastighed kan være > 30 m/min
- Til støbejern & aluminium

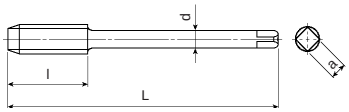
HIGH PERFORMANCE
- METRISK FIN
- Synkro gängtappar när skärhastigheten kan vara > 30 m/min
- För gjutjärn och aluminium

ALTAS PRESTACIONES
- Metrico fino
- Machos Synchro cuando la velocidad puede ser >30 m/min.
- Para fundición de hierro y aluminio

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Метрическая мелкая
- Синхро метчики со скоростью резания > 30 м/мин
- Для чугуна и алюминия







EDP	MF	P	L	l	d	a	ZΔ	Stock	Price
48024162	8	1	90	15	6	4,9	4	●	
48024171	10	1	90	18	7	5,5	4	●	
48024170	10	1,25	100	18	7	5,5	4	●	
48024181	12	1,25	100	21	9	7	4	●	
48024180	12	1,5	100	21	9	7	4	●	
48024192	14	1,5	100	24	11	9	4	●	
48024203	16	1,5	100	24	12	9	4	●	
48024216	18	1,5	110	30	14	11	4	●	
48024230	20	1,5	125	30	16	12	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
		○ 10~25 m/min	○ 10~20 m/min	○ 8~20 m/min	○ 8~20 m/min						◎ 15~60 m/min	◎ 15~40 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
	◎ 15~60 m/min	◎ 15~60 m/min	◎ 15~60 m/min		◎ 25~70 m/min	◎ 25~70 m/min	◎ 25~70 m/min					

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE

- Metric fine
- **Serie Z** : for high speed tapping in aluminium, mild steel, die steel & stainless steels

HIGH PERFORMANCE

- Metrisch fein
- **Serie Z** : für HSC Gewindeschneiden in Aluminium, unlegierten Stählen, Werkzeugstahl und VA-Stahl

ALTA PRESTAZIONE

- Metrico fine
- **Serie Z** : ad alta velocità per alluminio, acciai dolci, acciai per stampi e inox

HAUTE PERFORMANCE

- Métrique fin
- **Série Z** : pour haute vitesse dans l'aluminium, l'acier doux, les aciers matrices et l'inox

HIGH PERFORMANCE

- Metrisk fingevind
- **Serie Z**: til højhastigheds gevindskæring i aluminium, stål, værktøjsstål og rustfrit stål

HIGH PERFORMANCE

- METRISK FIN
- **Serie Z**: För high speed gängning i aluminium, mjukt stål, verktygsstål & rostfritt stål

ALTAS PRESTACIONES

- Metrico fino
- **Serie Z** (V-VA-CPM, V-O-VA-CPM): para roscado a lata velocidad en aluminio, aceros suaves y aceros inoxidables

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

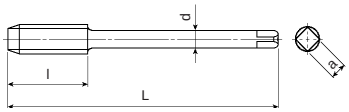
- Метрическая мелкая
- **Серия Z:** для высокоскоростного нарезания резьбы в алюминии, низкоуглеродистых, инструментальных и нержавеющих сталях



MF | PM | V | ISO 2 6HX



DIN 374



EDP	MF	P	L	l	d	a	ZΔ	Stock	Price
48028139	3	0,35	56	9	2,2	-	3	●	
48028145	4	0,5	63	10	2,8	2,1	3	●	
48028151	5	0,5	70	12	3,5	2,7	3	●	
48028157	6	0,5	80	14	4,5	3,4	3	●	
48028156	6	0,75	80	14	4,5	3,4	3	●	
48028163	8	0,75	80	19	6,0	4,9	3	●	
48028162	8	1	90	22	6,0	4,9	3	●	
48028171	10	1	90	20	7,0	5,5	3	●	
48028170	10	1,25	100	24	7,0	5,5	3	●	
48028182	12	1	100	22	9,0	7,0	3	●	
48028180	12	1,25	100	22	9,0	7,0	3	●	
48028176	12	1,5	100	22	9,0	7,0	3	●	
48028193	14	1,5	100	22	11,0	9,0	4	●	
48028204	16	1,5	100	22	12,0	9,0	4	●	
48028217	18	1,5	110	25	14,0	11,0	4	●	
48028231	20	1,5	125	25	16,0	12,0	4	●	
48028241	22	1,5	125	25	18,0	14,5	4	●	
48028251	24	1,5	140	28	18,0	14,5	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~24 m/min	◎ 15~24 m/min	◎ 15~24 m/min	○ 8~20 m/min	○ 8~15 m/min				◎ 8~20 m/min				

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 15~24 m/min		○ 16~30 m/min		○ 20~40 m/min	○ 20~40 m/min	○ 15~35 m/min	○ 15~35 m/min	○ 10~15 m/min			○ 10~20 m/min	



HIGH PERFORMANCE

- Metric fine
- **Serie Z** : for high speed tapping in aluminium, mild steel, die steel & stainless steels

HIGH PERFORMANCE

- Metrisch fein
- **Serie Z** : für HSC Gewindeschneiden in Aluminium, unlegierten Stählen, Werkzeugstahl und VA-Stahl

ALTA PRESTAZIONE

- Metrico fine
- **Serie Z** : ad alta velocità per alluminio, acciai dolci, acciai per stampi e inox

HAUTE PERFORMANCE

- Métrique fin
- **Série Z** : pour haute vitesse dans l'aluminium, l'acier doux, les aciers matrices et l'inox

HIGH PERFORMANCE

- Metrisk fingevind
- **Serie Z**: til højhastigheds gevindskæring i aluminium, stål, værktøjsstål og rustfrit stål

HIGH PERFORMANCE

- METRISK FIN
- **Serie Z**: För high speed gängning i aluminium, mjukt stål, verktygsstål & rostfritt stål

ALTAS PRESTACIONES

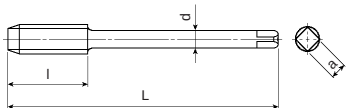
- Metrico fino
- **Serie Z** (V-VA-CPM, V-O-VA-CPM): para roscado a lata velocidad en aluminio, aceros suaves y aceros inoxidables

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- Метрическая мелкая
- **Серия Z:** для высокоскоростного нарезания резьбы в алюминии, низкоуглеродистых, инструментальных и нержавеющих сталях

MF | PM | V | 50° | ISO 2 6H

2,5 | DIN 374



EDP	MF	P	L	l	d	a	ZΔ	Stock	Price
48029139	3	0,35	56	4	2,2	-	3	●	
48029145	4	0,5	63	6	2,8	2,1	3	●	
48029151	5	0,5	70	7	3,5	2,7	3	●	
48029157	6	0,5	80	8	4,5	3,4	3	●	
48029156	6	0,75	80	8	4,5	3,4	3	●	
48029163	8	0,75	80	10	6,0	4,9	3	●	
48029162	8	1	90	10	6,0	4,9	3	●	
48029171	10	1	90	12	7,0	5,5	3	●	
48029170	10	1,25	100	12	7,0	5,5	3	●	
48029182	12	1	100	14	9,0	7,0	4	●	
48029180	12	1,25	100	14	9,0	7,0	4	●	
48029176	12	1,5	100	14	9,0	7,0	4	●	
48029192	14	1,5	100	16	11,0	9,0	4	●	
48029203	16	1,5	100	16	12,0	9,0	4	●	
48029216	18	1,5	110	20	14,0	11,0	4	●	
48029230	20	1,5	125	20	16,0	12,0	4	●	
48029240	22	1,5	125	20	18,0	14,5	4	●	
48029250	24	1,5	140	24	18,0	14,5	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 10~25 m/min	◎ 10~25 m/min	◎ 10~25 m/min	○ 8~20 m/min	○ 8~15 m/min				◎ 8~20 m/min				

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 15~35 m/min		○ 16~30 m/min		○ 15~35 m/min	○ 15~35 m/min	○ 15~35 m/min	○ 15~35 m/min	○ 5~10 m/min			○ 15~20 m/min	

● Delivery from stock
○ Available on short notice



METRIC FINE
- High performance forming tap

METRISCH FEIN
- Hochleistungsgewindeformer

METRICO FINE
- Maschio a rullare ad alta performance

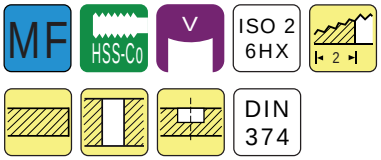
MÉTRIQUE FIN
- Taraud à refoulé à haute performance

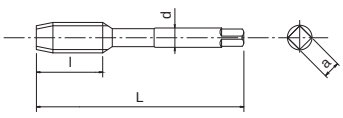
METRISK FINGEVIND
- High Performance rulletap

METRISK FIN
- High performance pressgängtapp

METRICO FINO
- Alta prestaciones, macho de laminación

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Высокопроизводительные накатные метчики





EDP	MF	P	L	l	d	a	Drill Hole Size	ZΔ	Stock	Price
48030162	8	1	90	10	6	4,9	7,51 ~ 7,59	5	●	
48030171	10	1	90	12	7	5,5	9,51 ~ 9,59	8	●	
48030170	10	1,25	100	12	7	5,5	9,37 ~ 9,45	8	●	
48030182	12	1	100	15	9	7,0	11,52 ~ 11,6	8	●	
48030181	12	1,25	100	15	9	7,0	11,39 ~ 11,46	8	●	
48030180	12	1,5	100	15	9	7,0	11,25 ~ 11,34	8	●	
48030192	14	1,5	100	15	11	9,0	13,25 ~ 13,34	8	●	
48030203	16	1,5	100	15	12	9,0	15,25 ~ 15,34	8	●	
48030216	18	1,5	110	15	14	11	17,25 ~ 17,34	8	●	
48030230	20	1,5	125	15	16	12	19,25 ~ 19,34	8	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~40 m/min	◎ 15~40 m/min	◎ 15~30 m/min	◎ 15~30 m/min	◎ 5~20 m/min				◎ 8~20 m/min		○ 15~40 m/min		

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
◎ 10~30 m/min	◎ 10~30 m/min	◎ 10~30 m/min		◎ 20~50 m/min	◎ 20~40 m/min		○ 10~30 m/min					



METRIC FINE
- High performance forming tap

METRISCH FEIN
- Hochleistungsgewindeformer

METRICO FINE
- Maschio a rullare ad alta performance

MÉTRIQUE FIN
- Taraud à refoulé à haute performance

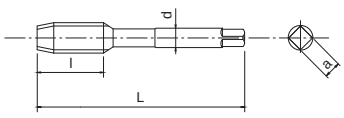
METRISK FINGEVIND
- High Performance rulletap

METRISK FIN
- High performance pressgängtapp

METRICO FINO
- Alta prestaciones, macho de laminación

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Высокопроизводительные накатные метчики

MF | HSS-Co | V | ISO 2 6HX | 2 | DIN 374



EDP	MF	P	L	l	d	a	Drill Hole Size	ZΔ	Stock	Price
48042162	8	1	90	10	6	4,9	7,51 ~ 7,59	5	●	
48042171	10	1	90	12	7	5,5	9,51 ~ 9,59	8	●	
48042170	10	1,25	100	12	7	5,5	9,37 ~ 9,45	8	●	
48042181	12	1,25	100	15	9	7,0	11,39 ~ 11,46	8	●	
48042180	12	1,5	100	15	9	7,0	11,25 ~ 11,34	8	●	
48042192	14	1,5	100	15	11	9,0	13,25 ~ 13,34	8	●	
48042203	16	1,5	100	15	12	9,0	15,25 ~ 15,34	8	●	
48042216	18	1,5	110	15	14	11,0	17,25 ~ 17,34	8	●	
48071230	20	1,5	125	15	16	12,0	19,25 ~ 19,34	8	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~40 m/min	◎ 15~40 m/min	◎ 15~30 m/min	◎ 15~30 m/min	◎ 5~20 m/min				◎ 8~20 m/min		○ 15~40 m/min		

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
◎ 10~30 m/min	◎ 10~30 m/min	◎ 10~30 m/min		◎ 20~50 m/min	◎ 20~40 m/min		○ 10~30 m/min					

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice



METRIC
- High performance forming tap
- **4P chamfer**

METRISCH
- Hochleistungsgewindeformer
- **4 Gang. Anschnittlänge**

METRICO
- Maschio a rullare ad alta performance
- **4 filleti**

MÉTRIQUE
- Taraud à refoulé à haute performance
- **4 entrée gun**

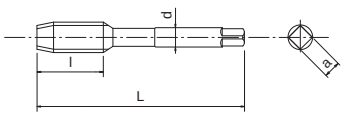
METRISK
- High Performance rulletap
- **4 x stigning på opløb**

METRISK
- High performance pressgängtapp
- **4 x stigning**

METRICO
- Alta prestaciones, macho de laminación
- **4 pasos**

МЕТРИЧЕСКИЙ
- Высокопроизводительные накатные метчики
- **4 витка**

MF | HSS-Co | V | ISO 2 6HX | 4 | DIN 374



EDP	MF	P	L	l	d	a	Drill Hole Size	ZΔ	Stock	Price
48088162	8	1	90	10	6	4,9	7,51 ~ 7,59	5	●	
48088171	10	1	90	12	7	5,5	9,51 ~ 9,59	8	●	
48088170	10	1,25	100	12	7	5,5	9,37 ~ 9,45	8	●	
48088182	12	1	100	15	9	7,0	11,52 ~ 11,6	8	●	
48088181	12	1,25	100	15	9	7,0	11,39 ~ 11,46	8	●	
48088180	12	1,5	100	15	9	7,0	11,25 ~ 11,34	8	●	
48088192	14	1,5	100	15	11	9,0	13,25 ~ 13,34	8	●	
48088203	16	1,5	100	15	12	9,0	15,25 ~ 15,34	8	●	
48088216	18	1,5	110	15	14	11	17,25 ~ 17,34	8	●	
48088230	20	1,5	125	15	16	12	19,25 ~ 19,34	8	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~40 m/min	◎ 15~40 m/min	◎ 15~30 m/min	◎ 15~30 m/min	◎ 5~20 m/min				◎ 8~20 m/min		○ 15~40 m/min		

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
◎ 10~30 m/min	◎ 10~30 m/min	◎ 10~30 m/min		◎ 20~50 m/min	◎ 20~40 m/min		○ 10~30 m/min					

MF

GO TO LIVE STOCK CHECK



METRIC FINE
- No problems associated with swarf ejection
- Oil groove with M ≥ 3
- For aluminium, stainless & steels ≤ 850 N/mm²

METRISCH FEIN
- Keine Probleme mit Spänen
- Mit Ölnut für M ≥ 3
- Für Stahl ≤ 850 N/mm², Aluminium, VA Stahl

METRICO FINE
- Maschiatura a Rullare
- Maschi con scanalatura di lubrificazione per M ≥ 3
- Per acciai ≤ 850 N/mm², alluminio, inox

MÉTRIQUE FIN
- Taraudage sans enlèvement de copeaux
- Tarauds avec rainure d'huile pour M ≥ 3
- Pour aciers ≤ 850 N/mm², aluminium, inox

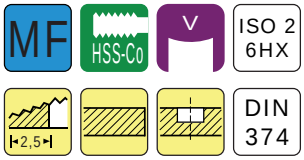
METRISK FINGEVIND
- Ingen problemer med spån evakuering
- Med oliespor M ≥ 3
- Til aluminium, rustfrit stål & stål ≤ 850 N/mm²

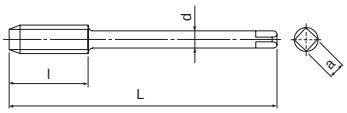
METRISK FIN
- Inga problem med spåntransport
- Oil sporr for M ≥ 3
- För aluminium och rostfritt stål ≤ 850 N/mm²

METRICO FINO
- Sin problemas asociados a la proyección de virutas
- Ranuras de lubricación con M ≥ 3
- Para aceros inoxidables y aluminio ≤ 850 N/mm²

МЕТРИЧЕСКАЯ МЕЛКАЯ
- Нет проблем связанных с выводом стружки
- Канавки для смазки с M ≥ 3
- Для алюминия, нержавеющих сталей и сталей ≤ 850 Н/мм²







EDP	MF	P	L	l	d	a	Drill hole Size	ZΔ	Stock	Price
69716268	8	1	90	22	6	4,9	7,51 ~ 7,59	3	●	
69717168	10	1	90	22	7	5,5	9,51 ~ 9,59	4	●	
69717068	10	1,25	100	24	7	5,5	9,37 ~ 9,45	4	●	
69718268	12	1	100	22	9	7,0	11,52 ~ 11,60	4	●	
69718168	12	1,25	100	22	9	7,0	11,39 ~ 11,46	4	●	
69718068	12	1,5	100	22	9	7,0	11,25 ~ 11,34	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 10~15 m/min	◎ 10~15 m/min	○ 10~15 m/min	○ 8~12 m/min					◎ 5~10 m/min				

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
◎ 10~20 m/min	◎ 10~20 m/min	◎ 10~20 m/min		◎ 10~20 m/min	◎ 10~20 m/min		○ 10~15 m/min					

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

V-NRT-P

GO TO LIVE STOCK CHECK



METRIC FINE
- No problems associated with swarf ejection
- Oil groove with M ≥ 3
- For aluminium, stainless & steels ≤ 850 N/mm²

METRISCH FEIN
- Keine Probleme mit Spänen
- Mit Ölnut für M ≥ 3
- Für Stahl ≤ 850 N/mm², Aluminium, VA Stahl

METRICO FINE
- Maschiatura a Rullare
- Maschi con scanalatura di lubrificazione per M ≥ 3
- Per acciai ≤ 850 N/mm², alluminio, inox

MÉTRIQUE FIN
- Taraudage sans enlèvement de copeaux
- Tarauds avec rainure d'huile pour M ≥ 3
- Pour aciers ≤ 850 N/mm², aluminium, inox

METRISK FINGEVIND
- Ingen problemer med spån evakuering
- Med oliespor M ≥ 3
- Til aluminium, rustfrit stål & stål ≤ 850 N/mm²

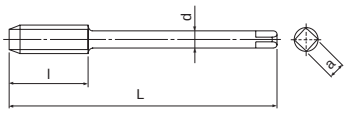
METRISK FIN
- Inga problem med spåntransport
- Oil sporr for M ≥ 3
- För aluminium och rostfritt stål ≤ 850 N/mm²

METRICO FINO
- Sin problemas asociados a la proyección de virutas
- Ranuras de lubricación con M ≥ 3
- Para aceros inoxidables y aluminio ≤ 850 N/mm²

МЕТРИЧЕСКАЯ МЕЛКАЯ
- Нет проблем связанных с выводом стружки
- Канавки для смазки с M ≥ 3
- Для алюминия, нержавеющих сталей и сталей ≤ 850 Н/мм²







EDP	MF	P	L	l	d	a	Drill hole Size	ZΔ	Stock	Price
69816268	8	1	90	22	6	4,9	7,51 ~ 7,59	3	●	
69817168	10	1	90	22	7	5,5	9,51 ~ 9,59	4	●	
69817068	10	1,25	100	24	7	5,5	9,37 ~ 9,45	4	●	
69818268	12	1	100	22	9	7,0	11,52 ~ 11,60	4	●	
69818168	12	1,25	100	22	9	7,0	11,39 ~ 11,46	4	●	
69818068	12	1,5	100	22	9	7,0	11,25 ~ 11,34	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 10~15 m/min	◎ 10~15 m/min	○ 10~15 m/min	○ 8~12 m/min					◎ 5~10 m/min				

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
◎ 10~20 m/min	◎ 10~20 m/min	◎ 10~20 m/min		◎ 10~20 m/min	◎ 10~20 m/min		○ 10~15 m/min					

UNC
UNJC



UNC
- General purpose, also for stainless steel

UNC
- Für universelle Anwendungen und VA - Stahl

UNC
- Per applicazioni generali e per inox

AMÉRICAIN
- Pour applications générales et pour des aciers inox

UNC
- Til generelt brug, også til rustfrit stål

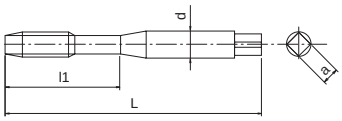
UNC
- För allround bearbetning och för rostfritt stål

UNC
- Para aplicación general, para aceros inoxidables

UNC
- Общего назначения и для нержавеющих сталей

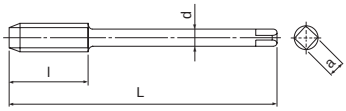


UNC | HSSE | OX | ANSI 2B | 4 | DIN 2182



EDP	UNC	P	L	l1	d	a	ZΔ	Stock	Price
74845720	4	40	56	18	3,5	2,7	2	●	
74845920	5	40	56	18	3,5	2,7	3	●	
74846130	6	32	56	20	4,0	3,0	3	●	
74846430	8	32	63	21	4,5	3,4	3	●	
74846630	10	24	70	25	6,0	4,9	3	●	
74847150	1/4	20	80	30	7,0	5,5	3	●	
74847450	5/16	18	90	35	8,0	6,2	3	●	
74847950	3/8	16	90	35	9,0	7,0	3	●	

UNC | HSSE | OX | ANSI 2B | 4 | DIN 2183



EDP	UNC	P	L	l	d	a	ZΔ	Stock	Price
75148450	7/16	14	100	24	8	6,2	3	●	
75148950	1/2	13	110	29	9	7,0	3	●	
75149450	9/16	12	110	30	11	9,0	3	●	
75150150	5/8	11	110	32	12	9,0	3	●	
75151550	3/4	10	125	34	14	11,0	3	●	
75152660	7/8	9	140	34	18	14,5	3	●	
75153860	1	8	160	38	18	14,5	3	●	

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Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~24 m/min	◎ 10~15 m/min	◎ 8~13 m/min	◎ 10~15 m/min					◎ 8~16 m/min	○ 10~15 m/min	○ 10~15 m/min		○ 10~15 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 12~17 m/min											○ 10~20 m/min	

● Delivery from stock
○ Available on short notice

UNC
UNJC

GO TO LIVE STOCK CHECK



UNJC
- General purpose, also for stainless steel

UNJC
- Für universelle Anwendungen und VA - Stähl

UNJC
- Per applicazioni generali e per inox

AMÉRICAIN
- Pour applications générales et pour des aciers inox

UNJC
- Til generelt brug, også til rustfrit stål

UNJC
- För allround bearbetning och för rostfritt stål

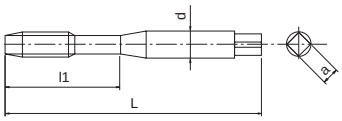
UNJC
- Para aplicación general, para aceros inoxidables

UNJC
- Общего назначения и для нержавеющих сталей



UNJC | HSSE | OX | ANSI 3B





EDP	UNJC	P	L	l	d	a	ZΔ	Stock	Price
48002457	4	40	56	18	3,5	2,7	2	●	
48002461	6	32	56	20	4,0	3,0	3	●	
48002464	8	32	63	21	4,5	3,4	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~24 m/min	◎ 10~15 m/min	◎ 8~13 m/min	◎ 10~15 m/min					◎ 8~16 m/min	○ 10~15 m/min	○ 10~15 m/min		○ 10~15 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 12~17 m/min											○ 10~20 m/min	

● Delivery from stock
○ Available on short notice



UNC
- General purpose applications

UNC
- Für universelle Anwendungen

UNC
- Per applicazioni generali

AMÉRICAIN
- Pour applications générales

UNC
- Til generelt brug

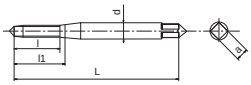
UNC
- För diverse applikationer

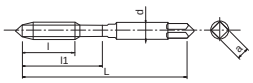
UNC
- Para aplicación general

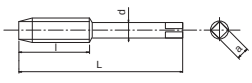
UNC
- Общего назначения

UNC HSSE OX ANSI 2B

4 ISO 529


Type 1


Type 2


Type 3

EDP	UNC	P	L	l	l1	d	a	ZΔ	Type	Stock	Price
22104514	1	64	41,0	8,0	-	2,50	2,00	2	1	○	
22104534	2	56	44,5	9,5	-	2,80	2,24	2	1	○	
22104554	3	48	44,5	9,5	-	2,80	2,24	2	1	○	
22104574	4	40	48,0	11,0	18,0	3,15	2,50	2	2	○	
22104594	5	40	48,0	11,0	18,0	3,15	2,50	3	2	○	
22104614	6	32	50,0	13,0	20,0	3,55	2,80	3	2	○	
22104644	8	32	53,0	13,0	21,0	4,50	3,55	3	2	○	
22104664	10	24	58,0	16,0	25,0	5,00	4,00	3	2	○	
22104684	12	24	62,0	17,0	26,0	5,60	4,50	3	2	○	
22104714	1/4	20	66,0	19,0	30,0	6,30	5,00	3	2	○	
22104744	5/16	18	72,0	22,0	35,0	8,00	6,30	3	2	○	
22104794	3/8	16	80,0	24,0	39,0	10,00	8,00	3	2	○	
22104844	7/16	14	85,0	25,0	-	8,00	6,30	3	3	○	
22104894	1/2	13	89,0	29,0	-	9,00	7,10	3	3	○	
22104944	9/16	12	95,0	30,0		11,20	9,00	3	3	○	
22105014	5/8	11	102,0	32,0	-	12,50	10,00	3	3	○	
22105154	3/4	10	112,0	37,0	-	14,00	11,20	3	3	○	
22105264	7/8	9	118,0	38,0	-	16,00	12,50	3	3	○	
22105384	1	8	130,0	45,0	-	18,00	14,00	3	3	○	
22105514	1 1/8	7	138,0	48,0	20,0	20,00	16,00	4	3	○	
22105644	1 1/4	7	151,0	51,0	22,4	22,00	18,00	4	3	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~24 m/min	◎ 10~15 m/min	◎ 8~13 m/min	◎ 10~15 m/min					◎ 8~16 m/min	○ 10~15 m/min	○ 10~15 m/min		○ 10~15 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	

● Delivery from stock
○ Available on short notice

UNC
UNJC

GO TO LIVE STOCK CHECK



HIGH PERFORMANCE
- UNJC
- **Serie H** : for steels 25~45 HRC

HIGH PERFORMANCE
- UNJC
- **Serie H** : Für Stahl 25~45 HRC

ALTA PRESTAZIONE
- UNJC
- **Serie H** : per acciai di durezza tra 25~45 HRC

HAUTE PERFORMANCE
- Américain
- **Série H** : pour acier de dureté entre 25~45 HRC

HIGH PERFORMANCE
- UNJC
- **Serie H**: Til stål 25~45 HRC

UTMÄRT UTFÖRANDE
- UNJC
- **Serie H**: för stål 25~45 HRC

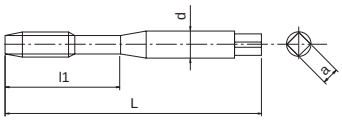
ALTAS PRESTACIONES
- UNJC
- **Serie H** (H-CPM): para aceros 25~45 HrC

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- UNJC
- **Серия P**: для сталей 25~45 HRC



UNJC | PM | OX | ANSI 3B

5 | DIN 2182



EDP	UNJC	P	L	l1	d	a	ZΔ	Stock	Price
48010457	4	40	56	18	3,5	2,7	2	●	
48010461	6	32	56	20	4,0	3,0	3	●	
48010464	8	32	63	21	4,5	3,4	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
		◎ 8~13 m/min		◎ 6~10 m/min	◎ 6~10 m/min				◎ 7~10 m/min			○ 10~15 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
								○ 4~6 m/min	○ 2~4 m/min			

● Delivery from stock
○ Available on short notice

UNC

GO TO LIVE STOCK CHECK



UNC
- For steels 25~45 HRC

UNC
- Für Stahl 25~45 HRC

UNC
- Per acciai 25~45 HRC

AMÉRICAIN
- Pour aciers 25~45 HRC

UNC
- Til stål 25~45 HRC

UNC
- För stål 25~45 HRC

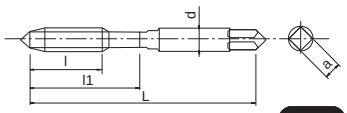
UNC
- Para aceros 25~45 HRC

UNC
- Для сталей 25 ~ 45 HRC

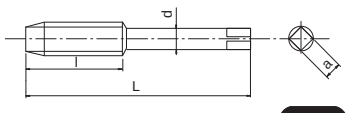


UNC | PM | OX | ANSI 2B

5 | ISO 529



Type 2



Type 3

EDP	UNC	P	L	l	l1	d	a	ZΔ	Type	Stock	Price
23104574	4	40	48	11	18	3,15	2,50	2	2	○	
23104594	5	40	48	11	18	3,15	2,50	3	2	○	
23104614	6	32	50	13	20	3,55	2,80	3	2	○	
23104644	8	32	53	13	21	4,50	3,55	3	2	○	
23104664	10	24	58	16	25	5,00	4,00	3	2	○	
23104714	1/4	20	66	19	30	6,30	5,00	3	2	○	
23104744	5/16	18	72	22	35	8,00	6,30	3	2	○	
23104794	3/8	16	80	24	39	10,00	8,00	3	2	○	
23104894	1/2	13	89	29	-	9,00	7,10	3	3	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
		◎ 8~13 m/min		◎ 6~10 m/min	◎ 6~10 m/min				◯ 7~10 m/min			◯ 10~15 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	

● Delivery from stock
○ Available on short notice

UNC
UNJC

GO TO LIVE STOCK CHECK



HIGH PERFORMANCE

- UNJC
- **Serie E :** for nickel based alloys including Inconel 718

HIGH PERFORMANCE

- UNJC
- **Serie E :** für Nickelbasislegierungen inkl. Inconel 718

ALTA PRESTAZIONE

- UNJC
- **Serie E :** per Inconel 718 ed altre leghe a base di Nickel

HAUTE PERFORMANCE

- Américain
- **Série E :** pour Inconel 718 et autres alliages sur base de Nickel

HIGH PERFORMANCE

- UNJC
- **Serie E**: Til nikkellegeringer inklusiv Inconel 718

HIGH PERFORMANCE

- UNJC
- **Serie E**: för nickel legeringar inklusive Inconel 718

ALTAS PRESTACIONES

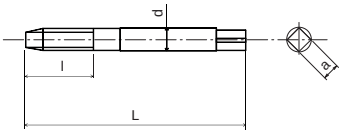
- UNJC
- **Serie E** (Ni): para aleaciones de níquel incluido Inconel 718 .

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- UNJC
- **Серия E**: для никелевых сплавов, включая Inconel 718



UNJC | PM | ANSI 3B | 5 | DIN 2182



EDP	UNJC	P	L	l	d	a	ZΔ	Stock	Price
89345730	4	40	56	12	3,5	2,7	3	●	
89346130	6	32	56	14	4,0	3,0	3	●	
89346430	8	32	63	16	4,5	3,4	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
									2~4 m/min			

● Delivery from stock
○ Available on short notice



UNJC

UNJC

GO TO LIVE STOCK CHECK

HIGH PERFORMANCE
- Metric
- For nickel based alloys including Inconel 718

HIGH PERFORMANCE
- Metrisch
- Für Nickelbasislegierungen inkl. Inconel 718

ALTA PRESTAZIONE
- Metrico
- Per Inconel 718 ed altre leghe a base di Nickel

HAUTE PERFORMANCE
- Métrique
- Pour Inconel 718 et autres alliages sur base de Nickel

HIGH PERFORMANCE
- Metrisk
- Til nikkellegeringer inklusiv Inconel 718

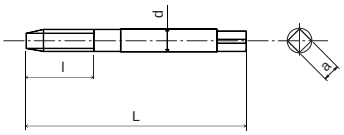
HIGH PERFORMANCE
- Metrisk
- För nickel legeringar inklusive Inconel 718l

ALTAS PRESTACIONES
- Metrico
- Para aleaciones de níquel incluido Inconel 718 .

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Метрический
- для никелевых сплавов, включая Inconel 718







EDP	UNJC	P	L	l	d	a	ZΔ	Stock	Price
48079457	4	40	56	12	3,5	2,7	3	●	
48079461	6	32	56	14	4	3	3	●	
48079464	8	32	63	16	4,5	4	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
									2~4 m/min			

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

UNC
UNJC

UNC
UNJC

GO TO LIVE STOCK CHECK



HIGH PERFORMANCE
- UNJC
- For titanium alloys (Ti-6Al-4V), 40~45 HRC

HIGH PERFORMANCE
- UNJC
- Für Titanlegierungen inkl. (Ti-6Al-4V), 40~45 HRC

ALTA PRESTAZIONE
- UNJC
- Per leghe di Titanio (Ti-6Al-4V) di durezza tra 40~45 HRC

HAUTE PERFORMANCE
- Américain
- Pour alliages de Titane (Ti-6Al-4V) : dureté 40~45 HRC

HIGH PERFORMANCE
- UNJC
- Til Titanium legeringer (Ti-6Al-4V), 40~45 HRC

HIGH PERFORMANCE
- UNJC
- För Titanlegeringar (Ti-6Al-4V), 40~45 HRC

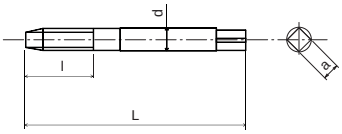
ALTAS PRESTACIONES
- UNJC
- Para aleaciones de Titanio (Ti-6Al-4V), 40~45 HRC

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- UNJC
- Для титановых сплавов (Ti-6Al-4V), 40~45 HRC



UNJC | PM | V | ANSI 3B

5 | DIN 2182



EDP	UNJC	P	L	l	d	a	ZΔ	Stock	Price
48014457	4	40	56	12	3,5	2,7	3	●	
48014461	6	32	56	14	4,0	3,0	3	●	
48014464	8	32	63	16	4,5	3,4	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
								2~4 m/min				



UNC
- General purpose, also for stainless steel

UNC
- Für universelle Anwendungen und VA - Stahl

UNC
- Per applicazioni generali e per inox

AMÉRICAIN
- Pour applications générales et pour des aciers inox

UNC
- Til generelt brug, også til rustfrit stål

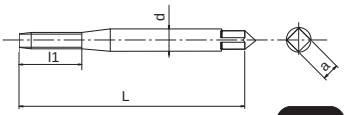
UNC
- För allround bearbetning och för rostfritt stål

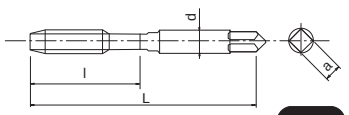
UNC
- Para aplicación general, para aceros inoxidables

UNC
- Общего назначения и для нержавеющих сталей

UNC HSSE OX 40° ANSI 2B

2,5 DIN 2182

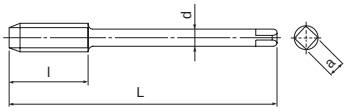




EDP	UNC	P	L	l1	d	a	ZΔ	Type	Stock	Price
74945730	4	40	56	11	3,5	2,7	2	1	●	
74945930	5	40	56	18	3,5	2,7	3	2	●	
74946130	6	32	56	20	4,0	3,0	3	2	●	
74946430	8	32	63	21	4,5	3,4	3	2	●	
74946630	10	24	70	25	6,0	4,9	3	2	●	
74947150	1/4	20	80	30	7,0	5,5	3	2	●	
74947450	5/16	18	90	35	8,0	6,2	3	2	●	
74947950	3/8	16	90	35	9,0	7,0	3	2	●	

UNC HSSE OX 40° ANSI 2B

2,5 DIN 2183



EDP	UNC	P	L	l	d	a	ZΔ	Stock	Price
75248450	7/16	14	100	19	8	6,2	4	●	
75248950	1/2	13	110	20	9	7,0	4	●	
75249450	9/16	12	110	22	11	9,0	4	●	
75250150	5/8	11	110	24	12	9,0	4	●	
75251550	3/4	10	125	26	14	11,0	4	●	
75252660	7/8	9	140	29	18	14,5	4	●	
75253860	1	8	160	32	18	14,5	5	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 10~15 m/min	◎ 8~14 m/min	◎ 7~11 m/min	◎ 8~14 m/min					◎ 7~12 m/min	○ 7~11 m/min	○ 7~14 m/min		○ 7~14 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 7~14 m/min											◎ 10~15 m/min	

● Delivery from stock
○ Available on short notice

UNC
UNJC

GO TO LIVE STOCK CHECK



UNJC
- General purpose, also for stainless steel

UNJC
- Für universelle Anwendungen und VA - Stähl

UNJC
- Per applicazioni generali e per inox

AMÉRICAIN
- Pour applications générales et pour des aciers inox

UNJC
- Til generelt brug, også til rustfrit stål

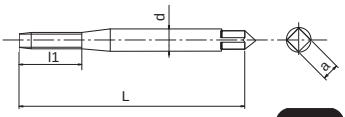
UNJC
- För allround bearbetning och för rostfritt stål

UNJC
- Para aplicación general, para aceros inoxidables

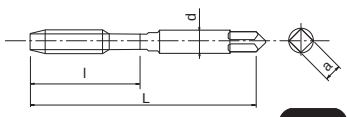
UNJC
- Общего назначения и для нержавеющих сталей



UNJC | HSSE | OX | 40° | ANSI 3B | 2,5 | DIN 2182



Type 1



Type 2

EDP	UNJC	P	L	l1	d	a	ZΔ	Type	Stock	Price
48001457	4	40	56	11	3,5	2,7	2	1	●	
48001461	6	32	56	20	4,0	3,0	3	2	●	
48001464	8	32	63	21	4,5	3,4	3	2	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 10~15 m/min	◎ 8~14 m/min	◎ 7~11 m/min	◎ 8~14 m/min					◎ 7~12 m/min	○ 7~11 m/min	○ 7~14 m/min		○ 7~14 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 7~14 m/min											◎ 10~15 m/min	

● Delivery from stock
○ Available on short notice



UNC
- General purpose applications

UNC
- Für universelle Anwendungen

UNC
- Per applicazioni generali

AMÉRICAIN
- Pour applications générales

UNC
- Til generelt brug

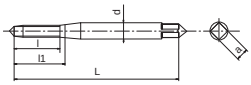
UNC
- För diverse applikationer

UNC
- Para aplicación general

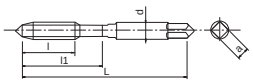
UNC
- Общего назначения



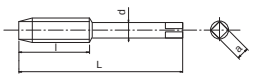
UNC | HSSE | OX | 40° | ANSI 2B | 2,5 | ISO 529



Type 1



Type 2



Type 3

EDP	UNC	P	L	l	l1	d	a	ZΔ	Type	Stock	Price
22204534	2	56	44,5	9,5	-	2,80	2,24	2	1	○	
22204554	3	48	44,5	9,5	-	2,80	2,24	2	1	○	
22204574	4	40	48,0	11,0	18	3,15	2,50	2	2	○	
22204594	5	40	48,0	11,0	18	3,15	2,50	3	2	○	
22204614	6	32	50,0	13,0	20	3,55	2,80	3	2	○	
22204644	8	32	53,0	13,0	21	4,50	3,55	3	2	○	
22204664	10	24	58,0	16,0	25	5,00	4,00	3	2	○	
22204684	12	24	62,0	17,0	26	5,60	4,50	3	2	○	
22204714	1/4	20	66,0	19,0	30	6,30	5,00	3	2	○	
22204744	5/16	18	72,0	22,0	35	8,00	6,30	3	2	○	
22204794	3/8	16	80,0	24,0	39	10,00	8,00	3	2	○	
22204844	7/16	14	85,0	25,0	-	8,00	6,30	3	3	○	
22204894	1/2	13	89,0	29,0	-	9,00	7,10	3	3	○	
22204944	9/16	12	95,0	30,0	-	11,20	9,00	3	3	○	
22205014	5/8	11	102,0	32,0	-	12,50	10,00	3	3	○	
22205154	3/4	10	112,0	37,0	-	14,00	11,20	4	3	○	
22205264	7/8	9	118,0	38,0	-	16,00	12,50	4	3	○	
22205384	1	8	130,0	45,0	-	18,00	14,00	4	3	○	
22205514	1 1/8	7	138,0	48,0	-	20,00	16,00	4	3	○	
22205644	1 1/4	7	151,0	51,0	-	22,40	18,00	4	3	○	

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Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 10~15 m/min	◎ 8~14 m/min	◎ 7~11 m/min	◎ 8~14 m/min	○				◎ 7~12 m/min	○ 6~9 m/min	○ 7~14 m/min		○ 7~14 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	

● Delivery from stock
○ Available on short notice

UN UNC

GO TO LIVE STOCK CHECK



METRIC
- For oil and energy industry
- For horizontal operations

METRISCH
- Für Öl- und Schwerindustrie
- Für horizontale Bearbeitung

METRICO
- Per industria petrolifera ed energetica
- Per lavorazioni orizzontali

MÉTRIQUE
- Pour l'industrie lourde et l'énergie
- Pour applications horizontales

METRISK
- For olie og energy industrien
- Til horisontale operationer

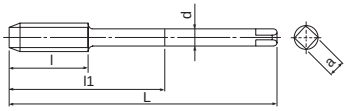
METRISK
- För olje och energi industrin
- För horisontala applikationer

METRICO
- para Industria Energetica y Pesada
- Para roscado horizontal

МЕТРИЧЕСКИЙ
- внутреннее охлаждение
- Горизонтального нарезки резьбы



UNC | U N | HSSE | OX | 15° | 2,5-3 | ANSI 2B



EDP	Tap Size	UN	UNC	L	l	l1	d	a	ZΔ	Stock	Price
48050515	3/4	-	10	125	20,3	61,8	14	11	4	●	
48050526	7/8	-	9	140	22,6	75	18	14,5	4	●	
48050538	1	-	8	160	25,4	90	18	14,5	5	●	
48050551	1 1/8	-	7	180	29,0	100	22	18	5	●	
48050552	1 1/8	8	-	180	25,4	100	22	18	5	●	
48050564	1 1/4	-	7	180	29,0	100	22	18	5	●	
48050565	1 1/4	8	-	180	25,4	100	22	18	5	●	
48050577	1 3/8	-	6	200	33,9	115	28	22	5	●	
48050578	1 3/8	8	-	200	25,4	115	28	22	5	●	
48050591	1 1/2	-	6	200	33,9	115	32	24	5	●	
48050592	1 1/2	8	-	200	25,4	115	32	24	5	●	
48050605	1 5/8	8	-	200	25,4	110	32	24	6	●	
48050618	1 3/4	8	-	200	25,4	101	36	29	6	●	
48050628	1 7/8	8	-	225	25,4	125	36	29	6	●	
48050639	2	8	-	225	25,4	125	40	32	6	●	
48050661	2 1/2	8	-	275	25,4	150	50	39	6	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
○ 8~13 m/min	○ 7~12 m/min	◎ 6~9 m/min	◎ 7~12 m/min	○ 3~5 m/min				○ 5~8 m/min	○ 6~9 m/min	○ 6~11 m/min	◎ 7~12 m/min	◎ 7~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	

VXL-SFT

UN
UNC



METRIC
- Coolant through, for oil and energy industry
- For vertical operations

METRISCH
- Mit innerer Kühlmittelzuführung für Öl - und Schwerindustrie
- Für vertikale Bearbeitung

METRICO
- Per lubrificazione centrali, per industria petrolifera ed energetica
- Per lavorazioni verticali

MÉTRIQUE
- Avec arrosage centrale, pour l'industrie lourde et l'energie
- Pour applications verticales

METRISK
- Kølekanaler, til olie og energi industrien
- Til vertikale operationer

METRISK
- Kylkanaler, för olje och energi industrin
- För vertikala applikationer

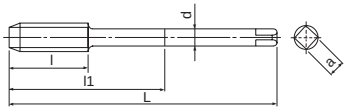
METRICO
- Para refrigeración interna, para industria Energetica y Pesada
- Para roscado vertical

МЕТРИЧЕСКИЙ
- Сверло нормальной
- Для вертикального нарезания резьбы



UNC U N HSSE OX

45° 2,5-3 ANSI 2B



EDP	Tap Size	UN	UNC	L	l	l1	d	a	ZΔ	Stock	Price
48051515	3/4	-	10	125	20,3	61,8	14	11	4	●	
48051526	7/8	-	9	140	22,6	75	18	14,5	4	●	
48051538	1	-	8	160	25,4	90	18	14,5	5	●	
48051551	1 1/8	-	7	180	29,0	100	22	18	5	●	
48051552	1 1/8	8	-	180	25,4	100	22	18	5	●	
48051564	1 1/4	-	7	180	29,0	100	22	18	5	●	
48051565	1 1/4	8	-	180	25,4	100	22	18	5	●	
48051577	1 3/8	-	6	200	33,9	115	28	22	5	●	
48051578	1 3/8	8	-	200	25,4	115	28	22	5	●	
48051591	1 1/2	-	6	200	33,9	115	32	24	5	●	
48051592	1 1/2	8	-	200	25,4	115	32	24	5	●	
48051605	1 5/8	8	-	200	25,4	110	32	24	6	●	
48051618	1 3/4	8	-	200	25,4	101	36	29	6	●	
48051628	1 7/8	8	-	225	25,4	125	36	29	6	●	
48051639	2	8	-	225	25,4	125	40	32	6	●	
48051661	2 1/2	8	-	275	25,4	150	50	39	6	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
○ 8~13 m/min	○ 7~12 m/min	◎ 6~9 m/min	◎ 7~12 m/min	○ 3~5 m/min				○ 5~8 m/min	○ 6~9 m/min	○ 6~11 m/min		

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

UNC
UNJC

GO TO LIVE STOCK CHECK



UN(J)C

- For stainless steels and aluminium
- For threading depth ≥ 2 D
- Developed for CNC machines equipped with rigid tapping
- For pilot hole use OSG EX-SUS-GDS (p.C.70)

UN(J)C

- Für Va-Stahl und Aluminium
- Für Gewindetiefe ≥ 2 D
- Für CNC Maschinen mit Synchronspindeln
- Für die Kernlochbearbeitung EX-SUS-GDS verwenden (p.C.70)

UN(J)C

- Per acciai inox e alluminio
- Per profondità di filettatura ≥ 2 D
- Per le macchine CNC che hanno un programma di sincronizzazione tra la velocità e l'avanzamento
- Utilizzate OSG EX-SUS-GDS per foro pilota (p.C.70)

AMÉRICAIN

- Pour inox et aluminium
- Profondeur de taraudage ≥ 2 D
- Développé pour les machines CNC qui ont le "taraudage rigide"
- Pour le trou pilote, utiliser OSG EX-SUS-GDS (p.xx)

UN(J)C

- Til rustfrit stål og aluminium
- Til gevinddybde ≥ 2 D
- Udviklet til CNC maskine udstyret med fast tapholder
- For boring af pilot hul brug OSG EX-SUS-GDS (p.C.70)

UN(J)C

- För rostfritt stål och aluminium
- För gängdjup ≥ 2 D
- Utvecklat för CNC-maskiner som är utrustade med gängfunktion
- För pilot hål använd OSG EX-SUS-GDS (p.C.70)

UN(J)C

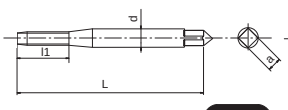
- Para aluminio, aceros inoxidables
- Para roscado ≥ 2 D
- Desarrollados para máquinas CNC aptas para roscado rígido
- Para agujero previo use EX-SUS-GDS (p.C.70)

UN(J)C

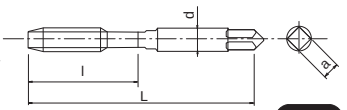
- Для алюминия и нержавеющих сталей
- Для резьб глубиной ≥ 2 D
- Разработаны для ЧПУ станков имеющих циклы жесткой нарезки резьбы
- Для пилотного отверстия используйте OSG EX-SUS-GDS (p.C.70)



UNC UNJC HSSE CrN 45° ANSI 2B ANSI 3B 2,5 ≥2D DIN 2182



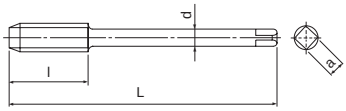
Type 1



Type 2

EDP	UN(J)C	P	L	l1	d	a	ZΔ	Type	Stock	Price
48032457	4	40	56	11,4	3,5	2,7	2	1	●	
48032461	6	32	56	14,0	4,0	3,0	3	1	●	
48032464	8	32	63	16,7	4,5	3,4	3	1	●	
48032466	10	24	70	19,3	6,0	4,9	3	1	●	
48032471	1/4	20	80	25,4	7,0	5,5	3	1	●	
48032474	5/16	18	90	13,0	8,0	6,2	3	2	●	
48032479	3/8	16	90	15,0	9,0	7,0	3	2	●	

UNC UNJC HSSE CrN 45° 2,5 ANSI 2B ANSI 3B ≥2D DIN 2183



EDP	UN(J)C	P	L	l	d	a	ZΔ	Stock	Price
48032484	7/16	14	100	17	8	6,2	4	●	
48032489	1/2	13	110	18	9	7,0	4	●	
48032494	9/16	12	110	19	11	9,0	4	●	
48032501	5/8	11	110	21	12	9,0	4	●	
48032515	3/4	10	125	23	14	11,0	4	●	
48032526	7/8	9	140	26	18	14,5	4	●	
48032538	1	8	160	29	18	14,5	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
	○ 15~25 m/min		○ 10~25 m/min					◎ 6~10 m/min				

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 15~24 m/min				◎ 15~35 m/min								

● Delivery from stock
○ Available on short notice

UNC
UNJC

GO TO LIVE STOCK CHECK



HIGH PERFORMANCE
- UNJC
- **Serie H** : for steels 25~45 HRC

HIGH PERFORMANCE
- UNJC
- **Serie H** : Für Stahl 25~45 HRC

ALTA PRESTAZIONE
- UNJC
- **Serie H** : per acciai di durezza tra 25~45 HRC

HAUTE PERFORMANCE
- Américain
- **Série H** : pour acier de dureté entre 25~45 HRC

HIGH PERFORMANCE
- UNJC
- **Serie H**: Til stål 25~45 HRC

UTMÄRT UTFÖRANDE
- UNJC
- **Serie H**: för stål 25~45 HRC

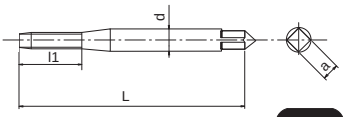
ALTAS PRESTACIONES
- UNJC
- **Serie H** (H-CPM): para aceros 25~45 HRC

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- UNJC
- **Серия P**: для сталей 25~45 HRC

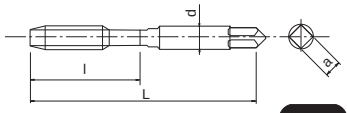


UNJC | PM | OX | 15° | ANSI 3B

2,5 | | 2,5 | DIN 2182



Type 1



Type 2

EDP	UNJC	P	L	l1	d	a	ZΔ	Type	Stock	Price
48009457	4	40	56	11	3,5	2,7	2	1	●	
48009461	6	32	56	8	4,0	3,0	2	2	●	
48009464	8	32	63	21	4,5	3,4	3	2	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
		◎ 6~12 m/min	○ 7~12 m/min	◎ 4~8 m/min	◎ 4~8 m/min				◎ 6~12 m/min			○ 7~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
								○ 3~5 m/min	○ 1~3 m/min			

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

1066-SFT-PLUS

UNC

UNC



UNC
- For steels 25~45 HRC

UNC
- Für Stahl 25~45 HRC

UNC
- Per acciai 25~45 HRC

AMÉRICAIN
- Pour aciers 25~45 HRC

UNC
- Til stål 25~45 HRC

UNC
- För stål 25~45 HRC

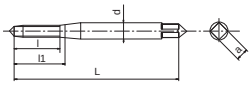
UNC
- Para aceros 25~45 HRC

UNC
- Для сталей 25~45 HRC

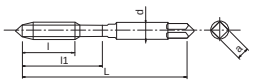
GO TO LIVE STOCK CHECK



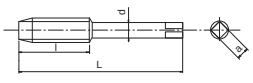
UNC | PM | OX | 15° | ANSI 2B | 3 | ISO 529



Type 1



Type 2



Type 3

EDP	UNC	P	L	l	l1	d	a	ZΔ	Type	Stock	Price
23204574	4	40	48	11	18	3,15	2,50	2	2	○	
23204594	5	40	48	11	18	3,15	2,50	2	2	○	
23204614	6	32	50	13	20	3,55	2,80	2	2	○	
23204644	8	32	53	13	21	4,50	3,55	2	2	○	
23204664	10	24	58	16	25	5,00	4,00	3	2	○	
23204714	1/4	20	66	19	30	6,30	5,00	3	2	○	
23204744	5/16	18	72	22	35	8,00	6,30	3	2	○	
23204794	3/8	16	80	24	39	10,00	8,00	3	2	○	
23204894	1/2	13	89	29	-	9,00	7,10	3	3	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
		◎ 6~12 m/min	○ 7~12 m/min	◎ 4~8 m/min	◎ 4~8 m/min				○ 6~12 m/min	○ 7~15 m/min	○ 7~12 m/min	○ 7~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	

UNC
UNJC

GO TO LIVE STOCK CHECK



HIGH PERFORMANCE
- UNJC
- **Serie E :** for nickel based alloys including Inconel 718

HIGH PERFORMANCE
- UNJC
- **Serie E :** für Nickelbasislegierungen inkl. Inconel 718

ALTA PRESTAZIONE
- UNJC
- **Serie E :** per Inconel 718 ed altre leghe a base di Nickel

HAUTE PERFORMANCE
- Américain
- **Série E :** pour Inconel 718 et autres alliages sur base de Nickel

HIGH PERFORMANCE
- UNJC
- **Serie E**: Til nikkellegeringer inklusiv Inconel 718

HIGH PERFORMANCE
- UNJC
- **Serie E**: för nickel legeringar inklusive Inconel 718

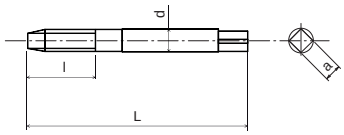
ALTAS PRESTACIONES
- UNJC
- **Serie E** (Ni): para aleaciones de níquel incluido Inconel 718

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- UNJC
- **Серия E**: для никелевых сплавов, включая Inconel 718



UNJC | PM | 10° | ANSI 3B

2,5 | DIN 2182



EDP	UNJC	P	L	l	d	a	ZΔ	Stock	Price
89545730	4	40	56	10	3,5	2,7	3	●	
89546130	6	32	56	13	4,0	3,0	3	●	
89546430	8	32	63	15	4,5	3,4	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
									1~3 m/min			

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

UNC
UNJC

UNC
UNJC

GO TO LIVE STOCK CHECK



HIGH PERFORMANCE
- Metric
- For nickel based alloys including Inconel 718

HIGH PERFORMANCE
- Metrisch
- Für Nickelbasislegierungen inkl. Inconel 718

ALTA PRESTAZIONE
- Metrico
- Per Inconel 718 ed altre leghe a base di Nickel

HAUTE PERFORMANCE
- Métrique
- Pour Inconel 718 et autres alliages sur base de Nickel

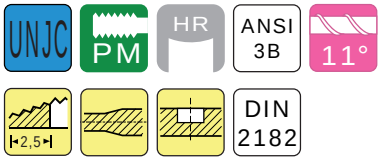
HIGH PERFORMANCE
- Metrisk
- Til nikkellegeringer inklusiv Inconel 718

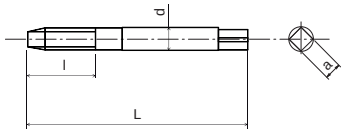
HIGH PERFORMANCE
- Metrisk
- För nickel legeringar inklusive Inconel 718l

ALTAS PRESTACIONES
- Metrico
- Para aleaciones de níquel incluido Inconel 718 .

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Метрический
- для никелевых сплавов, включая Inconel 718







EDP	UNJC	P	L	l	d	a	ZΔ	Stock	Price
48078457	4	40	56	12	3,5	2,7	3	●	
48078461	6	32	56	14	4	3	3	●	
48078464	8	32	63	16	4,5	3,4	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
									1~3 m/min			

UNC
UNJC

UNC
UNJC

GO TO LIVE STOCK CHECK



HIGH PERFORMANCE
- UNJC
- For titanium alloys (Ti-6Al-4V), 40~45 HRC

HIGH PERFORMANCE
- UNJC
- Für Titanlegierungen inkl. (Ti-6Al-4V), 40~45 HRC

ALTA PRESTAZIONE
- UNJC
- Per leghe di Titanio (Ti-6Al-4V) di durezza tra 40~45 HRC

HAUTE PERFORMANCE
- Américain
- Pour alliages de Titane (Ti-6Al-4V), dureté 40~45 HRC

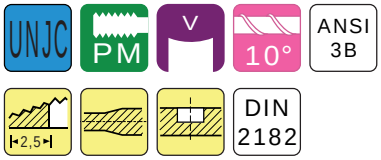
HIGH PERFORMANCE
- UNJC
- Til Titanium legeringer (Ti-6Al-4V), 40~45 HRC

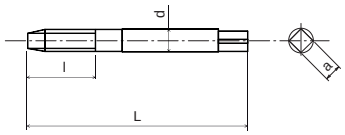
HIGH PERFORMANCE
- UNJC
- För Titanlegeringar (Ti-6Al-4V), 40~45 HRC

ALTAS PRESTACIONES
- UNJC
- Para aleaciones de Titanio (Ti-6Al-4V), 40~45 HRC

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- UNJC
- Для титановых сплавов (Ti-6Al-4V), 40~45 HRC







EDP	UNJC	P	L	l	d	a	ZΔ	Stock	Price
48013457	4	40	56	10	3,5	2,7	3	●	
48013461	6	32	56	13	4,0	3,0	3	●	
48013464	8	32	63	15	4,5	3,4	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
								3~5 m/min				

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice



UNC
- General purpose

UNC
- Für universelle Anwendungen

UNC
- Per applicazioni generalli

AMÉRICAIN
- Pour applications générales

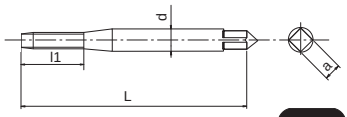
UNC
- Til generelt brug

UNC
- För allround bearbetning

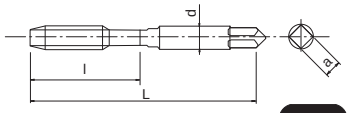
UNC
- Para aplicación general

UNC
- Общего назначения

UNC | HSSE | ANSI 2B | 2,5 | ISO 529



Type 1



Type 2

EDP	UNC	P	L	l	l1	d	a	ZΔ	Type	Stock	Price
22034510	1	64	41,0	8,0	-	2,50	2,00	3	1	○	
22034530	2	56	44,5	9,5	-	2,80	2,24	3	1	○	
22034550	3	48	44,5	9,5	-	2,80	2,24	3	1	○	
22034570	4	40	48,0	11,0	18	3,15	2,50	3	2	○	
22034590	5	40	48,0	11,0	18	3,15	2,50	3	2	○	
22034610	6	32	50,0	13,0	20	3,55	2,80	3	2	○	
22034640	8	32	53,0	13,0	21	4,50	3,55	3	2	○	
22034660	10	24	58,0	16,0	25	5,00	4,00	3	2	○	
22034680	12	24	62,0	17,0	26	5,60	4,50	3	2	○	
22034710	1/4	20	66,0	19,0	30	6,30	5,00	3	2	○	
22034740	5/16	18	72,0	22,0	35	8,00	6,30	4	2	○	
22034790	3/8	16	80,0	24,0	39	10,00	8,00	4	2	○	
22034840	7/16	14	85,0	25,0	-	8,00	6,30	4	3	○	
22034890	1/2	13	89,0	29,0	-	9,00	7,10	4	3	○	
22034940	9/16	12	95,0	30,0	-	11,20	9,00	4	3	○	
22035010	5/8	11	102,0	32,0	-	12,50	10,00	4	3	○	
22035150	3/4	10	112,0	37,0	-	14,00	11,20	4	3	○	
22035260	7/8	9	118,0	38,0	-	16,00	12,50	4	3	○	
22035380	1	8	130,0	45,0	-	18,00	14,00	4	3	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
	○ 7~12 m/min											○ 7~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
	○ 10~15 m/min	○ 10~15 m/min	○ 6~11 m/min	○ 10~20 m/min	○ 10~15 m/min	○ 7~12 m/min	○ 7~12 m/min					



UNC
- High performance forming tap

UNC
- Hochleistungsgewindeformer

UNC
- Maschio a rullare ad alta performance

UNC
- Taraud à refoulé à haute performance

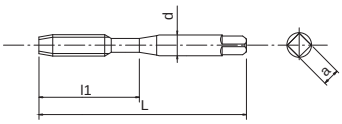
UNC
- High Performance rulletap

UNC
- High performance pressgängtapp

UNC
- Alta prestaciones, macho de laminación

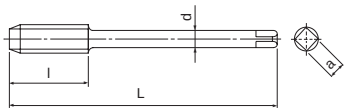
UNC
- Высокопроизводительные накатные метчики

UNC HSS-Co V ANSI 2BX 2 DIN 2182



EDP	UNC	P	L	l1	d	a	Drill Hole Size	ZΔ	Stock	Price
48091459	5	40	56	18	3,5	2,7	2,86 ~ 2,93	4	●	
48091461	6	32	56	20	4	3	3,09 ~ 3,17	4	●	
48091464	8	32	63	21	4,5	3,4	3,76 ~ 3,84	4	●	
48091466	10	24	70	25	6	4,9	4,26 ~ 4,35	5	●	
48091471	1/4	20	80	30	7	5,5	5,66 ~ 5,76	5	●	
48091474	5/16	18	90	35	8	6,2	7,18 ~ 7,29	5	●	
48091479	3/8	16	90	35	9	7	8,66 ~ 8,78	8	●	

UNC HSS-Co V ANSI 2BX 2 DIN 2183



EDP	UNC	P	L	l	d	a	Drill Hole Size	ZΔ	Stock	Price
48091484	7/16	14	100	18,1	8	6,2	10,12 ~ 10,27	8	●	
48091489	1/2	13	110	19,5	9	7	11,62 ~ 11,78	8	●	
48091494	9/16	12	110	21,1	11	9	13,14 ~ 13,28	8	●	
48091501	5/8	11	110	23,1	12	9	14,61 ~ 14,76	8	●	
48091515	3/4	10	125	20,3	14	11	17,65 ~ 17,80	8	●	
48091526	7/8	9	140	22,6	18	14,5	20,66 ~ 20,84	8	●	
48091538	1	8	160	25,4	18	14,5	23,63 ~ 23,84	8	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~40 m/min	◎ 15~40 m/min	◎ 15~30 m/min	◎ 15~30 m/min	◎ 5~20 m/min				◎ 8~20 m/min		○ 15~40 m/min		

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
◎ 10~30 m/min	◎ 10~30 m/min	◎ 10~30 m/min		◎ 20~50 m/min	◎ 20~40 m/min		○ 10~30 m/min					

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

UNF
UNJF

GO TO LIVE STOCK CHECK



UNF
- General purpose, also for stainless steel

UNF
- Für universelle Anwendungen und VA - Stahl

UNF
- Per applicazioni generali e per inox

AMÉRICAIN FIN
- Pour applications générales et pour des aciers inox

UNF
- Til generelt brug, også til rustfrit stål

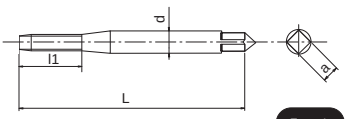
UNF
- För allround bearbetning och för rostfritt stål

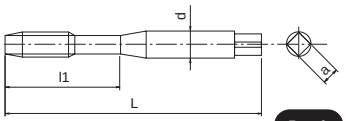
UNF
- Para aplicación general, para aceros inoxidables

UNF
- Общего назначения и для нержавеющих сталей



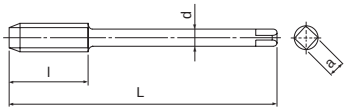
UNF | HSSE | OX | ANSI 2B | 4 | DIN 2182





EDP	UNF	P	L	l1	d	a	ZΔ	Type	Stock	Price
75146220	6	40	56	13	4	3,0	3	1	●	
75146730	10	32	70	25	6	4,9	3	2	●	
75147240	1/4	28	80	30	7	5,5	3	2	●	
75147640	5/16	24	90	35	8	6,2	3	2	●	
75148140	3/8	24	90	35	9	7,0	3	2	●	

UNC | HSSE | OX | ANSI 2B | 4 | DIN 2183



EDP	UNF	P	L	l	d	a	ZΔ	Stock	Price
75148650	7/16	20	100	20	8	6,2	3	●	
75149150	1/2	20	100	22	9	7,0	3	●	
75149650	9/16	18	100	22	11	9,0	3	●	
75150450	5/8	18	100	22	12	9,0	3	●	
75151750	3/4	16	110	25	14	11,0	3	●	
75152860	7/8	14	125	25	18	14,5	3	●	
75153960	1	12	125	25	18	14,5	3	●	

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Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~24 m/min	◎ 10~15 m/min	◎ 8~13 m/min	◎ 10~15 m/min					◎ 8~16 m/min	○ 10~15 m/min	○ 10~15 m/min		○ 10~15 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 12~17 m/min											○ 10~20 m/min	

● Delivery from stock
○ Available on short notice

UNF
UNJF



UNF
- General purpose, also for stainless steel

UNF
- Für universelle Anwendungen und VA - Stahl

UNF
- Per applicazioni generali e per inox

AMÉRICAIN FIN
- Pour applications générales et pour des aciers inox

UNF
- Til generelt brug, også til rustfrit stål

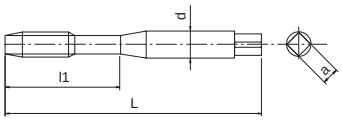
UNF
- För allround bearbetning och för rostfritt stål

UNF
- Para aplicación general, para aceros inoxidables

UNF
- Общего назначения и для нержавеющих сталей

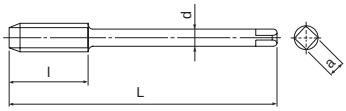


UNJF | HSSE | OX | ANSI 3B | 4 | DIN 2182



EDP	UNJF	P	L	l1	d	a	ZΔ	Stock	Price
48002467	10	32	70	25	6	4,9	3	●	
48002472	1/4	28	80	30	7	5,5	3	●	
48002476	5/16	24	90	35	8	6,2	3	●	
48002481	3/8	24	90	35	9	7,0	3	●	

UNJF | HSSE | OX | ANSI 3B | 4 | DIN 2183



EDP	UNJF	P	L	l	d	a	ZΔ	Stock	Price
48002486	7/16	20	100	20	8	6,2	3	●	
48002491	1/2	20	100	22	9	7,0	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
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Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~24 m/min	◎ 10~15 m/min	◎ 8~13 m/min	◎ 10~15 m/min					◎ 8~16 m/min	○ 10~15 m/min	○ 10~15 m/min		○ 10~15 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 12~17 m/min											○ 10~20 m/min	

● Delivery from stock
○ Available on short notice



UNF
- General purpose applications

UNF
- Für universelle Anwendungen

UNF
- Per applicazioni generali

AMÉRICAIN FIN
- Pour applications générales

UNF
- Til generelt brug

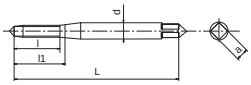
UNF
- För diverse applikationer

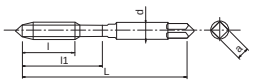
UNF
- Para aplicación general

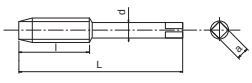
UNF
- Общего назначения

UNF HSSE OX ANSI 2B

4 ISO 529


Type 1


Type 2


Type 3

EDP	UNF	P	L	l	l1	d	a	ZΔ	Type	Stock	Price
22104504	0	80	40,0	8,0	-	2,50	2,00	2	1	○	
22104524	1	72	41,0	8,0	-	2,50	2,00	2	1	○	
22104544	2	64	44,5	9,5	-	2,80	2,24	2	1	○	
22104564	3	56	44,5	9,5	-	2,80	2,24	2	1	○	
22104584	4	48	48,0	11,0	18,0	3,15	2,50	2	2	○	
22104604	5	44	48,0	11,0	18,0	3,15	2,50	3	2	○	
22104624	6	40	50,0	13,0	20,0	3,55	2,80	3	2	○	
22104654	8	36	53,0	13,0	21,0	4,50	3,55	3	2	○	
22104674	10	32	58,0	16,0	25,0	5,00	4,00	3	2	○	
22104694	12	28	62,0	17,0	26,0	5,60	4,50	3	2	○	
22104724	1/4	28	66,0	19,0	30,0	6,30	5,00	3	2	○	
22104764	5/16	24	72,0	22,0	35,0	8,00	6,30	3	2	○	
22104814	3/8	24	80,0	24,0	39,0	10,00	8,00	3	2	○	
22104864	7/16	20	85,0	25,0	-	8,00	6,30	3	3	○	
22104914	1/2	20	89,0	29,0	-	9,00	7,10	3	3	○	
22104964	9/16	18	95,0	30,0		11,20	9,00	3	3	○	
22105044	5/8	18	102,0	32,0	-	12,50	10,00	3	3	○	
22105174	3/4	16	112,0	37,0	-	14,00	11,20	3	3	○	
22105284	7/8	14	118,0	38,0	-	16,00	12,50	3	3	○	
22105394	1	12	130,0	45,0	-	18,00	14,00	3	3	○	
22105534	1 1/8	12	138,0	48,0	20,0	20,00	16,00	4	3	○	
22105664	1 1/4	12	151,0	51,0	22,4	22,00	18,00	4	3	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~24 m/min	◎ 10~15 m/min	◎ 8~13 m/min	◎ 10~15 m/min	○ 7~11 m/min				◎ 8~16 m/min	○ 10~15 m/min	○ 10~15 m/min		○ 10~15 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	

UNF
UNJF

GO TO LIVE STOCK CHECK



HIGH PERFORMANCE
- UNJF
- **Serie H** : for steels 25~45 HRC

HIGH PERFORMANCE
- UNJF
- **Serie H** : Für Stahl 25~45 HRC

ALTA PRESTAZIONE
- UNJF
- **Serie H** : per acciai di durezza tra 25~45 HRC

HAUTE PERFORMANCE
- Américain fin
- **Série H** : pour acier de dureté entre 25~45 HRCr

HIGH PERFORMANCE
- UNJF
- **Serie H**: Til stål 25~45 HRC

UTMÄRT UTFÖRANDE
- UNJF
- Serie H: för stål 25~45 HRC

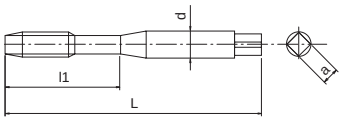
ALTAS PRESTACIONES
- UNJF
- **Serie H** (H-CPM): para aceros 25~45 HRC

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- UNJF
- **Серия P**: для сталей 25~45 HRC



UNJF | PM | OX | ANSI 3B

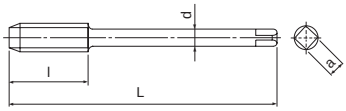
5 | DIN 2182



EDP	UNJF	P	L	l1	d	a	ZΔ	Stock	Price
48010467	10	32	70	25	6	4,9	3	●	
48010472	1/4	28	80	30	7	5,5	3	●	
48010476	5/16	24	90	35	8	6,2	3	●	
48010481	3/8	24	90	35	9	7,0	3	●	

UNJF | PM | OX | ANSI 3B

5 | DIN 2183



EDP	UNJF	P	L	l	d	a	ZΔ	Stock	Price
48010486	7/16	20	100	20	8	6,2	3	●	
48010491	1/2	20	100	22	9	7,0	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
		◎ 8~13 m/min		◎ 6~10 m/min	◎ 6~10 m/min				◎ 7~10 m/min			○ 10~15 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
								○ 4~6 m/min	○ 2~4 m/min			

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

UNF

GO TO LIVE STOCK CHECK



UNF
- For steels 25~45 HRC

UNF
- Für Stahl 25~45 HRC

UNF
- Per acciai 25~45 HRC

AMÉRICAIN FIN
- Pour aciers 25~45 HRC

UNF
- Til stål 25~45 HRC

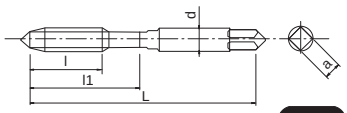
UNF
- För stål 25~45 HRC

UNF
- Para aceros 25~45 HRC

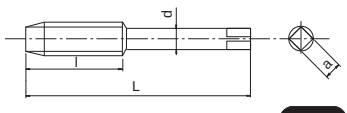
UNF
- Для сталей 25~45 HRC



UNF | PM | OX | ANSI 2B | 5 | ISO 529



Type 2



Type 3

EDP	UNF	P	L	l	l1	d	a	ZΔ	Type	Stock	Price
23104674	10	32	58	16	25	5,0	4,0	3	2	○	
23104724	1/4	28	66	19	30	6,3	5,0	3	2	○	
23104764	5/16	24	72	22	35	8,0	6,3	3	2	○	
23104814	3/8	24	80	24	39	10,0	8,0	3	2	○	
23104814A	7/16	20	85	25	-	8,0	6,3	3	3	○	
23104814B	1/2	20	89	29	-	9,0	7,1	3	3	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
		◎ 8~13 m/min		◎ 6~10 m/min	◎ 6~10 m/min				◯ 7~10 m/min			◯ 10~15 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	

● Delivery from stock
○ Available on short notice

UNF
UNJF

UNF
UNJF

GO TO LIVE STOCK CHECK



HIGH PERFORMANCE

- UNJF
- **Serie E :** for nickel based alloys including Inconel 718

HIGH PERFORMANCE

- UNJF
- **Serie E :** für Nickelbasislegierungen inkl. Inconel 718

ALTA PRESTAZIONE

- UNJF
- **Serie E :** per Inconel 718 ed altre leghe a base di Nickel

HAUTE PERFORMANCE

- Américain fin
- **Série E :** pour Inconel 718 et autres alliages sur base de Nickel

HIGH PERFORMANCE

- UNJF
- **Serie E**: Til nikkellegeringer inklusiv Inconel 718

HIGH PERFORMANCE

- UNJF
- **Serie E**: för nickel legeringar inklusive Inconel 718l

ALTAS PRESTACIONES

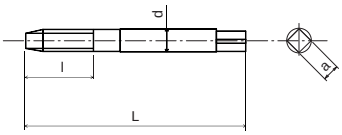
- UNJF
- **Serie E** (Ni): para aleaciones de níquel incluido Inconel 718

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- UNJF
- **Серия E**: для никелевых сплавов, включая Inconel 718

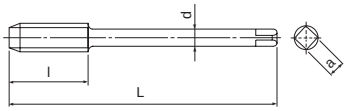


UNJF | PM | ANSI 3B | 5 | DIN 2182



EDP	UNJF	P	L	l1	d	a	ZΔ	Stock	Price
89346730	10	32	70	20	6	4,9	3	●	
89347230	1/4	28	80	25	7	5,5	3	●	
89347630	5/16	24	90	31	8	6,2	3	●	
89348130	3/8	24	90	35	10	8,0	3	●	

UNJF | PM | ANSI 3B | 5 | DIN 2183



EDP	UNJF	P	L	l	d	a	ZΔ	Stock	Price
89448630	7/16	20	100	20	9	7,0	3	●	
89449130	1/2	20	100	22	10	8,0	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
									2~4 m/min			

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

UNJF

UNJF



GO TO LIVE STOCK CHECK

HIGH PERFORMANCE
- Metric
- For nickel based alloys including Inconel 718

HIGH PERFORMANCE
- Metrisch
- Für Nickelbasislegierungen inkl. Inconel 718

ALTA PRESTAZIONE
- Metrico
- Per Inconel 718 ed altre leghe a base di Nickel

HAUTE PERFORMANCE
- Métrique
- Pour Inconel 718 et autres alliages sur base de Nickel

HIGH PERFORMANCE
- Metrisk
- Til nikkellegeringer inklusiv Inconel 718

HIGH PERFORMANCE
- Metrisk
- För nickel legeringar inklusive Inconel 718l

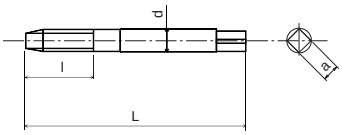
ALTAS PRESTACIONES
- Metrico
- Para aleaciones de níquel incluido Inconel 718 .

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Метрический
- для никелевых сплавов, включая Inconel 718



UNJF | PM | HR | ANSI 3B

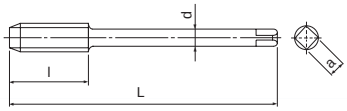
5 | DIN 2182



EDP	UNJF	P	L	l	d	a	ZΔ	Stock	Price
48079467	10	32	70	20	6	4,9	3	●	
48079472	1/4	28	80	25	7	5,5	3	●	
48079476	5/16	24	90	31	8	6,2	3	●	
48079481	3/8	24	90	35	10	8	3	●	

UNJF | PM | HR | ANSI 3B

5 | DIN 2183



EDP	UNJF	P	L	l	d	a	ZΔ	Stock	Price
48079486	7/16	20	100	20	9	7	3	●	
48079491	1/2	20	100	22	10	8	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
								2~4 m/min				

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GO TO LIVE STOCK CHECK



HIGH PERFORMANCE
- UNJF
- For titanium alloys (Ti-6Al-4V), 40~45 HRC

HIGH PERFORMANCE
- UNJF
- Für Titanlegierungen inkl. (Ti-6Al-4V), 40~45 HRC

ALTA PRESTAZIONE
- UNJF
- Per leghe di Titanio (Ti-6Al-4V) di durezza tra 40~45 HRC

HAUTE PERFORMANCE
- Américain fin
- Pour alliages de Titane (Ti-6Al-4V) : dureté 40~45 HRC

HIGH PERFORMANCE
- UNJF
- Til Titanium legeringer (Ti-6Al-4V), 40~45 HRC

HIGH PERFORMANCE
- UNJF
- För Titanlegeringar (Ti-6Al-4V), 40~45 HRC

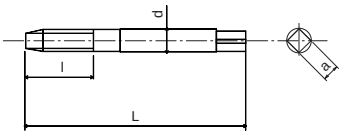
ALTAS PRESTACIONES
- UNJF
- Para aleaciones de Titanio (Ti-6Al-4V), 40~45 HRC

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- UNJF
- Для титановых сплавов (Ti-6Al-4V), 40~45 HRC



UNJF | PM | V | ANSI 3B

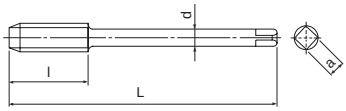
5 | DIN 2182



EDP	UNJF	P	L	l	d	a	ZΔ	Stock	Price
48014467	10	32	70	25	6	4,9	3	●	
48014472	1/4	28	80	30	7	5,5	3	●	
48014476	5/16	24	90	31	8	6,2	3	●	
48014481	3/8	24	90	35	10	8,0	3	●	

UNJF | PM | V | ANSI 3B

5 | DIN 2183



EDP	UNJF	P	L	l	d	a	ZΔ	Stock	Price
48014486	7/16	20	100	20	9	7,0	3	●	
48014491	1/2	20	100	22	10	8,0	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
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Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
								4~6 m/min				

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

UNF
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UNF
- General purpose, also for stainless steel

UNF
- Für universelle Anwendungen und VA - Stahl

UNF
- Per applicazioni generali e per inox

AMÉRICAIN FIN
- Pour applications générales et pour des aciers inox

UNF
- Til generelt brug, også til rustfrit stål

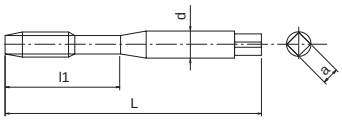
UNF
- För allround bearbetning och för rostfritt stål

UNF
- Para aplicación general, para aceros inoxidables

UNF
- Общего назначения и для нержавеющих сталей

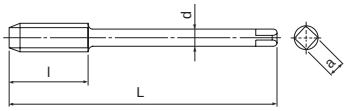


UNF | HSSE | OX | 40° | ANSI 2B | 2,5 | DIN 2182



EDP	UNF	P	L	l1	d	a	ZΔ	Stock	Price
75246220	6	40	56	20	4	3,0	3	●	
75246730	10	32	70	25	6	4,9	3	●	
75247240	1/4	28	80	30	7	5,5	3	●	
75247640	5/16	24	90	35	8	6,2	3	●	
75248140	3/8	24	90	35	9	7,0	3	●	

UNF | HSSE | OX | 40° | ANSI 2B | 2,5 | DIN 2183



EDP	UNF	P	L	l	d	a	ZΔ	Stock	Price
75248650	7/16	20	100	15	9	7,0	4	●	
75249150	1/2	20	100	16	9	7,0	4	●	
75249650	9/16	18	100	17	11	9,0	4	●	
75250450	5/8	18	100	18	12	9,0	4	●	
75251750	3/4	16	110	21	16	12,0	4	●	
75252860	7/8	14	125	23	18	14,5	4	●	
75253960	1	12	125	25	18	14,5	5	●	

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Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 10~15 m/min	◎ 8~14 m/min	◎ 7~11 m/min	◎ 8~14 m/min					◎ 7~12 m/min	○ 7~11 m/min	○ 7~14 m/min		○ 7~14 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 7~14 m/min											◎ 10~15 m/min	

● Delivery from stock
○ Available on short notice

UNF
UNJF



UNJF
- General purpose, also for stainless steel

UNJF
- Für universelle Anwendungen und VA - Stahl

UNJF
- Per applicazioni generali e per inox

AMÉRICAIN FIN
- Pour applications générales et pour des aciers inox

UNJF
- Til generelt brug, også til rustfrit stål

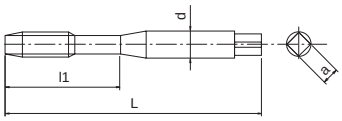
UNJF
- För allround bearbetning och för rostfritt stål

UNJF
- Para aplicación general, para aceros inoxidables

UNJF
- Общего назначения и для нержавеющих сталей

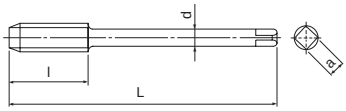


UNJF | HSSE | OX | 40° | ANSI 3B | 2,5 | DIN 2182



EDP	UNJF	P	L	l1	d	a	ZΔ	Stock	Price
48001467	10	32	70	25	6	4,9	3	●	
48001472	1/4	28	80	30	7	5,5	3	●	
48001476	5/16	24	90	35	8	6,2	3	●	
48001481	3/8	24	90	35	9	7,0	3	●	

UNJF | HSSE | OX | 40° | ANSI 3B | 2,5 | DIN 2183



EDP	UNF	P	L	l	d	a	ZΔ	Stock	Price
48001486	7/16	20	100	15	8	6,2	4	●	
48001491	1/2	20	100	16	9	7,0	4	●	

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Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 10~15 m/min	◎ 8~14 m/min	◎ 7~11 m/min	◎ 8~14 m/min					◎ 7~12 m/min	○ 7~11 m/min	○ 7~14 m/min		○ 7~14 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 7~14 m/min											◎ 10~15 m/min	

● Delivery from stock
○ Available on short notice



UNF
- General purpose applications

UNF
- Für universelle Anwendungen

UNF
- Per applicazioni generali

AMÉRICAIN FIN
- Pour applications générales

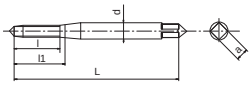
UNF
- Til generelt brug

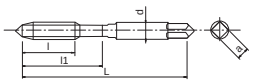
UNF
- För diverse applikationer

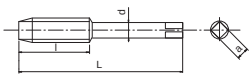
UNF
- Para aplicación general

UNF
- Общего назначения

UNF | HSSE | OX | 40° | ANSI 2B | 2,5 | ISO 529


Type 1


Type 2


Type 3

EDP	UNF	P	L	l	l1	d	a	ZΔ	Type	Stock	Price
22204544	2	64	44,5	9,5	-	2,80	2,24	2	1	○	
22204564	3	56	44,5	9,5	-	2,80	2,24	2	1	○	
22204584	4	48	48,0	11,0	18	3,15	2,50	2	2	○	
22204604	5	44	48,0	11,0	18	3,15	2,50	3	2	○	
22204624	6	40	50,0	13,0	20	3,55	2,80	3	2	○	
22204654	8	36	53,0	13,0	21	4,50	3,55	3	2	○	
22204674	10	32	58,0	16,0	25	5,00	4,00	3	2	○	
22204694	12	28	62,0	17,0	26	5,60	4,50	3	2	○	
22204724	1/4	28	66,0	19,0	30	6,30	5,00	3	2	○	
22204764	5/16	24	72,0	22,0	35	8,00	6,30	3	2	○	
22204814	3/8	24	80,0	24,0	39	10,00	8,00	3	2	○	
22204864	7/16	20	85,0	25,0	-	8,00	6,30	3	3	○	
22204914	1/2	20	89,0	29,0	-	9,00	7,10	3	3	○	
22204964	9/16	18	95,0	30,0	-	11,20	9,00	3	3	○	
22205044	5/8	18	102,0	32,0	-	12,50	10,00	3	3	○	
22205174	3/4	16	112,0	37,0	-	14,00	11,20	4	3	○	
22205284	7/8	14	118,0	38,0	-	16,00	12,50	4	3	○	
22205394	1	12	130,0	45,0	-	18,00	14,00	4	3	○	
22205534	1 1/8	12	138,0	48,0	-	20,00	16,00	4	3	○	
22205664	1 1/4	12	151,0	51,0	-	22,40	18,00	4	3	○	

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C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 10~15 m/min	◎ 8~14 m/min	◎ 7~11 m/min	◎ 8~14 m/min	○ 7~11 m/min				◎ 7~12 m/min	○ 6~9 m/min	○ 7~14 m/min		○ 7~14 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	

UNF
UNJF

GO TO LIVE STOCK CHECK



HIGH PERFORMANCE

- For stainless steels, aluminium and steel
- For threading depth ≥ 2 D
- Developed for CNC machines equipped with rigid tapping
- For pilot hole use OSG EX-SUS-GDS (p.C.70)

HIGH PERFORMANCE

- Für VA-Stahl, Aluminium und Stahl
- Für Gewindetiefe ≥ 2 D
- Für CNC Maschinen mit Synchronspindeln
- Für die Kernlochbearbeitung EX-SUS-GDS verwenden (p.C.70)

ALTA PRESTAZIONE

- Per acciai inox, alluminio e acciai
- Per profondità di filettatura ≥ 2 D
- Per le macchine CNC che hanno un programma di sincronizzazione tra la velocità e l'avanzamento
- Utilizzate OSG EX-SUS-GDS per foro pilota (p.C.70)

HAUTE PERFORMANCE

- Pour inox, aluminium et aciers
- Profondeur de taraudage ≥ 2 D
- Développé pour les machines CNC qui ont le "taraudage rigide"
- Pour trou pilote utiliser OSG EX-SUS-GDS (p.C.70)

HIGH PERFORMANCE

- Til rustfrit stål, aluminium og stål
- Til gevinddybde ≥ 2 D
- Udviklet til CNC maskine udstyret med fast tapholder
- For boring af pilot hul brug OSG EX-SUS-GDS (p.C.70)

HIGH PERFORMANCE

- För rostfritt stål, aluminium och stål
- För gängdjup ≥ 2 D
- Utvecklat för CNC-maskiner som är utrustade med gängfunktion
- För pilot hål använd OSG EX-SUS-GDS (p.C.70)

ALTAS PRESTACIONES

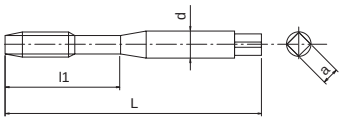
- Para aceros inoxidables, aluminio y aceros
- Para roscado ≥ 2 D
- Desarrollados para máquinas CNC aptas para roscado rígido
- Para agujero previo use EX-SUS-GDS (p.C.70)

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- Для нержавеющих сталей и алюминия
- Для резьб глубиной ≥ 2 D
- Разработаны для ЧПУ станков имеющих циклы жесткой нарезки резьбы
- Для пилотного отверстия используйте OSG EX-SUS-GDS (p.C.70)

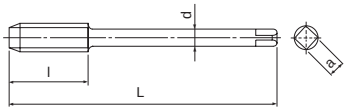


UNF | UNJF | HSSE | CrN | 45° | ANSI 2B | ANSI 3B | ≥2,5×I | ≥2D | DIN 2182



EDP	UN(J)F	P	L	l1	d	a	ZΔ	Stock	Price
48032467	10	32	70	19,3	6	4,9	3	●	
48032472	1/4	28	80	25,4	7	5,5	3	●	
48032476	5/16	24	90	11,0	8	6,2	3	●	
48032481	3/8	24	90	12,0	9	7,0	3	●	

UNF | UNJF | HSSE | CrN | 45° | ≥2,5×I | ANSI 2B | ANSI 3B | ≥2D | DIN 2183



EDP	UN(J)F	P	L	l	d	a	ZΔ	Stock	Price
48032486	7/16	20	100	14	9	6,2	4	●	
48032491	1/2	20	100	15	9	7	4	●	
48032496	9/16	18	100	15	11	9	4	●	
48032504	5/8	18	100	17	12	9	4	●	
48032517	3/4	16	110	19	14	11	4	●	
48032528	7/8	14	125	21	18	14,5	4	●	
48032539	1	12	125	24	18	14,5	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~25 m/min	◎ 15~25 m/min	◎ 10~25 m/min	○ 10~25 m/min					◎ 6~10 m/min				

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 15~24 m/min				◎ 15~35 m/min								

● Delivery from stock
○ Available on short notice

UNF
UNJF

GO TO LIVE STOCK CHECK



HIGH PERFORMANCE
- UNJF
- **Serie H** : for steels 25~45 HRC

HIGH PERFORMANCE
- UNJF
- **Serie H** : Für Stahl 25~45 HRC

ALTA PRESTAZIONE
- UNJF
- **Serie H** : per acciai di durezza tra 25~45 HRC

HAUTE PERFORMANCE
- Américain fin
- **Série H** : pour acier de dureté entre 25~45 HRCr

HIGH PERFORMANCE
- UNJF
- **Serie H**: Til stål 25~45 HRC

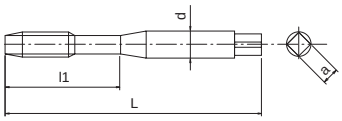
UTMÄRT UTFÖRANDE
- UNJF
- Serie H: för stål 25~45 HRC

ALTAS PRESTACIONES
- UNJF
- **Serie H** (H-CPM): para aceros 25~45 HRC

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- UNJF
- **Серия P**: для сталей 25~45 HRC

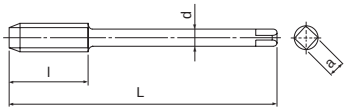


UNJF | PM | OX | 15° | ANSI 3B | 2,5 | DIN 2182



EDP	UNJF	P	L	l1	d	a	ZΔ	Stock	Price
48009467	10	32	70	25	6	4,9	3	●	
48009472	1/4	28	80	30	7	5,5	3	●	
48009476	5/16	24	90	35	8	6,2	3	●	
48009481	3/8	24	90	35	9	7,0	3	●	

UNJF | PM | OX | 15° | ANSI 3B | 2,5 | DIN 2183



EDP	UNJF	P	L	l	d	a	ZΔ	Stock	Price
48009486	7/16	20	100	15	8	6,2	3	●	
48009491	1/2	20	100	16	9	7,0	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
		◎ 6~12 m/min	○ 7~12 m/min	◎ 4~8 m/min	◎ 4~8 m/min				◎ 6~12 m/min			○ 7~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
								○ 3~5 m/min	○ 1~3 m/min			

● Delivery from stock
○ Available on short notice



UNF
- For steels 25~45 HRC

UNF
- Für Stahl 25~45 HRC

UNF
- Per acciai 25~45 HRC

AMÉRICAIN FIN
- Pour acier 25~45 HRC

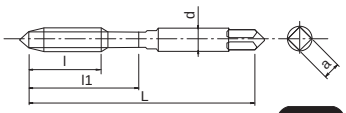
UNF
- Til stål 25~45 HRC

UNF
- För stål 25~45 HRC

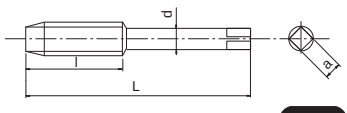
UNF
- Para aceros 25~45 HRC

UNF
- Для сталей 25~45 HRC

UNF | PM | OX | 15° | ANSI 2B | 3 | ISO 529



Type 2



Type 3

EDP	UNF	P	L	l	l1	d	a	ZΔ	Type	Stock	Price
23204674	10	32	58	16	25	5,0	4,0	3	2	○	
23204724	1/4	28	66	19	30	6,3	5,0	3	2	○	
23204764	5/16	24	72	22	35	8,0	6,3	3	2	○	
23204814	3/8	24	80	24	39	10,0	8,0	3	2	○	
23204814A	7/16	20	85	25	-	8,0	6,3	3	3	○	
23204814B	1/2	20	89	29	-	9,0	7,1	3	3	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
		◎ 6~12 m/min	○ 7~12 m/min	◎ 4~8 m/min	◎ 4~8 m/min				○ 6~12 m/min	○ 7~15 m/min	○ 7~12 m/min	○ 7~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	

● Delivery from stock
○ Available on short notice

UNF
UNJF

GO TO LIVE STOCK CHECK



HIGH PERFORMANCE

- UNJF
- **Serie E :** for nickel based alloys including Inconel 718

HIGH PERFORMANCE

- UNJF
- **Serie E :** für Nickelbasislegierungen inkl. Inconel 718

ALTA PRESTAZIONE

- UNJF
- **Serie E :** per Inconel 718 ed altre leghe a base di Nickel

HAUTE PERFORMANCE

- Américain fin
- **Série E :** pour Inconel 718 et autres alliages sur base de Nickel

HIGH PERFORMANCE

- UNJF
- **Serie E**: Til nikkellegeringer inklusiv Inconel 718

HIGH PERFORMANCE

- UNJF
- **Serie E**: för nickel legeringar inklusive Inconel 718l

ALTAS PRESTACIONES

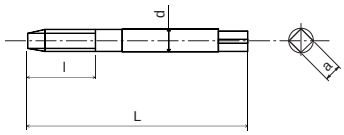
- UNJF
- **Serie E** (Ni): para aleaciones de níquel incluido Inconel 718 .

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- UNJF
- **Серия E**: для никелевых сплавов, включая Inconel 718

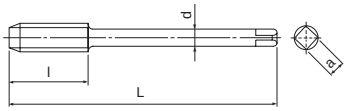


UNJF | PM | 10° | ANSI 3B
2,5 | | | DIN 2182



EDP	UNJF	P	L	l	d	a	ZΔ	Stock	Price
89546730	10	32	70	18	6	4,9	3	●	
89547230	1/4	28	80	23	7	5,5	3	●	
89547630	5/16	24	90	28	8	6,2	3	●	
89548130	3/8	24	90	33	10	8,0	3	●	

UNJF | PM | 10° | ANSI 3B
2,5 | | | DIN 2183



EDP	UNJF	P	L	l	d	a	ZΔ	Stock	Price
89648630	7/16	20	100	15	9	7,0	3	●	
89649130	1/2	20	100	16	10	8,0	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
									1~3 m/min			

WHR-NI-SFT



UNJF

UNJF

GO TO LIVE STOCK CHECK

HIGH PERFORMANCE
- Metric
- For nickel based alloys including Inconel 718

HIGH PERFORMANCE
- Metrisch
- Für Nickelbasislegierungen inkl. Inconel 718

ALTA PRESTAZIONE
- Metrico
- Per Inconel 718 ed altre leghe a base di Nickel

HAUTE PERFORMANCE
- Métrique
- Pour Inconel 718 et autres alliages sur base de Nickel

HIGH PERFORMANCE
- Metrisk
- Til nikkellegeringer inklusiv Inconel 718

HIGH PERFORMANCE
- Metrisk
- För nickel legeringar inklusive Inconel 718l

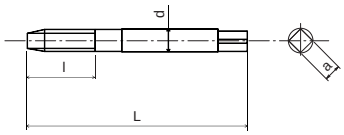
ALTAS PRESTACIONES
- Metrico
- Para aleaciones de níquel incluido Inconel 718 .

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Метрический
- для никелевых сплавов, включая Inconel 718



UNJF | PM | 11° | HR | ANSI 3B

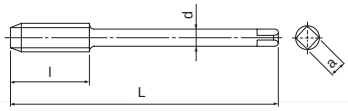
2,5 | DIN 2182



EDP	UNJF	P	L	l	d	a	ZΔ	Stock	Price
48078467	10	32	70	20	6	4,9	3	●	
48078472	1/4	28	80	25	7	5,5	3	●	
48078476	5/16	24	90	31	8	6,2	3	●	
48078481	3/8	24	90	35	10	8	3	●	

UNJF | PM | 11° | HR | ANSI 3B

2,5 | DIN 2183



EDP	UNJF	P	L	l	d	a	ZΔ	Stock	Price
48078486	7/16	20	100	20	9	7	3	●	
48078491	1/2	20	100	22	10	8	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
									◎ 1~3 m/min			

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

UNF
UNJF

UNF
UNJF

GO TO LIVE STOCK CHECK



HIGH PERFORMANCE
- UNJF
- For titanium alloys (Ti-6Al-4V), 40~45 HRC

HIGH PERFORMANCE
- UNJF
- Für Titanlegierungen inkl. (Ti-6Al-4V), 40~45 HRC

ALTA PRESTAZIONE
- UNJF
- Per leghe di Titanio (Ti-6Al-4V) di durezza tra 40~45 HRC

HAUTE PERFORMANCE
- Américain fin
- Pour alliages de Titane (Ti-6Al-4V), dureté 40~45 HRC

HIGH PERFORMANCE
- UNJF
- Til Titanium legeringer (Ti-6Al-4V), 40~45 HRC

HIGH PERFORMANCE
- UNJF
- För Titanlegeringar (Ti-6Al-4V), 40~45 HRC

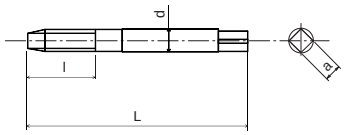
ALTAS PRESTACIONES
- UNJF
- Para aleaciones de Titanio (Ti-6Al-4V), 40~45 HRC

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- UNJF
- Для титановых сплавов (Ti-6Al-4V), 40~45 HRC



UNJF | PM | V | 10° | ANSI 3B

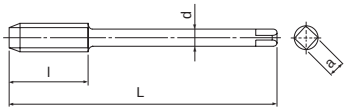
2,5 | DIN 2182



EDP	UNJF	P	L	l	d	a	ZΔ	Stock	Price
48013467	10	32	70	25	6	4,9	3	●	
48013472	1/4	28	80	30	7	5,5	3	●	
48013476	5/16	24	90	35	8	6,2	3	●	
48013481	3/8	24	90	35	10	8,0	3	●	

UNJF | PM | V | 10° | ANSI 3B

2,5 | DIN 2183



EDP	UNJF	P	L	l	d	a	ZΔ	Stock	Price
48013486	7/16	20	100	15	9	7,0	3	●	
48013491	1/2	20	100	16	10	8,0	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

B.173

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
								3~5 m/min				

● Delivery from stock
○ Available on short notice



UNF
- For general purposes application

UNF
- Für universelle Anwendungen

UNF
- Per applicazioni generali

AMÉRICAIN FIN
- Pour applications générales

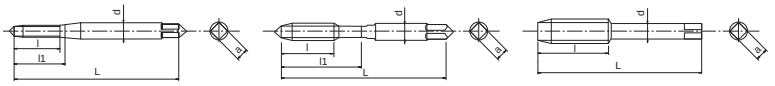
UNF
- Til generelt brug

UNF
- För allround bearbetning

UNF
- Para aplicación general

UNF
- Общего назначения

UNF | HSSE | ANSI 2B | 2,5 | ISO 529



EDP	UNF	P	L	l	l1	d	a	ZΔ	Type	Stock	Price
22034500	0	80	40,0	8,0	-	2,50	2,00	3	1	○	
22034520	1	72	41,0	8,0	-	2,50	2,00	3	1	○	
22034540	2	64	44,5	9,5	-	2,80	2,24	3	1	○	
22034560	3	56	44,5	9,5	-	2,80	2,24	3	1	○	
22034580	4	48	48,0	11,0	18	3,15	2,50	3	2	○	
22034600	5	44	48,0	11,0	18	3,15	2,50	3	2	○	
22034620	6	40	50,0	13,0	20	3,55	2,80	3	2	○	
22034650	8	36	53,0	13,0	21	4,50	3,55	3	2	○	
22034670	10	32	58,0	16,0	25	5,00	4,00	3	2	○	
22034690	12	28	62,0	17,0	26	5,60	4,50	3	2	○	
22034720	1/4	28	66,0	19,0	30	6,30	5,00	3	2	○	
22034760	5/16	24	72,0	22,0	35	8,00	6,30	4	2	○	
22034810	3/8	24	80,0	24,0	39	10,00	8,00	4	2	○	
22034860	7/16	20	85,0	25,0	-	8,00	6,30	4	3	○	
22034910	1/2	20	89,0	29,0	-	9,00	7,10	4	3	○	
22034960	9/16	18	95,0	30,0	-	11,20	9,00	4	3	○	
22035040	5/8	18	102,0	32,0	-	12,50	10,00	4	3	○	
22035170	3/4	16	112,0	37,0	-	14,00	11,20	4	3	○	
22035280	7/8	14	118,0	38,0	-	16,00	12,50	4	3	○	
22035390	1	12	130,0	45,0	-	18,00	14,00	4	3	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
	○ 7~12 m/min											○ 7~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
	○ 10~15 m/min	○ 10~15 m/min	○ 6~11 m/min	○ 10~20 m/min	○ 10~15 m/min	○ 7~12 m/min	○ 7~12 m/min					

● Delivery from stock
○ Available on short notice



UNF
- High performance forming tap

UNF
- Hochleistungsgewindeformer

UNF
- Maschio a rullare ad alta performance

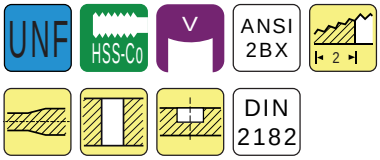
UNF
- Taraud à refoulé à haute performance

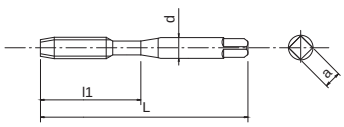
UNF
- High Performance rulletap

UNF
- High performance pressgängtapp

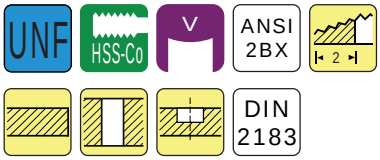
UNF
- Alta prestaciones, macho de laminación

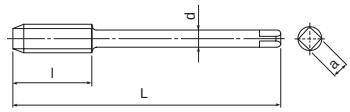
UNF
- Высокопроизводительные накатные метчики





EDP	UNF	P	L	l1	d	a	Drill Hole size	ZΔ	Stock	Price
48091462	6	40	56	20	4	3	3,19 ~ 3,26	4	●	
48091467	10	32	70	25	6	4,9	4,41 ~ 4,47	5	●	
48091472	1/4	28	80	30	7	5,5	5,87 ~ 5,94	5	●	
48091476	5/16	24	90	35	8	6,2	7,39 ~ 7,47	5	●	
48091481	3/8	24	90	35	9	7	8,98 ~ 9,06	8	●	





EDP	UNF	P	L	l	d	a	Drill Hole size	ZΔ	Stock	Price
48091486	7/16	20	100	12,7	9	7	10,45 ~ 10,55	8	●	
48091491	1/2	20	100	12,7	9	7	12,04 ~ 12,14	8	●	
48091496	9/16	18	100	14,1	11	9	13,56 ~ 13,64	8	●	
48091504	5/8	18	100	14,1	12	9	15,15 ~ 15,23	8	●	
48091517	3/4	16	110	12,7	14	12	18,22 ~ 18,30	8	●	
48091528	7/8	14	125	14,5	18	14,5	21,27 ~ 21,38	8	●	
48091539	1	12	125	16,9	18	14,5	24,26 ~ 24,37	8	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~40 m/min	◎ 15~40 m/min	◎ 15~30 m/min	◎ 15~30 m/min	◎ 5~20 m/min				◎ 8~20 m/min		○ 15~40 m/min		

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
◎ 10~30 m/min	◎ 10~30 m/min	◎ 10~30 m/min		◎ 20~50 m/min	◎ 20~40 m/min		○ 10~30 m/min					

Helicoil MJ

GO TO LIVE STOCK CHECK





HIGH PERFORMANCE
- Metric
- **Serie H** : for steels 25~45 HRC

HIGH PERFORMANCE
- Metrisch
- **Serie H** : Für Stahl 25~45 HRC

ALTA PRESTAZIONE
- Metrico
- **Serie H** : per acciai di durezza tra 25~45 HRC

HAUTE PERFORMANCE
- Métrique
- **Série H** : pour acier de dureté entre 25~45 HRC

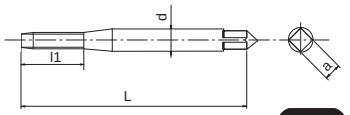
HIGH PERFORMANCE
- Metrisk
- **Serie H**: Til stål 25~45 HRC

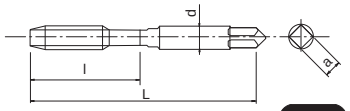
HIGH PERFORMANCE
- Metrisk
- **Serie H**: för stål 25~45 HRC

ALTAS PRESTACIONES
- Metrico
- **Serie H** (H-CPM): para aceros 25~45 HRC

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Метрический
- **Серия P**: для сталей 25~45 HRC

MJ | PM | OX | ISO 1 4H | 5 | DIN 371





EDP	MJ	P	L	l1	d	a	ZΔ	Type	Stock	Price
48006125	2	0,4	50	9	2,8	2,1	2	1	●	
48006133	2,5	0,45	56	18	3,5	2,7	3	2	●	
48006138	3	0,5	56	20	4,0	3,0	3	2	●	
48006144	4	0,7	70	25	6,0	4,9	3	2	●	
48006149	5	0,8	80	30	6,0	4,9	3	2	●	
48006155	6	1	90	35	8,0	6,2	3	2	●	
48006161	8	1,25	100	39	10,0	8,0	3	2	●	
48006169	10	1,5	110	46	12,0	9,0	3	2	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
		◎ 8~13 m/min		◎ 6~10 m/min	◎ 6~10 m/min				◎ 7~10 m/min			○ 10~15 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
								○ 4~6 m/min	○ 2~4 m/min			

● Delivery from stock
○ Available on short notice

Helicoil MJ

GO TO LIVE STOCK CHECK





HIGH PERFORMANCE
- Metric
- **Serie E** : for nickel based alloys including Inconel 718

HIGH PERFORMANCE
- Metrisch
- **Serie E** : für Nickelbasislegierungen inkl. Inconel 718

ALTA PRESTAZIONE
- Metrico
- **Serie E** : per Inconel 718 ed altre leghe a base di Nickel

HAUTE PERFORMANCE
- Métrique
- **Série E** : pour Inconel 718 et autres alliages sur base de Nickel

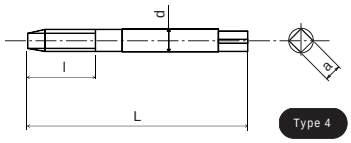
HIGH PERFORMANCE
- Metrisk
- **Serie E**: Til nikkellegeringer inklusiv Inconel 718

HIGH PERFORMANCE
- Metrisk
- **Serie E**: för nickel legeringar inklusive Inconel 718

ALTAS PRESTACIONES
- Metrico
- **Serie E** (Ni): para aleaciones de níquel incluido Inconel 718

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Метрический
- **Серия E**: для никелевых сплавов, включая Inconel 718

MJ | PM | ISO 1 4H | 5 | DIN 371



EDP	MJ	P	L	l1	d	a	ZΔ	Stock	Price
48008125	2	0,4	50	9	2,8	2,1	2	●	
48008133	2,5	0,45	56	11	3,5	2,7	3	●	
48008138	3	0,5	56	13	4,0	3,0	3	●	
48008144	4	0,7	70	17	6,0	4,9	3	●	
48008149	5	0,8	80	21	6,0	4,9	3	●	
48008155	6	1	90	25	8,0	6,2	3	●	
48008161	8	1,25	100	33	10,0	8,0	3	●	
48008169	10	1,5	110	41	12,0	9,0	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
									2~4 m/min			

● Delivery from stock
○ Available on short notice

Helicoil MJ

GO TO LIVE STOCK CHECK





HIGH PERFORMANCE
- Metric
- **Serie H** : for steels 25~45 HRC

HIGH PERFORMANCE
- Metrisch
- **Serie H** : Für Stahl 25~45 HRC

ALTA PRESTAZIONE
- Metrico
- **Serie H** : per acciai di durezza tra 25~45 HRC

HAUTE PERFORMANCE
- Métrique
- **Série H** : pour acier de dureté entre 25~45 HRC

HIGH PERFORMANCE
- Metrisk
- **Serie H**: Til stål 25 - 45 HRC

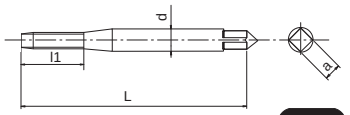
UTMÄRT UTFÖRANDE
- Metrisk
- **Serie H**: för stål 25~45 HRC

ALTAS PRESTACIONES
- Metrico
- **Serie H** (H-CPM): para aceros 25 ÷ 45 HrC

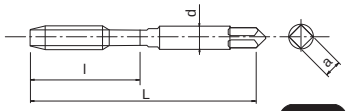
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Метрический
- **Серия P**: для сталей 25 ~ 45 HRC

MJ | PM | OX | 15° | ISO 1 4H

3 | DIN 371



Type 1



Type 2

EDP	MJ	P	L	l1	d	a	ZΔ	Type	Stock	Price
48005125	2	0,4	50	9	2,8	2,1	2	1	●	
48005133	2,5	0,45	56	18	3,5	2,7	3	2	●	
48005138	3	0,5	56	20	4,0	3,0	3	2	●	
48005144	4	0,7	70	25	6,0	4,9	3	2	●	
48005149	5	0,8	80	30	6,0	4,9	3	2	●	
48005155	6	1	90	35	8,0	6,2	3	2	●	
48005161	8	1,25	100	39	10,0	8,0	3	2	●	
48005169	10	1,5	110	46	12,0	9,0	3	2	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
		◎ 6~12 m/min	○ 7~12 m/min	◎ 4~8 m/min	◎ 4~8 m/min				◎ 6~12 m/min			○ 7~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
								○ 3~5 m/min	○ 1~3 m/min			

● Delivery from stock
○ Available on short notice

Helicoil MJ

GO TO LIVE STOCK CHECK





HIGH PERFORMANCE

- Metric
- **Serie E** : for nickel based alloys including Inconel 718

HIGH PERFORMANCE

- Metrisch
- **Serie E** : für Nickelbasislegierungen inkl. Inconel 718

ALTA PRESTAZIONE

- Metrico **Serie E** : per Inconel 718 ed altre leghe a base di Nickel

HAUTE PERFORMANCE

- Métrique
- **Série E** : pour Inconel 718 et autres alliages sur base de Nickel

HIGH PERFORMANCE

- Metrisk
- **Serie E**: Til nikkellegeringer inklusiv Inconel 718

HIGH PERFORMANCE

- Metrisk
- **Serie E**: för nickel legeringar inklusive Inconel 718

ALTAS PRESTACIONES

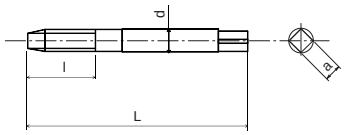
- Metrico
- **Serie E** (Ni): para aleaciones de níquel incluido Inconel 718

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- Метрический
- **Серия E**: для никелевых сплавов, включая Inconel 718

MJ | PM | 10° | ISO 1 4H

2,5 | DIN 371



EDP	MJ	P	L	l	d	a	ZΔ	Stock	Price
48007125	2	0,4	50	9	2,8	2,1	2	●	
48007133	2,5	0,45	56	11	3,5	2,7	3	●	
48007138	3	0,5	56	13	4,0	3,0	3	●	
48007144	4	0,7	70	17	6,0	4,9	3	●	
48007149	5	0,8	80	21	6,0	4,9	3	●	
48007155	6	1	90	25	8,0	6,2	3	●	
48007161	8	1,25	100	33	10,0	8,0	3	●	
48007169	10	1,5	110	41	12,0	9,0	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
									◎ 1~3 m/min			

● Delivery from stock
○ Available on short notice

Helicoil M

GO TO LIVE STOCK CHECK





HIGH PERFORMANCE

- For stainless steels, aluminium and steel
- For threading depth ≥ 2 D
- Developed for CNC machines equipped with rigid tapping
- For pilot hole use OSG EX-SUS-GDS (p.C.70)

HIGH PERFORMANCE

- Für VA-Stahl, Aluminium und Stahl
- Für Gewindetiefe ≥ 2 D
- Für CNC Maschinen mit Synchronspindeln
- Für die Kernlochbearbeitung EX-SUS-GDS verwenden(p.C.70)

ALTA PRESTAZIONE

- Per acciai inox, alluminio e acciai
- Per profondità di filettatura ≥ 2 D
- Per le macchine CNC che hanno un programma di sincronizzazione tra la velocità e l'avanzamento
- Utilizzate OSG EX-SUS-GDS per foro pilota (p.C.70)

HAUTE PERFORMANCE

- Pour inox, aluminium et aciers
- Profondeur de taraudage ≥ 2 D
- Développé pour les machines CNC qui ont le "taraudage rigide"
- Pour trou pilote utiliser OSG EX-SUS-GDS (p.C.70)

HIGH PERFORMANCE

- Til rustfrit stål, aluminium og stål
- Til gevinddybde ≥ 2D
- Udviklet til CNC maskine udstyret med fast tapholder
- For boring af pilot hul brug OSG EX-SUS-GDS (p.C.70)

HIGH PERFORMANCE

- För rostfritt stål, aluminium och stål
- För gängdjup ≥ 2D
- Utvecklat för CNC-maskiner som är utrustade med gängfunktion
- För pilot hål använd OSG EX-SUS-GDS (p.C.70)

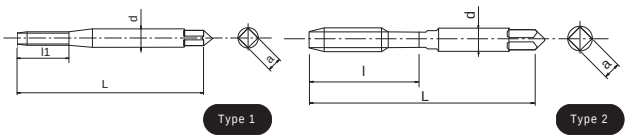
ALTAS PRESTACIONES

- Para aceros inoxidables, aluminio y aceros
- Para roscado ≥ 2D
- Desarrollados para máquinas CNC aptas para roscado rígido
- Para agujero previo use EX-SUS-GDS (p.C.70)

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

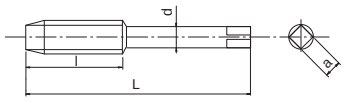
- Для нержавеющих сталей и алюминия
- Для резьб глубиной ≥ 2D
- Разработаны для ЧПУ станков имеющих циклы есткой нарезки резьбы
- Для пилотного отверстия используйте OSG EX-SUS-GDS (p.C.70)

M | HSSE | CrN | 45° | ISO 2 6H | 2,5D | DIN 371



EDP	M	P	L	l	l1	d	a	ZΔ	Type	Stock	Price
48044138	3	0,5	56	4,5	15	4	3	3	1	●	
48044144	4	0,7	70	6,6	20	6	4,9	3	1	●	
48044149	5	0,8	80	7,2	25	6	4,9	3	1	●	
48044155	6	1	90	9,0	35	8	6,2	3	2	●	
48044161	8	1,25	100	12,0	39	10	8	3	2	●	
48044169	10	1,5	110	14,0	46	12	9	4	2	●	

M | HSSE | CrN | 45° | ISO 2 6H | 2,5D | DIN 376



EDP	M	P	L	l	l1	d	a	ZΔ	Stock	Price
48044179	12	1,75	110	16	-	11	9	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~25 m/min	◎ 15~25 m/min	◎ 10~25 m/min	○ 10~25 m/min					◎ 6~10 m/min				

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 15~24 m/min				◎ 15~35 m/min								

● Delivery from stock
○ Available on short notice

Helicoil UNJC

Helicoil UNJC

GO TO LIVE STOCK CHECK





HIGH PERFORMANCE
- UNJC
- **Serie H** : for steels 25~45 HRC

HIGH PERFORMANCE
- UNJC
- **Serie H** : Für Stahl 25~45 HRC

ALTA PRESTAZIONE
- UNJC
- **Serie H** : per acciai di durezza tra 25~45 HRC

HAUTE PERFORMANCE
- Américain
- **Série H** : pour acier de dureté entre 25~45 HRC

HIGH PERFORMANCE
- UNJC
- **Serie H**: Til stål 25~45 HRC

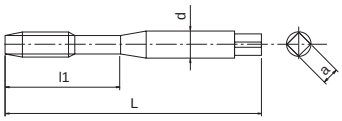
HIGH PERFORMANCE
- UNJC
- **Serie H**: för stål 25~45 HRC

ALTAS PRESTACIONES
- UNJC
- **Serie H** (H-CPM): para aceros 25~45 HRC

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- UNJC
- **Серия P**: для сталей 25~45 HRC

UNJC | PM | OX | ANSI 3B

5 | DIN 2182



EDP	UNJC	P	L	l1	d	a	ZΔ	Stock	Price
48018457	4	40	56	20	4,0	3,0	3	●	
48018461	6	32	63	21	4,5	3,4	3	●	
48018464	8	32	70	25	6,0	4,9	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
		◎ 8~13 m/min		◎ 6~10 m/min	◎ 6~10 m/min				◎ 7~10 m/min			○ 10~15 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
								○ 4~6 m/min	○ 2~4 m/min			

E-HL-POT

Helicoil UNJC

Helicoil UNJC

GO TO LIVE STOCK CHECK





HIGH PERFORMANCE

- UNJC
- **Serie E :** for nickel based alloys including Inconel 718

HIGH PERFORMANCE

- UNJC
- **Serie E :** für Nickelbasislegierungen inkl. Inconel 718

ALTA PRESTAZIONE

- UNJC
- **Serie E :** per Inconel 718 ed altre leghe a base di Nickel

HAUTE PERFORMANCE

- Américain
- **Série E :** pour Inconel 718 et autres alliages sur base de Nickel

HIGH PERFORMANCE

- UNJC
- **Serie E**: Til nikkellegeringer inklusiv Inconel 718

HIGH PERFORMANCE

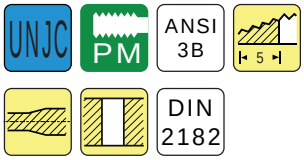
- UNJC
- **Serie E**: för nickel legeringar inklusive Inconel 718

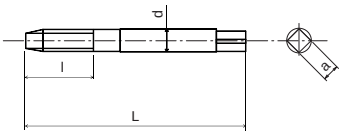
ALTAS PRESTACIONES

- UNJC
- **Serie E** (Ni): para aleaciones de níquel incluido Inconel 718

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- UNJC
- **Серия E**: для никелевых сплавов, включая Inconel 718





EDP	UNJC	P	L	l	d	a	ZΔ	Stock	Price
48016457	4	40	56	14	4,0	3,0	3	●	
48016461	6	32	63	18	4,5	3,4	3	●	
48016464	8	32	70	20	6,0	4,9	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
									2~4 m/min			

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

Helicoil UNJC

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GO TO LIVE STOCK CHECK





HIGH PERFORMANCE
- UNJC
- **Serie H** : for steels 25~45 HRC

HIGH PERFORMANCE
- UNJC
- **Serie H** : Für Stahl 25~45 HRC

ALTA PRESTAZIONE
- UNJC
- **Serie H** : per acciai di durezza tra 25~45 HRC

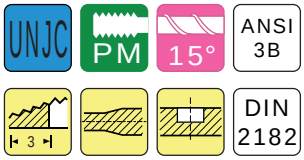
HAUTE PERFORMANCE
- Américain
- **Série H** : pour acier de dureté entre 25~45 HRC

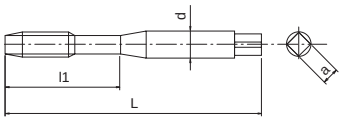
HIGH PERFORMANCE
- UNJC
- **Serie H**: Til stål 25~45 HRC

HIGH PERFORMANCE
- UNJC
- **Serie H**: för stål 25~45 HRC

ALTAS PRESTACIONES
- UNJC
- **Serie H** (H-CPM): para aceros 25~45 HRC

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- UNJC
- **Серия P**: для сталей 25~45 HRC





EDP	UNJC	P	L	l1	d	a	ZΔ	Stock	Price
48017457	4	40	56	20	4,0	3,0	2	●	
48017461	6	32	63	21	4,5	3,4	3	●	
48017464	8	32	70	25	6,0	4,9	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
		◎ 6~12 m/min	○ 7~12 m/min	◎ 4~8 m/min	◎ 4~8 m/min				◎ 6~12 m/min			○ 7~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
								○ 3~5 m/min	○ 1~3 m/min			

● Delivery from stock
○ Available on short notice

E-HL-SFT

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Helicoil UNJC

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HIGH PERFORMANCE
- UNJC
- **Serie E :** for nickel based alloys including Inconel 718

HIGH PERFORMANCE
- UNJC
- **Serie E :** für Nickelbasislegierungen inkl. Inconel 718

ALTA PRESTAZIONE
- UNJC
- **Serie E :** per Inconel 718 ed altre leghe a base di Nickel

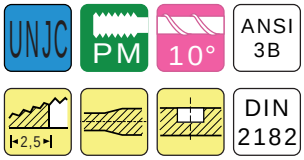
HAUTE PERFORMANCE
- Américain
- **Série E :** pour Inconel 718 et autres alliages sur base de Nickel

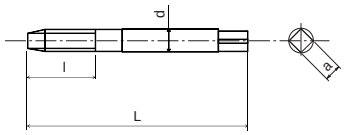
HIGH PERFORMANCE
- UNJC
- **Serie E**: Til nikkellegeringer inklusiv Inconel 718

HIGH PERFORMANCE
- UNJC
- **Serie E**: för nickel legeringar inklusive Inconel 718

ALTAS PRESTACIONES
- UNJC
- **Serie E** (Ni): para aleaciones de níquel incluido Inconel 718

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- UNJC
- **Серия E**: для никелевых сплавов, включая Inconel 718





EDP	UNJC	P	L	l	d	a	ZΔ	Stock	Price
48015457	4	40	56	13	4,0	3,0	3	●	
48015461	6	32	63	18	4,5	3,4	3	●	
48015464	8	32	70	20	6,0	4,9	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
									◎ 1~3 m/min			

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

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GO TO LIVE STOCK CHECK



HIGH PERFORMANCE
- UNJF
- **Serie H** : for steels 25~45 HRC

HIGH PERFORMANCE
- UNJF
- **Serie H** : Für Stahl 25~45 HRC

ALTA PRESTAZIONE
- UNJF
- **Serie H** : per acciai di durezza tra 25~45 HRC

HAUTE PERFORMANCE
- Américain fin
- **Série H** : pour acier de dureté entre 25~45 HRC

HIGH PERFORMANCE
- UNJF
- **Serie H**: Til stål 25~45 HRC

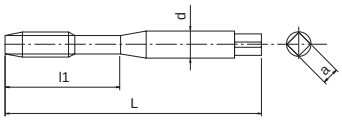
HIGH PERFORMANCE
- UNJF
- **Serie H**: för stål 25~45 HRC

ALTAS PRESTACIONES
- UNJF
- **Serie H** (H-CPM): para aceros 25~45 HRC

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- UNJF
- **Серия P**: для сталей 25~45 HRC

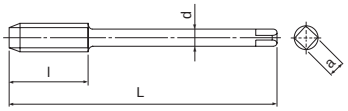


UNJF | PM | OX | ANSI 3B | 5 | DIN 2182



EDP	UNJF	P	L	l1	d	a	ZΔ	Stock	Price
48018467	10	32	80	30	7	5,5	3	●	
48018472	1/4	28	90	35	8	6,2	3	●	
48018476	5/16	24	90	35	9	7,0	3	●	
48018481	3/8	24	100	39	11	9,0	3	●	

UNJF | PM | OX | ANSI 3B | 5 | DIN 2183



EDP	UNJF	P	L	l	d	a	ZΔ	Stock	Price
48018486	7/16	20	100	22	9	7	3	●	
48018491	1/2	20	100	22	11	9	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
		◎ 8~13 m/min		◎ 6~10 m/min	◎ 6~10 m/min				◎ 7~10 m/min			○ 10~15 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
								○ 4~6 m/min	○ 2~4 m/min			

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GO TO LIVE STOCK CHECK





HIGH PERFORMANCE
- UNJF
- **Serie E :** for nickel based alloys including Inconel 718

HIGH PERFORMANCE
- UNJF
- **Serie E :** für Nickelbasislegierungen inkl. Inconel 718

ALTA PRESTAZIONE
- UNJF
- **Serie E :** per Inconel 718 ed altre leghe a base di Nickel

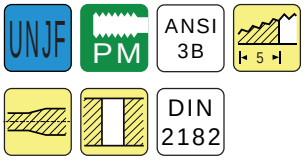
HAUTE PERFORMANCE
- Américain fin
- **Série E :** pour Inconel 718 et autres alliages sur base de Nickel

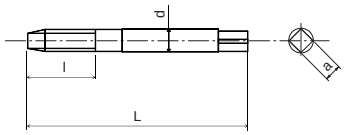
HIGH PERFORMANCE
- UNJF
- **Serie E**: Til nikkellegeringer inklusiv Inconel 718

HIGH PERFORMANCE
- UNJF
- **Serie E**: för nickel legeringar inklusive Inconel 718

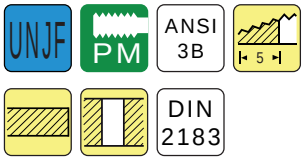
ALTAS PRESTACIONES
- UNJF
- **Serie E** (Ni): para aleaciones de níquel incluido Inconel 718

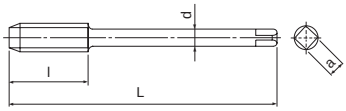
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- UNJF
- **Серия E**: для никелевых сплавов, включая Inconel 718





EDP	UNJF	P	L	l	d	a	ZΔ	Stock	Price
48016467	10	32	80	23	7	5,5	3	●	
48016472	1/4	28	90	29	8	6,2	3	●	
48016476	5/16	24	90	35	10	8,0	3	●	
48016481	3/8	24	100	41	12	9,0	3	●	





EDP	UNJF	P	L	l	d	a	ZΔ	Stock	Price
48016486	7/16	20	100	22	10	8	3	●	
48016491	1/2	20	100	22	12	9	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
									2~4 m/min			

● Delivery from stock
○ Available on short notice

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HIGH PERFORMANCE

- For stainless steels, aluminium and steel
- For threading depth ≥ 2 D
- Developed for CNC machines equipped with rigid tapping
- For pilot hole use OSG EX-SUS-GDS (p.C.70)

HIGH PERFORMANCE

- Für VA-Stahl, Aluminium und Stahl
- Für Gewindetiefe ≥ 2 D
- Für CNC Maschinen mit Synchronspindeln
- Für die Kernlochbearbeitung EX-SUS-GDS verwenden(p.C.70)

ALTA PRESTAZIONE

- Per acciai inox, alluminio e acciai
- Per profondità di filettatura ≥ 2 D
- Per le macchine CNC che hanno un programma di sincronizzazione tra la velocità e l'avanzamento
- Utilizzate OSG EX-SUS-GDS per foro pilota (p.C.70)

HAUTE PERFORMANCE

- Pour inox, aluminium et aciers
- Profondeur de taraudage ≥ 2 D
- Développé pour les machines CNC qui ont le "taraudage rigide"
- Pour trou pilote utiliser OSG EX-SUS-GDS (p.C.70)

HIGH PERFORMANCE

- Til rustfrit stål, aluminium og stål
- Til gevinddybde ≥ 2D
- Udviklet til CNC maskine udstyret med fast tapholder
- For boring af pilot hul brug OSG EX-SUS-GDS (p.C.70)

HIGH PERFORMANCE

- För rostfritt stål, aluminium och stål
- För gängdjup ≥ 2D
- Utvecklat för CNC-maskiner som är utrustade med gängfunktion
- För pilot hål använd OSG EX-SUS-GDS (p.C.70)

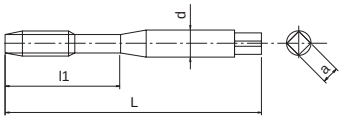
ALTAS PRESTACIONES

- Para aceros inoxidables, aluminio y aceros
- Para roscado ≥ 2D
- Desarrollados para máquinas CNC aptas para roscado rígido
- Para agujero previo use EX-SUS-GDS (p.C.70)

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- Для нержавеющих сталей и алюминия
- Для резьб глубиной ≥ 2D
- Разработаны для ЧПУ станков имеющих циклы есткой нарезки резьбы
- Для пилотного отверстия используйте OSG EX-SUS-GDS (p.C.70)

UNF | UNJF | HSSE | CrN | 45° | ANSI 2B | ANSI 3B | ≥2D | DIN 2182



EDP	UN(J)F	P	L	l1	d	a	ZΔ	Stock	Price
48033467	10	32	80	25,4	7	5,5	3	●	
48033472	1/4	28	90	11,0	8	6,2	3	●	
48033476	5/16	24	90	12,0	9	7,0	3	●	
48033481	3/8	24	100	14,0	11	9,0	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~25 m/min	◎ 15~25 m/min	◎ 10~25 m/min	○ 10~25 m/min					◎ 6~10 m/min				

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 15~24 m/min				◎ 15~35 m/min								

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GO TO LIVE STOCK CHECK



HIGH PERFORMANCE
- UNJC
- **Serie H** : for steels 25~45 HRC

HIGH PERFORMANCE
- UNJC
- **Serie H** : Für Stahl 25~45 HRC

ALTA PRESTAZIONE
- UNJC
- **Serie H** : per acciai di durezza tra 25~45 HRC

HAUTE PERFORMANCE
- Américain
- **Série H** : pour acier de dureté entre 25~45 HRC

HIGH PERFORMANCE
- UNJC
- **Serie H**: Til stål 25~45 HRC

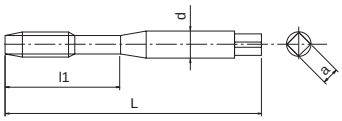
HIGH PERFORMANCE
- UNJC
- **Serie H**: för stål 25~45 HRC

ALTAS PRESTACIONES
- UNJC
- **Serie H** (H-CPM): para aceros 25~45 HRC

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- UNJC
- **Серия P**: для сталей 25~45 HRC

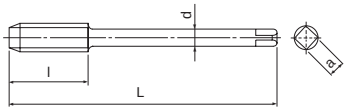


UNJF | PM | OX | 15° | ANSI 3B | 2,5 | DIN 2182



EDP	UNJF	P	L	l1	d	a	ZΔ	Stock	Price
48017467	10	32	80	30	7	5,5	3	●	
48017472	1/4	28	90	35	8	6,2	3	●	
48017476	5/16	24	90	35	9	7,0	3	●	
48017481	3/8	24	100	39	11	9,0	3	●	

UNJF | PM | OX | 15° | ANSI 3B | 2,5 | DIN 2183



EDP	UNJF	P	L	l	d	a	ZΔ	Stock	Price
48017486	7/16	20	100	15	9	7	3	●	
48017491	1/2	20	100	16	11	9	3	●	

$Z\Delta \bar{Z}\Delta =$ Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
		◎ 6~12 m/min	○ 7~12 m/min	◎ 4~8 m/min	◎ 4~8 m/min				◎ 6~12 m/min			○ 7~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
								○ 3~5 m/min	○ 1~3 m/min			

● Delivery from stock
○ Available on short notice

Helicoil UNJF

GO TO LIVE STOCK CHECK



HIGH PERFORMANCE

- UNJF
- **Serie E :** for nickel based alloys including Inconel 718

HIGH PERFORMANCE

- UNJF
- **Serie E :** für Nickelbasislegierungen inkl. Inconel 718

ALTA PRESTAZIONE

- UNJF
- **Serie E :** per Inconel 718 ed altre leghe a base di Nickel

HAUTE PERFORMANCE

- Américain fin
- **Série E :** pour Inconel 718 et autres alliages sur base de Nickel

HIGH PERFORMANCE

- UNJF
- **Serie E**: Til nikkellegeringer inklusiv Inconel 718,

HIGH PERFORMANCE

- UNJF
- **Serie E**: för nickel legeringar inklusive Inconel 718,

ALTAS PRESTACIONES

- UNJF
- **Serie E** (Ni): para aleaciones de níquel incluido Inconel 718

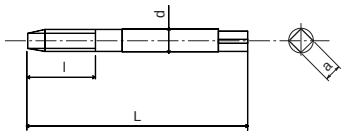
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- UNJF
- **Серия E**: для никелевых сплавов, включая Inconel 718



UNJF | PM | 10° | ANSI 3B

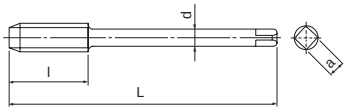
2,5 | DIN 2182



EDP	UNJF	P	L	l	d	a	ZΔ	Stock	Price
48015467	10	32	80	21	7	5,5	3	●	
48015472	1/4	28	90	27	8	6,2	3	●	
48015476	5/16	24	90	33	10	8,0	3	●	
48015481	3/8	24	100	38	12	9,0	3	●	

UNJF | PM | 10° | ANSI 3B

2,5 | DIN 2183



EDP	UNJF	P	L	l	d	a	ZΔ	Stock	Price
48015486	7/16	20	100	15	10	8	3	●	
48015491	1/2	20	100	16	12	9	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
									◎ 1~3 m/min			

● Delivery from stock
○ Available on short notice



BSW (WHITWORTH)
■ General purpose applications

BSW (WHITWORTH)
■ Für universelle Anwendungen

BSW (WHITWORTH)
■ Per applicazioni generali

BSW (WHITWORTH)
■ Pour applications générales

BSW (WHITWORTH)
■ Til generelt brug

BSW (WHITWORTH)
■ För diverse applikationer

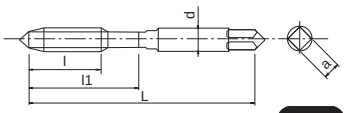
BSW (WHITWORTH)
■ Para aplicación general

BSW (WHITWORTH)
■ Общего назначения

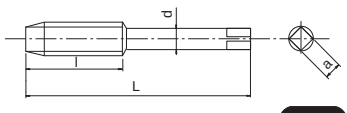
GO TO LIVE STOCK CHECK



BSW HSSE OX MED ISO 529



Type 2



Type 3

EDP	BSW	P	L	l	l1	d	a	ZΔ	Type	Stock	Price
T301009348	3/32	48	44,5	9,5	-	2,8	2,24	2	2	○	
22107024	1/8	40	48	11	18	3,15	2,50	3	2	○	
22107034	5/32	32	53	13	21	4,00	3,15	3	2	○	
22107044	3/16	24	58	16	25	5,00	4,00	3	2	○	
22107054	7/32	24	62	17	26	5,60	7,00	3	2	○	
22107064	1/4	20	66	19	30	6,30	5,00	3	2	○	
22107074	5/16	18	72	22	35	8,00	6,30	3	2	○	
22107084	3/8	16	80	24	39	10,00	8,00	3	2	○	
22107094	7/16	14	85	25	-	8,00	6,30	3	3	○	
22107104	1/2	12	89	29	-	9,00	7,10	3	3	○	
22107114	9/16	12	95	30	-	11,20	9,00	3	3	○	
22107124	5/8	11	102	32	-	12,50	10,00	3	3	○	
T301068711	11/16	11	112	37	-	14,00	11,20	3	3	○	
22107134	3/4	10	112	37	-	14,00	11,20	3	3	○	
22107144	7/8	9	118	38	-	16,00	12,50	3	3	○	
22107154	1	8	130	45	-	18,00	14,00	3	3	○	
22107164	1 1/8	7	138	48	-	20,00	16,00	4	3	○	
22107174	1 1/4	7	151	51	-	22,40	18,00	4	3	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~24 m/min	◎ 10~15 m/min	◎ 8~13 m/min	◎ 10~15 m/min	○ 7~11 m/min				◎ 8~16 m/min	○ 10~15 m/min	○ 10~15 m/min		○ 10~15 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	

● Delivery from stock
○ Available on short notice



BSW (WHITWORTH)
- General purpose applications

BSW (WHITWORTH)
- Für universelle Anwendungen

BSW (WHITWORTH)
- Per applicazioni generali

BSW (WHITWORTH)
- Pour applications générales

BSW (WHITWORTH)
- Til generelt brug

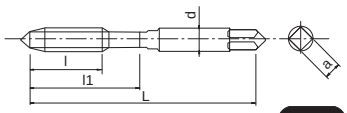
BSW (WHITWORTH)
- För diverse applikationer

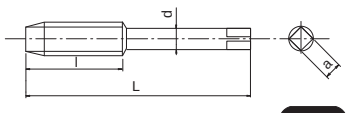
BSW (WHITWORTH)
- Para aplicación general

BSW (WHITWORTH)
- Общего назначения









EDP	BSW	P	L	l	l1	d	a	ZΔ	Type	Stock	Price
22207024	1/8	40	48	11	18	3,15	2,50	3	2	○	
22207034	5/32	32	53	13	21	4,00	3,15	3	2	○	
22207044	3/16	4	58	16	25	5,00	4,00	3	2	○	
22207054	7/32	24	62	17	26	5,60	7,00	3	2	○	
22207064	1/4	20	66	19	30	6,30	5,00	3	2	○	
22207544	9/32	20	66	19	30	7,10	5,60	3	2	○	
22207074	5/16	18	72	22	35	8,00	6,30	3	2	○	
22207084	3/8	16	80	24	39	10,00	8,00	3	2	○	
22207094	7/16	14	85	25	-	8,00	6,30	3	3	○	
22207104	1/2	12	89	29	-	9,00	7,10	3	3	○	
22207114	9/16	12	95	30	-	11,20	9,00	3	3	○	
22207124	5/8	11	102	32	-	12,50	10,00	3	3	○	
22207134	3/4	10	112	37	-	14,00	11,20	4	3	○	
22207144	7/8	9	118	38	-	16,00	12,50	4	3	○	
22207154	1	8	130	45	-	18,00	14,00	4	3	○	
22207164	1 1/8	7	138	48	-	20,00	16,00	4	3	○	
22207174	1 1/4	7	151	51	-	22,40	18,00	4	3	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 10~15 m/min	◎ 8~14 m/min	◎ 7~11 m/min	◎ 8~14 m/min	○ 7~11 m/min				◎ 7~12 m/min	○ 6~9 m/min	○ 7~14 m/min		○ 7~14 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	



BSW (WHITWORTH)
- Handtap
- For general purposes application

BSW (WHITWORTH)
- Hand Gewindebohrer
- Für universelle Anwendungen

BSW (WHITWORTH)
- Maschi a mano
- Per applicazioni generali

BSW (WHITWORTH)
- Tarauds à main
- Pour applications générales

BSW (WHITWORTH)
- Håndtappe
- Til generelt brug

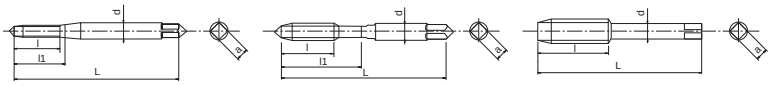
BSW (WHITWORTH)
- Handtapp
- För allround bearbetning

BSW (WHITWORTH)
- Machos de mano
- Para aplicación general

BSW (WHITWORTH)
- Ручной метчик
- Общего назначения

BSW HSSE MED

ISO 529



EDP	BSW	P	L	l	l1	d	a	ZΔ	Type	Stock	Price
22037000	1/16	60	41	8	-	2,50	2,00	3	1	○	
22037010	3/32	48	44,5	9,5	-	2,80	2,24	3	1	○	
22037020	1/8	40	48	11	18	3,15	2,50	3	2	○	
22037030	5/32	32	53	13	21	4,00	3,15	3	2	○	
22037040	3/16	24	58	16	25	5,00	4,00	3	2	○	
22037050	7/32	24	62	17	26	5,60	7,00	3	2	○	
22037060	1/4	20	66	19	30	6,30	5,00	3	2	○	
22037540	9/32	20	66	19	30	7,10	5,60	4	2	○	
22037070	5/16	18	72	22	35	8,00	6,30	4	2	○	
22037080	3/8	16	80	24	39	10,00	8,00	4	2	○	
22037090	7/16	14	85	25	-	8,00	6,30	4	3	○	
22037100	1/2	12	89	29	-	9,00	7,10	4	3	○	
22037110	9/16	12	95	30	-	11,20	9,00	4	3	○	
22037120	5/8	11	102	32	-	12,50	10,00	4	3	○	
T300068711	11/16	11	112	37	-	14,00	11,20	4	3	○	
22037130	3/4	10	112	37	-	14,00	11,20	4	3	○	
22037140	7/8	9	118	38	-	16,00	12,50	4	3	○	
22037150	1	8	130	45	-	18,00	14,00	4	3	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
	○ 7~12 m/min											○ 7~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
	○ 10~15 m/min	○ 10~15 m/min	○ 6~11 m/min	○ 10~20 m/min	○ 10~15 m/min	○ 7~12 m/min	○ 7~12 m/min					

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

BSF

BSF

GO TO LIVE STOCK CHECK



BSF (WHITWORTH FINE)
- General purpose applications

BSF (WHITWORTH FINE)
- Für universelle Anwendungen

BSF (WHITWORTH FINE)
- Per applicazioni generali

BSF (WHITWORTH FINE)
- Pour applications générales

BSF (WHITWORTH FINE)
- Til generelt brug

BSF (WHITWORTH FINE)
- För diverse applikationer

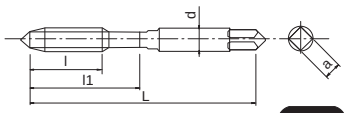
BSF (WHITWORTH FINE)
- Para aplicación general

BSF (WHITWORTH FINE)
- Общего назначения

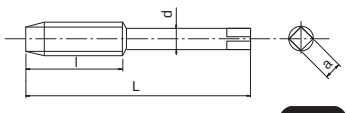


BSF HSSE OX MED

4 ISO 529



Type 2



Type 3

EDP	BSF	P	L	l	l1	d	a	ZΔ	Type	Stock	Price
22107554	3/16	32	58	16	25	5,00	4,00	3	2	○	
22107564	7/32	28	62	17	26	5,60	4,50	3	2	○	
22107314	1/4	26	66	19	30	6,30	5,00	3	2	○	
22107574	9/32	26	66	19	30	7,10	5,60	3	2	○	
22107324	5/16	22	72	22	35	8,00	6,30	3	2	○	
22107334	3/8	20	80	24	39	10,00	8,00	3	2	○	
22107344	7/16	18	85	25	-	8,00	6,30	3	3	○	
22107354	1/2	16	89	29	-	9,00	7,10	3	3	○	
22107364	9/16	16	95	30	-	11,20	9,00	3	3	○	
22107374	5/8	14	102	32	-	12,50	10,00	3	3	○	
T311068714	11/16	14	112	37	-	14,00	11,20	3	3	○	
22107394	3/4	12	112	37	-	14,00	11,20	3	3	○	
22107414	7/8	11	118	38	-	16,00	12,50	3	3	○	
22107424	1	10	130	45	-	18,00	14,00	3	3	○	
22107434	1 1/8	9	138	48	-	20,00	16,00	4	3	○	
22107444	1 1/4	9	151	51	-	22,40	18,00	4	3	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~24 m/min	◎ 10~15 m/min	◎ 8~13 m/min	◎ 10~15 m/min	○ 7~11 m/min				◎ 8~16 m/min	○ 10~15 m/min			○ 10~15 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	

GO TO LIVE STOCK CHECK



BSF (WHITWORTH FINE)
- General purpose applications

BSF (WHITWORTH FINE)
- Für universelle Anwendungen

BSF (WHITWORTH FINE)
- Per applicazioni generali

BSF (WHITWORTH FINE)
- Pour applications générales

BSF (WHITWORTH FINE)
- Til generelt brug

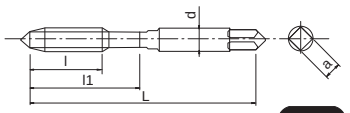
BSF (WHITWORTH FINE)
- För diverse applikationer

BSF (WHITWORTH FINE)
- Para aplicación general

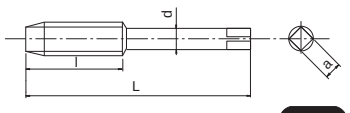
BSF (WHITWORTH FINE)
- Общего назначения



BSF | HSSE | OX | 40° | MED | 2,5 | ISO 529



Type 2



Type 3

EDP	BSF	P	L	l	l1	d	a	ZΔ	Type	Stock	Price
22207554	3/16	32	58	16	25	5,00	4,00	3	2	○	
22207564	7/32	28	62	17	26	5,60	4,50	3	2	○	
22207314	1/4	26	66	19	30	6,30	5,00	3	2	○	
22207324	5/16	22	72	22	35	8,00	6,30	3	2	○	
22207334	3/8	20	80	24	39	10,00	8,00	3	2	○	
22207344	7/16	18	85	25	-	8,00	6,30	3	3	○	
22207354	1/2	16	89	29	-	9,00	7,10	3	3	○	
22207364	9/16	16	95	30	-	11,20	9,00	3	3	○	
22207374	5/8	14	102	32	-	12,50	10,00	3	3	○	
22207394	3/4	12	112	37	-	14,00	11,20	4	3	○	
22207414	7/8	11	118	38	-	16,00	12,50	4	3	○	
22207424	1	10	130	45	-	18,00	14,00	4	3	○	
22207434	1 1/8	9	138	48	-	20,00	16,00	4	3	○	
22207444	1 1/4	9	151	51	-	22,40	18,00	4	3	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 10~15 m/min	◎ 8~14 m/min	◎ 7~11 m/min	◎ 8~14 m/min	○ 7~11 m/min				◎ 7~12 m/min	○ 6~9 m/min	○ 7~14 m/min		○ 7~14 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	

● Delivery from stock
○ Available on short notice



BSF (WHITWORTH FINE)
- Handtaps
- For general purposes application

BSF (WHITWORTH FINE)
- Hand Gewindebohrer
- Für universelle Anwendungen

BSF (WHITWORTH FINE)
- Maschi a mano
- Per applicazioni generali

BSF (WHITWORTH FINE)
- Tarauds à main
- Pour applications générales

BSF (WHITWORTH FINE)
- Håndtappe
- Til generelt brug

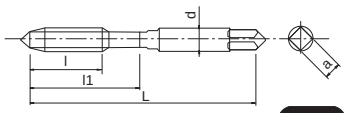
BSF (WHITWORTH FINE)
- Handtapp
- För allround bearbetning

BSF (WHITWORTH FINE)
- Machos de mano
- Para aplicación general

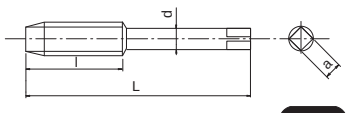
BSF (WHITWORTH FINE)
- Ручной метчик
- Общего назначения

BSF HSSE MED

2,5 ISO 529



Type 2



Type 3

EDP	BSF	P	L	l	l1	d	a	ZΔ	Type	Stock	Price
22037550	3/16	32	58	16	25	5,00	4,00	3	2	○	
22037560	7/32	28	62	17	26	5,60	4,50	3	2	○	
22037310	1/4	26	66	19	30	6,30	5,00	4	2	○	
22037570	9/32	26	66	19	30	7,10	5,60	4	2	○	
22037320	5/16	22	72	22	35	8,00	6,30	4	2	○	
X310034322B	11/32	22	72	22	36	9,00	7,10	4	2	○	
22037330	3/8	20	80	24	39	10,00	8,00	4	2	○	
22037340	7/16	18	85	25	-	8,00	6,30	4	3	○	
22037350	1/2	16	89	29	-	9,00	7,10	4	3	○	
22037360	9/16	16	95	30	-	11,20	9,00	4	3	○	
22037370	5/8	14	102	32	-	12,50	10,00	4	3	○	
T310068714	11/16	14	112	37	-	14,00	11,20	4	3	○	
22037390	3/4	12	112	37	-	14,00	11,20	4	3	○	
22037410	7/8	11	118	38	-	16,00	12,50	4	3	○	
22037420	1	10	130	45	-	18,00	14,00	4	3	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
	○ 7~12 m/min											○ 7~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
	○ 10~15 m/min	○ 10~15 m/min	○ 6~11 m/min	○ 10~20 m/min	○ 10~15 m/min	○ 7~12 m/min	○ 7~12 m/min					



BA (British Association)
- General purpose applications

BA (British Association)
- Für universelle Anwendungen

BA (British Association)
- Per applicazioni generali

BA (British Association)
- Pour applications générales

BA (British Association)
- Til generelt brug

BA (British Association)
- För diverse applikationer

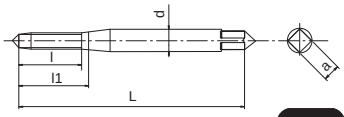
BA (British Association)
- Para aplicación general

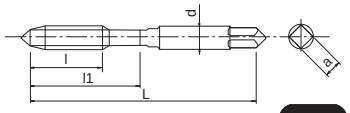
BA (British Association)
- Общего назначения



BA HSSE OX

4 ISO 529





EDP	BA	P	L	l	l1	d	a	ZΔ	Type	Stock	Price
22109100	0	-	66,0	19,0	30	6,30	5,00	3	2	○	
22109110	1	-	62,0	17,0	26	5,60	4,50	3	2	○	
22109120	2	-	58,0	16,0	25	5,00	4,00	3	2	○	
22109130	3	-	53,0	13,0	21	4,50	3,55	3	2	○	
22109140	4	-	50,0	13,0	20	3,55	2,80	3	2	○	
22109150	5	-	48,0	11,0	18	3,15	2,50	3	2	○	
22109160	6	-	44,5	9,5	-	2,80	2,24	2	1	○	
22109170	7	-	44,5	9,5	-	2,80	2,24	2	1	○	
22109180	8	-	44,5	9,5	-	2,80	2,24	2	1	○	
22109190	9	-	41,0	8,0	-	2,50	2,00	2	1	○	
22109200	10	-	41,0	8,0	-	2,50	2,00	2	1	○	
22109210	11	-	40,0	8,0	-	2,50	2,00	2	1	○	
22109220	12	-	40,0	8,0	-	2,50	2,00	2	1	○	
22109230	13	-	38,5	8,0	-	2,50	2,00	2	1	○	
22109240	14	-	38,5	8,0	-	2,50	2,00	2	1	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~24 m/min	◎ 10~15 m/min	◎ 8~13 m/min	◎ 10~15 m/min	○ 7~11 m/min				◎ 8~16 m/min	○ 10~15 m/min	○ 10~15 m/min		○ 10~15 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	

● Delivery from stock
○ Available on short notice

GO TO LIVE STOCK CHECK



BA (British Association)
- For steels 25~45 HRC

BA (British Association)
- Für Stahl 25~45 HRC

BA (British Association)
- Per acciai 25~45 HRC

BA (British Association)
- Pour aciers 25~45 HRC

BA (British Association)
- Til stål 25~45 HRC

BA (British Association)
- För stål 25~45 HRC

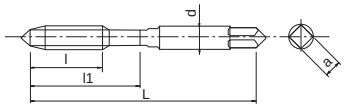
BA (British Association)
- Para aceros 25~45 HRC

BA (British Association)
- Для сталей 25~45 HRC



BA PM OX

5 ISO 529



EDP	BA	P	L	l	l1	d	a	ZΔ	Stock	Price
23109120	2	-	58,0	16,0	25	5,00	4,00	3	○	
23109140	4	-	50,0	13,0	20	3,55	2,80	2	○	
23109160	6	-	44,5	9,5	-	2,80	2,24	2	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
		◎ 8~13 m/min		◎ 6~10 m/min	◎ 6~10 m/min				◯ 7~10 m/min			◯ 10~15 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	

● Delivery from stock
○ Available on short notice



BA (British Association)
- General purpose applications

BA (British Association)
- Für universelle Anwendungen

BA (British Association)
- Per applicazioni generali

BA (British Association)
- Pour applications générales

BA (British Association)
- Til generelt brug

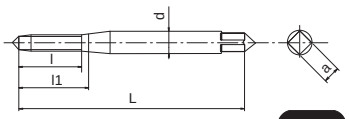
BA (British Association)
- För diverse applikationer

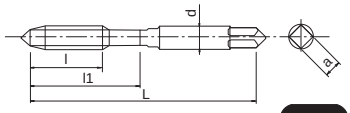
BA (British Association)
- Para aplicación general

BA (British Association)
- Общего назначения



BA | HSSE | OX | 40° | 2,5 | ISO 529





EDP	BA	P	L	l	l1	d	a	ZΔ	Type	Stock	Price
22209100	0	-	66,0	19,0	30	6,30	5,00	3	2	○	
22209110	1	-	62,0	17,0	26	5,60	4,50	3	2	○	
22209120	2	-	58,0	16,0	25	5,00	4,00	3	2	○	
22209130	3	-	53,0	13,0	21	4,50	3,55	3	2	○	
22209140	4	-	50,0	13,0	20	3,55	2,80	3	2	○	
22209150	5	-	48,0	11,0	18	3,15	2,50	3	2	○	
22209160	6	-	44,5	9,5	-	2,80	2,24	2	1	○	
22209170	7	-	44,5	9,5	-	2,80	2,24	2	1	○	
22209180	8	-	44,5	9,5	-	2,80	2,24	2	1	○	
22209190	9	-	41,0	8,0	-	2,50	2,00	2	1	○	
22209200	10	-	41,0	8,0	-	2,50	2,00	2	1	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 10~15 m/min	◎ 8~14 m/min	◎ 7~11 m/min	◎ 8~14 m/min	○ 7~11 m/min				◎ 7~12 m/min	○ 6~9 m/min	○ 7~14 m/min		○ 7~14 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice



BA (British Association)
- For steels 25~45 HRC

BA (British Association)
- Für Stahl 25~45 HRC

BA (British Association)
- Per acciai 25~45 HRC

BA (British Association)
- Pour acier 25~45 HRC

BA (British Association)
- Til stål 25~45 HRC

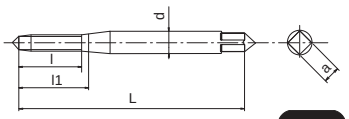
BA (British Association)
- För stål 25~45 HRC

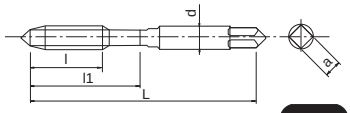
BA (British Association)
- Para aceros 25~45 HRC

BA (British Association)
- Для сталей 25~45 HRC



BA | PM | OX | 15° | 3 | ISO 529





EDP	BA	P	L	l	l1	d	a	ZΔ	Type	Stock	Price
23209120	2	-	58,00	16,0	25	5,00	4,00	3	2	○	
23209140	4	-	50,00	13,0	20	3,55	2,80	2	2	○	
23209160	6	-	44,50	9,5	-	2,80	2,24	2	1	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
		◎ 6~12 m/min	○ 7~12 m/min	◎ 4~8 m/min	◎ 4~8 m/min				○ 6~12 m/min	○ 7~15 m/min	○ 7~12 m/min	○ 7~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	



BA (British Association)
- Handtaps
- For general purposes application

BA (British Association)
- Hand Gewindebohrer
- Für universelle Anwendungen

BA (British Association)
- Maschi a mano
- Per applicazioni generali

BA (British Association)
- Tarauds à main
- Pour applications générales

BA (British Association)
- Håndtappe
- Til generelt brug

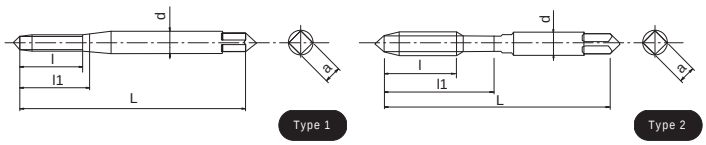
BA (British Association)
- Handtapp
- För allround bearbetning

BA (British Association)
- Machos de mano
- Para aplicación general

BA (British Association)
- Ручной метчик
- Общего назначения



BA HSSE ISO 529 2,5



EDP	BA	P	L	l	l1	d	a	ZΔ	Type	Stock	Price
22039100	0	-	66,0	19,0	30	6,30	5,00	3	2	○	
22039110	1	-	62,0	17,0	26	5,60	4,50	3	2	○	
22039120	2	-	58,0	16,0	25	5,00	4,00	3	2	○	
22039130	3	-	53,0	13,0	21	4,50	3,55	3	2	○	
22039140	4	-	50,0	13,0	20	3,55	2,80	3	2	○	
22039150	5	-	48,0	11,0	18	3,15	2,50	3	2	○	
22039160	6	-	44,5	9,5	-	2,80	2,24	3	1	○	
22039170	7	-	44,5	9,5	-	2,80	2,24	3	1	○	
22039180	8	-	44,5	9,5	-	2,80	2,24	3	1	○	
22039190	9	-	41,0	8,0	-	2,50	2,00	3	1	○	
22329200	10	-	41,0	8,0	-	2,50	2,00	3	1	○	
22039210	11	-	40,0	8,0	-	2,50	2,00	3	1	○	
22039220	12	-	40,0	8,0	-	2,50	2,00	3	1	○	
22039230	13	-	38,5	8,0	-	2,50	2,00	3	1	○	
22039240	14	-	38,5	8,0	-	2,50	2,00	3	1	○	
22039250	15	-	38,5	8,0	-	2,50	2,00	3	1	○	
22039260	16	-	38,5	8,0	-	2,50	2,00	2	1	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
	○ 7~12 m/min											○ 7~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
	○ 10~15 m/min	○ 10~15 m/min	○ 6~11 m/min	○ 10~20 m/min	○ 10~15 m/min	○ 7~12 m/min	○ 7~12 m/min					

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

G (BSP)

GO TO LIVE STOCK CHECK



G (BSP)
- General purpose applications

G (BSP)
- Für universelle Anwendungen

G (BSP)
- Per applicazioni generali

G (BSP)
- Pour applications générales

G (BSP)
- Til generelt brug

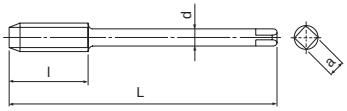
G (BSP)
- För allround bearbetning

G (BSP)
- Para aplicación general

G (BSP)
- Общего назначения



G | HSSE | ISO 228 | 4 | DIN 259 | DIN 5156



EDP	G	P	L	l	d	a	ZΔ	Stock	Price
63581900	1/8	28	90	16	7	5,5	3	●	
63582000	1/4	19	100	20	11	9,0	3	●	
63582100	3/8	19	100	22	12	9,0	3	●	
63582200	1/2	14	125	25	16	12,0	3	●	
63582300	5/8	14	125	25	18	14,5	4	●	
63582400	3/4	14	140	28	20	16,0	4	●	
63582500	7/8	14	150	28	22	18,0	4	●	
63582600	1	11	160	30	25	20,0	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
○ 12~20 m/min	○ 8~12 m/min	○ 7~12 m/min	○ 8~12 m/min							○ 8~12 m/min		○ 8~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 10~15 m/min	○ 15~25 m/min	○ 15~25 m/min	○ 10~20 m/min	○ 15~25 m/min	○ 15~20 m/min	○ 10~15 m/min	◎ 10~15 m/min				○ 8~16 m/min	

● Delivery from stock
○ Available on short notice

G (BSP)

GO TO LIVE STOCK CHECK



G (BSP)
- General purpose applications

G (BSP)
- Für universelle Anwendungen

G (BSP)
- Per applicazioni generali

G (BSP)
- Pour applications générales

G (BSP)
- Til generelt brug

G (BSP)
- För allround bearbetning

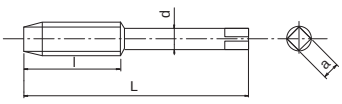
G (BSP)
- Para aplicación general

G (BSP)
- Общего назначения



G HSSE ISO 2284





EDP	G (BSP)	P	L	l	d	a	ZΔ	Stock	Price
22408004	1/8	28	52	15	8,0	6,30	3	○	
22408014	1/4	19	67	19	10,0	8,00	3	○	
22408024	3/8	16	75	21	12,5	10,00	3	○	
22408034	1/2	14	87	26	16,0	12,50	3	○	
22408044	5/8	14	91	26	18,0	14,00	4	○	
22408054	3/4	14	96	28	20,0	16,00	4	○	
22408074	1	11	109	33	25,0	20,00	4	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~24 m/min	◎ 10~15 m/min	◎ 8~13 m/min	◎ 10~15 m/min					◎ 8~16 m/min	○ 10~15 m/min	○ 10~15 m/min		○ 10~15 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 12~17 m/min											○ 10~20 m/min	

● Delivery from stock
○ Available on short notice

G (BSP)

GO TO LIVE STOCK CHECK



G (BSP)
- General purpose, also for stainless steel

G (BSP)
- Für universelle Anwendungen und VA - Stahl

G (BSP)
- Per applicazioni generali e per inox

G (BSP)
- Pour applications générales et pour des aciers inox

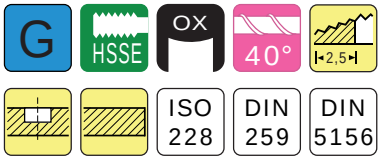
G (BSP)
- Til generelt brug, også til rustfrit stål

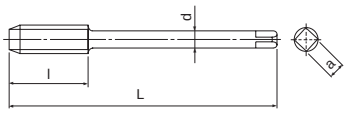
G (BSP)
- För allround bearbetning och för rostfritt stål

G (BSP)
- Para aplicación general, para aceros inoxidables

G (BSP)
- Общего назначения и для нержавеющих сталей







EDP	G	P	L	l	d	a	ZΔ	Stock	Price
65881909	1/8	28	90	11	7	5,5	4	●	
65882009	1/4	19	100	16	11	9,0	4	●	
65882109	3/8	19	100	16	12	9,0	5	●	
65882209	1/2	14	125	22	16	12,0	5	●	
65882309	5/8	14	125	22	18	14,5	5	●	
65882409	3/4	14	140	22	20	16,0	5	●	
65882509	7/8	14	150	22	22	18,0	5	●	
65882609	1	11	160	28	25	20,0	5	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 10~15 m/min	◎ 8~14 m/min	◎ 7~11 m/min	◎ 8~14 m/min					◎ 7~12 m/min	○ 7~11 m/min	○ 7~14 m/min		○ 7~14 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 10~15 m/min											◎ 10~15 m/min	

● Delivery from stock
○ Available on short notice

G (BSP)

GO TO LIVE STOCK CHECK



G (BSP)
- For general purposes application

G (BSP)
- Für universelle Anwendungen

G (BSP)
- Per applicazioni generali

G (BSP)
- Pour applications générales

G (BSP)
- Til generelt brug

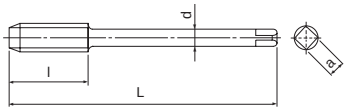
G (BSP)
- För allround bearbetning

G (BSP)
- Para aplicación general

G (BSP)
- Общего назначения



G | HSSE | 40° | ISO 228 | 2,5 | DIN 259 | DIN 5156



EDP	G	P	L	l	d	a	ZΔ	Stock	Price
63681900	1/8	28	90	16	7	5,5	3	●	
63682000	1/4	19	100	20	11	9,0	3	●	
63682100	3/8	19	100	22	12	9,0	3	●	
63682200	1/2	14	125	25	16	12,0	4	●	
63682300	5/8	14	125	25	18	14,5	4	●	
63682400	3/4	14	140	28	20	16,0	4	●	
63682500	7/8	14	150	28	22	18,0	4	●	
63682600	1	11	160	30	25	20,0	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
○ 8~13 m/min	○ 7~12 m/min	○ 6~9 m/min	○ 7~12 m/min							○ 6~11 m/min		○ 6~8 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 6~11 m/min	○ 10~20 m/min	○ 10~20 m/min	○ 6~11 m/min	○ 10~20 m/min	○ 10~15 m/min	○ 7~12 m/min	○ 7~12 m/min				○ 10~15 m/min	

● Delivery from stock
○ Available on short notice



G (BSP)
- For general purposes application

G (BSP)
- Für universelle Anwendungen

G (BSP)
- Per applicazioni generali

G (BSP)
- Pour applications générales

G (BSP)
- Til generelt brug

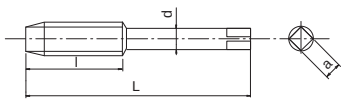
G (BSP)
- För allround bearbetning

G (BSP)
- Para aplicación general

G (BSP)
- Общего назначения







EDP	G(BSP)	P	L	l	d	a	ZΔ	Stock	Price
22418004	1/8	28	59	11	8,00	6,30	3	○	
22418014	1/4	19	67	19	10,00	8,00	3	○	
22418024	3/8	19	75	21	12,50	10,00	3	○	
22418034	1/2	14	87	26	16,00	12,50	4	○	
22418044	5/8	14	91	26	18,00	14,00	4	○	
22418054	3/4	14	96	28	20,00	16,00	4	○	
22418074	1	11	109	33	25,00	20,00	4	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 10~15 m/min	◎ 8~15 m/min	◎ 7~11 m/min	◎ 8~14 m/min	○ 7~11 m/min				◎ 7~12 m/min	○ 6~9 m/min	○ 7~14 m/min		○ 7~14 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	

CC-SFT-SPT



G (BSP)

- For stainless steels, aluminium and steel
- For threading depth ≥ 2 D
- Developed for CNC machines equipped with rigid tapping
- For pilot hole use OSG EX-SUS-GDS (p.C.70)

G (BSP)

- Für VA-Stahl, Aluminium und Stahl
- Für Gewindetiefe ≥ 2 D
- Für CNC Maschinen mit Synchronspindeln
- Für die Kernlochbearbeitung EX-SUS-GDS verwenden (p.C.70)

G (BSP)

- Per acciai inox, alluminio e acciai
- Per profondità di filettatura ≥ 2 D
- Per le macchine CNC che hanno un programma di sincronizzazione tra la velocità e l'avanzamento
- Utilizzate OSG EX-SUS-GDS per foro pilota (p.C.70)

G (BSP)

- Pour inox, aluminium et aciers
- Profondeur de taraudage ≥ 2 D
- Développé pour les machines CNC qui ont le "taraudage rigide"
- Pour trou pilote utiliser OSG EX-SUS-GDS (p.C.70)

G (BSP)

- Til rustfrit stål, aluminium og stål
- Til gevinddybde ≥ 2D
- Udviklet til CNC maskine udstyret med fast tapholder
- For boring af pilot hul brug OSG EX-SUS-GDS (p.C.70)

G (BSP)

- För rostfritt stål, aluminium och stål
- För gängdjup < 2D
- Utvecklat för CNC-maskiner som är utrustade med gängfunktion
- För pilot hål använd OSG EX-SUS-GDS (p.C.70)

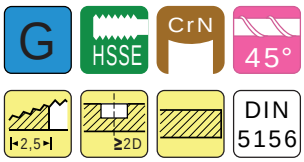
G (BSP)

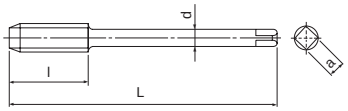
- Para aceros inoxidables, aluminio y aceros
- Para roscado ≥ 2D
- Desarrollados para máquinas CNC aptas para roscado rígido
- Para agujero previo use EX-SUS-GDS (p.C.70)

G (BSP)

- Для нержавеющих сталей и алюминия
- Для резьб глубиной ≥ 2D
- Разработаны для ЧПУ станков имеющих циклы жесткой нарезки резьбы
- Для пилотного отверстия используйте OSG EX-SUS-GDS (p.C.70)







EDP	G	P	L	l	d	a	ZΔ	Stock	Price
48034838	1/8	28	90	10	7	5,5	3	●	
48034839	1/4	19	100	15	11	9,0	4	●	
48034840	3/8	19	100	15	12	9,0	4	●	
48034841	1/2	14	125	20	16	12,0	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~25 m/min	◎ 15~25 m/min	◎ 10~25 m/min	○ 10~25 m/min					◎ 6~10 m/min				

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 15~24 m/min				◎ 15~35 m/min								

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

G (BSP)

GO TO LIVE STOCK CHECK



G (BSP)
- For alloyed steels ≥ 1100 N/mm²
- Forming short chips
- Low helix

G (BSP)
- Für legierten Stahl ≥ 1100 N/mm²
- Für kurzspanende Werkstoffe
- Leichte Spirale

G (BSP)
- Per acciai legati ≥ 1100 N/mm²
- Formano trucioli corti
- Elica a bassa torsione

G (BSP)
- Pour aciers alliés ≥ 1100 N/mm²
- Formant des copeaux courts
- Hélice réduite

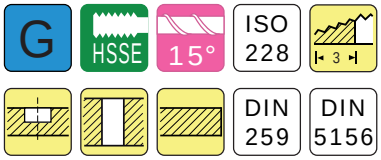
G (BSP)
- Til legeret stål ≥ 1100 N/mm²
- Giver korte spåner
- Let snoet spiral

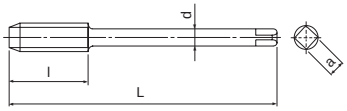
G (BSP)
- För legerade stål ≥ 1100 N/mm²
- Formar korta spånor
- Liten helix

G (BSP)
- Para aceros aleados ≥ 1100 N/mm²
- Formación de virutas cortas
- Helice lenta

G (BSP)
- для легированных сталей ≥ 1100Н/мм²
- Формирует короткую стружку
- Пологая спираль







EDP	G	P	L	l	d	a	ZΔ	Stock	Price
72281900	1/8	28	90	16	7	5,5	3	●	
72282000	1/4	19	100	20	11	9,0	4	●	
72282100	3/8	19	100	22	12	9,0	4	●	
72282200	1/2	14	125	25	16	12,0	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
	○ 7~12 m/min	○ 6~9 m/min	○ 7~12 m/min								○ 7~12 m/min	○ 6~8 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
	○ 10~20 m/min	○ 10~20 m/min	○ 6~11 m/min		○ 10~15 m/min		○ 7~12 m/min				○ 7~12 m/min	

● Delivery from stock
○ Available on short notice

G (BSP)



G (BSP)

- For gray cast iron & cast aluminium < 11 % Si

G (BSP)

- Für Grauguss und Aluminiumguss < 11 % Si

G (BSP)

- Per ghisa grigia, ghisa d'alluminio < 11 % Si

G (BSP)

- Pour fonte grise, fonte d'aluminium < 11 % Si

G (BSP)

- Til støbejern & støbt aluminium < 11 % Si

G (BSP)

- För gjutjärn & gjuten aluminium

G (BSP)

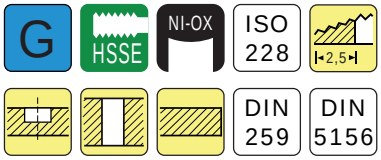
- Para fundición de hierro y aluminio fundido < 11 % Si

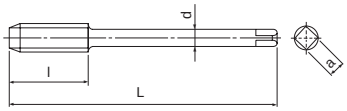
G (BSP)

- Для серого чугуна и литейных алюминиевых сплавов < 11 % Si

GO TO LIVE STOCK CHECK







EDP	G	P	L	l	d	a	ZΔ	Stock	Price
67681900	1/8	28	90	16	7	5,5	4	●	
67682000	1/4	19	100	20	11	9,0	4	●	
67682100	3/8	19	100	22	12	9,0	4	●	
67682200	1/2	14	125	25	16	12,0	4	●	

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Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
											◎ 10~15 m/min	◎ 7~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
	○ 10~15 m/min	○ 10~15 m/min	○ 6~11 m/min									

● Delivery from stock
○ Available on short notice

G (BSP)

GO TO LIVE STOCK CHECK



G (BSP)
- For hardened steels < 62 HRC
- Use max. possible drill size
- Use oil coolant

G (BSP)
- für gehärtete Stähle < 62 HRC
- bitte Kernloch größtmöglich vorbohren
- bitte Schneidöl verwenden

G (BSP)
- Per acciai temprati < 62 HRC
- Usare il diametro massimo di foratura
- Usare olio intero

G (BSP)
- Pour aciers traités à < 62 HRC
- Préforage le plus grand possible
- Arrosage à l'huile

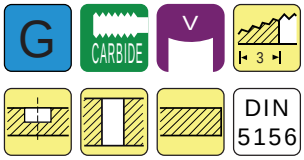
G (BSP)
- Til varmebehandlet stål < 62 HRC
- Anvend størst muligt gevindbor
- Anvend olie køling

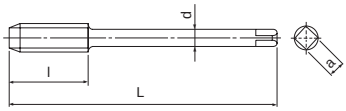
G (BSP)
- För härdat stål < 62 HRC
- Använd största möjliga hål diameter
- Använd olje kylning

G (BSP)
- Para aceros templados hasta 62 HRC
- Utilice el mayor diametro de broca posible
- Utilice aceite de corte

G (BSP)
- Для улучшенных сталей < 62 HRC
- Используйте максимально возможный диаметр пилотного отверстия
- используйте масло для охлаждения







EDP	G	P	L	l	d	a	ZΔ	Stock	Price
48080838	1/8	28	90	11	7	5,5	5	●	
48080839	1/4	19	100	16	11	9	5	●	
48080840	3/8	19	100	16	12	9	6	●	
48080841	1/2	14	125	22	16	12	6	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
							1~3 m/min					

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	

● Delivery from stock
○ Available on short notice



G (BSP)
- High performance forming tap

G (BSP)
- Hochleistungsgewindeformer

G (BSP)
- Maschio a rullare ad alta performance

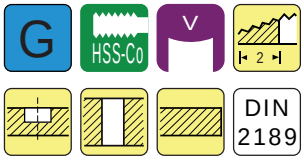
G (BSP)
- Taraud à refoulé à haute performance

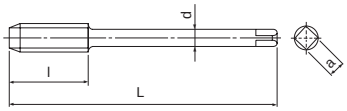
G (BSP)
- High Performance rulletap

G (BSP)
- High performance pressgängtapp

G (BSP)
- Alta prestaciones, macho de laminación

G (BSP)
- Высокопроизводительные накатные метчики





EDP	G	P	L	l	d	a	Drill Hole size	ZΔ	Stock	Price
48064838	1/8	28	90	9	7	5,5	9,24 ~ 9,35	8	●	
48064839	1/4	19	100	13	11	9	12,41 ~ 12,62	8	●	
48064840	3/8	19	100	13	12	9	15,92 ~ 16,12	8	●	
48064841	1/2	14	125	18	16	12	19,93 ~ 20,15	8	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~40 m/min	◎ 15~40 m/min	◎ 15~30 m/min	◎ 15~30 m/min	◎ 5~20 m/min				◎ 8~20 m/min		○ 15~40 m/min		

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
◎ 10~30 m/min	◎ 10~30 m/min	◎ 10~30 m/min		◎ 20~50 m/min	◎ 20~40 m/min		○ 10~30 m/min					

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

RC (BSPT)

GO TO LIVE STOCK CHECK



RC (BSPT)
- Tapered 1:16
- General purpose applications

RC (BSPT)
- Kegelform 1:16
- Für universelle Anwendungen

RC (BSPT)
- Conicità 1:16
- Per applicazioni generali

RC (BSPT)
- Conicité 1:16
- Pour applications générales

RC (BSPT)
- Konicitet 1:16
- Til generelt brug

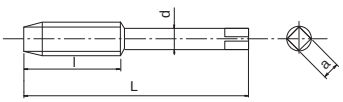
RC (BSPT)
- Konisk 1:16
- För diverse applikationer

RC (BSPT)
- Conicidad 1:16
- Para aplicación general

RC (BSPT)
- Уклон 1:16
- Общего назначения



Rc | HSSE | OX | 2,5 | ISO 2284



EDP	RC(BSPT)	P	L	l	d	a	ZΔ	Stock	Price
22608384	1/8	28	52	15	8,0	6,30	3	○	
22608394	1/4	19	67	19	10,0	8,00	4	○	
22608404	3/8	19	75	21	12,50	10,00	4	○	
22608414	1/2	14	87	26	16,00	12,50	4	○	
22608434	3/4	14	96	28	20,00	16,00	4	○	
22608454	1	11	109	33	25,00	20,00	4	○	

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Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~24 m/min	◎ 10~15 m/min	◎ 8~13 m/min	◎ 10~15 m/min	○ 7~11 m/min				◎ 8~16 m/min	○ 10~15 m/min	○ 10~15 m/min		○ 10~15 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	

● Delivery from stock
○ Available on short notice

RC (BSPT)

RC (BSPT)

GO TO LIVE STOCK CHECK



RC (BSPT)
- Tapered 1:16
- General purpose applications

RC (BSPT)
- Kegelform 1:16
- Für universelle Anwendungen

RC (BSPT)
- Conicità 1:16
- Per applicazioni generali

RC (BSPT)
- Conicité 1:16
- Pour applications générales

RC (BSPT)
- Konicitet 1:16
- Til generelt brug

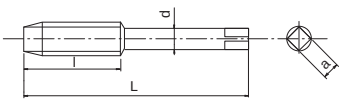
RC (BSPT)
- Konisk 1:16
- För diverse applikationer

RC (BSPT)
- Conicidad 1:16
- Para aplicación general

RC (BSPT)
- Уклон 1:16
- Общего назначения



Rc | HSSE | OX | 30° | 2,5 | ISO 2284



EDP	RC(BSPT)	P	L	l	d	a	ZΔ	Stock	Price
22618384	1/8	28	52	15	8,0	6,30	3	○	
22618394	1/4	19	67	19	10,0	8,00	4	○	
22618404	3/8	19	75	21	12,50	10,00	4	○	
22618414	1/2	14	87	26	16,00	12,50	4	○	
22618434	3/4	14	96	28	20,00	16,00	4	○	
22618454	1	11	109	33	25,00	20,00	4	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 10~15 m/min	◎ 8~14 m/min	◎ 7~11 m/min	◎ 8~14 m/min	○ 7~11 m/min				◎ 7~12 m/min	○ 6~9 m/min	○ 7~14 m/min		○ 7~14 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	

● Delivery from stock
○ Available on short notice



NPT
- Tapered 1:16
- General purpose applications

NPT
- Kegelform 1:16
- Für universelle Anwendungen

NPT
- Conicità 1:16
- Per applicazioni generali

NPT
- Conicité 1:16
- Pour application générales

NPT
- Konicitet 1:16
- Til generelt brug

NPT
- Konisk 1:16
- För diverse applikationer

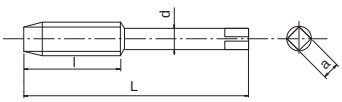
NPT
- Conicidad 1:16
- Para aplicación general

NPT
- Уклон 1:16
- Общего назначения

NPT HSSE OX



2,5 BS949 1951



EDP	NPT	P	L	l	d	a	ZΔ	Stock	Price
22628764	1/8	27	2 1/8	3/4	0,318	0,238	3	○	
22628774	1/4	18	2 7/16	1 1/16	0,429	0,322	4	○	
22628784	3/8	18	2 9/16	1 1/16	0,542	0,406	4	○	
22628794	1/2	14	3 1/8	1 3/8	0,687	0,515	4	○	
22628804	3/4	14	3 1/4	1 3/8	0,906	0,679	4	○	
22628814	1	11 1/2	3 3/4	1 3/4	1,125	0,843	4	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 15~24 m/min	◎ 10~15 m/min	◎ 8~13 m/min	◎ 10~15 m/min	○				◎ 8~16 m/min	○ 10~15 m/min	○ 10~15 m/min		○ 10~15 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	

NPT

NPT

GO TO LIVE STOCK CHECK



NPT
- Tapered 1:16
- General purpose applications

NPT
- Kegelform 1:16
- Für universelle Anwendungen

NPT
- Conicità 1:16
- Per applicazioni generali

NPT
- Conicité 1:16
- Pour application générales

NPT
- Konicitet 1:16
- Til generelt brug

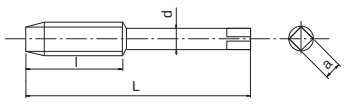
NPT
- Konisk 1:16
- För diverse applikationer

NPT
- Conicidad 1:16
- Para aplicación general

NPT
- Уклон 1:16
- Общего назначения







EDP	NPT	P	L	l	d	a	ZΔ	Stock	Price
22638764	1/8	27	2 1/8	3/4	0,318	0,238	3	○	
22638774	1/4	18	2 7/16	1 1/16	0,429	0,322	4	○	
22638784	3/8	18	2 9/16	1 1/16	0,542	0,406	4	○	
22638794	1/2	14	3 1/8	1 3/8	0,687	0,515	4	○	
22638804	3/4	14	3 1/4	1 3/8	0,906	0,679	4	○	
22638814	1	11 1/2	3 3/4	1 3/4	1,125	0,843	4	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
◎ 10~15 m/min	◎ 8~14 m/min	◎ 7~11 m/min	◎ 8~14 m/min	○				◎ 7~12 m/min	○ 6~9 m/min	○ 7~14 m/min		○ 7~14 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	

● Delivery from stock
○ Available on short notice



NPT
- Tapered 1:16
- For general purposes application

NPT
- Kegelform 1:16
- Für universelle Anwendungen

NPT
- Conicità 1:16
- Per applicazioni generali

GAZ CONIQUE
- Conicité 1:16
- Pour applications générales

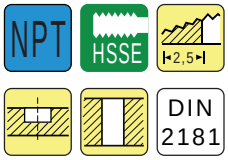
NPT
- Konicitet 1:16
- Til generelt brug

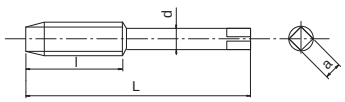
NPT
- Konisk 1:16
- För allround bearbetning

NPT
- Conicidad 1:16
- Para aplicación general

NPT
- Уклон 1:16
- Общего назначения







EDP	NPT	P	L	l	d	a	ZΔ	Stock	Price
60087500	1/16	27,0	56	14	6	4,9	4	●	
60087600	1/8	27,0	63	15	7	5,5	4	●	
60087700	1/4	18,0	63	21	11	9,0	4	●	
60087800	3/8	18,0	70	21	12	9,0	4	●	
60087900	1/2	14,0	80	27	16	12,0	4	●	
60088000	3/4	14,0	100	27	20	16,0	5	●	
60088100	1	11,5	110	32	25	20,0	5	●	

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Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
○ 3~6 m/min	◎ 3~6 m/min	◎ 2~5 m/min	◎ 2~5 m/min						○ 2~5 m/min	○ 2~5 m/min	○ 2~5 m/min	○ 4~8 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
○ 2~5 m/min	○ 5~10 m/min	○ 5~10 m/min	○ 6~11 m/min	○ 5~10 m/min	○ 10~15 m/min	○ 10~15 m/min	○ 10~15 m/min				○ 5~10 m/min	



PG CONDUIT
- For PG thread
- For general purposes application

STAHLPANZERROHRGEWINDE
- Für PG Gewinde
- Für universelle Anwendungen

FILETTATURA DI TUBI ELETTRICI
- Per filettatura PG
- Per applicazioni generali

FILLETAGE DE TUBES ELECTRIQUES
- Pour filet PG
- Pour applications générales

PG
- PG geving
- Til generelt brug

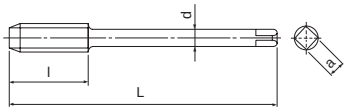
PG
- För PG gängor
- För diverse applikationer

PG
- Para PG perfil
- Para aplicación general

PG
- Для PG резьбы
- Общего назначения







EDP	PG	P	L	l	d	a	ZΔ	Stock	Price
1089700110	7	20	100	22	9	7	4	●	
1089700060	9	18	100	22	12	9	4	●	
1089700020	11	18	110	25	14	11	4	●	
1089700120	13,5	18	125	25	16	12	4	●	
1089700220	16	18	125	25	18	14,5	4	●	
1089700030	21	16	150	30	22	18	4	●	
1089700130	29	16	170	33	28	22	6	●	
1089700140	36	16	190	36	36	29	6	●	
1089700150	42	16	220	36	40	32	6	●	
1089700160	48	16	250	36	45	35	6	●	

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Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
○ 8~13 m/min	○ 7~12 m/min	○ 6~9 m/min										○ 7~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
	○ 10~15 m/min	○ 10~15 m/min	○ 6~11 m/min	○ 10~20 m/min	○ 10~15 m/min	○ 7~12 m/min	○ 7~12 m/min					

● Delivery from stock
○ Available on short notice



METRIC

- **Progressive thread**
- Short shank
- Taps n°1 : 5 pitch chamfer lead
- Taps n°2 : 3.5 pitch chamfer lead
- Taps n°3 : 2 pitch chamfer lead

METRISCH

- **Satzgewindebohrer**
- Kurze Ausführung
- Gewindebohrer Nr.1 : 5 Gang Anschnittlänge
- Gewindebohrer Nr.2 : 3,5 Gang Anschnittlänge
- Gewindebohrer Nr.3 : 2 Gang Anschnittlänge

METRICO

- **Filetto progressivo**
- Maschi corti
- Maschi n° 1 = imbocco su 5 filetti
- Maschi n° 2 = imbocco su 3,5 filetti
- Maschi n° 3 = imbocco su 2 filetti

MÉTRIQUE

- **Filet progressif**
- Tarauds courts
- Tarauds n°1 : entrée sur 5 filets
- Tarauds n°2 : entrée sur 3.5 filets
- Tarauds n°3 : entrée sur 2 filets

METRISK

- **Progressivt gevind**
- Kort skaft
- Tap nr.1 har 5 x stigning på opløb
- Tap nr.2 har 3,5 x stigning på opløb
- Tap nr.3 har 2 x stigning på opløb

METRISK

- **Progressiv gänga**
- Kort skaft
- Gängtapp n°1 har 5 x stigning på fås ingång
- Gängtapp n°2 har 3,5 x stigning på fås ingång
- Gängtapp n°3 har 2 x stigning på fås ingång

METRICO

- **Perfil progresivo**
- Mango corto
- Macho 1º: chaflán de 5 pasos
- Macho 2º: chaflán de 3,5 pasos
- Macho 3º: chaflán de 2 pasos

МЕТРИЧЕСКИЙ

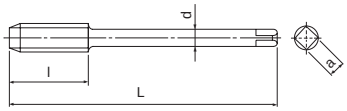
- **Набор из трех метчиков**
- Короткий хвостовик
- Метчики с шагом n°1: 5
- Метчики с шагом n°2: 3,5
- Метчики с шагом n°3: 2



M HSS

ISO 2 6H

DIN 352



EDP	M	P	L	l	d	a	ZΔ	Stock	Price
10212566	2	0,4	36	8	2,8	2,1	3	●	
10213866	3	0,5	40	11	3,5	2,7	3	●	
10214066	3,5	0,6	45	12	4,0	3,0	3	●	
10214466	4	0,7	45	13	4,5	3,4	3	●	
10214966	5	0,8	50	16	6,0	4,9	3	●	
10215566	6	1	56	19	6,0	4,9	3	●	
10216166	8	1,25	63	22	6,0	4,9	4	●	
10216966	10	1,5	70	24	7,0	5,5	4	●	
10217966	12	1,75	75	28	9,0	7,0	4	●	
10219166	14	2	80	30	11,0	9,0	4	●	
10220266	16	2	80	32	12,0	9,0	4	●	
10221466	18	2,5	95	34	14,0	11,0	4	●	
10222866	20	2,5	95	34	16,0	12,0	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
	○ 7~12 m/min	○ 6~9 m/min										○ 7~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
	○ 10~15 m/min	○ 10~15 m/min	○ 6~11 m/min	○ 10~20 m/min	○ 10~15 m/min	○ 7~12 m/min	○ 7~12 m/min					

HT-VA-OX



METRIC

- **Progressive thread**
- Short shank
- Taps n°1 : 5 pitch chamfer lead
- Taps n°2 : 3.5 pitch chamfer lead
- Taps n°3 : 2 pitch chamfer lead

METRISCH

- **Satzgewindebohrer**
- Kurze Ausführung
- Gewindebohrer Nr.1 : 5 Gang Anschnittlänge
- Gewindebohrer Nr.2 : 3,5 Gang Anschnittlänge
- Gewindebohrer Nr.3 : 2 Gang Anschnittlänge

METRICO

- **Filetto progressivo**
- Maschi corti
- Maschi n° 1 = imbocco su 5 filetti
- Maschi n° 2 = imbocco su 3,5 filetti
- Maschi n° 3 = imbocco su 2 filetti

MÉTRIQUE

- **Filet progressif**
- Tarauds courts
- Tarauds n°1 : entrée sur 5 filets
- Tarauds n°2 : entrée sur 3,5 filets
- Tarauds n°3 : entrée sur 2 filets

METRISK

- **Serietappe**
- Korte skaft
- Tap nr.1 har 5 x stigning på opløb
- Tap nr.2 har 3,5 x stigning på opløb
- Tap nr.3 har 2 x stigning på opløb

METRISK

- **Progressiv gänga**
- Kort skaft
- Gängtapp n°1 har 5 x stigning på fås ingång
- Gängtapp n°2 har 3,5 x stigning på fås ingång
- Gängtapp n°3 har 2 x stigning på fås ingång

METRICO

- **Perfil progresivo**
- Mango corto
- Macho 1º: chaflán de 5 pasos
- Macho 2º: chaflán de 3,5 pasos
- Macho 3º: chaflán de 2 pasos

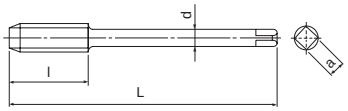
МЕТРИЧЕСКИЙ

- **Набор из трех метчиков**
- Короткий хвостовик
- Метчики с шагом n°1: 5
- Метчики с шагом n°2: 3,5
- Метчики с шагом n°3: 2

M | HSSE | OX

ISO 2 6H | DIN 352





EDP	M	P	L	l	d	a	ZΔ	Stock	Price
60112596	2	0,4	36	8	2,8	2,1	3	●	
60113896	3	0,5	40	11	3,5	2,7	3	●	
60114496	4	0,7	45	13	4,5	3,4	3	●	
60114996	5	0,8	50	24	6,0	4,9	3	●	
60115596	6	1	56	27	6,0	4,9	3	●	
60116196	8	1,25	63	22	6,0	4,9	4	●	
60116996	10	1,5	70	24	7,0	5,5	4	●	
60117996	12	1,75	75	28	9,0	7,0	4	●	
60119196	14	2	80	30	11,0	9,0	4	●	
60120296	16	2	80	32	12,0	9,0	4	●	
60121496	18	2,5	95	34	14,0	11,0	4	●	
60122896	20	2,5	95	34	16,0	12,0	4	●	

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Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG
	○ 7~12 m/min	○ 6~9 m/min										○ 7~12 m/min

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	
	○ 10~15 m/min	○ 10~15 m/min	○ 6~11 m/min	○ 10~20 m/min	○ 10~15 m/min	○ 7~12 m/min	○ 7~12 m/min					

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

DIN 223B



METRIC
- With spiral entry for forward ejection
- Chamfer lead on both sides

METRISCH
- Drallnut für frontale Spanabfuhr
- Doppelseitige Verwendung

METRICO
- Imbocco elicoidale per evacuare il truciolo in avanti
- Imbocco su 2 filetti

MÉTRIQUE
- Avec entrée hélicoïdale qui dégage le copeau vers l'avant
- Entrée des 2 côtés

METRISK
- Udformning af spiral skubber spåner fremad
- Indløb på begge sider

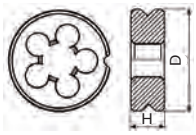
METRISK
- Med startspiral for framskjutande spånor
- Fas ingång på båda sidor

METRICO
- Con chaflán de entrada para expulsión de viruta hacia delante
- Chaflán en ambos lados

МЕТРИЧЕСКИЙ
- Со спиральным заходом
- Заходная фаска на обоих сторонах

M HSS

ISO 2 6G



EDP	M	P	D	H	Stock	Price
16213271	2	0,4	16	5	●	
16213871	3	0,5	20	5	●	
16214471	4	0,7	20	5	●	
16214971	5	0,8	20	7	●	
16215571	6	1	20	7	●	
16216172	8	1,25	25	9	●	
16216973	10	1,5	30	11	●	
16217974	12	1,75	38	14	●	
16219174	14	2	38	14	●	
16220275	16	2	45	18	●	
16221475	18	2,5	45	18	●	
16222875	20	2,5	45	18	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	

Solid Circular Dies

GO TO LIVE STOCK CHECK



G (BSP)

- With spiral entry for forward ejection
- Chamfer lead on both sides

G (BSP)

- Drallnut für frontale Spanabfuhr
- Doppelseitige Verwendung

G (BSP)

- Imbocco elicoidale per evacuare il truciolo in avanti
- Imbocco su 2 filetti

G (BSP)

- Avec entrée hélicoïdale qui dégage le copeau vers l'avant
- Entrée des 2 côtés

G (BSP)

- Udformning af spiral skubber spåner fremad
- Indløb på begge sider

G (BSP)

- Med startspiral for framskjutande spånor
- Fas ingång på båda sidor

G (BSP)

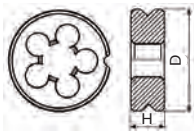
- Con chaflán de entrada para expulsión de viruta hacia delante
- Chaflán en ambos lados

G (BSP)

- Со спиральным заходом
- Заходная фаска на обоих сторонах

G HSS

ISO 228 DIN 259



EDP	G	P	D	H	Stock	Price
16281974	1/8	28	30	11	●	
16282074	1/4	19	38	10	●	
16282175	3/8	19	45	14	●	
16282275	1/2	14	45	14	●	

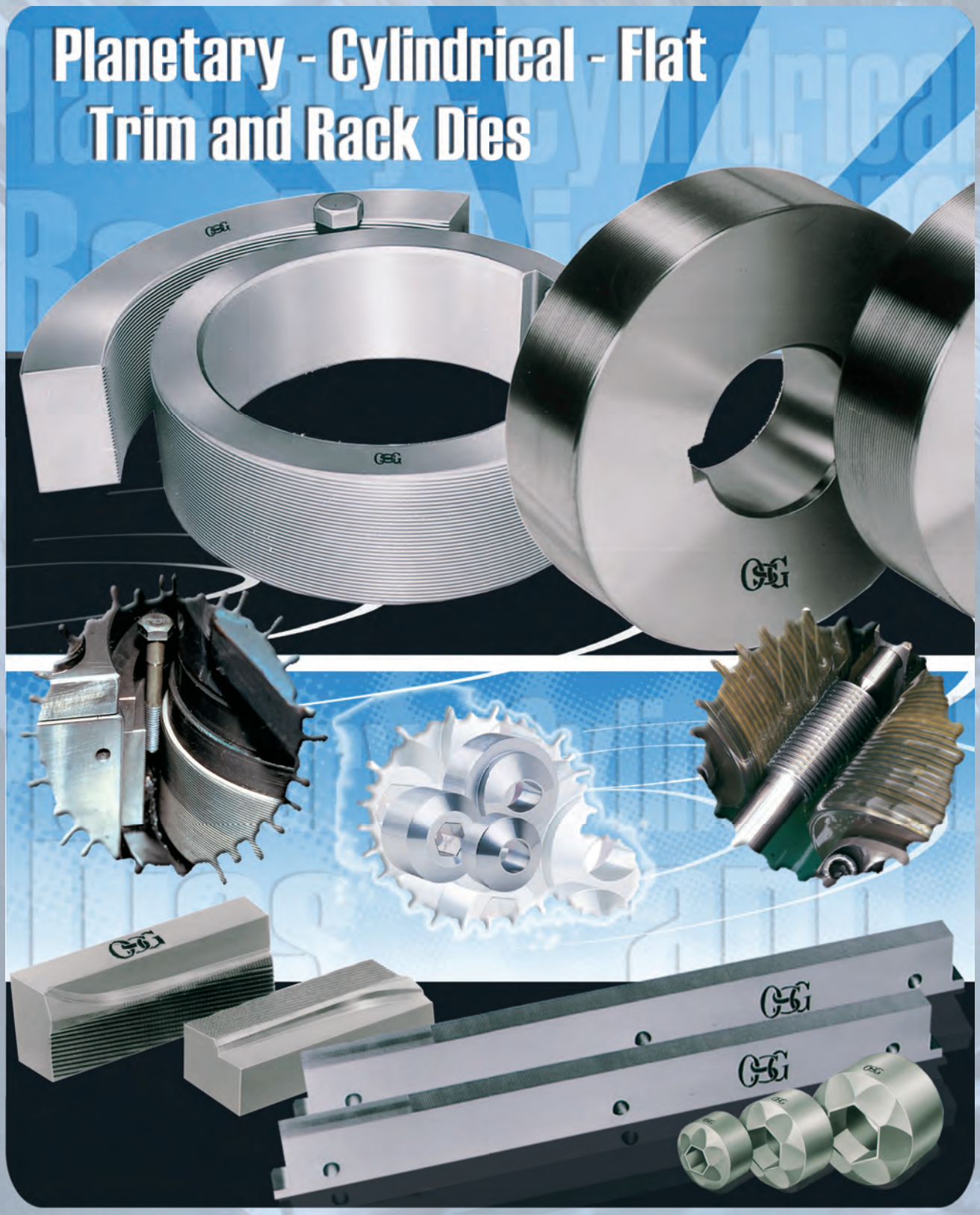
Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	25~35 HRC	35~45 HRC	45~52 HRC	52~62 HRC	SUS	SKD	SC	GG	GGG

Cu	BS	BsC	PB	Al	AC,ADC	MC	ZDC	Ti	Ni	Plast.	Vinyl	

● Delivery from stock
○ Available on short notice

Quality starts with consistents tooling



DRILLS

CARBIDE | XPM | HSS-Co | HSSE



TOKO-TON SPIRIT

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TOOL COMMUNICATION
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Special Drills

Click Here



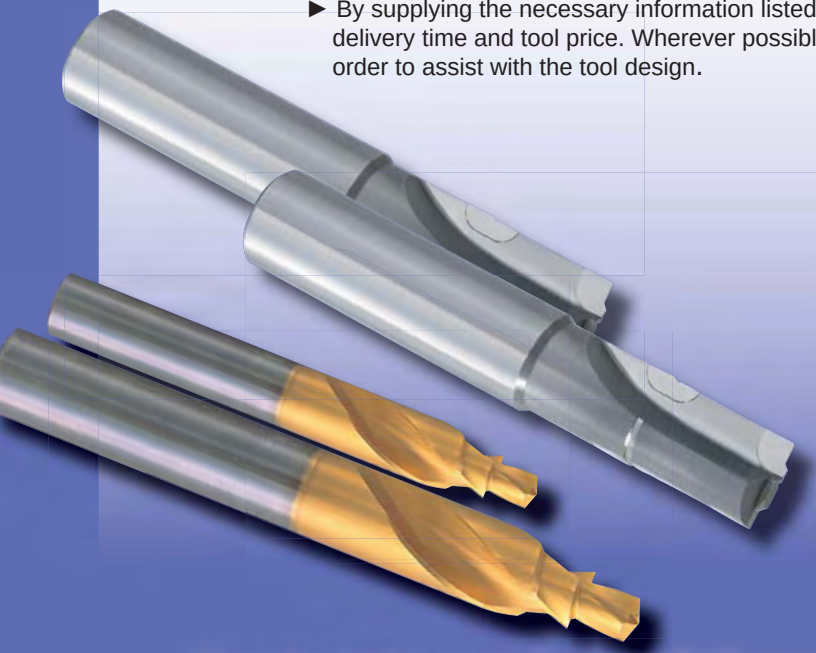


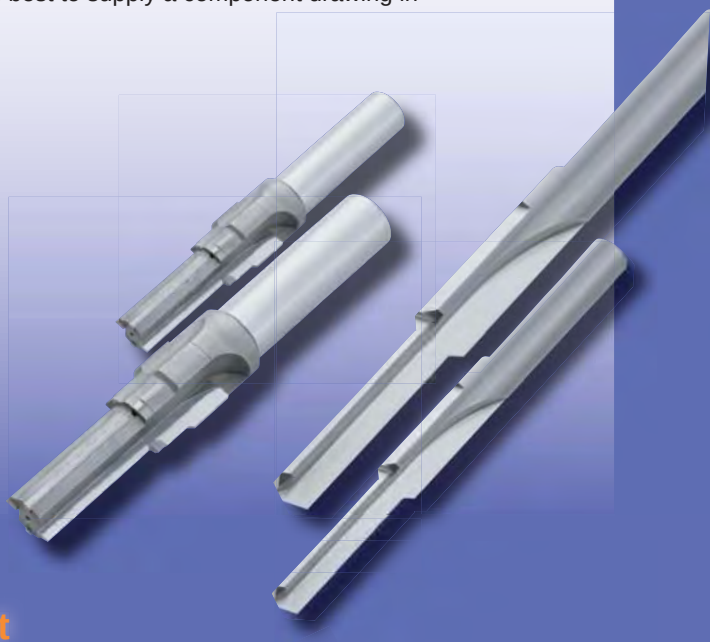


Special Drills

► OSG leads the world in the design and manufacture of drilling tools. Customers are favouring OSG over other competitor's drills because of OSG's superior performance and consistancy.

► By supplying the necessary information listed below, OSG will provide you with an estimated delivery time and tool price. Wherever possible, it is best to supply a component drawing in order to assist with the tool design.



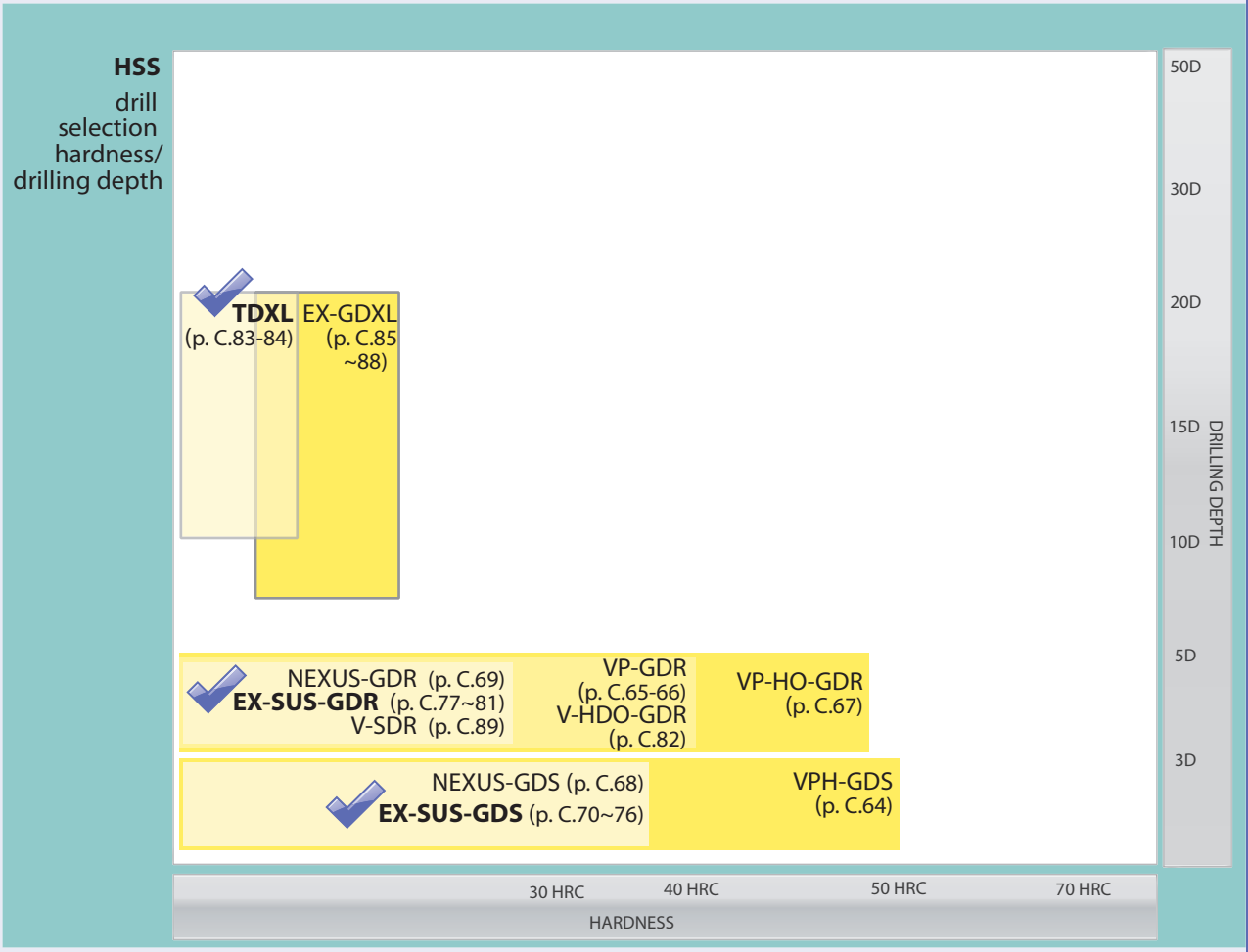


How to make your Special Drill request

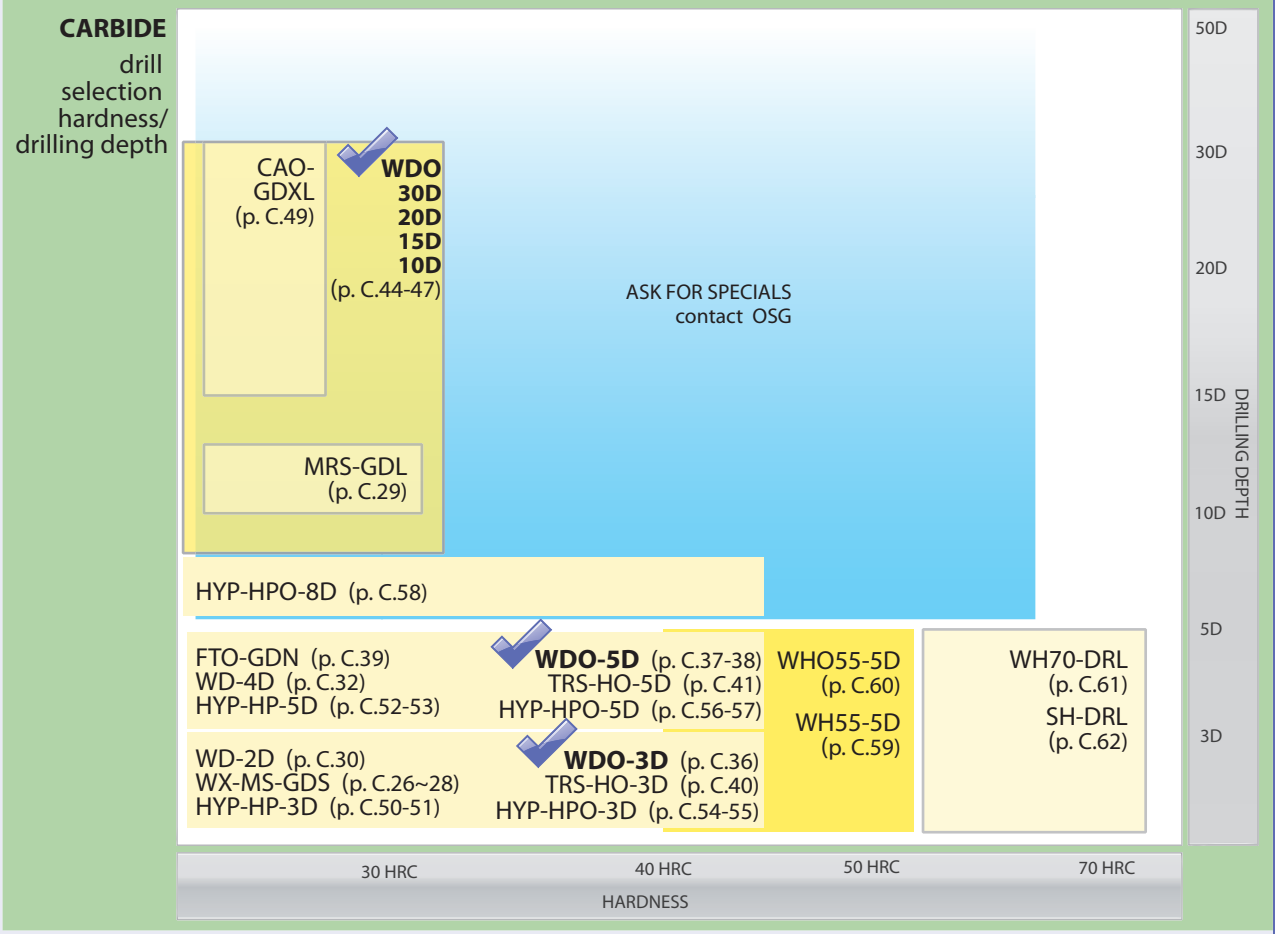
1 ► Go to www.osgeurope.com
2 ► Click on your country and look for this button
3 ► Fill in the form
4 ► Submit the form
5 ► Our local sales office will generate your request
6 ► We will submit you our quotation



DRILL PRODUCT MAP



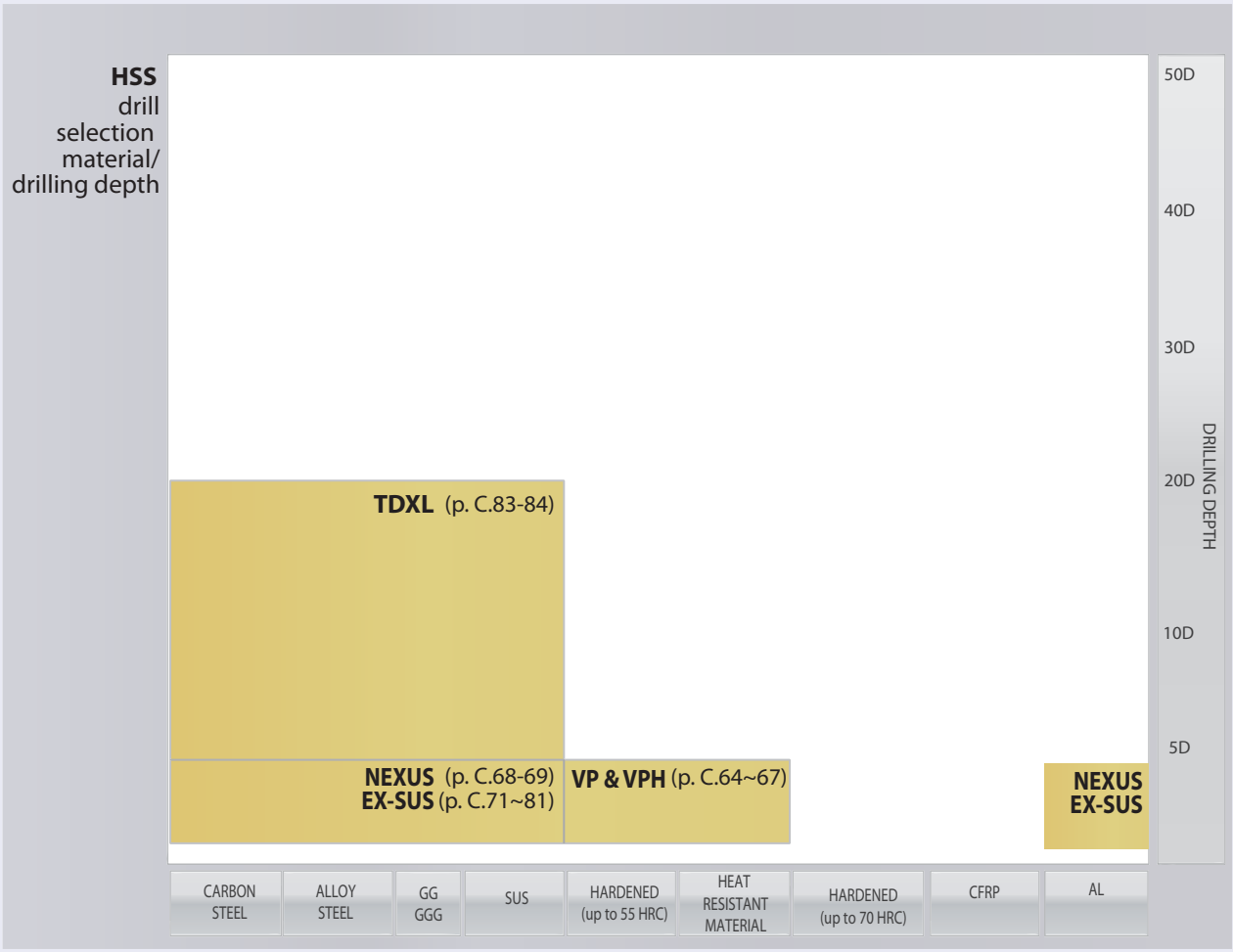
SPOTTING/CHAMFERING DRILLS HSS: NC-LDS (p287) INDEXABLE: HY-PRO CARB (p288-290)

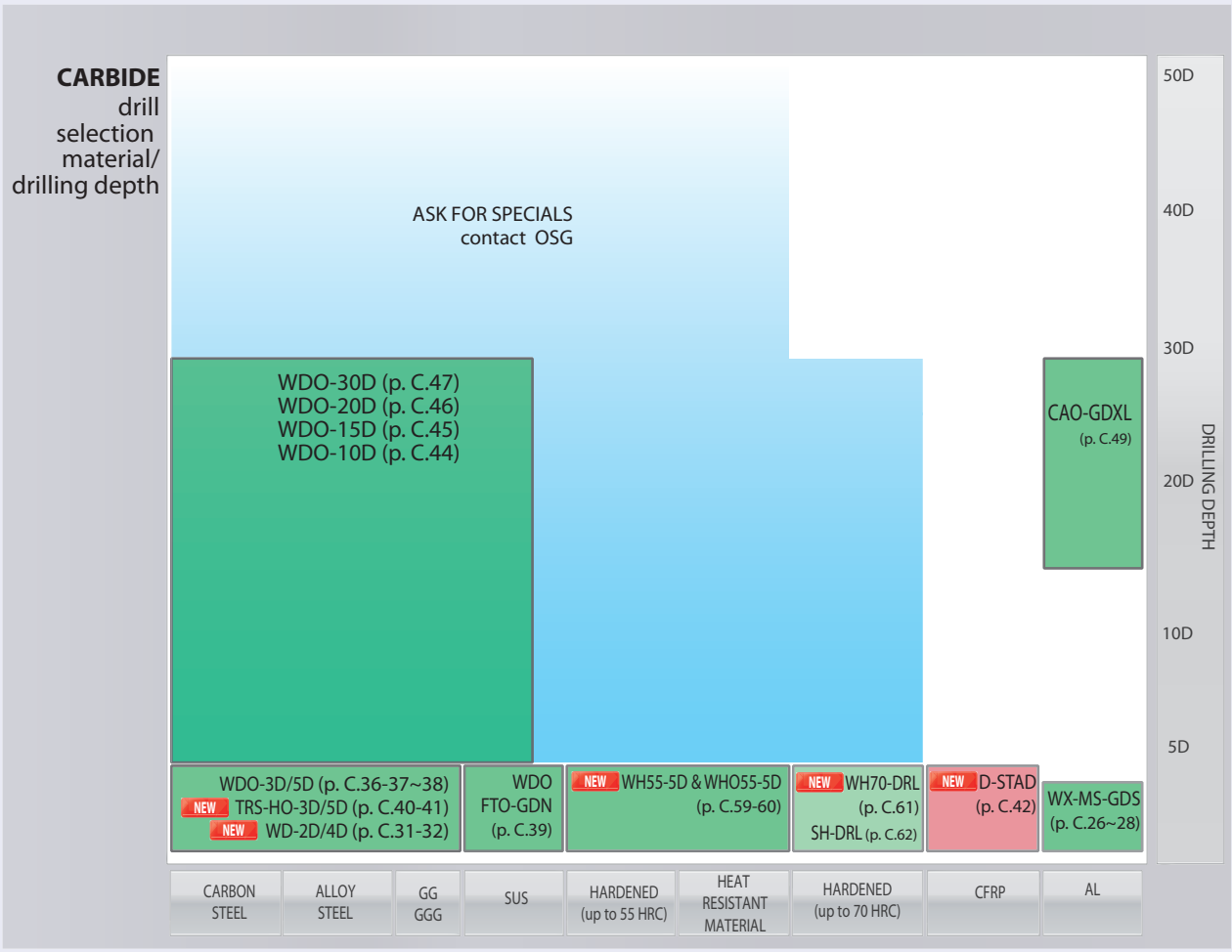


SPOTTING/CHAMFERING DRILLS CARBIDE: FX-LDS page C.90 CARBIDE: HYP-LDS page C.91 INDEXABLE: HY-PRO-CARB page C.93~95

OSG's 1st choice recommended

DRILL PRODUCT MAP





TYPE	DESCRIPTIONS	
WX	› Micrograin with improved TiAlN › The best ratio performance-price › Preciser results, more stable, longer life time › According to 21 century demands	› Neues Mischkorn - Hartmetall mit verbesserter TiAlN - Mehrlagenbeschichtung › Bestes Preis - Leistungs - Verhältnis › Resultat: zäher, stabiler, bessere Standzeit, Preisgünstig › Neueste Serie, abgestimmt auf die Bedürfnisse des 21. Jahrhunderts
	› Carburo micrograna con rivestimento TiAlN › Il miglior rapporto performance - prezzo › Maggior precisione, stabilità e durata › Risponde alla maggior richiesta del 21° secolo	› Carbure micrograin avec TiAlN amélioré › Le meilleur rapport performance - prix › Résultat plus précis, plus stable, meilleure durée de vie › Répond aux besoins du 21ème siècle
	› Micrograin med forbedret TiALN belægning › Det bedste forhold mellem pris og ydelse › Præcise resultater, stabilitet, længere standtid › Afstemt efter kravene i det 21 århundrede	› Micrograin med nyutvecklad TiAlN beläggning › Det bästa förhallånde mellom pris och prestanda › Noga bearbetning, bätre stabilitet och livslängd › Prestanda för 2000 talet
	› Micrograno con TiAlN mejorado › La mejor relación precio-prestaciones › Mayor precisón, más estable, duración mayor › Responde a las requerimientos del siglo XXI	› Микрозернистый твердый сплав с улучшенным TiAlN покрытием › Наилучшее соотношение производительности и цены › Более точный результат, более стабильный, с увеличенной стойкостью › В соответствии с требованиями 21 века
FX	› High performance material selected for use with high cutting speeds › Also for dry applications	› Hochleistungsvollhartmetall für sehr hohe Schnittgeschwindigkeiten › Auch für Trockenbearbeitung geeignet
	› Materiali alta performance per lavorazioni ad alta velocità › También para taladrado en seco	› Matière de haute performancesélectionnée pour de hautes vitesses de coupe › Prévu également pour usinage à sec
	› High performance materiale gør høje skærehastigheder opnåelige › Også velegnet til tørbearbejdning	› High Performance material möjliggör hög skärhastighet › Även bra utan kylvätska
	› Material de altas prestaciones seleccionado para altas velocidades de corte › Para taladrado en seco	› Высокопроизводительный материал для работы с высокой скоростью резания › Также для работы без СОЖ
XPM	› Specially developed by OSG for all stainless steels, Titanium alloys, steel alloys, exotic steels, cast iron up to 52 HRC	› Speziell von OSG entwickelt für die Bearbeitung von VA-Stählen, legierten Stählen, Titan Legierungen, Gusseisen und exotischen Materialien bis zu 52 HRC
	› Materiali sviluppati da OSG per lavorazioni di acciai oltre 52 HRC e ghise	› Matière développée par OSG pour tous les aciers inox, alliages en titane, aciers alliés, aciers exotiques, fontes jusqu'à 52 HRC
	› Specielt udviklet af OSG til alle typer rustfrit stål, titanium leg., stål leg., eksotiske materialer, støbejern samt stål op til 52 HRC	› Special utvecklat till alla rostfria stål, titanium leg., stål leg., exotiska leg,. gjutjärn och stål up til 52 HRC
	› Especialmente desarrollado por OSG para aceros inoxidables, titanio aleado, aceros aleados, aceros exoticos y fundiciones hasta 52HRC	› Специально разработано OSG для всех нержавеющих сталей, титана, легированных сталей, экзотических сплавов стали, чугуна до 52 HRC
HSSE-V3	› High speed steel with 3% Vanadium, for better wear resistance	› HSSE Stahl mit 3% Vanadium, für eine scharfe, verschleißfeste Schneide, besonders gut in der VA Zerspanung › Spezielle Schneidengeometrie erhöht die Verschleißfestigkeit
	› Acciaio superrapido con 3% di Vanadio per una miglior resistenza all'usura	› Acier rapide avec 3% de Vanadium, donne une meilleure résistance à l'usure
	› High speed stål med 3% Vanadium for højere slidstyrke	› Snapstål med 3% Vanadium for hög prestanda
	› Acero super-rapido con 3% de Vanadio, para mejor resistencia al desgaste	› Быстрорежущая сталь с добавкой 3% ванадия для большей износостойкости

WORK MATERIAL

C ≤ 0,2%	Low carbon steels	Kohlenstoffstahl	Acciaio a basso contenuto di carbonio	Aciers bas carbone	Kulstofstål	Kolstål	Aceros bajos en carbono	Низкоуглеродистая сталь
0,25 < C ≤ 0,4%	Medium carbon steels	Kohlenstoffstahl	Acciaio a medio contenuto di carbonio	Aciers médium carbone	Kulstofstål	Kolstål	Aceros medios en carbono	Среднеуглеродистая сталь
C ≥ 0,45%	High carbon steels	Kohlenstoffstahl	Acciaio ad alto contenuto di carbonio	Aciers haut carbone	Kulstofstål	Kolstål	Aceros altos en carbono	Высокоуглеродистая сталь
SCM	Alloy steels	Leg. Stahl	Acciaio legato	Aciers alliés	Legeret stål	Legerat stål	Aceros aleados	Легированная сталь
~35 HRC	Hardened steels	Gehärteter Stahl	Acciaio temprato	Aciers trempé	Hærdet stål	Härdat stål	Aceros endurecidos	Закаленная сталь
35~45 HRC	Hardened steels	Gehärteter Stahl	Acciaio temprato	Aciers trempé	Hærdet stål	Härdat stål	Aceros endurecidos	Закаленная сталь
45 ~ 50 HRC	Hardened steels	Gehärteter Stahl	Acciaio temprato	Aciers trempé	Hærdet stål	Härdat stål	Aceros endurecidos	Закаленная сталь
50 ~ 70 HRC	Hardened steels	Gehärteter Stahl	Acciaio temprati	Aciers trempé	Hærdet stål	Härdat stål	Aceros endurecidos	Закаленная сталь
SUS	Stainless steels	VA Stahl	Acciaio inossidabile	Inox	Rustfrit stål	Rostfritt stål	Aceros inoxidables	Нержавеющая сталь
SKD	Tool steels	Werkzeugstahl	Acciaio da utensili	Aciers d'outillage	Værktøjsstål	Verktygsstål	Aceros de herramientas	Инструментальная сталь
GG	Cast iron	Grauguss	Ghisa grigia	Fonte	Støbejern	Gjutjärn	Aceros fundidos ~ 350 HB	Чугун ~ 350 HB
GGG	Ductile cast iron	Kugelgraphitguss	Ghisa malleabile	Fonte maléable	Støbejern	Segjärn	Funditiones ductiles	высокопрочный чугун
Cu	Copper	Kupferlegierung	Rame	Cuivre	Kobber	Koppar	Aleaciones de cobre	Медь
Al	Aluminium	Aluminium	Alluminio	Aluminium	Aluminium	Aluminium	Aluminio	Алюминий
AC	Cast aluminium alloys	Aluminiumlegierung	Leghe di alluminio	Alliages d'alu coulé	Aluminium leg.	Gjut Aluminium	Aluminio aleado	Литейные алюминиевые сплавы
Ti	Titanium	Titanium	Titanio	Titane	Titanium	Titanium	Titanio	Титан
TiAll	Titanium alloys	Titaniumlegierung	Leghe di titanio	Alliages de Titane	Titanium leg.	Titanium leg.	Titanio aleado	Титановые сплавы
Inc	Inconel	Inconel	Inconel	Inconel	Inconel	Inconel	Inconel	Inconel
○	Good	Gut	Buono	Bon	God	Bra	Utilizable	Хороший
◎	Excellent	Sehr gut	Ottimo	Excellent	Meget god	Mycket bra	Excelente	Превосходный

◎ Excellent - Sehr gut - Ottimo - Excellent - Meget god - Mypket bra - Excelente - Превосходный

○ Good - Gut - Buono - Bon - God - Bra - Utilizable - Хороший

Type		coating	Work material - Werkstoff - Materiale - Matière - Materiale - Material - Material de pieza - обрабатываемый материал																		
			C ≤ 0.2%	0.25% C ≤ 0.4%	C ≥ 0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS	SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc	CFRP
CAO-GDXL	C.49														○	○	◎				
D-STAD NEW	C.42	DIA																			◎
EX-GDXL	C.85~C.88	TiN	○	◎	◎	◎	○						◎	◎			○				
EX-H-DRL	C.63							○	○	◎											
EX-SUS-GDR	C.77~C.81	TiN	◎	○							◎				◎	◎	○	◎			
EX-SUS-GDS New Sizes	C.70~C.76	TiN	◎	○							◎				◎	◎	○	◎			
FS-GDS Limited Supply	C.32	FX	◎	◎	◎	◎	◎	◎	◎			◎	○	◎							
FS-GDN Limited Supply	C.33	FX	◎	◎	◎	◎	◎	◎	◎			◎	○	◎							
FT-GDS Limited Supply	C.34	FX	◎	◎	◎	◎	◎	○	○			○	○	◎				○	◎	○	
FT-GDN Limited Supply	C.35	FX	◎	◎	◎	◎	◎	○	○			○	○	◎				○			
FTO-GDN Limited Supply	C.39	FX	◎	◎	◎	◎	◎	○			◎	○	◎	◎	○		○	○	◎		
FTO-GDXL Limited Supply	C.48	FX	◎	◎	◎	◎	○				○		◎	◎							
FX-LDS	C.90	FX	◎	◎	◎	◎	◎	○				◎	◎	◎	○		○	○	○	○	
HYP-HP-3D New Name New Sizes	C.50~C.51	TiAlN	○	◎	◎	◎	◎	○			○	○	◎	◎							
HYP-HP-5D NEW	C.52~C.53	TiAlN	○	◎	◎	◎	◎	○			○	○	◎	◎							
HYP-HPO-3D New Name New Sizes	C.54~C.55	TiAlN	○	◎	◎	◎	◎	○			○	○	◎	◎							
HYP-HPO-5D New Name New Sizes	C.56~C.57	TiAlN	○	◎	◎	◎	◎	○			○	○	◎	◎							
HYP-HPO-8D NEW	C.58	TiAlN	○	◎	◎	◎	◎	○			○	○	◎	◎							
HYP-LDS NEW	C.91		◎	◎	◎	◎	◎	○				○	○	○	○		○	○	○	○	
HY-PRO CARB	C.93~C.95		◎	◎	○	○	○	○			○	○	◎	○		◎	◎				
MRS-GDL	C.29	SC									◎										
NEXUS-GDR	C.69	WDI	◎	◎	◎	◎	○				◎				◎	◎	◎	◎			
NEXUS-GDS	C.68	WDI	◎	◎	◎	◎	○				◎				◎	◎	◎	◎			
(TiN)-NC-LDS NEW	C.92		◎	◎	◎	◎	○				◎	◎	◎	◎	◎		◎	◎	◎		
SH-DRL Limited Supply	C.62									◎											
TDXL	C.83~C.84	WXL	○	◎	◎	◎							◎	◎			◎				
TRS-HO-3D NEW	C.40	WDI	◎	◎	◎	◎	◎	○	○		○		◎	◎				○			
TRS-HO-5D NEW	C.41	WDI	◎	◎	◎	◎	◎				○		◎	◎							
V-HDO-GDR	C.82	V	◎	◎	◎	◎	◎				◎	○	○	○	○	○	◎	○	○	○	
VPH-GDS	C.64	WDI	○	○	○	○	◎	◎	◎			◎	◎	◎					◎	◎	
VP-GDR	C.65~C.66	V	◎	◎	◎	◎	◎					◎	◎	◎		○	◎	○	○	○	
VP-HO-GDR	C.67	V	◎	◎	◎	◎	◎	○			◎	◎	◎	◎	○	○	◎	◎	◎	○	
V-SDR	C.89	V	◎	◎	○	◎						○	○	○		○	○				
WD-2D NEW	C.30	WDI	◎	◎	◎	◎	○	○				○	○	◎							
WD-4D NEW	C.31	WDI	◎	◎	◎	◎	○	○				○	○	◎							
WDO-3D New Name	C.36	WDI	◎	◎	◎	◎	◎	○	○		◎	○	◎	◎	○		○	○	◎		
WDO-5D New Name	C.37~C.38	WDI	◎	◎	◎	◎	◎	○	○		◎	○	◎	◎	○		○	○	◎		
WDO-10D New Name	C.44	WDI	◎	◎	◎	◎	○				○		◎	◎							
WDO-15D NEW	C.45	WDI	◎	◎	◎	◎	○				○		◎	◎							

◎ Excellent - Sehr gut - Ottimo - Excellent - Meget god - Mypket bra - Excelente - Превосходный

○ Good - Gut - Buono - Bon - God - Bra - Utilizable - Хороший

Type	4 3 2 1	coating	Work material - Werkstoff - Materiale - Matière - Materiale - Material - Material de pieza - обрабатываемый материал																		
			C ≤ 0.2%	0.25% C ≤ 0.4%	C ≥ 0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS	SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc	CFRP
WDO-20D NEW	C.46	WDI	◎	◎	◎	◎	○				○		◎	◎							
WDO-30D NEW	C.47	WDI	◎	◎	◎	◎	○				○		◎	◎							
WDO-PLT New Name	C.43	WDI	○	◎	◎	◎	◎	◎			○	○	◎	◎							
WH55-5D NEW	C.59	WXS						◎	◎	○											
WHO55-5D NEW	C.60	WXS						◎	◎	○											
WH70-DRL NEW	C.61	WXS								◎										○	
WX-MS-GDS	C.26~C.28	WX	◎	◎	○	○					○		○		◎	◎	○	○			

ICONS

ICONS								
Material - Werkstoff - Materiale - Matière - Materiale - Verktyg materiale - Material - Обрабатываемый материал								
CARBIDE	Carbide	Vollhartmetall	Carburo	Carbure	Hårdmetal	Hårdmetall	Metal duro	Карбид
HSS-Co	HSS Cobalt (Co8)	HSS (Co8)	Cobalto HSS (Co8)	HSS Cobalt (Co8)	HSS (Co8)	HSS (Co8)	HSS al cobalto (Co8)	быстрорежущая сталь с 8% кобальта
XPM	High grade Powder Metallurgy HSS (XPM) (Co10 + V5)	Spezial Pulvermetall HSS (XPM) (Co10 + V5)	Alto livello di metallurgia delle polveri sinterizzate HSS (XPM) (Co10 + V5)	Haut niveau de métallurgie des poudres HSS (XPM) (Co10 + V5)	Special pulvermetal HSS (XPM) (Co10 + V5)	Special Pulvermetall HSS (XPM) (Co10 + V5)	HSS sinterizado de alto grado	Высококачественный порошковый HSS
CPM	Powder Metallurgy Hss (PM-T15) (Co5 + V5)	Pulvermetall Hss (PM - T15) (Co5 + V5)	Metallurgia delle polveri sinterizzate (PM-T15) (Co5 + V5)	Métallurgie des poudres HSS (PM-T15) (Co5 + V5)	Pulvermetal HSS (PM - T15) (Co5 + V5)	Pulvermetall (PM-T15) (Co5 + V5)	Sinterizado (PM-T15 Co5 + V5)	Порошковая металлургия (PM-T15 Co5 + V5)
HSSE	High Vanadium HSS-E V3	HSS-E (V3)	HSS-E alto contenuto di Vanadio (V3)	HSSE haute teneur en Vanadium (V3)	HSS-E (V3)	HSSE (3V)	HSS-E v3 alto en Vanadio	быстрорежущая сталь с высоким содержанием ванадия HSS-E V3
HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS быстрорежущая сталь
Coating - Beschichtung - Rivestimento - Revêtement -Belægning - -Belægning - Recubrimiento - Покрытие								
FX	Multi layered composite TiAlN	Mehrlagenbeschichtung TiAlN	Multistrato composito TiAlN	Revêtement multicouches composite TiAlN	Flérlags TiALN belægning	Multilayer TiAlN beläggning	Recubrimiento TiAlN multicapa	Многослойное покрытие TiAlN
WX	Multi layered composite TiAlN	Mehrlagenbeschichtung TiAlN	Multistrato composito TiAlN	Revêtement multicouches composite TiAlN	Flérlags TiALN belægning	Multilayer TiAlN beläggning	Recubrimiento TiAlN multicapa	Многослойное покрытие TiAlN
CrN	Chromium nitride	Chromnitrit	Nitruro di cromo	Nitrure de chrome	Chromnitrid	Crom Nitrid	Recubrimiento Nitruro de Cromo	Хром нитрид
SC	Smooth coating	Gleichmäßiger Reibungskoeffizient reduzierte Beschichtung	Rivestimento lucido	Revêtement lisse	Glat belægning	Låg Firktion	Recubrimiento suave	Гладкое покрытие
TIN	Coating TiN	TiN Beschichtet	Rivestimento TiN	Revêtement TiN	TIN belægning	TiN Beläggning	TiN: Recubrimiento de Nitruro de Titanio	Покрытие TiN
WDI	Multi-Layer coating WDI	WDI Beschichtet	Rivestimento WDI	Revêtement WDI	WDI belægning	Multilayer WDI	WDI : Recubrimiento multicapa	Многослойное покрытие WDI
TiAlN	Multi-Layer coating TiAlN	TiAlN Beschichtet	Rivestimento TiAlN	Revêtement TiAlN	TiALN belægning	Multilayer TiAlN	TiAlN: Recubrimiento multicapa	Многослойное покрытие TiAlN
V	Multi-Layer coating TiCN	Mehrlagenbeschichtung TiCN	Multistrato composito TiCN	Revêtement multicouches TiCN	Flérlags TiCN belægn.	Multilayer TiCN	Recubrimiento de Carbo-Nitruro de Titanio	Многослойное покрытие TiCN
OX	Steam Oxide	Dampfangelassen	Trattamento al vapore	Traitement vapeur	Damp oxyderet	Ånganlöpt	Vaporizado	Паровой оксид
Shank - Schaft - Gambo - Queue - Skaft - Skaft - Mango - Хвостовик								
h6 h7	Shank diameter tolerance	Schafttoleranz	Tolleranza del diametro del gambo	Tolérance du diamètre de queue	Skaft tolerance	Skaft tolerans	Tolerancia en diametro de mango	Точность диаметра хвостовика
FIT	All shanks of OSG mills are suitable for Hypro-Shrink Fit systeme	Schrumpftauglich	Adatto al sistema di serraggio a caldo	Queues adaptées pour le système de frettage	Velegnet til krymp	Även för krymp chuckar	Todos los mangos de metal duro OSG son aptos para fijación térmica	хвостовики пригодны для Hypro термозажимной системы
	Straight shank	Zylindrischer Schaft	Gambo cilindrico	Queue cylindrique	Cylindrisk skaft	Cylindriskt skaft	Mango sencillo	Прямой хвостовик
	Whistle Notch	Whistle Notch	Whistle Notch	Whistle Notch	Whistle notch	Whistle Notch	Whistle Notch	Whistle Notch
	Straight shank for flat	Zylindrischer Schaft mit Spannfläche	Gambo cilindrico con piatto	Queue cylindrique avec méplat	Whistle notch	Plan yta på skaft	Mango cilindricon con plano	Цилиндрический хвостовик с лыской
Helix Angle - Drallwinkel - Angolo d'elica - Angle d'hélice - Spiralvinkel - Spiral Vinkel - Angulo de helice - Угол спирали								
30°	Helix Angle	Helix Drall Winkel	Angolo d'elica	Angle d'hélice	Spiralvinkel	Spiral Vinkel	Angulo de helice	Угол спирали
Point Angle - Spitzenwinkel - Angolo delle punta - Angle de pointe - Spids vinkel - Spets Vinkel - Angulo de punto- Угол заточки								
140°	Point Angle	Spitzenwinkel	Angolo delle punta	Angle de pointe	Spids vinkel	Spets Vinkel	Angulo de punta	Угол заточки

ICONS								
Tool tolerance - Werkzeugtoleranz - Tolleranza del diametro di foratura - Tolérance outil - Tolerance - Tolerans - Tolerancia de herramienta - Точность инструмента								
h8	Tool tolerance	Werkzeugtoleranz	Tolleranza del diametro di foratura	Tolérance outil	Værktøjs tolerance	Verktygs tolerans	Tolerancia de herramienta	Точность инструмента
Internal cooling - Innere Kühlmittelzuführung - Con fori di lubrificazione centrali - Arrosage central - Indvendig køling - Invändig Kylning - Refrigeración interna - Внутреннее охлаждение								
	Internal cooling	Innere Kühlmittelzuführung	Con fori di lubrificazione centrali	Arrosage central	Indvendig køling	Invändig Kylning	Refrigeración interna	Внутреннее охлаждение
High speed drilling - Hohe Schnittge-windigkeiten - Foratura ad alta velocita - Haute vitesse - Høj hastighed boring - Höghastighets Borrning - Taladrado a lata velocidad - Высокоскоростное сверление								
FS	Hight speed drilling	Hohe Schnittgewindigkeiten	Foratura ad alta velocita	Haute vitesse	High speed boring	Höghastighets Borrning	Taladrado a lata velocidad	Высокоскоростное сверление
Thinning - Ausspitzung - Affilatura - Affûtage - Spids slibning - Spets slipning - Reducción - Подточка вершины								
F	Four Facet point	Vier Facetten Anschliff mit Ausspitzung	Affilatura Quattro piani	Affûtage 4 façes	Facet slebet spids	Facet spets	Reducción de punta 4 facetas	Центр с 4 гранями
N	N Thinning	N Ausspitzung	N Affilatura	N Affûtage	N Udkerning	N Centrumspets	N Reducción	N Подточка вершины
R	R Thinning	R Ausspitzung	R Affilatura	R Affûtage	R Udkerning	R Centrumspets	R Reducción	R Подточка вершины
W	W Thinning	W Ausspitzung	W Affilatura	W Affûtage	W Udkerning	W Centrumspets	W Reducción	W Подточка вершины
X	X Thinning	X Ausspitzung	X Affilatura	X Affûtage	K Udkerning	X Centrumspets	X Reducción	X Подточка вершины
RW	RW Thinning	RW Ausspitzung	RW Affilatura	RW Affûtage	RW Udkerning	RW Centrumspets	RW Reducción	RW Подточка вершины
RX	RX Thinning	RX Ausspitzung	RX Affilatura	RX Affûtage	RK Udkerning	RX Centrumspets	RX Reducción	RX Подточка вершины
Drilling depth - Gewindetiefe - Profondità di foratura - Profondeur taraudage - Boredybde - Borrdjup - Profindidad de taladrado - Глубина сверления								
≥5D	Drilling depth	Gewindetiefe	Profondità di foratura	Profondeur taraudage	Boredybde	Borrdjup	Para agujeros ciegos	Глубина сверления
Serie - Serie - Serie - Série - Serie - Serie - Serie - Серия								
	Short series	Kurze Serie	Serie Corta	Série courte	Kort serie	Kort serie	Serie corta	Короткая серия
	Long series	Lange Serie	Serie lunga	Série longue	Lang serie	Lång serie	Serie larga	Длинная серия
	Extra long series	Extra lange Serie	Serie extra lunga	Série extra longue	Ekstra lang serie	Ekstra lång serie	Serie extra larga	Особо длинная серия
Cutting Conditions - Schnittwerte - Velocità di taglio - Conditions de coupe - Skæredata - Skärdata - Condiciones de corte - условия резания								
min^{-1}	Cutting Conditions	Schnittwerte	Velocità di taglio	Conditions de coupe	Skæredata	Skärdata	Condiciones de corte	Условия резания
Work Material - Werkstoff - Materiale - Matière - Emne materiale - Ämne materiale - Material de pieza - Обрабатываемый материал								
	Work Material	Werkstoff	Materiale	Matière	Emne materiale	Ämne material	Material de pieza	Обрабатываемый материал

NAME		SPECIFICATION	
SOLID CARBIDE			
 **WX-MS-GDS**	WX	Small size for precision operation Micropunta per operazioni di precisione	Kleine Abmessungen für hochpräzise Bearbeitungen Petites dimensions pour des opérations de précision
 **MRS-GDL**	SC	Small size deep drilling for stainless steel Micropunta per forature profonde su acciai inossidabili	Kleine Abmessungen für Tieflochbohrungen in VA Materialien Petites dimensions pour forage profond dans des aciers inoxidables
 **WD-2D** NEW	WDI	General purpose, 2D type Per applicazioni generali, 2D foratura	Allgemeine Anwendungen, für 2D bohren Applications générales, forage 2D
 **WD-4D** NEW	WDI	General purpose, 4D type Per applicazioni generali, 4D foratura	Allgemeine Anwendungen, für 4D bohren Applications générales, forage 4D
 **FS-GDS** Limited Supply	FX	Short for high speed drilling Serie corta-foratura ad alta velocità	Kurze Ausführung, High Speed Bohren Court pour perçage haute vitesse
 **FS-GDN** Limited Supply	FX	Normal for high speed drilling Serie regolare-foratura ad alta velocità	Normale Ausführung, High Speed Bohren Normal pour perçage haute vitesse
 **FT-GDS** Limited Supply	FX	Short for general applications Serie corta-per applicazioni generali	Kurze Ausführung für allgemeine Bearbeitung Court pour applications générales
 **FT-GDN** Limited Supply	FX	Normal for general applications Serie regolare per applicazioni generali	Normale Ausführung für allgemeine Bearbeitung Normal pour perçage haute vitesse
 **WDO-3D** New Name	WDI	Coolant through for 3D type Fori di lubrificazione centrali, 3D foratura	VHM - Bohrer, mit innerer Kühlmittelzufuhr für 3D bohren Avec arrosage central, forage 3D
 **WDO-5D** New Name	WDI	Coolant through for 5D type Fori di lubrificazione centrali, 5D foratura	VHM - Bohrer mit innerer Kühlmittelzufuhr für 5D bohren Avec arrosage central, forage 5D
 **FTO-GDN** Limited Supply	FX	Coolant through, normal for high speed drilling Regolare con fori di lubrificazione	Normale Ausführung, High Speed Bohren, mit innerer Kühlmittelzufuhr Type normal pour perçage haute vitesse, avec trous d'huile
 **TRS-HO-3D** NEW	WDI	Coolant through, 3 flutes, high feed drill, 3D type Con foro di lubrificazione, 3 eliche, alto avanzamento, 3 D	Innenkühlung , 3 Schneiden , Hochleistungsbohrer , 3xD Arrosage interne, 3 levres, perçage haute vitesse, perçage 3D
 **TRS-HO-5D** NEW	WDI	Coolant through, 3 flutes, high feed drill, 5D type Con foro di lubrificazione, 3 eliche, alto avanzamento, 5 D	Innenkühlung , 3 Schneiden , Hochleistungsbohrer , 5xD Arrosage interne, 3 levres, perçage haute vitesse, perçage 5D
 **D-STAD** NEW	DIA	For CFRP material, triple angle drill Per materiali compositi CFRP	für Verbundwerkstoffe (Kohlefaser / CFRP) Pour matériaux composites
 **WDO-PLT** New Name	WDI	Coolant through, pilot drill for FTO-GDXL, FTO-M-GDXL Punta pilota per FTO-GDXL, FTO-M-GDXL	VHM Pilotbohrer für Tiefbohrer, mit innerer Kühlmittelzufuhr Pilot pour FTO-GDXL et FTO-M-GDXL
WDO-10D New Name	WDI	Coolant through, extra long non-step drill,10D Con foro di lubrificazione, extra lunga senza step 10 D	Innengekühlter Tieflochbohrer , 10xD , Bohren ohne Step Arrosage interne, foret extra long 10D sans débourage
WDO-15D NEW	WDI	Coolant through, extra long non-step drill,15D Con foro di lubrificazione, extra lunga senza step 15 D	Innengekühlter Tieflochbohrer , 15xD , Bohren ohne Step Arrosage interne, foret extra long 15D sans débourage

SPECIFICATION		RANGE	PAGE
SOLID CARBIDE			
Små størrelser for præcisionsbearbejdning Tamaño pequeño para operaciones de precisión	Små storlekar för precisionsarbeten Маленький размер для точной обработки	0,2 ~ 5	C.26 ~ C.28
Små størrelser for dybe huller i rustfrit Tamaño pequeño para taladrado de aceros inoxidables	Små storlekar för djupborrning i rostfria stål Глубокое сверление маленьких диаметров для нержавеющей стали	0,5 ~ 3	C.29
Universalt for 2D boring Empleo general, para taladrado 2D	Allround för 2D Сверло длиной 2D с каналами для СОЖ	2 ~ 12	C.30
Universalt for 4D boring Empleo general, para taladrado 4D	Allround för 4D Сверло длиной 4D с каналами для СОЖ	2 ~ 20	C.31
Kort bor for high speed boring Broca corta para taladrado a alta velocidad	Kort för high speed borrning Короткое сверло для высокоскоростного сверления	2 ~ 6	C.32
Normal, for high speed boring Normal, para taladrado a alta velocidad	Normal för high speed drilling Сверло нормальной длины для скоростного сверления	6 ~ 20	C.33
Kort, generelt brug Corta para aplicaciones generales	Kort för allround bearbetning Короткое сверло общего назначения	2 ~ 6	C.34
Normal, generelt brug Normal para aplicaciones generales	Normal för allround bearbetning Сверло нормальной длины общего назначения	6 ~ 20	C.35
Kølekanaler, for 3D boring Refrigeración interna para taladrado 3D	Kylkanaler för 3D Сверление глубиной 3D с каналами для СОЖ	2,8 ~ 20	C.36
Kølekanaler, for 5D boring Refrigeración interna para taladrado 5D	Kylkanaler för 5D Сверление глубиной 5D с каналами для СОЖ	2,8 ~ 20	C.37 - C.38
Kølekanaler, normal, for high speed boring Refrigeración interna para taladrado a alta velocidad	Kylkanaler, normal, för high speed borrning Сверло нормальной длины с каналами для СОЖ для скоростного сверления	3 ~ 20	C.39
Indvendig køling, 3 skær, high feed bor, 3D Refrigeración interna, 3 labios, para gran avance, tipo 3D	Kylkanalsborr med 3-skär för hög matning, 3xD Трехзубые сверла с внутренними каналами и высокой подачей, 3D	5 ~ 18	C.40
Indvendig køling, 3 skær, high feed bor, 5D Refrigeración interna, 3 labios, para gran avance, tipo 5D	Kylkanalsborr med 3-skär för hög matning, 5xD Трехзубые сверла с внутренними каналами и высокой подачей, 5D	5 ~ 18,5	C.41
For CFRP materiale Para CFRP	För CFRP material Для углепластика	6 ~ 12	C.42
Kølekanaler, pilotbor for FTO-GDXL og FTO-M-GDXL Refrigeración interna para taladrado de agujero piloto FTO-GDXL y FTO-M-GDXL	Kylkanaler, pilot borr för FTO-GDXL, FTO-M-GDXL Пилотное сверло с каналами для СОЖ для FTO-GDXL & FTO-M-GDXL	3,03 ~ 12,03	C.43
Kølekanaler, extra lang, step-fri boring,10D Refrigeración interna, extra-larga hasta 10D con avance ininterrumpido	Kylkanaler, extra långa borr för step fri borrning,10D Особо длинные сверла с внутренними каналами для непрерывного сверления 10D	2 ~ 12	C.44
Kølekanaler, extra lang, step-fri boring,15D Refrigeración interna, extra-larga hasta 15D con avance ininterrumpido	Kylkanaler, extra långa borr för step fri borrning,15D Особо длинные сверла с внутренними каналами для непрерывного сверления 15D	3 ~ 12	C.45

NAME		SPECIFICATION		
SOLID CARBIDE				
WDO-20D NEW	WDI	Coolant through, extra long non-step drill, 20D	Innengekühlter Tieflochbohrer , 30xD , Bohren ohne Step	
		Con foro di lubrificazione, extra lunga senza step 20 D	Arrosage interne, foret extra long 20D sans débourage	
WDO-30D NEW	WDI	Coolant through, extra long non-step drill 30D	Innengekühlter Tieflochbohrer , 30xD , Bohren ohne Step	
		Con foro di lubrificazione, extra lunga senza step 30 D	Arrosage interne, foret extra long 30D sans débourage	
FTO-GDXL Limited Supply	FX	Coolant through, extra long non-step drill	VHM Tieflochbohrer, mit innerer Kühlmittelzufuhr, extra lange Ausführung, für Tiefbohrungen in einem Step	
		Serie extra lunga-con fori di lubrificazione-alta velocità senza step	Type extra long, avec trous d'huile. Forage profond sans débourrage	
CAO-GDXL		Coolant through, extra long non-step drilling in Cu & Al alloys	VHM Tieflochbohrer, für die Bearbeitung von Cu und Al in einem Step, mit innerer Kühlmittelzufuhr	
		Fori di lubrificazione, serie extra lunga senza step-per fori profondità su Cu, Al	Avec trous d'huile, forage profond sans débourrage dans Cu, Al	
 **HYP-HP-3D** New Name New Sizes	TiAlN	General purpose 3D drill	3D, für allgemeine Anwendungen	
		3D fori raccomandato per applicazioni generali	3D, applications générales	
 **HYP-HP-5D** NEW	TiAlN	General purpose 5D drill	5D Bohrer-Allgemeine Anwendungen	
		Con 5D fori raccomandato per applicazioni generali	Foret 5D application générale	
 **HYP-HPO-3D** New Name New Sizes	TiAlN	Coolant through general 3D drill	VHM - Bohrer, 3D, für allgemeine Anwendungen, mit innerer Kühlmittelzufuhr	
		3D fori raccomandato per applicazioni generali-confori di lubrificazione	Carbure micrograin, 3D, applications générales	
 **HYP-HPO-5D** New Name New Sizes	TiAlN	Coolant through, general 5D drill	VHM - Bohrer, 5D, für allgemeine Anwendungen, mit innerer Kühlmittelzufuhr	
		5D fori raccomandato per applicazioni generali-confori di lubrificazione	Carbure micrograin, 5D, applications générales	
 **HYP-HPO-8D** NEW	TiAlN	Coolant through, general 8D drill	VHM - Bohrer, 8D, für allgemeine Anwendungen, mit innerer Kühlmittelzufuhr	
		8D fori raccomandato per applicazioni generali-confori di lubrificazione	Carbure micrograin, 8D, applications générales	
 **WH55-5D** NEW	WXS	For hard materials up to 55 HRC	Für gehärtete Materialien bis 55 HRC	
		Per materiali con durezza fino a 55 HRC	Pour des matériaux durs jusqu'à 55 HRC	
 **WHO55-5D** NEW	WXS	For hard materials up to 55 HRC	Für gehärtete Materialien bis 55 HRC	
		Per materiali con durezza fino a 55 HRC	Pour des matériaux durs jusqu'à 55 HRC	
 **WH70-DRL** NEW	WXS	For hard materials up to 70 HRC	Für gehärtete Materialien bis 70 HRC	
		Per materiali con durezza fino a 70 HRC	Pour des matériaux durs jusqu'à 70 HRC	
 **SH-DRL** Limited Supply		For hard materials up to 72 HRC	Für gehärtete Materialien bis 72 HRC	
		Per materiali con durezza fino a 72 HRC	Pour des matériaux durs jusqu'à 72 HRC	
 **EX-H-DRL**		For removing broken taps	Zum Entfernen von abgebrochenen Gewindebohrern	
		Per la rimozione di maschi rotti e bulloni danneggiati	Pour extraction de tarauds cassés	

SPECIFICATION		RANGE	PAGE
SOLID CARBIDE			
Kølekanaler, extra lang, step-fri boring, 20D Refrigeración interna, extra-larga hasta 20D con avance ininterrumpido	Kylkanaler, extra långa borr för step fri borrning, 20D Особо длинные сверла с внутренними каналами для непрерывного сверления 20D	3 ~ 12	C.46
Kølekanaler, extra lang, step-fri boring, 30D Refrigeración interna, extra-larga hasta 30D con avance ininterrumpido	Kylkanaler, extra långa borr för step fri borrning, 30D Особо длинные сверла с внутренними каналами для непрерывного сверления 30D	3,5 ~ 10	C.47
Kølekanaler, extra lang, step-fri boring Refrigeración interna extra-larga para taladrado ininterrumpido	Kylkanaler, extra långa borr för step fri borrning Сверхдлинное сверло с каналами для СОЖ для непрерывного сверления	2 ~ 12	C.48
Kølekanaler for dybe huller i Kobber og aluminium, step-fri boring Refrigeración interna para taladrado profundo de aleaciones de Cu y Aluminio	Kylkanaler, extra långa borr för step fri borrning i koppar & Aluminium Сверхдлинное сверло с каналами для СОЖ для медных и алюминиевых сплавов	3 ~ 10	C.49
Generelt brug, 3D boring Empleo general para taladrado 3D	Allround 3D borr Сверло длиной 3D общего назначения	3 ~ 20	C.50 - C.51
Universalt 5D bor Broca 5D empleo general	Allround 5D Многоцелевое сверло 5D	3 ~ 20	C.52 - C.53
Kølekanaler, generelt brug, 3D boring Refrigeración interna para taladrado general 3D	Kylkanaler, allround för 3D Сверло длиной 3D общего назначения с каналами для СОЖ	3 ~ 20	C.54 - C.55
Kølekanaler, generelt brug, 5D boring Refrigeración interna para taladrado general 5D	Kylkanaler, allround för 5D Сверло длиной 5D общего назначения с каналами для СОЖ	3 ~ 20	C.56 - C.57
Kølekanaler, generelt brug, 8D boring Refrigeración interna para taladrado general 8D	Kylkanaler, allround för 8D Сверло длиной 8D общего назначения с каналами для СОЖ	5 ~ 16	C.58
For hårde materialer op til 55 HRC Para materiales duros hasta 55 HRC	För hårda material upp till 55 HRC Для закаленных сталей < 55 HRC	2 ~ 12	C.59
For hårde materialer op til 55 HRC Para materiales duros hasta 55 HRC	För hårda material upp till 55 HRC Для закаленных сталей < 55 HRC	3,3 ~ 12	C.60
For hårde materialer op til 70 HRC Para materiales duros hasta 70 HRC	För hårda material upp till 70 HRC Для закаленных сталей < 70 HRC	2 ~ 12	C.61
For hårde materialer op til 72 HRC Para materiales duros hasta 72 HRC	För hårda material upp till 72 HRC Для закаленных сталей < 72 HRC	2 ~ 16,6	C.62
Til udboring af knækkede gevindtappe Para extraer machos rotos	För borttagning av brutna gängtappar Для удаления сломанных метчиков	2 ~ 12	C.63

NAME		SPECIFICATION	
XPM			
 **VPH-GDS**	WDI	Ideal for alloy steel, short Corta, ideale per acciai legati	Besonders geeignet für legierten Stahl, kurze Bohrungen Idéale pour des aciers alliés, court
 **VP-GDR**	V	Regular for high speed drilling Regolare, per forature ad alta velocità	Geeignet für Hochleistungsbohren (HSC) Normal, pour forage haute vitesse
 **VP-HO-GDR**	V	Coolant through, regular for high speed drilling Regolare, con fori di lubrificazione, per forature ad alta velocità	Mit Innenkühlung für Hochleistungsbohren (HSC) Avec arrosage central, normal, pour forage haute vitesse
HSSE / HSS-Co			
 **NEXUS-GDS**	WDI	Stub for high speed drilling Corta, per forature ad alta velocità	Kurz, für Hochleistungsbohren (HSC) Court, pour forage haute vitesse
 **NEXUS-GDR**	WDI	Regular for high speed drilling Regolare, per forature ad alta velocità	Geeignet für Hochleistungsbohren (HSC) Normal, pour forage haute vitesse
 **EX-SUS-GDS** New Sizes	TIN	Ideal for stainless and Aluminium, stub Corta, ideale per acciai inossidabili e alluminio	Besonders geeignet für VA Materialien und Aluminium Idéal pour les aciers inoxydables et aluminium, court
 **EX-SUS-GDR**	TIN	Ideal for stainless and Aluminium, regular Regolare, ideale per acciai inossidabili e alluminio	Besonders geeignet für VA Materialien und Aluminium Idéal pour les aciers inoxydables et aluminium, normal
 **V-HDO-GDR**	V	Cooland through, general purpose, regular Regolare, con fori di lubrificazione, per applicazioni generali	HSS Co8, mit innerer Kühlmittelzufuhr, für allgemeine Anwendungen, normale Ausführung Avec arrosage central, pour application universelles, normal
TDXL	WXL	Non-step 10D, 15D, 20 D without coolant through Foratura continua, 10D, 15D, 20 D senza fori di lubrificazione	Ohne Step, 10D, 15D, 20 D Ohne innerer Kühlmittelzuführ Forage en continu, 10D, 15D, 20 D, sans arrosage central
 **EX-GDXL**	TIN	Extra long for general applications Extra lungo per applicazioni generali	Extra langer Bohrer, für allgemeine Anwendungen Extra long, pour applications universelles
DIN 338			
 **V-SDR**	V	For general applications Per applicazioni generali	Für allgemeine Bearbeitung Pour applications générales
SPOTTING DRILLS			
 **FX-LDS**	FX	Carbide, for centering and chamfering Carburo monoblocco-rivestimento FX	Besonders geeignet für legierten Stahl, kurze Bohrungen Idéale pour des aciers alliés, court
 **HYP-LDS** NEW		Carbide, for centering and chamfering Carburo monoblocco-rivestimento	Besonders geeignet für legierten Stahl, kurze Bohrungen Idéale pour des aciers alliés, court
 **(TIN)-NC-LDS** NEW	TIN	HSS, for centering and chamfering Standard HSS-per centratura e svasatura su centri di lavoro	Geeignet für Hochleistungsbohren (HSC) Normal, pour forage haute vitesse
 **HY-PRO-CARB**		Multi purpose chamfering and centering tool Utensile per scanalature, multiuso, per centri di foratura	Vielseitig einsetzbares Faswerkzeug und Zentri-erwerkzeug Foret multi-fonction, pour pointage et chanfreinage

SPECIFICATION			RANGE	PAGE
XPM				
Ideel til legeret stål, kort	Perfekt för legerat stål, kort		2 ~ 13	C.64
Ideal para aceros aleados, corta	Идеально для легированных сталей, короткое			
Mellemlang, til high speed boring	Normal lång, för high speed borrning		2 ~ 32	C.65 - C.66
Regular para taladrado a alta velocidad	Сверло нормальной длины для скоростного сверления			
Kølekanaler, mellemlang, til high speed boring	Kylkanaler, normal lång, för high speed borrning		6 ~ 32	C.67
Refrigeración interna para taladrar a alta velocidad	Сверло нормальной длины для скоростного сверления с каналами для СОЖ			
HSSE / HSS-Co				
Kort, til high speed boring	Kort för high speed borring		1 ~ 12	C.68
Corta para taladrado a alta velocidad	Короткое сверло для скоростного сверления			
Mellemlang, til high speed boring	Normal lång, för high speed drilling		2 ~ 12	C.69
Regular para taladrado a alta velocidad	Сверло нормальной длины для скоростного сверления			
Ekstra kort, ideel til rusfrit stål og aluminium	Perfekt för rostfria stål och aluminium, kort		0,5 ~ 20	C.70 ~ C.76
Ideal para aceros inoxidables y aluminio, corta	Идеально для нержавеющих сталей и алюминия, короткое			
Mellemlang, ideel til rusfrit stål og aluminium	Normal, perfekt för rostfria stål och Aluminium		2 ~ 20	C.77 ~ C.81
Regular, ideal para aceros inoxidables y aluminio	Идеально для нержавеющих сталей и алюминия, короткое			
Kølekanaler, generelt brug, mellemlang	Kylkanaler, allround, normal lång		6 ~ 32	C.82
Refriferación interna, emplo general, regular	Сверло нормальной длины общего назначения с каналами для СОЖ			
Uden udspåning i, 10D, 15D, 20 D, uden Kølekanaler	Step fri borning, 10D, 15D, 20 D, utan Kylkanaler		1,6 ~ 12	C.83 - C.84
Taladrado ininterrumpido 10D, 15D, 20 D, sin agujeros de refrigeración	Непрерывное сверление глубиной 10 D, 15 D, 20 D без внутреннего охлаждения			
ekstra lang, generelt brug	Extra ånga borr, allround		2 ~ 13	C.85 ~ C.88
Broca extra-larga para aplicaciones generales	Особо длинное общего назначения			
DIN 338				
Generelt brug	Allround bearbetning		2 ~ 13	C.89
Para aplicaciones generales	Общего назначения			
SPOTTING DRILLS				
Ideel til legeret stål, kort	Perfekt för legerat stål, kort		3 ~ 25	C.90
Ideal para aceros aleados, corta	Идеально для легированных сталей, короткое			
Ideel til legeret stål, kort	Perfekt för legerat stål, kort		3 ~ 20	C.91
Ideal para aceros aleados, corta	Идеально для легированных сталей, короткое			
Mellemlang, til high speed boring	Normal lång, för high speed borrning		3 ~ 25	C.92
Regular para taladrado a alta velocidad	Сверло нормальной длины для скоростного сверления			
Multifunktionsværktøj, til centrering og reifning	Multifunktionsverktyg för centrering och fasning osv.		8 ~ 26,6	C.93 ~ C.95
Herramienta multi-función para centrar y chaflanar	Универсальный инструмент для центровки и снятия фасок			

FOR DRILLING DEPTH ≤ 2D

NAME	Appearance	Material	Surface Treatment	Range dia. (mm)	Page
WX-MS-GDS		CARBIDE	WX	0,2 ~ 5	C.26~C.28
WD-2D NEW		CARBIDE	WDI	2 ~ 12	C.30
WD-4D NEW		CARBIDE	WDI	2 ~ 20	C.31
FS-GDS Limited Supply		CARBIDE	FX	2 ~ 6	C.32
FS-GDN Limited Supply		CARBIDE	FX	6 ~ 20	C.33
FT-GDS Limited Supply		CARBIDE	FX	2 ~ 6	C.34
FT-GDN Limited Supply		CARBIDE	FX	6 ~ 20	C.35
WDO-3D New Name		CARBIDE	WDI	2,8 ~ 20	C.36
WDO-5D New Name		CARBIDE	WDI	2,8 ~ 20	C.37-C.38
FTO-GDN Limited Supply		CARBIDE	FX	3 ~ 20	C.39
TRS-HO-3D NEW		CARBIDE	WDI	5 ~ 18	C.40
TRS-HO-5D NEW		CARBIDE	WDI	5 ~ 18,5	C.41
D-STAD NEW		CARBIDE	DIA	6 ~ 12	C.42
WDO-PLT New Name		CARBIDE	WDI	3,03 ~ 12,03	C.43
HYP-HP-3D New Sizes New Name		CARBIDE	TiAlN	3 ~ 20	C.50-C.51
HYP-HP-5D NEW		CARBIDE	TiAlN	3 ~ 20	C.52-C.53
HYP-HPO-3D New Sizes New Name		CARBIDE	TiAlN	3 ~ 20	C.54-C.55
HYP-HPO-5D New Sizes New Name		CARBIDE	TiAlN	3 ~ 20	C.56-C.57
HYP-HPO-8D NEW		CARBIDE	TiAlN	5 ~ 16	C.58
SH-DRL Limited Supply		CARBIDE		2 ~ 16,6	C.62
WH55-5D NEW		CARBIDE	WXS	2 ~ 12	C.59
WHO55-5D NEW		CARBIDE	WDI	3,3 ~ 12	C.60
WH70-DRL NEW		CARBIDE	WXS	2 ~ 12	C.61
VPH-GDS		XPM	WDI	2 ~ 13	C.64
VP-GDR		XPM	V	2 ~ 32	C.65-C.66
VP-HO-GDR		XPM	V	6 ~ 32	C.67
NEXUS-GDS		HSSE	WDI	1 ~ 12	C.68
NEXUS-GDR		HSSE	WDI	2 ~ 12	C.69
EX-SUS-GDS New Sizes		HSSE	TIN	0,5 ~ 20	C.70~C.76
EX-SUS-GDR		HSSE	TIN	2 ~ 20	C.77~C.81
V-HDO-GDR		HSSE	V	6 ~ 32	C.82
V-SDR		HSSE	V	2 ~ 13	C.89

DRILL SELECTION CHART

DRILLS SELECTION CHART

	Low Carbon Steels	Medium Carbon Steels	High Carbon Steels	Alloy Steels	Hardened Steels		Quenched and Tempered Steels			Stainless Steels	Tool Steels	Cast Iron	Ductile Cast iron	Copper Alloys	Aluminium	Aluminium Alloy Cast.	Titanium	Titanium Alloys	Inconel	Magnesium Alloy	CFRP
	C~ 0.25%	C 0.25% ~ 0.45%	C 0.45% ~	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~62 HRC	62~70 HRC	SUS	SKD SKS	FC	FCD	Cu	Al	AC	Ti	Tiall	Inc	AZ91D	
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FOR DRILLING DEPTH ≤ 3D

NAME	Appearance	Material	Surface Treatment	Range dia. (mm)	Page
WX-MS-GDS		CARBIDE	WX	0,2 ~ 5	C.26~C.28
WD-4D NEW		CARBIDE	WDI	2 ~ 20	C.31
FS-GDS Limited Supply		CARBIDE	FX	2 ~ 6	C.32
FS-GDN Limited Supply		CARBIDE	FX	6 ~ 20	C.33
FT-GDS Limited Supply		CARBIDE	FX	2 ~ 6	C.34
FT-GDN Limited Supply		CARBIDE	FX	6 ~ 20	C.35
WDO-3D New Name		CARBIDE	WDI	2,8 ~ 20	C.36
WDO-5D New Name		CARBIDE	WDI	2,8 ~ 20	C.37-C.38
FTO-GDN Limited Supply		CARBIDE	FX	3 ~ 20	C.39
TRS-HO-3D NEW		CARBIDE	WDI	5 ~ 18	C.40
TRS-HO-5D NEW		CARBIDE	WDI	5 ~ 18,5	C.41
D-STAD NEW		CARBIDE	DIA	6 ~ 12	C.42
HYP-HP-3D New Sizes New Name		CARBIDE	TiAlN	3 ~ 20	C.50-C.51
HYP-HP-5D NEW		CARBIDE	TiAlN	3 ~ 20	C.52-C.53
HYP-HPO-3D New Sizes New Name		CARBIDE	TiAlN	3 ~ 20	C.54-C.55
HYP-HPO-5D New Sizes New Name		CARBIDE	TiAlN	3 ~ 20	C.56-C.57
HYP-HPO-8D NEW		CARBIDE	TiAlN	5 ~ 16	C.58
SH-DRL Limited Supply		CARBIDE		2 ~ 16,6	C.62
WH55-5D NEW		CARBIDE	WXS	2 ~ 12	C.59
WHO55-5D NEW		CARBIDE	WDI	3,3 ~ 12	C.60
WH70-DRL NEW		CARBIDE	WXS	2 ~ 12	C.61
VPH-GDS		XPM	WDI	2 ~ 13	C.64
VP-GDR		XPM	V	2 ~ 32	C.65-C.66
VP-HO-GDR		XPM	V	6 ~ 32	C.67
NEXUS-GDS		HSSE	WDI	1 ~ 12	C.68
NEXUS-GDR		HSSE	WDI	2 ~ 12	C.69
EX-SUS-GDS New Sizes		HSSE	TIN	0,5 ~ 20	C.70-C.76
EX-SUS-GDR		HSSE	TIN	2 ~ 20	C.77-C.81
V-HDO-GDR		HSSE	V	6 ~ 32	C.82
V-SDR		HSSE	V	2 ~ 13	C.89

DRILL SELECTION CHART

DRILLS SELECTION CHART

	Low Carbon Steels	Medium Carbon Steels	High Carbon Steels	Alloy Steels	Hardened Steels		Quenched and Tempered Steels			Stainless Steels	Tool Steels	Cast Iron	Ductile Cast iron	Copper Alloys	Aluminium	Aluminium Alloy Cast.	Titanium	Titanium Alloys	Inconel	Magnesium Alloy	CFRP
	C~ 0.25%	C 0.25% ~ 0.45%	C 0.45% ~	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~62 HRC	62~70 HRC	SUS	SKD SKS	FC	FCD	Cu	Al	AC	Ti	Tiall	Inc	AZ91D	
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FOR DRILLING DEPTH ≤ 4D

NAME	Appearance	Material	Surface Treatment	Range dia. (mm)	Page
WX-MS-GDS		CARBIDE	WX	0,2 ~ 5	C.26~C.28
WD-4D NEW		CARBIDE	WDI	2 ~ 20	C.31
FS-GDS Limited Supply		CARBIDE	FX	2 ~ 6	C.32
FS-GDN Limited Supply		CARBIDE	FX	6 ~ 20	C.33
FT-GDS Limited Supply		CARBIDE	FX	2 ~ 6	C.34
FT-GDN Limited Supply		CARBIDE	FX	6 ~ 20	C.35
WDO-5D New Name		CARBIDE	WDI	2,8 ~ 20	C.37-C.38
FTO-GDN Limited Supply		CARBIDE	FX	3 ~ 20	C.39
TRS-HO-5D NEW		CARBIDE	WDI	5 ~ 18,5	C.41
HYP-HP-5D NEW		CARBIDE	TiAlN	3 ~ 20	C.52-C.53
HYP-HPO-5D New Sizes New Name		CARBIDE	TiAlN	3 ~ 20	C.56-C.57
HYP-HPO-8D NEW		CARBIDE	TiAlN	5 ~ 16	C.58
SH-DRL Limited Supply		CARBIDE		2 ~ 16,6	C.62
WH55-5D NEW		CARBIDE	WXS	2 ~ 12	C.59
WHO55-5D NEW		CARBIDE	WDI	3,3 ~ 12	C.60
WH70-DRL NEW		CARBIDE	WXS	2 ~ 12	C.61
VPH-GDS		XPM	WDI	2 ~ 13	C.64
VP-GDR		XPM	V	2 ~ 32	C.65-C.66
VP-HO-GDR		XPM	V	6 ~ 32	C.67
NEXUS-GDS		HSSE	WDI	1 ~ 12	C.68
NEXUS-GDR		HSSE	WDI	2 ~ 12	C.69
EX-SUS-GDS New Sizes		HSSE	TiN	0,5 ~ 20	C.70~C.76
EX-SUS-GDR		HSSE	TiN	2 ~ 20	C.77~C.81
V-HDO-GDR		HSSE	V	6 ~ 32	C.82
V-SDR		HSSE	V	2 ~ 13	C.89

FOR DRILLING DEPTH ≤ 5D

NAME	Appearance	Material	Surface Treatment	Range dia. (mm)	Page
FS-GDN		CARBIDE	FX	6 ~ 20	C.33
FT-GDN		CARBIDE	FX	6 ~ 20	C.35
WDO-5D New Name		CARBIDE	WDI	2,8 ~ 20	C.37-C.38
FTO-GDN Limited Supply		CARBIDE	FX	3 ~ 20	C.39
TRS-HO-5D NEW		CARBIDE	WDI	5 ~ 18,5	C.41
HYP-HP-5D NEW		CARBIDE	TiAlN	3 ~ 20	C.52-C.53

DRILL SELECTION CHART

DRILLS SELECTION CHART

Low Carbon Steels	Medium Carbon Steels	High Carbon Steels	Alloy Steels	Hardened Steels		Quenched and Tempered Steels			Stainless Steels	Tool Steels	Cast Iron	Ductile Cast iron	Copper Alloys	Aluminium	Aluminium Alloy Cast.	Titanium	Titanium Alloys	Inconel	Magnesium Alloy	CFRP
C~ 0.25%	C 0.25% ~ 0.45%	C 0.45% ~	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~62 HRC	62~70 HRC	SUS	SKD SKS	FC	FCD	Cu	Al	AC	Ti	Tiall	Inc	AZ91D	
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Low Carbon Steels	Medium Carbon Steels	High Carbon Steels	Alloy Steels	Hardened Steels		Quenched and Tempered Steels			Stainless Steels	Tool Steels	Cast Iron	Ductile Cast iron	Copper Alloys	Aluminium	Aluminium Alloy Cast.	Titanium	Titanium Alloys	Inconel	Magnesium Alloy	CFRP
C~ 0.25%	C 0.25% ~ 0.45%	C 0.45% ~	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~62 HRC	62~70 HRC	SUS	SKD SKS	FC	FCD	Cu	Al	AC	Ti	Tiall	Inc	AZ91D	

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FOR DRILLING DEPTH ≤ 5D

NAME	Appearance	Material	Surface Treatment	Range dia. (mm)	Page
HYP-HPO-5D New Sizes New Name		CARBIDE	TiAlN	3 ~ 20	C.56-C.57
HYP-HPO-8D NEW		CARBIDE	TiAlN	5 ~ 16	C.58
VP-GDR		XPM	V	2 ~ 32	C.65-C.66
VP-HO-GDR		XPM	V	6 ~ 32	C.67
NEXUS-GDR		HSSE	WDI	2 ~ 12	C.69
EX-SUS-GDR		HSSE	TiN	2 ~ 20	C.77~C.81
WH55-5D NEW		CARBIDE	WXS	2 ~ 12	C.59
WHO55-5D NEW		CARBIDE	WDI	3,3 ~ 12	C.60
WH70-DRL NEW		CARBIDE	WXS	2 ~ 12	C.61
V-HDO-GDR		HSSE	V	6 ~ 32	C.82
EX-GDXL		HSS-Co	TiN	2 ~ 13	C.85~C.88

FOR DRILLING DEPTH ≤ 8D

NAME	Appearance	Material	Surface Treatment	Range dia. (mm)	Page
EX-GDXL		HSS-Co	TiN	2 ~ 13	C.85~C.88
HYP-HPO-8D NEW		CARBIDE	TiAlN	5 ~ 16	C.58

FOR DRILLING DEPTH ≤ 10D

NAME	Appearance	Material	Surface Treatment	Range dia. (mm)	Page
MRS-GDL		CARBIDE	SC	0,5 ~ 3	C.29
WDO-10D New Name		CARBIDE	WDI	2 ~ 12	C.44
TDXL		HSS-Co	WXL	1,6 ~ 12	C.83-C.84
EX-GDXL		HSS-Co	TiN	2 ~ 13	C.85~C.88

FOR DRILLING DEPTH ≤ 15D

NAME	Appearance	Material	Surface Treatment	Range dia. (mm)	Page
WDO-15D NEW		CARBIDE	WDI	3 ~ 12	C.45
FTO-GDXL Limited Supply		CARBIDE	FX	3 ~ 10	C.48
CAO-GDXL		CARBIDE		3 ~ 10	C.49
TDXL		HSS-Co	WXL	1,6 ~ 12	C.83-C.84
EX-GDXL		HSS-Co	TiN	2 ~ 13	C.85~C.88



DRILL SELECTION CHART

DRILLS SELECTION CHART

	Low Carbon Steels	Medium Carbon Steels	High Carbon Steels	Alloy Steels	Hardened Steels		Quenched and Tempered Steels			Stainless Steels	Tool Steels	Cast Iron	Ductile Cast iron	Copper Alloys	Aluminium	Aluminium Alloy Cast.	Titanium	Titanium Alloys	Inconel	Magnesium Alloy	CFRP
	C~ 0.25%	C 0.25% ~ 0.45%	C 0.45% ~	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~62 HRC	62~70 HRC	SUS	SKD SKS	FC	FCD	Cu	Al	AC	Ti	Tiall	Inc	AZ91D	
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	Low Carbon Steels	Medium Carbon Steels	High Carbon Steels	Alloy Steels	Hardened Steels		Quenched and Tempered Steels			Stainless Steels	Tool Steels	Cast Iron	Ductile Cast iron	Copper Alloys	Aluminium	Aluminium Alloy Cast.	Titanium	Titanium Alloys	Inconel	Magnesium Alloy	CFRP
	C~ 0.25%	C 0.25% ~ 0.45%	C 0.45% ~	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~62 HRC	62~70 HRC	SUS	SKD SKS	FC	FCD	Cu	Al	AC	Ti	Tiall	Inc	AZ91D	
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	Low Carbon Steels	Medium Carbon Steels	High Carbon Steels	Alloy Steels	Hardened Steels		Quenched and Tempered Steels			Stainless Steels	Tool Steels	Cast Iron	Ductile Cast iron	Copper Alloys	Aluminium	Aluminium Alloy Cast.	Titanium	Titanium Alloys	Inconel	Magnesium Alloy	CFRP
	C~ 0.25%	C 0.25% ~ 0.45%	C 0.45% ~	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~62 HRC	62~70 HRC	SUS	SKD SKS	FC	FCD	Cu	Al	AC	Ti	Tiall	Inc	AZ91D	
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	Low Carbon Steels	Medium Carbon Steels	High Carbon Steels	Alloy Steels	Hardened Steels		Quenched and Tempered Steels			Stainless Steels	Tool Steels	Cast Iron	Ductile Cast iron	Copper Alloys	Aluminium	Aluminium Alloy Cast.	Titanium	Titanium Alloys	Inconel	Magnesium Alloy	CFRP
	C~ 0.25%	C 0.25% ~ 0.45%	C 0.45% ~	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~62 HRC	62~70 HRC	SUS	SKD SKS	FC	FCD	Cu	Al	AC	Ti	Tiall	Inc	AZ91D	
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FOR DRILLING DEPTH ≤ 20D

NAME	Appearance	Material	Surface Treatment	Range dia. (mm)	Page
WDO-20D NEW		CARBIDE	WDI	3 ~ 12	C.46
FTO-GDXL Limited Supply		CARBIDE	FX	3 ~ 10	C.48
CAO-GDXL		CARBIDE		3 ~ 10	C.49
TDXL		HSS-Co	WXL	1,6 ~ 12	C.83-C.84
EX-GDXL		HSS-Co	TIN	2 ~ 13	C.85~C.88

FOR DRILLING DEPTH ≤ 30D

NAME	Appearance	Material	Surface Treatment	Range dia. (mm)	Page
WDO-30D NEW		CARBIDE	WDI	3,5 ~ 10	C.47
FTO-GDXL Limited Supply		CARBIDE	FX	3 ~ 10	C.48
CAO-GDXL		CARBIDE		3 ~ 10	C.49



DRILL SELECTION CHART

DRILLS SELECTION CHART

	Low Carbon Steels	Medium Carbon Steels	High Carbon Steels	Alloy Steels	Hardened Steels		Quenched and Tempered Steels			Stainless Steels	Tool Steels	Cast Iron	Ductile Cast iron	Copper Alloys	Aluminium	Aluminium Alloy Cast.	Titanium	Titanium Alloys	Inconel	Magnesium Alloy	CFRP
	C~ 0.25%	C 0.25% ~ 0.45%	C 0.45% ~	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~62 HRC	62~70 HRC	SUS	SKD SKS	FC	FCD	Cu	Al	AC	Ti	Tiall	Inc	AZ91D	
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	Low Carbon Steels	Medium Carbon Steels	High Carbon Steels	Alloy Steels	Hardened Steels		Quenched and Tempered Steels			Stainless Steels	Tool Steels	Cast Iron	Ductile Cast iron	Copper Alloys	Aluminium	Aluminium Alloy Cast.	Titanium	Titanium Alloys	Inconel	Magnesium Alloy	CFRP
	C~ 0.25%	C 0.25% ~ 0.45%	C 0.45% ~	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~62 HRC	62~70 HRC	SUS	SKD SKS	FC	FCD	Cu	Al	AC	Ti	Tiall	Inc	AZ91D	
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															○	○	◎				



HIGH PERFORMANCE
- Small size for precision operation

HIGH PERFORMANCE
- Kleine Abmessungen für hochpräzise Bearbeitungen

ALTA PRESTAZIONE
- Micropunta per operazioni di precisione

HAUTE PERFORMANCE
- Petites dimensions pour des opérations de précision

HIGH PERFORMANCE
- Små størrelser for præcisionsbearbejdning

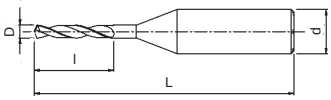
HIGH PERFORMANCE
- Små storlekar för precisionsarbeten

ALTAS PRESTACIONES
- Tamaño pequeño para operaciones de precisión

Высокая производительность
- Маленькие диаметры для точного сверления







EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
3300020	0,20	38	1,5	3	●		3300072	0,72	38	4,5	3	●	
3300021	0,21	38	1,5	3	●		3300073	0,73	38	4,5	3	●	
3300022	0,22	38	1,5	3	●		3300074	0,74	38	4,5	3	●	
3300023	0,23	38	1,5	3	●		3300075	0,75	38	4,5	3	●	
3300024	0,24	38	1,5	3	●		3300076	0,76	38	5,0	3	●	
3300025	0,25	38	1,5	3	●		3300077	0,77	38	5,0	3	●	
3300026	0,26	38	1,5	3	●		3300078	0,78	38	5,0	3	●	
3300027	0,27	38	1,5	3	●		3300079	0,79	38	5,0	3	●	
3300028	0,28	38	1,5	3	●		3300080	0,80	38	5,0	3	●	
3300029	0,29	38	1,5	3	●		3300081	0,81	38	5,0	3	●	
3300030	0,30	38	1,5	3	●		3300082	0,82	38	5,0	3	●	
3300031	0,31	38	2,0	3	●		3300083	0,83	38	5,0	3	●	
3300032	0,32	38	2,0	3	●		3300084	0,84	38	5,0	3	●	
3300033	0,33	38	2,0	3	●		3300085	0,85	38	5,0	3	●	
3300034	0,34	38	2,0	3	●		3300086	0,86	38	5,5	3	●	
3300035	0,35	38	2,0	3	●		3300087	0,87	38	5,5	3	●	
3300036	0,36	38	2,0	3	●		3300088	0,88	38	5,5	3	●	
3300037	0,37	38	2,0	3	●		3300089	0,89	38	5,5	3	●	
3300038	0,38	38	2,0	3	●		3300090	0,90	38	5,5	3	●	
3300039	0,39	38	2,5	3	●		3300091	0,91	38	5,5	3	●	
3300040	0,40	38	2,5	3	●		3300092	0,92	38	5,5	3	●	
3300041	0,41	38	2,5	3	●		3300093	0,93	38	5,5	3	●	
3300042	0,42	38	2,5	3	●		3300094	0,94	38	5,5	3	●	
3300043	0,43	38	2,5	3	●		3300095	0,95	38	5,5	3	●	
3300044	0,44	38	2,5	3	●		3300096	0,96	38	6,0	3	●	
3300045	0,45	38	2,5	3	●		3300097	0,97	38	6,0	3	●	
3300046	0,46	38	2,5	3	●		3300098	0,98	38	6,0	3	●	
3300047	0,47	38	2,5	3	●		3300099	0,99	38	6,0	3	●	
3300048	0,48	38	2,5	3	●		3300100	1,00	38	6,0	3	●	
3300049	0,49	38	3,0	3	●		3300101	1,01	38	6,0	3	●	
3300050	0,50	38	3,0	3	●		3300102	1,02	38	6,0	3	●	
3300051	0,51	38	3,0	3	●		3300103	1,03	38	6,0	3	●	
3300052	0,52	38	3,0	3	●		3300104	1,04	38	6,0	3	●	
3300053	0,53	38	3,0	3	●		3300105	1,05	38	6,0	3	●	
3300054	0,54	38	3,5	3	●		3300106	1,06	38	6,0	3	●	
3300055	0,55	38	3,5	3	●		3300107	1,07	42	7,0	3	●	
3300056	0,56	38	3,5	3	●		3300108	1,08	42	7,0	3	●	
3300057	0,57	38	3,5	3	●		3300109	1,09	42	7,0	3	●	
3300058	0,58	38	3,5	3	●		3300110	1,10	42	7,0	3	●	
3300059	0,59	38	3,5	3	●		3300111	1,11	42	7,0	3	●	
3300060	0,60	38	3,5	3	●		3300112	1,12	42	7,0	3	●	
3300061	0,61	38	4,0	3	●		3300113	1,13	42	7,0	3	●	
3300062	0,62	38	4,0	3	●		3300114	1,14	42	7,0	3	●	
3300063	0,63	38	4,0	3	●		3300115	1,15	42	7,0	3	●	
3300064	0,64	38	4,0	3	●		3300116	1,16	42	7,0	3	●	
3300065	0,65	38	4,0	3	●		3300117	1,17	42	7,0	3	●	
3300066	0,66	38	4,0	3	●		3300118	1,18	42	7,0	3	●	
3300067	0,67	38	4,0	3	●		3300119	1,19	42	8,0	3	●	
3300068	0,68	38	4,5	3	●		3300120	1,20	42	8,0	3	●	
3300069	0,69	38	4,5	3	●		3300121	1,21	42	8,0	3	●	
3300070	0,70	38	4,5	3	●		3300122	1,22	42	8,0	3	●	
3300071	0,71	38	4,5	3	●		3300123	1,23	42	8,0	3	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
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SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
	○		◎	◎	○	○		

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE
- Small size for precision operation

HIGH PERFORMANCE
- Kleine Abmessungen für hochpräzise Bearbeitungen

ALTA PRESTAZIONE
- Micropunta per operazioni di precisione

HAUTE PERFORMANCE
- Petites dimensions pour des opérations de précision

HIGH PERFORMANCE
- Små størrelser for præcisionsbearbejdning

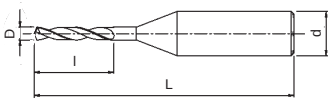
HIGH PERFORMANCE
- Små storlekar för precisionsarbeten

ALTAS PRESTACIONES
- Tamaño pequeño para operaciones de precisión

Высокая производительность
- Маленькие диаметры для точного сверления







EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
3300124	1,24	42	8,0	3	●		3300176	1,76	42	11,0	3	●	
3300125	1,25	42	8,0	3	●		3300177	1,77	42	11,0	3	●	
3300126	1,26	42	8,0	3	●		3300178	1,78	42	11,0	3	●	
3300127	1,27	42	8,0	3	●		3300179	1,79	42	11,0	3	●	
3300128	1,28	42	8,0	3	●		3300180	1,80	42	11,0	3	●	
3300129	1,29	42	8,0	3	●		3300181	1,81	42	11,0	3	●	
3300130	1,30	42	8,0	3	●		3300182	1,82	42	11,0	3	●	
3300131	1,31	42	8,0	3	●		3300183	1,83	42	11,0	3	●	
3300132	1,32	42	8,0	3	●		3300184	1,84	42	11,0	3	●	
3300133	1,33	42	9,0	3	●		3300185	1,85	42	11,0	3	●	
3300134	1,34	42	9,0	3	●		3300186	1,86	42	11,0	3	●	
3300135	1,35	42	9,0	3	●		3300187	1,87	42	11,0	3	●	
3300136	1,36	42	9,0	3	●		3300188	1,88	42	11,0	3	●	
3300137	1,37	42	9,0	3	●		3300189	1,89	42	11,0	3	●	
3300138	1,38	42	9,0	3	●		3300190	1,90	42	11,0	3	●	
3300139	1,39	42	9,0	3	●		3300191	1,91	50	12,0	3	●	
3300140	1,40	42	9,0	3	●		3300192	1,92	50	12,0	3	●	
3300141	1,41	42	9,0	3	●		3300193	1,93	50	12,0	3	●	
3300142	1,42	42	9,0	3	●		3300194	1,94	50	12,0	3	●	
3300143	1,43	42	9,0	3	●		3300195	1,95	50	12,0	3	●	
3300144	1,44	42	9,0	3	●		3300196	1,96	50	12,0	3	●	
3300145	1,45	42	9,0	3	●		3300197	1,97	50	12,0	3	●	
3300146	1,46	42	9,0	3	●		3300198	1,98	50	12,0	3	●	
3300147	1,47	42	9,0	3	●		3300199	1,99	50	12,0	3	●	
3300148	1,48	42	9,0	3	●		3300200	2,00	50	12,0	3	●	
3300149	1,49	42	9,0	3	●		3300205	2,05	50	12,0	3	●	
3300150	1,50	42	9,0	3	●		3300210	2,10	50	12,0	3	●	
3300151	1,51	42	10,0	3	●		3300215	2,15	50	13,0	3	●	
3300152	1,52	42	10,0	3	●		3300220	2,20	50	13,0	3	●	
3300153	1,53	42	10,0	3	●		3300225	2,25	50	13,0	3	●	
3300154	1,54	42	10,0	3	●		3300230	2,30	50	13,0	3	●	
3300155	1,55	42	10,0	3	●		3300235	2,35	50	13,0	3	●	
3300156	1,56	42	10,0	3	●		3300240	2,40	50	14,0	3	●	
3300157	1,57	42	10,0	3	●		3300245	2,45	50	14,0	3	●	
3300158	1,58	42	10,0	3	●		3300250	2,50	50	14,0	3	●	
3300159	1,59	42	10,0	3	●		3300255	2,55	50	14,0	3	●	
3300160	1,60	42	10,0	3	●		3300260	2,60	50	14,0	3	●	
3300161	1,61	42	10,0	3	●		3300265	2,65	50	14,0	3	●	
3300162	1,62	42	10,0	3	●		3300270	2,70	50	16,0	3	●	
3300163	1,63	42	10,0	3	●		3300275	2,75	50	16,0	3	●	
3300164	1,64	42	10,0	3	●		3300280	2,80	50	16,0	3	●	
3300165	1,65	42	10,0	3	●		3300285	2,85	50	16,0	3	●	
3300166	1,66	42	10,0	3	●		3300290	2,90	50	16,0	3	●	
3300167	1,67	42	10,0	3	●		3300295	2,95	50	16,0	3	●	
3300168	1,68	42	10,0	3	●		3300300	3,00	50	16,0	3	●	
3300169	1,69	42	10,0	3	●		3300305	3,05	56	18,0	4	●	
3300170	1,70	42	10,0	3	●		3300310	3,10	56	18,0	4	●	
3300171	1,71	42	11,0	3	●		3300315	3,15	56	18,0	4	●	
3300172	1,72	42	11,0	3	●		3300320	3,20	56	18,0	4	●	
3300173	1,73	42	11,0	3	●		3300325	3,25	56	18,0	4	●	
3300174	1,74	42	11,0	3	●		3300330	3,30	56	18,0	4	●	
3300175	1,75	42	11,0	3	●		3300335	3,35	56	18,0	4	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	◎	○	○					○

SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
	○		◎	◎	○	○		



HIGH PERFORMANCE
- Small size for precision operation

HIGH PERFORMANCE
- Kleine Abmessungen für hochpräzise Bearbeitungen

ALTA PRESTAZIONE
- Micropunta per operazioni di precisione

HAUTE PERFORMANCE
- Petites dimensions pour des opérations de précision

HIGH PERFORMANCE
- Små størrelser for præcisionsbearbejdning

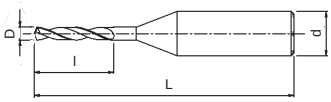
HIGH PERFORMANCE
- Små storlekar för precisionsarbeten

ALTAS PRESTACIONES
- Tamaño pequeño para operaciones de precisión

Высокая производительность
- Маленькие диаметры для точного сверления







EDP	D	L	l	d	Stock	Price
3300340	3,40	56	20,0	4	●	
3300345	3,45	56	20,0	4	●	
3300350	3,50	56	20,0	4	●	
3300355	3,55	56	20,0	4	●	
3300360	3,60	56	20,0	4	●	
3300365	3,65	56	20,0	4	●	
3300370	3,70	56	20,0	4	●	
3300375	3,75	56	20,0	4	●	
3300380	3,80	56	22,0	4	●	
3300385	3,85	56	22,0	4	●	
3300390	3,90	56	22,0	4	●	
3300395	3,95	56	22,0	4	●	
3300400	4,00	56	22,0	4	●	
3300405	4,05	64	22,0	5	●	
3300410	4,10	64	22,0	5	●	
3300415	4,15	64	22,0	5	●	
3300420	4,20	64	22,0	5	●	

EDP	D	L	l	d	Stock	Price
3300425	4,25	64	22,0	5	●	
3300430	4,30	64	24,0	5	●	
3300435	4,35	64	24,0	5	●	
3300440	4,40	64	24,0	5	●	
3300445	4,45	64	24,0	5	●	
3300450	4,50	64	24,0	5	●	
3300455	4,55	64	24,0	5	●	
3300460	4,60	64	24,0	5	●	
3300465	4,65	64	24,0	5	●	
3300470	4,70	64	24,0	5	●	
3300475	4,75	64	24,0	5	●	
3300480	4,80	64	26,0	5	●	
3300485	4,85	64	26,0	5	●	
3300490	4,90	64	26,0	5	●	
3300495	4,95	64	26,0	5	●	
3300500	5,00	64	26,0	5	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	◎	○	○					○

SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
	○		◎	◎	○	○		

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE
- Small size deep drilling for stainless steel

HIGH PERFORMANCE
- Kleine Abmessungen für Tieflochbohrungen in VA-Materialien

ALTA PRESTAZIONE
- Micropunta per forature profonde su acciai inossidabili

HAUTE PERFORMANCE
- Petites dimensions pour forage profond dans des aciers inoxidables

HIGH PERFORMANCE
- Små størrelser for dybe huller i rustfrit

HIGH PERFORMANCE
- Små storlekar för djupborrning i rostfria stål

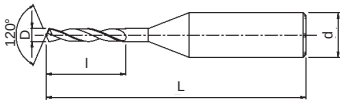
ALTO RENDIMIENTO
- Tamaño pequeño para taladrado de aceros inoxidables

Высокая производительность
- Глубокое сверление маленьких диаметров для нержавеющей стали



CARBIDE | SC | 30° | FIT

0~-0.008 | F D ≤ 1,15 | X D ≥ 1,2 | min⁻¹ C.96



EDP	D	L	l	d	Stock	Price
8577050	0,50	42	6,0	3	●	
8577054	0,54	42	6,6	3	●	
8577055	0,55	42	6,6	3	●	
8577056	0,56	42	7,2	3	●	
8577060	0,60	42	7,2	3	●	
8577063	0,63	46	7,8	3	●	
8577064	0,64	46	7,8	3	●	
8577065	0,65	46	7,8	3	●	
8577070	0,70	46	8,4	3	●	
8577071	0,71	46	9,0	3	●	
8577072	0,72	46	9,0	3	●	
8577073	0,73	46	9,0	3	●	
8577074	0,74	46	9,0	3	●	
8577075	0,75	46	9,0	3	●	
8577080	0,80	46	9,6	3	●	
8577081	0,81	46	10,2	3	●	
8577082	0,82	46	10,2	3	●	
8577090	0,90	46	10,8	3	●	
8577091	0,91	46	11,4	3	●	
8577092	0,92	46	11,4	3	●	
8577100	1,00	46	12,0	3	●	
8577110	1,10	50	13,2	3	●	
8577111	1,11	50	13,8	3	●	
8577112	1,12	50	13,8	3	●	
8577115	1,15	50	13,8	3	●	
8577120	1,20	50	14,4	3	●	
8577127	1,27	50	15,6	3	●	
8577128	1,28	50	15,6	3	●	
8577129	1,29	50	15,6	3	●	
8577130	1,30	50	15,6	3	●	
8577140	1,40	54	16,8	3	●	
8577145	1,45	54	17,4	3	●	
8577146	1,46	54	18,0	3	●	
8577147	1,47	54	18,0	3	●	
8577150	1,50	54	18,0	3	●	
8577151	1,51	54	18,6	3	●	
8577152	1,52	54	18,6	3	●	
8577153	1,53	54	18,6	3	●	

EDP	D	L	l	d	Stock	Price
8577155	1,55	54	18,6	3	●	
8577156	1,56	54	19,2	3	●	
8577157	1,57	54	19,2	3	●	
8577160	1,60	54	19,2	3	●	
8577170	1,70	58	20,4	3	●	
8577180	1,80	58	21,6	3	●	
8577181	1,81	58	22,2	3	●	
8577182	1,82	58	22,2	3	●	
8577183	1,83	58	22,2	3	●	
8577190	1,90	58	22,8	3	●	
8577198	1,98	58	24,0	3	●	
8577199	1,99	58	24,0	3	●	
8577200	2,00	58	24,0	3	●	
8577210	2,10	62	25,2	3	●	
8577212	2,12	62	25,8	3	●	
8577213	2,13	62	25,8	3	●	
8577214	2,14	62	25,8	3	●	
8577220	2,20	62	26,4	3	●	
8577229	2,29	62	27,6	3	●	
8577230	2,30	62	27,6	3	●	
8577231	2,31	62	28,2	3	●	
8577239	2,39	62	28,8	3	●	
8577240	2,40	62	28,8	3	●	
8577241	2,41	66	29,4	3	●	
8577242	2,42	66	29,4	3	●	
8577250	2,50	66	30,0	3	●	
8577255	2,55	66	30,6	3	●	
8577256	2,56	66	31,2	3	●	
8577257	2,57	66	31,2	3	●	
8577260	2,60	66	31,2	3	●	
8577270	2,70	66	32,4	3	●	
8577277	2,77	66	33,6	3	●	
8577278	2,78	66	33,6	3	●	
8577279	2,79	66	33,6	3	●	
8577280	2,80	66	33,6	3	●	
8577290	2,90	66	34,8	3	●	
8577300	3,00	66	36,0	3	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
								◎

SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc

WD-2D



HIGH PERFORMANCE
- General purpose 2D drill

HIGH PERFORMANCE
- 2D Bohrer-Allgemeine Anwendungen

ALTA PRESTAZIONE
- Con 2D fori raccomandato per applicazioni generali

HAUTE PERFORMANCE
- Foret 2D application générale

HIGH PERFORMANCE
- Universalt 2D bor

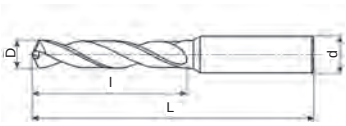
HIGH PERFORMANCE
- Allround 2D

ALTAS PRESTACIONES
- Broca 2D empleo general

Высокая производительность
- Многоцелевое сверло 2D







EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
3320200	2	62	14	4	●		3320680	6,8	79	34	8	●	
3320250	2,5	62	14	4	●		3320690	6,9	79	34	8	●	
3320260	2,6	62	14	4	●		3320700	7	79	34	8	●	
3320300	3	66	20	4	●		3320800	8	79	41	8	●	
3320330	3,3	66	20	4	●		3320850	8,5	89	47	10	●	
3320340	3,4	66	20	4	●		3320860	8,6	89	47	10	●	
3320350	3,5	66	20	4	●		3320880	8,8	89	47	10	●	
3320400	4	66	24	4	●		3320900	9	89	47	10	●	
3320420	4,2	66	24	6	●		3320950	9,5	89	47	10	●	
3320430	4,3	66	24	6	●		3321000	10	89	47	10	●	
3320450	4,5	66	24	6	●		3321030	10,3	102	55	12	●	
3320500	5	66	28	6	●		3321040	10,4	102	55	12	●	
3320510	5,1	66	28	6	●		3321050	10,5	102	55	12	●	
3320520	5,2	66	28	6	●		3321080	10,8	102	55	12	●	
3320550	5,5	66	28	6	●		3321100	11	102	55	12	●	
3320600	6	66	28	6	●		3321200	12	102	55	12	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	◎	◎	◎	◎	○	○		
SKD	**GG**	**GGG**	**Cu**	**Al**	**AC**	**Ti**	**Tiall**	**Inc**
○	○	◎						

● Delivery from stock
○ Available on short notice

WD-4D



HIGH PERFORMANCE
- General purpose 4D drill

HIGH PERFORMANCE
- 4D Bohrer-Allgemeine Anwendungen

ALTA PRESTAZIONE
- Con 4D fori raccomandato per applicazioni generali

HAUTE PERFORMANCE
- Foret 4D application générale

HIGH PERFORMANCE
- Universalt 4D bor

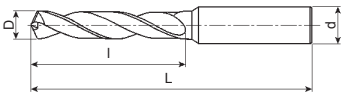
HIGH PERFORMANCE
- Allround 4D

ALTAS PRESTACIONES
- Broca 4D empleo general

Высокая производительность
- Многоцелевое сверло 4D







EDP	D	L	l	d	Stock	Price
3322200	2	66	20	4	●	
3322250	2,5	66	20	4	●	
3322260	2,6	66	20	4	●	
3322300	3	74	28	4	●	
3322330	3,3	74	28	4	●	
3322340	3,4	74	28	4	●	
3322350	3,5	74	28	4	●	
3322400	4	74	36	4	●	
3322420	4,2	74	36	6	●	
3322430	4,3	74	36	6	●	
3322450	4,5	74	36	6	●	
3322500	5	82	44	6	●	
3322510	5,1	82	44	6	●	
3322520	5,2	82	44	6	●	
3322550	5,5	82	44	6	●	
3322600	6	82	44	6	●	
3322680	6,8	91	53	8	●	
3322690	6,9	91	53	8	●	
3322700	7	91	53	8	●	
3322800	8	91	53	8	●	
3322850	8,5	103	61	10	●	
3322860	8,6	103	61	10	●	
3322880	8,8	103	61	10	●	
3322900	9	103	61	10	●	

EDP	D	L	l	d	Stock	Price
3322950	9,5	103	61	10	●	
3323000	10	103	61	10	●	
3323030	10,3	118	71	12	●	
3323040	10,4	118	71	12	●	
3323050	10,5	118	71	12	●	
3323100	11	118	71	12	●	
3323200	12	118	71	12	●	
3323250	12,5	124	77	14	●	
3323300	13	124	77	14	●	
3323350	13,5	124	77	14	●	
3323400	14	124	77	14	●	
3323450	14,5	133	83	16	●	
3323500	15	133	83	16	●	
3323550	15,5	133	83	16	●	
3323600	16	133	83	16	●	
3323650	16,5	143	93	18	●	
3323700	17	143	93	18	●	
3323750	17,5	143	93	18	●	
3323800	18	143	93	18	●	
3323850	18,5	153	101	20	●	
3323900	19	153	101	20	●	
3323950	19,5	153	101	20	●	
3324000	20	153	101	20	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	◎	◎	◎	◎	○	○		
SKD	**GG**	**GGG**	**Cu**	**Al**	**AC**	**Ti**	**Tiall**	**Inc**
○	○	◎						



ULTRA FX

GO TO LIVE STOCK CHECK

HIGH PERFORMANCE
- Short for high speed drilling
- Dry operation

HIGH PERFORMANCE
- Kurze Ausführung, High Speed Bohren
- Für Trockenbearbeitung

ALTA PRESTAZIONE
- Serie corta-foratura ad alta velocità
- Foratura a secco

HAUTE PERFORMANCE
- Court pour perçage haute vitesse
- Opérations de forage à sec

HIGH PERFORMANCE
- Kort bor til high speed boring
- Til tørbearbejdning

HIGH PERFORMANCE
- Kort för high speed borrning
- För torrbearbetning

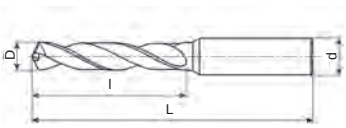
ALTAS PRESTACIONES
- Broca corta para taladrado a alta velocidad
- Para operaciones en seco

Высокая производительность
- Короткое сверло для высокоскоростного сверления
- Для работы без СОЖ

WD-2D (page C.30) is OSG's new offering for this tool







EDP	D	L	l	d	Stock	Price
8575200	2,0	46	12	3	●	
8575210	2,1	46	12	3	●	
8575220	2,2	47	13	3	●	
8575230	2,3	47	13	3	●	
8575240	2,4	48	14	3	●	
8575250	2,5	48	14	3	●	
8575260	2,6	48	14	3	●	
8575270	2,7	50	16	3	●	
8575280	2,8	50	16	3	●	
8575290	2,9	50	16	3	●	
8575300	3,0	50	16	3	●	
8575310	3,1	54	18	4	●	
8575320	3,2	54	18	4	●	
8575330	3,3	54	18	4	●	
8575340	3,4	56	20	4	●	
8575350	3,5	56	20	4	●	
8575360	3,6	56	20	4	●	
8575370	3,7	56	20	4	●	
8575380	3.8	58	22	4	●	
8575390	3,9	58	22	4	●	
8575400	4,0	58	22	4	●	

EDP	D	L	l	d	Stock	Price
8575410	4,1	60	22	5	●	
8575420	4,2	60	22	5	●	
8575430	4,3	62	24	5	●	
8575440	4,4	62	24	5	●	
8575450	4,5	62	24	5	●	
8575460	4,6	62	24	5	●	
8575470	4,7	62	24	5	●	
8575480	4,8	64	26	5	●	
8575490	4,9	64	26	5	●	
8575500	5,0	64	26	5	●	
8575510	5,1	68	26	6	●	
8575520	5,2	68	26	6	●	
8575530	5,3	68	26	6	●	
8575540	5,4	70	28	6	●	
8575550	5,5	70	28	6	●	
8575560	5,6	70	28	6	●	
8575570	5,7	70	28	6	●	
8575580	5,8	70	28	6	●	
8575590	5,9	70	28	6	●	
8575600	6,0	70	28	6	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	◎	◎	◎	◎	◎	◎		
SKD	**GG**	**GGG**	**Cu**	**Al**	**AC**	**Ti**	**Tiall**	**Inc**
◎	○	◎						

● Delivery from stock
○ Available on short notice

ULTRA FX



GO TO LIVE STOCK CHECK

HIGH PERFORMANCE
- Nomal for high speed drilling
- Dry operation

HIGH PERFORMANCE
- Normale Ausführung, High Speed Bohren
- Für Trockenbearbeitung

ALTA PRESTAZIONE
- Serie regolare-foratura ad alta velocità
- Foratura a secco

HAUTE PERFORMANCE
- Normal pour perçage haute vitesse
- Opérations de forage à sec

HIGH PERFORMANCE
- Normal, til high speed boring
- Til tørbearbejdning

HIGH PERFORMANCE
- Normal för high speed drilling
- För torrbearbetning

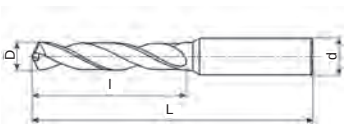
ALTAS PRESTACIONES
- Normal, para taladrado a alta velocidad
- Para operaciones en seco

Высокая производительность
- Сверло нормальной длины для скоростного сверления
- Для работы без СОЖ

WD-4D (page C.31) is OSG's new offering for this tool







EDP	D	L	l	d	Stock	Price
8570600	6,0	83	43	6	●	
8570610	6,1	87	47	7	●	
8570620	6,2	87	47	7	●	
8570630	6,3	87	47	7	●	
8570640	6,4	87	47	7	●	
8570650	6,5	87	47	7	●	
8570660	6,6	90	50	7	●	
8570670	6,7	90	50	7	●	
8570680	6,8	90	50	7	●	
8570690	6,9	90	50	7	●	
8570700	7,0	90	50	7	●	
8570710	7,1	92	52	8	●	
8570720	7,2	92	52	8	●	
8570730	7,3	92	52	8	●	
8570740	7,4	92	52	8	●	
8570750	7,5	92	52	8	●	
8570760	7,6	96	56	8	●	
8570770	7,7	96	56	8	●	
8570780	7,8	96	56	8	●	
8570790	7,9	96	56	8	●	
8570800	8,0	96	56	8	●	
8570810	8,1	96	56	8	●	
8570820	8,2	96	56	8	●	
8570830	8,3	96	56	8	●	
8570840	8,4	96	56	8	●	
8570850	8,5	96	56	9	●	
8570860	8,6	101	61	9	●	
8570870	8,7	101	61	9	●	
8570880	8,8	101	61	9	●	
8570890	8,9	101	61	9	●	
8570900	9,0	101	61	9	●	
8570910	9,1	105	61	10	●	
8570920	9,2	105	61	10	●	
8570930	9,3	105	61	10	●	
8570940	9,4	105	61	10	●	
8570950	9,5	105	61	10	●	
8570960	9,6	109	65	10	●	
8570970	9,7	109	65	10	●	
8570980	9,8	109	65	10	●	

EDP	D	L	l	d	Stock	Price
8570990	9,9	109	65	10	●	
8571000	10,0	109	65	10	●	
8571010	10,1	109	65	11	●	
8571020	10,2	109	65	11	●	
8571030	10,3	109	65	11	●	
8571040	10,4	109	65	11	●	
8571050	10,5	109	65	11	●	
8571060	10,6	115	71	11	●	
8571070	10,7	115	71	11	●	
8571080	10,8	115	71	11	●	
8571090	10,9	115	71	11	●	
8571100	11,0	115	71	11	●	
8571110	11,1	121	71	12	●	
8571120	11,2	121	71	12	●	
8571130	11,3	121	71	12	●	
8571140	11,4	121	71	12	●	
8571150	11,5	121	71	12	●	
8571160	11,6	126	76	12	●	
8571170	11,7	126	76	12	●	
8571180	11,8	126	76	12	●	
8571190	11,9	126	76	12	●	
8571200	12,0	126	76	12	●	
8571250	12,5	128	76	13	●	
8571300	13,0	128	76	13	●	
8571350	13,5	134	80	14	●	
8571400	14,0	134	80	14	●	
8571450	14,5	143	83	15	●	
8571500	15,0	143	83	15	●	
8571550	15,5	145	85	16	●	
8571600	16,0	145	85	16	●	
8571650	16,5	148	88	17	●	
8571700	17,0	148	88	17	●	
8571750	17,5	154	90	18	●	
8571800	18,0	154	90	18	●	
8571850	18,5	157	93	19	●	
8571900	19,0	157	93	19	●	
8571950	19,5	162	96	20	●	
8572000	20,0	162	96	20	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	◎	◎	◎	◎	◎	◎		

SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
◎	○	◎						

● Delivery from stock
○ Available on short notice



GO TO LIVE STOCK CHECK

HIGH PERFORMANCE
- Short for general application
- Lathe machine operation

HIGH PERFORMANCE
- Kurze Ausführung für allgemeine Bearbeitung
- Für Drehmaschinenbearbeitung geeignet

ALTA PRESTAZIONE
- Serie corta-per applicazioni generali
- Operazioni su tornio

HAUTE PERFORMANCE
- Court pour applications générales
- Pour utilisation sur des machines de tournages

HIGH PERFORMANCE
- Kort, til generelt brug
- Dreje operationer

HIGH PERFORMANCE
- Kort för allround bearbetning
- Svarvnings operationer

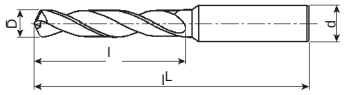
ALTAS PRESTACIONES
- Corta para aplicaciones generales
- Operaciones de torneado

Высокая производительность
- Короткое сверло общего назначения
- Для токарной обработки

WD-2D (page C.30) is OSG's new offering for this tool







EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
8585200	2,0	46	12	3	●		8585410	4,1	60	22	5	●	
8585210	2,1	46	12	3	●		8585420	4,2	60	22	5	●	
8585220	2,2	47	13	3	●		8585430	4,3	62	24	5	●	
8585230	2,3	47	13	3	●		8585440	4,4	62	24	5	●	
8585240	2,4	48	14	3	●		8585450	4,5	62	24	5	●	
8585250	2,5	48	14	3	●		8585460	4,6	62	24	5	●	
8585260	2,6	48	14	3	●		8585470	4,7	62	24	5	●	
8585270	2,7	50	16	3	●		8585480	4,8	64	26	5	●	
8585280	2,8	50	16	3	●		8585490	4,9	64	26	5	●	
8585290	2,9	50	16	3	●		8585500	5,0	64	26	5	●	
8585300	3,0	50	16	3	●		8585510	5,1	68	26	6	●	
8585310	3,1	54	18	4	●		8585520	5,2	68	26	6	●	
8585320	3,2	54	18	4	●		8585530	5,3	68	26	6	●	
8585330	3,3	54	18	4	●		8585540	5,4	70	28	6	●	
8585340	3,4	56	20	4	●		8585550	5,5	70	28	6	●	
8585350	3,5	56	20	4	●		8585560	5,6	70	28	6	●	
8585360	3,6	56	20	4	●		8585570	5,7	70	28	6	●	
8585370	3,7	56	20	4	●		8585580	5,8	70	28	6	●	
8585380	3,8	58	22	4	●		8585590	5,9	70	28	6	●	
8585390	3,9	58	22	4	●		8585600	6,0	70	28	6	●	
8585400	4,0	58	22	4	●								

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	◎	◎	◎	◎	○	○		◎
SKD	**GG**	**GGG**	**Cu**	**Al**	**AC**	**Ti**	**Tiall**	**Inc**
○	○	◎				○	◎	○

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE
- Short for general application
- Lathe machine operation

HIGH PERFORMANCE
- Kurze Ausführung für allgemeine Bearbeitung
- Für Drehmaschinenbearbeitung geeignet

ALTA PRESTAZIONE
- Serie corta-per applicazioni generali
- Operazioni su tornio

HAUTE PERFORMANCE
- Court pour applications générales
- Pour utilisation sur des machines de tournages

HIGH PERFORMANCE
- Kort, til generelt brug
- Dreje operationer

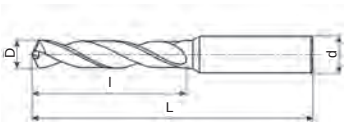
HIGH PERFORMANCE
- Kort för allround bearbetning
- Svarvnings operationer

ALTAS PRESTACIONES
- Corta para aplicaciones generales
- Operaciones de torneado

Высокая производительность
- Короткое сверло общего назначения
- Для токарной обработки

WD-4D (page C.31) is OSG's new offering for this tool





EDP	D	L	l	d	Stock	Price
8580600	6,0	83	43	6	●	
8580610	6,1	87	47	7	●	
8580620	6,2	87	47	7	●	
8580630	6,3	87	47	7	●	
8580640	6,4	87	47	7	●	
8580650	6,5	87	47	7	●	
8580660	6,6	90	50	7	●	
8580670	6,7	90	50	7	●	
8580680	6,8	90	50	7	●	
8580690	6,9	90	50	7	●	
8580700	7,0	90	50	7	●	
8580710	7,1	92	52	8	●	
8580720	7,2	92	52	8	●	
8580730	7,3	92	52	8	●	
8580740	7,4	92	52	8	●	
8580750	7,5	92	52	8	●	
8580760	7,6	96	56	8	●	
8580770	7,7	96	56	8	●	
8580780	7,8	96	56	8	●	
8580790	7,9	96	56	8	●	
8580800	8,0	96	56	8	●	
8580810	8,1	96	56	8	●	
8580820	8,2	96	56	8	●	
8580830	8,3	96	56	8	●	
8580840	8,4	96	56	8	●	
8580850	8,5	96	56	9	●	
8580860	8,6	101	61	9	●	
8580870	8,7	101	61	9	●	
8580880	8,8	101	61	9	●	
8580890	8,9	101	61	9	●	
8580900	9,0	101	61	9	●	
8580910	9,1	105	61	10	●	
8580920	9,2	105	61	10	●	
8580930	9,3	105	61	10	●	
8580940	9,4	105	61	10	●	
8580950	9,5	105	61	10	●	
8580960	9,6	109	65	10	●	
8580970	9,7	109	65	10	●	
8580980	9,8	109	65	10	●	

EDP	D	L	l	d	Stock	Price
8580990	9,9	109	65	10	●	
8581000	10,0	109	65	10	●	
8581010	10,1	109	65	11	●	
8581020	10,2	109	65	11	●	
8581030	10,3	109	65	11	●	
8581040	10,4	109	65	11	●	
8581050	10,5	109	65	11	●	
8581060	10,6	115	71	11	●	
8581070	10,7	115	71	11	●	
8581080	10,8	115	71	11	●	
8581090	10,9	115	71	11	●	
8581100	11,0	115	71	11	●	
8581110	11,1	121	71	12	●	
8581120	11,2	121	71	12	●	
8581130	11,3	121	71	12	●	
8581140	11,4	121	71	12	●	
8581150	11,5	121	71	12	●	
8581160	11,6	126	76	12	●	
8581170	11,7	126	76	12	●	
8581180	11,8	126	76	12	●	
8581190	11,9	126	76	12	●	
8581200	12,0	126	76	12	●	
8581250	12,5	128	76	13	●	
8581300	13,0	128	76	13	●	
8581350	13,5	134	80	14	●	
8581400	14,0	134	80	14	●	
8581450	14,5	143	83	15	●	
8581500	15,0	143	83	15	●	
8581550	15,5	145	85	16	●	
8581600	16,0	145	85	16	●	
8581650	16,5	148	88	17	●	
8581700	17,0	148	88	17	●	
8581750	17,5	154	90	18	●	
8581800	18,0	154	90	18	●	
8581850	18,5	157	93	19	●	
8581900	19,0	157	93	19	●	
8581950	19,5	162	96	20	●	
8582000	20,0	162	96	20	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	◎	◎	◎	◎	○	○		

SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
○	○	◎				○		

WDO-3D



HIGH PERFORMANCE
- Coolant through

3 D drilling

HIGH PERFORMANCE
- Mit innerer Kühlmittelzufuhr

3 D Bohren

ALTA PRESTAZIONE
- Fori di lubrificazione centrali

3 D foratura

HAUTE PERFORMANCE
- Avec arrosage central

Forage 3 D

HIGH PERFORMANCE
- Kølekanaler

3 D boring

HIGH PERFORMANCE
- Kylkanaler

3 D borrning

ALTAS PRESTACIONES
- Refrigeración interna

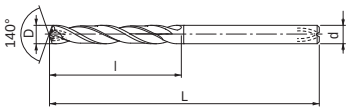
Taladrado 3 D

Высокая производительность
- С каналами для СОЖ

Сверление глубиной 3 D







EDP	D	L	l	d	Stock	Price
8630280	2,8	66	17	3	●	
8630290	2,9	66	18	3	●	
8630300	3,0	66	18	3	●	
8630310	3,1	74	19	4	●	
8630320	3,2	74	20	4	●	
8630330	3,3	74	20	4	●	
8630340	3,4	74	21	4	●	
8630350	3,5	74	21	4	●	
8630360	3,6	74	22	4	●	
8630370	3,7	74	23	4	●	
8630380	3,8	74	23	4	●	
8630390	3,9	74	24	4	●	
8630400	4,0	74	24	4	●	
8630410	4,1	80	25	5	●	
8630420	4,2	80	26	5	●	
8630430	4,3	80	26	5	●	
8630440	4,4	80	27	5	●	
8630450	4,5	80	27	5	●	
8630460	4,6	80	28	5	●	
8630470	4,7	80	29	5	●	
8630480	4,8	80	29	5	●	
8630490	4,9	80	30	5	●	
8630500	5,0	80	25	5	●	
8630510	5,1	82	26	6	●	
8630520	5,2	82	26	6	●	
8630530	5,3	82	27	6	●	
8630540	5,4	82	27	6	●	
8630550	5,5	82	28	6	●	
8630560	5,6	82	28	6	●	
8630570	5,7	82	29	6	●	
8630580	5,8	82	29	6	●	
8630590	5,9	82	30	6	●	
8630600	6,0	82	30	6	●	
48152061	6,1	88	31	8	●	
48152062	6,2	88	31	8	●	
48152063	6,3	88	32	8	●	
48152064	6,4	88	32	8	●	
48152065	6,5	88	33	8	●	
48152066	6,6	88	33	8	●	
48152067	6,7	88	34	8	●	
48152068	6,8	88	34	8	●	
48152069	6,9	88	35	8	●	
48152070	7,0	88	35	8	●	
8630710	7,1	94	36	8	●	
8630720	7,2	94	36	8	●	
8630730	7,3	94	37	8	●	
8630740	7,4	94	37	8	●	
8630750	7,5	94	38	8	●	
8630760	7,6	94	38	8	●	
8630770	7,7	94	39	8	●	
8630780	7,8	94	39	8	●	
8630790	7,9	94	40	8	●	
8630800	8,0	94	40	8	●	
48152081	8,1	101	41	10	●	

EDP	D	L	l	d	Stock	Price
48152082	8,2	101	41	10	●	
48152083	8,3	101	42	10	●	
48152084	8,4	101	42	10	●	
48152085	8,5	101	43	10	●	
48152086	8,6	101	43	10	●	
48152087	8,7	101	43	10	●	
48152088	8,8	101	44	10	●	
48152089	8,9	101	45	10	●	
48152090	9,0	101	45	10	●	
8630910	9,1	106	46	10	●	
8630920	9,2	106	46	10	●	
8630930	9,3	106	47	10	●	
8630940	9,4	106	47	10	●	
8630950	9,5	106	48	10	●	
8630960	9,6	106	48	10	●	
8630970	9,7	106	49	10	●	
8630980	9,8	106	49	10	●	
8630990	9,9	106	50	10	●	
8631000	10.0	106	50	10	●	
48152101	10,1	113	51	12	●	
48152102	10,2	113	51	12	●	
48152103	10,3	113	52	12	●	
48152104	10,4	113	52	12	●	
48152105	10,5	113	53	12	●	
48152106	10,6	113	53	12	●	
48152107	10,7	113	54	12	●	
48152108	10,8	113	54	12	●	
48152109	10,9	113	55	12	●	
48152110	11,0	113	55	12	●	
8631110	11,1	120	56	12	●	
8631120	11,2	120	56	12	●	
8631130	11,3	120	57	12	●	
8631140	11,4	120	57	12	●	
8631150	11,5	120	58	12	●	
8631160	11,6	120	58	12	●	
8631170	11,7	120	59	12	●	
8631180	11,8	120	59	12	●	
8631190	11,9	120	60	12	●	
8631200	12,0	120	60	12	●	
48152125	12,5	128	63	14	●	
48152130	13,0	128	65	14	●	
8631350	13,5	134	68	14	●	
8631400	14,0	134	70	14	●	
48152145	14,5	140	73	16	●	
48152150	15,0	140	75	16	●	
8631550	15,5	145	78	16	●	
8631600	16,0	145	80	16	●	
48152165	16,5	150	83	18	●	
48152170	17,0	150	85	18	●	
8631750	17,5	155	88	18	●	
8631800	18,0	155	90	18	●	
48152185	18,5	160	93	20	●	
48152190	19,0	160	95	20	●	
8631950	19,5	165	98	20	●	
8632000	20,0	165	100	20	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	◎	◎	◎	◎	○	○		◎

SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
○	◎	◎	○		○	○	◎	

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

WDO-5D



HIGH PERFORMANCE
- Coolant through

5 D drilling

HIGH PERFORMANCE
- Mit innerer Kühlmittelzufuhr

5 D Bohren

ALTA PRESTAZIONE
- Fori di lubrificazione centrali

5 D foratura

HAUTE PERFORMANCE
- Avec arrosage central

Forage 5 D

HIGH PERFORMANCE
- Kølekanaler

5 D boring

HIGH PERFORMANCE
- Kylkanaler

5 D borrning

ALTAS PRESTACIONES
- Refrigeración interna

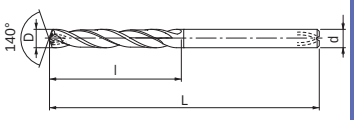
Taladrado 5 D

Высокая производительность
- С каналами для СОЖ

Сверление глубиной 5 D







EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
8632280	2,80	78	26	3	●		8632760	7,60	118	61	8	●	
8632290	2,90	78	27	3	○		8632770	7,70	118	62	8	●	
8632300	3,00	78	27	3	●		8632780	7,80	118	63	8	●	
8632310	3,10	86	28	4	●		8632790	7,90	118	64	8	●	
8632320	3,20	86	29	4	●		8632800	8,00	118	64	8	●	
8632330	3,30	86	30	4	●		48153081	8,10	128	65	10	●	
8632340	3,40	86	31	4	●		48153082	8,20	128	66	10	●	
8632350	3,50	86	32	4	●		48153083	8,30	128	67	10	●	
8632360	3,60	86	33	4	●		48153084	8,40	128	68	10	●	
8632366	3,66	86	33	4	○		48153085	8,50	128	68	10	●	
8632368	3,68	86	34	4	○		48153086	8,60	128	69	10	●	
8632370	3,70	86	34	4	●		48153087	8,70	128	70	10	●	
8632380	3,80	86	35	4	●		48153088	8,80	128	71	10	●	
8632390	3,90	86	36	4	●		48153089	8,90	128	72	10	●	
8632400	4,00	86	36	4	●		48153090	9,00	128	72	10	●	
8632410	4,10	95	37	5	●		8632910	9,10	136	73	10	●	
8632420	4,20	95	38	5	●		8632920	9,20	136	74	10	●	
8632430	4,30	95	39	5	●		8632930	9,30	136	75	10	●	
8632440	4,40	95	40	5	●		8632940	9,40	136	76	10	●	
8632450	4,50	95	41	5	●		8632950	9,50	136	76	10	●	
8632460	4,60	95	42	5	●		8632960	9,60	136	77	10	●	
8632462	4,62	95	42	5	○		8632970	9,70	136	78	10	●	
8632464	4,64	95	42	5	○		8632980	9,80	136	79	10	●	
8632470	4,70	95	43	5	●		8632990	9,90	136	80	10	●	
8632480	4,80	95	44	5	●		8633000	10,00	136	80	10	●	
8632490	4,90	95	45	5	●		48153101	10,10	146	81	12	●	
8632500	5,00	95	45	5	●		48153102	10,20	146	82	12	●	
8632510	5,10	100	41	6	●		48153103	10,30	146	83	12	●	
8632520	5,20	100	42	6	●		48153104	10,40	146	84	12	●	
8632530	5,30	100	43	6	●		48153105	10,50	146	84	12	●	
8632540	5,40	100	44	6	●		48153106	10,60	146	85	12	●	
8632550	5,50	100	44	6	●		48153107	10,70	146	86	12	●	
8632560	5,60	100	45	6	●		48153108	10,80	146	87	12	●	
8632570	5,70	100	46	6	●		48153109	10,90	146	88	12	●	
8632580	5,80	100	47	6	●		48153110	11,00	146	88	12	●	
8632590	5,90	100	48	6	●		8633110	11,10	156	89	12	●	
8632600	6,00	100	48	6	●		8633120	11,20	156	90	12	●	
48153061	6,10	109	49	8	●		8633130	11,30	156	91	12	●	
48153062	6,20	109	50	8	●		8633140	11,40	156	92	12	●	
48153063	6,30	109	51	8	●		8633150	11,50	156	92	12	●	
48153064	6,40	109	52	8	●		8633160	11,60	156	93	12	●	
48153065	6,50	109	52	8	●		8633170	11,70	156	94	12	●	
48153066	6,60	109	53	8	●		8633180	11,80	156	95	12	●	
48153067	6,70	109	54	8	●		8633190	11,90	156	96	12	●	
48153068	6,80	109	55	8	●		8633200	12,00	156	96	12	●	
48153069	6,90	109	56	8	●		48153125	12,50	167	100	14	●	
48153070	7,00	109	56	8	●		48153130	13,00	167	104	14	●	
8632710	7,10	118	57	8	●		8633350	13,50	176	108	14	●	
8632720	7,20	118	58	8	●		8633400	14,00	176	112	14	●	
8632730	7,30	118	59	8	●		48153145	14,50	185	116	16	●	
8632740	7,40	118	60	8	●		48153150	15,00	185	120	16	●	
8632750	7,50	118	60	8	●		8633550	15,50	193	124	16	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	◎	◎	◎	◎	○	○		◎

SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
○	◎	◎	○		○	○	◎	

WDO-5D



WDI

WDI

GO TO LIVE STOCK CHECK

HIGH PERFORMANCE
- Coolant through

5 D drilling

HIGH PERFORMANCE
- Mit innerer Kühlmittelzufuhr

5 D Bohren

ALTA PRESTAZIONE
- Fori di lubrificazione centrali

5 D foratura

HAUTE PERFORMANCE
- Avec arrosage central

Forage 5 D

HIGH PERFORMANCE
- Kølekanaler

5 D boring

HIGH PERFORMANCE
- Kylkanaler

5 D borrning

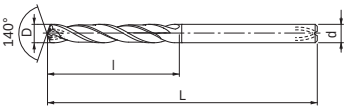
ALTAS PRESTACIONES
- Refrigeración interna

Taladrado 5 D

Высокая производительность
- С каналами для СОЖ

Сверление глубиной 5 D





EDP	D	L	l	d	Stock	Price
8633600	16,00	193	128	16	●	
48153165	16,50	201	132	18	●	
48153170	17,00	201	136	18	●	
8633750	17,50	209	140	18	●	
8633800	18,00	209	144	18	●	

EDP	D	L	l	d	Stock	Price
48153185	18,50	217	148	20	●	
48153190	19,00	217	152	20	●	
8633950	19,50	225	156	20	●	
8634000	20,00	225	160	20	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	◎	◎	◎	◎	○	○		◎
SKD	**GG**	**GGG**	**Cu**	**Al**	**AC**	**Ti**	**Tiall**	**Inc**
○	◎	◎	○		○	○	◎	

● Delivery from stock
○ Available on short notice

ULTRA FX



GO TO LIVE STOCK CHECK

HIGH PERFORMANCE
- Coolant through, medium for high speed drilling

HIGH PERFORMANCE
- Medium Ausführung, High Speed Bohren, mit innerer Kühlmittelzufuhr

ALTA PRESTAZIONE
- Medio con fori di lubrificazione

HAUTE PERFORMANCE
- Type médium pour perçage haute vitesse, avec trous d'huile

HIGH PERFORMANCE
- Kølekanaler, medium, til high speed boring

HIGH PERFORMANCE
- Kylkanaler, medellång, för high speed borrning

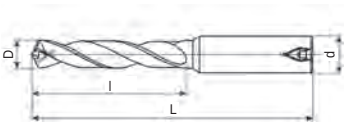
ALTAS PRESTACIONES
- Refrigeración interna para taladrado a alta velocidad, mediano

Высокая производительность
- Сверло нормальной длины с каналами для СОЖ для скоростного сверления

WDO-3D (page C.36), WDO-5D (page C.37~C.38) is OSG's new offering for this tool







EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
8566030	3,0	66	25	3	○		48148084	8,4	112	56	10	○	
8566031	3,1	74	30	4	○		48148085	8,5	112	56	10	○	
8566032	3,2	74	30	4	○		48148086	8,6	112	61	10	○	
8566033	3,3	74	30	4	○		48148087	8,7	112	61	10	○	
8566034	3,4	74	30	4	○		48148088	8,8	112	61	10	○	
8566035	3,5	74	30	4	○		48148089	8,9	112	61	10	○	
8566036	3,6	74	30	4	○		48148090	9,0	112	61	10	○	
8566037	3,7	74	30	4	○		8566091	9,1	119	61	10	○	
8566038	3,8	74	33	4	○		8566092	9,2	119	61	10	○	
8566039	3,9	74	33	4	○		8566093	9,3	119	61	10	○	
8566040	4,0	74	33	4	○		8566094	9,4	119	61	10	○	
8566041	4,1	81	33	5	○		8566095	9,5	119	61	10	○	
8566042	4,2	81	33	5	○		8566096	9,6	119	65	10	○	
8566043	4,3	81	36	5	○		8566097	9,7	119	65	10	○	
8566044	4,4	81	36	5	○		8566098	9,8	119	65	10	○	
8566045	4,5	81	36	5	○		8566099	9,9	119	65	10	○	
8566046	4,6	81	36	5	○		8566100	10,0	119	65	10	○	
8566047	4,7	81	36	5	○		48148101	10,1	125	65	12	○	
8566048	4,8	81	39	5	○		48148102	10,2	125	65	12	○	
8566049	4,9	81	39	5	○		48148103	10,3	125	65	12	○	
8566050	5,0	81	39	5	○		48148104	10,4	125	65	12	○	
8566051	5,1	88	39	6	○		48148105	10,5	125	65	12	○	
8566052	5,2	88	39	6	○		48148106	10,6	125	65	12	○	
8566053	5,3	88	39	6	○		48148107	10,7	125	71	12	○	
8566054	5,4	88	43	6	○		48148108	10,8	125	71	12	○	
8566055	5,5	88	43	6	○		48148109	10,9	125	71	12	○	
8566056	5,6	88	43	6	○		48148110	11,0	125	71	12	○	
8566057	5,7	88	43	6	○		8566111	11,1	133	71	12	○	
8566058	5,8	88	43	6	○		8566112	11,2	133	71	12	○	
8566059	5,9	88	43	6	○		8566113	11,3	133	71	12	○	
8566060	6,0	88	43	6	○		8566114	11,4	133	71	12	○	
48148061	6,1	99	47	8	○		8566115	11,5	133	71	12	○	
48148062	6,2	99	47	8	○		8566116	11,6	133	71	12	○	
48148063	6,3	99	47	8	○		8566117	11,7	133	71	12	○	
48148064	6,4	99	47	8	○		8566118	11,8	133	71	12	○	
48148065	6,5	99	47	8	○		8566119	11,9	133	76	12	○	
48148066	6,6	99	47	8	○		8566120	12,0	133	76	12	○	
48148067	6,7	99	47	8	○		48148125	12,5	137	76	14	○	
48148068	6,8	99	52	8	○		48148130	13,0	137	76	14	○	
48148069	6,9	99	52	8	○		8566135	13,5	142	80	14	○	
48148070	7,0	99	52	8	○		8566140	14,0	142	80	14	○	
8566071	7,1	106	52	8	○		48148145	14,5	148	83	16	○	
8566072	7,2	106	52	8	○		48148150	15,0	148	83	16	○	
8566073	7,3	106	52	8	○		8566155	15,5	152	85	16	○	
8566074	7,4	106	52	8	○		8566160	16,0	152	85	16	○	
8566075	7,5	106	52	8	○		48148165	16,5	155	88	18	○	
8566076	7,6	106	56	8	○		48148170	17,0	155	88	18	○	
8566077	7,7	106	56	8	○		8566175	17,5	157	90	18	○	
8566078	7,8	106	56	8	○		8566180	18,0	157	90	18	○	
8566079	7,9	106	56	8	○		48148185	18,5	160	93	20	○	
8566080	8,0	106	56	8	○		48148190	19,0	160	93	20	○	
48148081	8,1	112	56	10	○		8566195	19,5	163	96	20	○	
48148082	8,2	112	56	10	○		8566200	20,0	163	96	20	○	
48148083	8,3	112	56	10	○								

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

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◎	◎	◎	◎	◎	○	○		◎

SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
○	◎	◎	○		○	○	◎	



WDI

GO TO LIVE STOCK CHECK

HIGH PERFORMANCE
- Coolant through, 3 flutes, high feed drilling, for 3XD drilling

HIGH PERFORMANCE
- Innenkühlung , 3 Schneiden , Hochleistungsbohrer , 3xD

ALTA PRESTAZIONE
- Con foro di lubrificazione, 3 eliche, alto avanzamento, 3 D

HAUTE PERFORMANCE
- Arrosage interne, 3 lèvres, perçage haute vitesse, perçage 3D

HIGH PERFORMANCE
- Indvendig køling, 3 skær, high feed boring, 3D

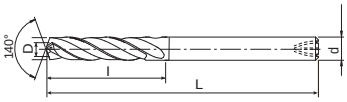
HIGH PERFORMANCE
- Kylkanalsborr med 3-skär, hög matning, 3xD

ALTAS PRESTACIONES
- Refrigeración interna, 3 labios, para gran avance, tipo 3D

Высокая производительность
- Трехзубые сверла с внутренними каналами и высокой подачей, 3D







EDP	D	L	l	d	Stock	Price
8660500	5	80	25	5	●	
8660510	5,1	82	26	6	●	
8660540	5,4	82	27	6	●	
8660580	5,8	82	29	6	●	
8660600	6	82	30	6	●	
8660650	6,5	88	33	7	●	
8660680	6,8	88	34	7	●	
8660700	7	88	35	7	●	
8660710	7,1	94	36	8	●	
8660760	7,6	94	38	8	●	
8660800	8	94	40	8	●	
8660810	8,1	101	41	9	●	
8660820	8,2	101	41	9	●	
8660830	8,3	101	42	9	●	
8660840	8,4	101	42	9	●	
8660850	8,5	101	43	9	●	
8660860	8,6	101	43	9	●	
8660870	8,7	101	44	9	●	
8660880	8,8	101	44	9	●	
8660890	8,9	101	45	9	●	
8660900	9	101	45	9	●	
8660910	9,1	106	46	10	●	
8660920	9,2	106	46	10	●	
8660930	9,3	106	47	10	●	
8660940	9,4	106	47	10	●	
8660950	9,5	106	48	10	●	

EDP	D	L	l	d	Stock	Price
8660960	9,6	106	48	10	●	
8660970	9,7	106	49	10	●	
8660980	9,8	106	49	10	●	
8660990	9,9	106	50	10	●	
8661000	10	106	50	10	●	
8661020	10,2	113	51	11	●	
8661030	10,3	113	52	11	●	
8661040	10,4	113	52	11	●	
8661050	10,5	113	53	11	●	
8661080	10,8	113	54	11	●	
8661100	11	113	55	11	●	
8661110	11,1	120	56	12	●	
8661120	11,2	120	56	12	●	
8661180	11,8	120	59	12	●	
8661190	11,9	120	60	12	●	
8661200	12	120	60	12	●	
8661250	12,5	128	63	13	●	
8661300	13	128	65	13	●	
8661350	13,5	134	68	14	●	
8661400	14	134	70	14	●	
8661450	14,5	140	73	15	●	
8661500	15	140	75	15	●	
8661600	16	145	80	16	●	
8661700	17	150	85	17	●	
8661800	18	155	90	18	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	◎	◎	◎	◎	○	○		○
SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
	◎	◎					○	

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

TRS-HO-5D



HIGH PERFORMANCE
- Coolant through, 3 flutes, high feed drilling, for 5XD drilling

HIGH PERFORMANCE
- Innenkühlung , 3 Schneiden , Hochleistungsbohrer , 5xD

ALTA PRESTAZIONE
- Con foro di lubrificazione, 3 eliche, alto avanzamento, 5 D

HAUTE PERFORMANCE
- Arrosage interne, 3 lèvres, perçage haute vitesse, perçage 5D

HIGH PERFORMANCE
- Indvendig køling, 3 skær, high feed boring, 5D

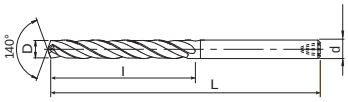
HIGH PERFORMANCE
- Kylkanalsborr med 3-skär, hög matning, 5xD

ALTAS PRESTACIONES
- Refrigeración interna, 3 labios, para gran avance, tipo 5D

Высокая производительность
- Трехзубые сверла с внутренними каналами и высокой подачей, 5D







EDP	D	L	l	d	Stock	Price
8662500	5	95	45	5	●	
8662510	5,1	100	41	6	●	
8662520	5,2	100	42	6	●	
8662550	5,5	100	44	6	●	
8662580	5,8	100	47	6	●	
8662600	6	100	48	6	●	
8662620	6,2	109	50	7	●	
8662650	6,5	109	52	7	●	
8662680	6,8	109	55	7	●	
8662690	6,9	109	56	7	●	
8662700	7	109	56	7	●	
8662710	7,1	118	57	8	●	
8662730	7,3	118	59	8	●	
8662750	7,5	118	60	8	●	
8662760	7,6	118	61	8	●	
8662800	8	118	64	8	●	
8662820	8,2	128	66	9	●	
8662850	8,5	128	68	9	●	
8662880	8,8	128	71	9	●	
8662900	9	128	72	9	●	
8662950	9,5	136	76	10	●	
8662960	9,6	136	77	10	●	

EDP	D	L	l	d	Stock	Price
8662980	9,8	136	79	10	●	
8663000	10	136	80	10	●	
8663030	10,3	146	83	11	●	
8663040	10,4	146	84	11	●	
8663050	10,5	146	84	11	●	
8663080	10,8	146	87	11	●	
8663100	11	146	88	11	●	
8663110	11,1	156	89	12	●	
8663200	12	156	96	12	●	
8663250	12,5	167	100	13	●	
8663300	13	167	104	13	●	
8663350	13,5	176	108	14	●	
8663400	14	176	112	14	●	
8663450	14,5	185	116	15	●	
8663500	15	185	120	15	●	
8663550	15,5	193	124	16	●	
8663600	16	193	128	16	●	
8663700	17	201	136	17	●	
8663750	17,5	209	140	18	●	
8663800	18	209	144	18	●	
8663850	18,5	217	148	19	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	◎	◎	◎	◎	○	○		○

SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
	◎	◎					○	

DIA

GO TO LIVE STOCK CHECK



HIGH PERFORMANCE
- Triple angle drill
- For CFRP material
- Without delamination Fiber breakout

HIGH PERFORMANCE
- Bohrer mit 3 Spitzenwinkeln
- Für Verbundwerkstoffe (Kohlefaser / CFRP)
- Entwickelt für Bohrbearbeitungen ohne "Delamination"

ALTA PRESTAZIONE
- Punta triplo angolo
- Per materiali compositi CFRP
- Senza delaminazione

HAUTE PERFORMANCE
- Foret 3 pentes
- Pour matériaux composites
- Sans délamination de la fibre

HIGH PERFORMANCE
- 3-facet bor
- For CFRP materiale
- Uden udflosning ved gennemboring

HIGH PERFORMANCE
- Triple angle drill
- För CFRP material
- Utan delaminering fiber beakout

ALTO RENDIMIENTO
- Broca de triple ángulo de punta
- Para fibras CFRP
- Sin delaminación de fibra a la salida

Высокая производительность
- Сверло с тройным углом
- Для углепластика
- Прорыв без расслоения волокон

CARBIDE DIA

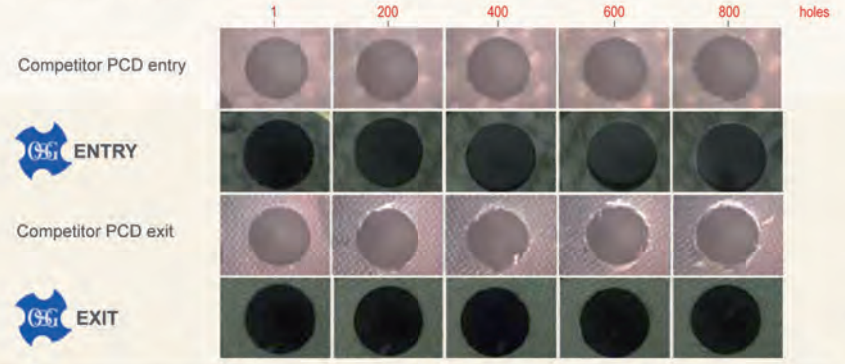
min⁻¹ C.99

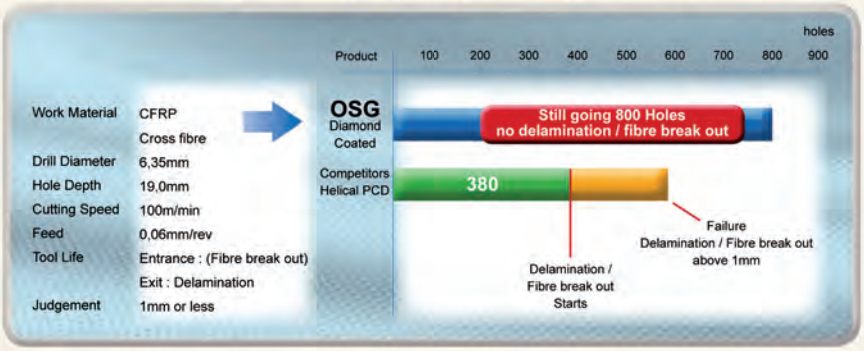
EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
48154001	4	80	30	4	○		48154004	6,35	88	38	6,35	○	
48154002	6	90	40	6	○		48154003	8	100	50	8	○	

CFRP Diamond coated carbide drill (PAT.P)

The drilling of composite materials is becoming more common and there are various manufacturers designing and producing drills for these applications.

However only OSG can offer exceptional drill performance and tool life.
Our drill design benefits from a special step angle, point geometry and patented smooth diamond coating, allowing us to produce what we believe to be the best drilling solution for CFRP.





Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	CFRP
								◎

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE
- Pilot drill for FTO-GDXL, FTO-M-GDXL, FTO-H-GDXL, CAO-GDXL

HIGH PERFORMANCE
- Pilotbohrer für FTO-GDXL, FTO-M-GDXL, FTO-H-GDXL, CAO-GDXL

ALTA PRESTAZIONE
- Trivello pilota per FTO-GDXL, FTO-M-GDXL, FTO-H-GDXL, CAO-GDXL

HAUTE PERFORMANCE
- Foret pilote pour FTO-GDXL, FTO-M-GDXL, FTO-H-GDXL, CAO-GDXL

HIGH PERFORMANCE
- Forbor for FTO-GDXL, FTO-M-GDXL, FTO-H-GDXL, CAO-GDXL

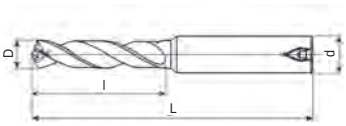
HIGH PERFORMANCE
- Pilot borr för FTO-GDXL, FTO-M-GDXL, FTO-H-GDXL, CAO-GDXL

ALTAS PRESTACIONES
- Broca piloto para FTO-GDXL, FTO-M-GDXL, FTO-H-GDXL, CAO-GDXL

Высокая производительность
- Пилотное сверло для FTO-GDXL, FTO-M-GDXL, FTO-H-GDXL, CAO-GDXL





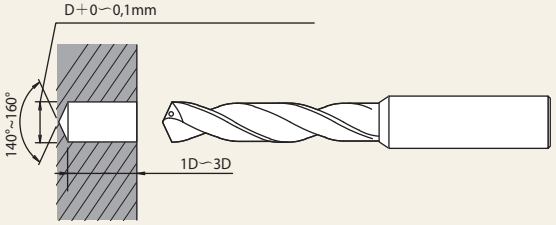


EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
8568903	3,03	65	15	3	●		8568907	7,03	85	35	7	●	
8568923	3,53	70	18	4	●		8568908	8,03	90	40	8	●	
8568904	4,03	70	20	4	●		8568928	8,53	95	43	9	●	
8568924	4,53	75	23	5	●		8568909	9,03	95	45	9	●	
8568905	5,03	75	25	5	●		8568910	10,03	100	50	10	●	
8568925	5,53	80	28	6	●		8568911	11,03	115	55	11	●	
8568906	6,03	80	30	6	●		8568912	12,03	120	60	12	●	
8568926	6,53	85	33	7	●								

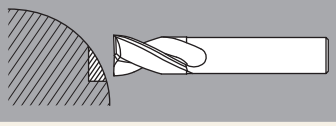
Recommended operation for FTO-GDXL Series

① Make a pilot hole (e.g. FTO-PLT)

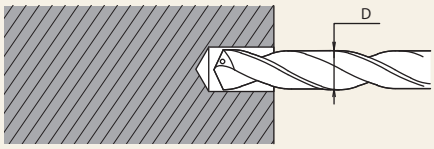
- For a pilot hole, select 0–0,1mm larger size drill than extra long drill.



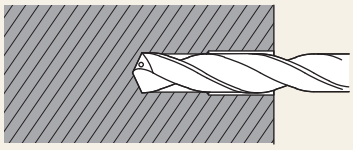
★ When working on a curved surface, use the FX-ZDS (end mill for counterboring) to counterbore a pilot hole.



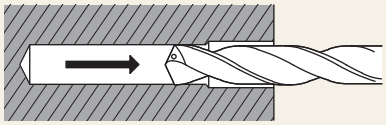
② Insert the extra long drill into a pilot hole with zero or low revolution.



③ Increase the revolution to the designated speed and start drilling.



④ After drilling, move the drill away from the bottom of the hole; then reduce its speed while pulling it out of the hole.



※ Make sure to use an internal coolant supply when drilling.

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение								
C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
○	◎	◎	◎	◎	◎			○
SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
○	◎	◎						

WDO-10D



HIGH PERFORMANCE
- For deep drilling in steel

Extra long non step drilling
10 D

HIGH PERFORMANCE
- Zum Tiefbohren im Stahl

Extra länge Ohne Step
10 D

ALTA PRESTAZIONE
- Forature profonde

Extra lunga foratura continua
10 D

HAUTE PERFORMANCE
- Pour le forage profond dans l'acier

Extra long forage en continu
10 D

HIGH PERFORMANCE
- For dyb boring i stål

Ekstra lang boring uden udspåning
10 D

HIGH PERFORMANCE
- Step fri borrning i stål

Extra lång step fri borrning
10 D

ALTAS PRESTACIONES
- Para taladrado profundo en acero

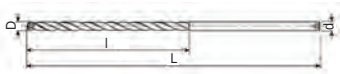
Extra-larga taladrado ininterrumpido
10 D

Высокая производительность
- Для глубокого сверления в стали

Непрерывное сверление глубиной
10 D







EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
48149020	2,0	75	26	3	●		48149071	7,1	155	100	8	●	
48149021	2,1	75	33	3	●		48149072	7,2	155	100	8	●	
48149022	2,2	75	33	3	●		48149073	7,3	155	100	8	●	
48149023	2,3	75	33	3	●		48149074	7,4	155	100	8	●	
48149024	2,4	75	33	3	●		48149075	7,5	155	100	8	●	
48149025	2,5	75	33	3	●		48149076	7,6	155	105	8	●	
48149026	2,6	90	40	3	●		48149077	7,7	155	105	8	●	
48149027	2,7	90	40	3	●		48149078	7,8	155	105	8	●	
48149028	2,8	90	40	3	●		48149079	7,9	155	105	8	●	
48149029	2,9	90	40	3	●		48149080	8,0	155	105	8	●	
48149030	3,0	90	40	3	●		48149081	8,1	165	110	10	●	
48149031	3,1	100	45	4	●		48149082	8,2	165	110	10	●	
48149032	3,2	100	45	4	●		48149083	8,3	165	110	10	●	
48149033	3,3	100	45	4	●		48149084	8,4	165	110	10	●	
48149034	3,4	100	50	4	●		48149085	8,5	165	110	10	●	
48149035	3,5	100	50	4	●		48149086	8,6	165	115	10	●	
48149036	3,6	100	50	4	●		48149087	8,7	165	115	10	●	
48149037	3,7	100	50	4	●		48149088	8,8	165	115	10	●	
48149038	3,8	100	50	4	●		48149089	8,9	165	115	10	●	
48149039	3,9	100	50	4	●		48149090	9,0	165	115	10	●	
48149040	4,0	100	50	4	●		48149091	9,1	190	125	10	●	
48149041	4,1	115	55	6	●		48149092	9,2	190	125	10	●	
48149042	4,2	115	55	6	●		48149093	9,3	190	125	10	●	
48149043	4,3	115	60	6	●		48149094	9,4	190	125	10	●	
48149044	4,4	115	60	6	●		48149095	9,5	190	125	10	●	
48149045	4,5	115	60	6	●		48149096	9,6	190	130	10	●	
48149046	4,6	115	60	6	●		48149097	9,7	190	130	10	●	
48149047	4,7	115	65	6	●		48149098	9,8	190	130	10	●	
48149048	4,8	115	65	6	●		48149099	9,9	190	130	10	●	
48149049	4,9	115	65	6	●		48149100	10,0	190	130	10	●	
48149050	5,0	115	65	6	●		48149101	10,1	205	140	12	●	
48149051	5,1	128	70	6	●		48149102	10,2	205	140	12	●	
48149052	5,2	128	70	6	●		48149103	10,3	205	140	12	●	
48149053	5,3	128	70	6	●		48149104	10,4	205	140	12	●	
48149054	5,4	128	78	6	●		48149105	10,5	205	140	12	●	
48149055	5,5	128	78	6	●		48149106	10,6	205	140	12	●	
48149056	5,6	128	78	6	●		48149107	10,7	205	140	12	●	
48149057	5,7	128	78	6	●		48149108	10,8	205	145	12	●	
48149058	5,8	128	78	6	●		48149109	10,9	205	145	12	●	
48149059	5,9	128	78	6	●		48149110	11,0	205	145	12	●	
48149060	6,0	128	78	6	●		48149111	11,1	215	155	12	●	
48149061	6,1	140	87	8	●		48149112	11,2	215	155	12	●	
48149062	6,2	140	87	8	●		48149113	11,3	215	155	12	●	
48149063	6,3	140	87	8	●		48149114	11,4	215	155	12	●	
48149064	6,4	140	87	8	●		48149115	11,5	215	155	12	●	
48149065	6,5	140	87	8	●		48149116	11,6	215	155	12	●	
48149066	6,6	140	87	8	●		48149117	11,7	215	155	12	●	
48149067	6,7	140	87	8	●		48149118	11,8	215	155	12	●	
48149068	6,8	140	90	8	●		48149119	11,9	215	155	12	●	
48149069	6,9	140	90	8	●		48149120	12,0	215	155	12	●	
48149070	7,0	140	90	8	●								

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	◎	◎	◎	○				○
SKD	**GG**	**GGG**	**Cu**	**Al**	**AC**	**Ti**	**Tiall**	**Inc**
	◎	◎						

● Delivery from stock
○ Available on short notice

WDO-15D



HIGH PERFORMANCE
- For deep drilling in steel

Extra long non step drilling
15 D

HIGH PERFORMANCE
- Zum Tiefbohren im Stahl

Extra länge Ohne Step
15 D

ALTA PRESTAZIONE
- Forature profonde

Extra lunga foratura continua
15 D

HAUTE PERFORMANCE
- Pour le forage profond dans l'acier

Extra long forage en continu
15 D

HIGH PERFORMANCE
- For dyb boring i stål

Ekstra lang boring uden udspåning
15 D

HIGH PERFORMANCE
- Step fri borrning i stål

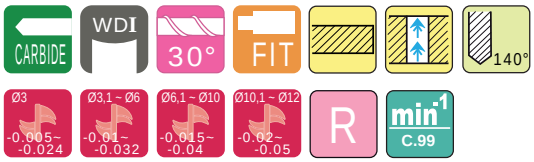
Extra lång step fri borrning
15 D

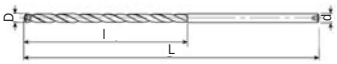
ALTAS PRESTACIONES
- Para taladrado profundo en acero

Extra-larga taladrado ininterrumpido
15 D

Высокая производительность
- Для глубокого сверления в стали

Непрерывное сверление глубиной
15 D





EDP	D	L	l	d	Stock	Price
48150030	3,0	105	55	3	●	
48150031	3,1	125	60	4	○	
48150032	3,2	125	60	4	○	
48150033	3,3	125	60	4	○	
48150034	3,4	125	65	4	○	
48150035	3,5	125	65	4	●	
48150036	3,6	125	65	4	○	
48150037	3,7	125	65	4	○	
48150038	3,8	125	75	4	○	
48150039	3,9	125	75	4	○	
48150040	4,0	125	75	4	●	
48150041	4,1	140	75	6	○	
48150042	4,2	140	75	6	○	
48150043	4,3	140	85	6	○	
48150044	4,4	140	85	6	○	
48150045	4,5	140	85	6	●	
48150046	4,6	140	85	6	○	
48150047	4,7	140	85	6	○	
48150048	4,8	140	90	6	○	
48150049	4,9	140	90	6	○	
48150050	5,0	140	90	6	●	
48150051	5,1	160	95	6	○	
48150052	5,2	160	95	6	○	
48150053	5,3	160	95	6	○	
48150054	5,4	160	110	6	○	
48150055	5,5	160	110	6	●	
48150056	5,6	160	110	6	○	
48150057	5,7	160	110	6	○	
48150058	5,8	160	110	6	○	
48150059	5,9	160	110	6	○	
48150060	6,0	160	110	6	●	
48150061	6,1	175	120	8	○	
48150062	6,2	175	120	8	○	
48150063	6,3	175	120	8	○	
48150064	6,4	175	120	8	○	
48150065	6,5	175	120	8	●	
48150066	6,6	175	120	8	○	
48150067	6,7	175	120	8	○	
48150068	6,8	175	125	8	○	
48150069	6,9	175	125	8	○	
48150070	7,0	175	125	8	●	
48150071	7,1	195	135	8	○	
48150072	7,2	195	135	8	○	
48150073	7,3	195	135	8	○	
48150074	7,4	195	135	8	○	
48150075	7,5	195	135	8	●	

EDP	D	L	l	d	Stock	Price
48150076	7,6	195	145	8	○	
48150077	7,7	195	145	8	○	
48150078	7,8	195	145	8	○	
48150079	7,9	195	145	8	○	
48150080	8,0	195	145	8	●	
48150081	8,1	210	155	10	○	
48150082	8,2	210	155	10	○	
48150083	8,3	210	155	10	○	
48150084	8,4	210	155	10	○	
48150085	8,5	210	155	10	●	
48150086	8,6	210	160	10	○	
48150087	8,7	210	160	10	○	
48150088	8,8	210	160	10	○	
48150089	8,9	210	160	10	○	
48150090	9,0	210	160	10	●	
48150091	9,1	240	170	10	○	
48150092	9,2	240	170	10	○	
48150093	9,3	240	170	10	○	
48150094	9,4	240	170	10	○	
48150095	9,5	240	170	10	○	
48150096	9,6	240	180	10	○	
48150097	9,7	240	180	10	○	
48150098	9,8	240	180	10	○	
48150099	9,9	240	180	10	○	
48150100	10,0	240	180	10	●	
48150101	10,1	260	190	12	○	
48150102	10,2	260	190	12	○	
48150103	10,3	260	190	12	○	
48150104	10,4	260	190	12	○	
48150105	10,5	260	190	12	○	
48150106	10,6	260	190	12	○	
48150107	10,7	260	200	12	○	
48150108	10,8	260	200	12	○	
48150109	10,9	260	200	12	○	
48150110	11,0	260	200	12	●	
48150111	11,1	280	210	12	○	
48150112	11,2	280	210	12	○	
48150113	11,3	280	210	12	○	
48150114	11,4	280	210	12	○	
48150115	11,5	280	210	12	○	
48150116	11,6	280	210	12	○	
48150117	11,7	280	210	12	○	
48150118	11,8	280	210	12	○	
48150119	11,9	280	215	12	○	
48150120	12,0	280	215	12	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	◎	◎	◎	○				○

SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
	◎	◎						

WDO-20D



HIGH PERFORMANCE
- For deep drilling in steel

Extra long non step drilling
20 D

HIGH PERFORMANCE
- Zum Tiefbohren im Stahl

Extra länge Ohne Step
20 D

ALTA PRESTAZIONE
- Forature profonde

Extra lunga foratura continua
20 D

HAUTE PERFORMANCE
- Pour le forage profond dans l'acier

Extra long forage en continu
220 D

HIGH PERFORMANCE
- For dyb boring i stål

Ekstra lang boring uden udspåning
20 D

HIGH PERFORMANCE
- Step fri borrning i stål

Extra lång step fri borrning
20 D

ALTAS PRESTACIONES
- Para taladrado profundo en acero

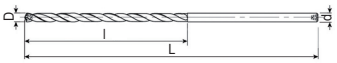
Extra-larga taladrado ininterrumpido
20 D

Высокая производительность
- Для глубокого сверления в стали

Непрерывное сверление глубиной
20 D







EDP	D	L	l	d	Stock	Price
48200030	3,0	120	70	3	●	
48200031	3,1	140	80	4	○	
48200032	3,2	140	80	4	○	
48200033	3,3	140	80	4	○	
48200034	3,4	140	85	4	○	
48200035	3,5	140	85	4	●	
48200036	3,6	140	85	4	○	
48200037	3,7	140	85	4	○	
48200038	3,8	140	90	4	○	
48200039	3,9	140	90	4	○	
48200040	4,0	140	90	4	●	
48200041	4,1	165	100	6	○	
48200042	4,2	165	100	6	○	
48200043	4,3	165	110	6	○	
48200044	4,4	165	110	6	○	
48200045	4,5	165	110	6	●	
48200046	4,6	165	110	6	○	
48200047	4,7	165	110	6	○	
48200048	4,8	165	115	6	○	
48200049	4,9	165	115	6	○	
48200050	5,0	165	115	6	●	
48200051	5,1	190	120	6	○	
48200052	5,2	190	120	6	○	
48200053	5,3	190	120	6	○	
48200054	5,4	190	140	6	○	
48200055	5,5	190	140	6	●	
48200056	5,6	190	140	6	○	
48200057	5,7	190	140	6	○	
48200058	5,8	190	140	6	○	
48200059	5,9	190	140	6	○	
48200060	6,0	190	140	6	●	
48200061	6,1	210	155	8	○	
48200062	6,2	210	155	8	○	
48200063	6,3	210	155	8	○	
48200064	6,4	210	155	8	○	
48200065	6,5	210	155	8	●	
48200066	6,6	210	155	8	○	
48200067	6,7	210	155	8	○	
48200068	6,8	210	160	8	○	
48200069	6,9	210	160	8	○	
48200070	7,0	210	160	8	●	
48200071	7,1	230	170	8	○	
48200072	7,2	230	170	8	○	
48200073	7,3	230	170	8	○	
48200074	7,4	230	170	8	○	
48200075	7,5	230	170	8	●	

EDP	D	L	l	d	Stock	Price
48200076	7,6	230	180	8	○	
48200077	7,7	230	180	8	○	
48200078	7,8	230	180	8	○	
48200079	7,9	230	180	8	○	
48200080	8,0	230	180	8	●	
48200081	8,1	260	195	8	○	
48200082	8,2	260	195	10	○	
48200083	8,3	260	195	10	○	
48200084	8,4	260	195	10	○	
48200085	8,5	260	195	10	●	
48200086	8,6	260	210	10	○	
48200087	8,7	260	210	10	○	
48200088	8,8	260	210	10	○	
48200089	8,9	260	210	10	○	
48200090	9,0	260	210	10	●	
48200091	9,1	290	220	10	○	
48200092	9,2	290	220	10	○	
48200093	9,3	290	220	10	○	
48200094	9,4	290	220	10	○	
48200095	9,5	290	220	10	○	
48200096	9,6	290	230	10	○	
48200097	9,7	290	230	10	○	
48200098	9,8	290	230	10	○	
48200099	9,9	290	230	10	○	
48200100	10,0	290	230	10	●	
48200101	10,1	310	250	12	○	
48200102	10,2	310	250	12	○	
48200103	10,3	310	250	12	○	
48200104	10,4	310	250	12	○	
48200105	10,5	310	250	12	○	
48200106	10,6	310	250	12	○	
48200107	10,7	310	250	12	○	
48200108	10,8	310	250	12	○	
48200109	10,9	310	250	12	○	
48200110	11,0	310	250	12	●	
48200111	11,1	330	270	12	○	
48200112	11,2	330	270	12	○	
48200113	11,3	330	270	12	○	
48200114	11,4	330	270	12	○	
48200115	11,5	330	270	12	○	
48200116	11,6	330	270	12	○	
48200117	11,7	330	270	12	○	
48200118	11,8	330	270	12	○	
48200119	11,9	330	270	12	○	
48200120	12,0	330	270	12	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	◎	◎	◎	○				○

SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
	◎	◎						

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE
- For deep drilling in steel

Extra long non step drilling
30 D

HIGH PERFORMANCE
- Zum Tiefbohren im Stahl

Extra länge Ohne Step
30 D

ALTA PRESTAZIONE
- Forature profonde

Extra lunga foratura continua
30 D

HAUTE PERFORMANCE
- Pour le forage profond dans l'acier

Extra long forage en continu
30 D

HIGH PERFORMANCE
- For dyb boring i stål

Ekstra lang boring uden udspåning
30 D

HIGH PERFORMANCE
- Step fri borrning i stål

Extra lång step fri borrning
30 D

ALTAS PRESTACIONES
- Para taladrado profundo en acero

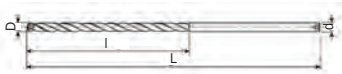
Extra-larga taladrado ininterrumpido
30 D

Высокая производительность
- Для глубокого сверления в стали

Непрерывное сверление глубиной
30 D







EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
48300035	3,5	185	116	4	●		48300068	6,8	280	230	8	○	
48300036	3,6	185	116	4	○		48300069	6,9	280	230	8	○	
48300037	3,7	185	116	4	○		48300070	7,0	280	230	8	●	
48300038	3,8	185	132	4	○		48300071	7,1	315	250	8	○	
48300039	3,9	185	132	4	○		48300072	7,2	315	250	8	○	
48300040	4,0	185	132	4	●		48300073	7,3	315	250	8	○	
48300041	4,1	215	140	6	○		48300074	7,4	315	250	8	○	
48300042	4,2	215	140	6	○		48300075	7,5	315	250	8	●	
48300043	4,3	215	150	6	○		48300076	7,6	315	265	8	○	
48300044	4,4	215	150	6	○		48300077	7,7	315	265	8	○	
48300045	4,5	215	150	6	●		48300078	7,8	315	265	8	○	
48300046	4,6	215	150	6	○		48300079	7,9	315	265	8	○	
48300047	4,7	215	150	6	○		48300080	8,0	315	265	8	●	
48300048	4,8	215	165	6	○		48300081	8,1	350	280	10	○	
48300049	4,9	215	165	6	○		48300082	8,2	350	280	10	○	
48300050	5,0	215	165	6	●		48300083	8,3	350	280	10	○	
48300051	5,1	250	180	6	○		48300084	8,4	350	280	10	○	
48300052	5,2	250	180	6	○		48300085	8,5	350	280	10	●	
48300053	5,3	250	180	6	○		48300086	8,6	350	300	10	○	
48300054	5,4	250	200	6	○		48300087	8,7	350	300	10	○	
48300055	5,5	250	200	6	●		48300088	8,8	350	300	10	○	
48300056	5,6	250	200	6	○		48300089	8,9	350	300	10	○	
48300057	5,7	250	200	6	○		48300090	9,0	350	300	10	●	
48300058	5,8	250	200	6	○		48300091	9,1	390	315	10	○	
48300059	5,9	250	200	6	○		48300092	9,2	390	315	10	○	
48300060	6,0	250	200	6	●		48300093	9,3	390	315	10	○	
48300061	6,1	280	215	8	○		48300094	9,4	390	315	10	○	
48300062	6,2	280	215	8	○		48300095	9,5	390	315	10	○	
48300063	6,3	280	215	8	○		48300096	9,6	390	330	10	○	
48300064	6,4	280	215	8	○		48300097	9,7	390	330	10	○	
48300065	6,5	280	215	8	●		48300098	9,8	390	330	10	○	
48300066	6,6	280	215	8	○		48300099	9,9	390	330	10	○	
48300067	6,7	280	215	8	○		48300100	10,0	390	330	10	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	◎	◎	◎	○				○

SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
	◎	◎						

ULTRA FX

GO TO LIVE STOCK CHECK



HIGH PERFORMANCE
- For deep drilling in steel

Extra long non step drilling
15 D, 20 D, 30 D

HIGH PERFORMANCE
- Zum Tiefbohren im Stahl

Extra länge Ohne Step
15 D,20D, 30 D

ALTA PRESTAZIONE
- Forature profonde

Extra lunga foratura continua
15 D, 20 D, 30 D

HAUTE PERFORMANCE
- Pour le forage profond dans l'acier

Extra long forage en continu
15 D, 20 D, 30 D

HIGH PERFORMANCE
- For dyb boring i stål

Ekstra lang boring uden udspåning
15 D, 20 D, 30 D

HIGH PERFORMANCE
- Step fri borrning i stål

Extra lång step fri borrning
15 D, 20 D, 30 D

ALTAS PRESTACIONES
- Para taladrado profundo en acero

Extra-larga taladrado ininterrumpido
15 D, 20 D, 30 D

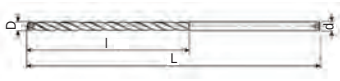
Высокая производительность
- Для глубокого сверления в стали

Непрерывное сверление глубиной
15 D, 20 D, 30 D

WDO-15D, 20D, 30D (page C.45~47) is OSG's new offering for this tool







	EDP	D	L	l	d	Stock	Price
15 XD	8568130	3,0x15D	95	55	3	○	
	8568140	4,0x15D	115	75	4	○	
	8568150	5,0x15D	135	90	5	○	
	8568160	6,0x15D	155	110	6	○	
20 XD	8568340	4,0x20D	130	90	4	○	
	8568345	4,5x20D	160	110	5	○	
	8568350	5,0x20D	160	115	5	○	
30 XD	8568450	5,0x30D	215	165	5	○	
	8568460	6,0x30D	230	180	6	○	

	EDP	D	L	l	d	Stock	Price
15 XD	8568170	7,0x15D	175	125	7	○	
	8568180	8,0x15D	195	145	8	○	
	8568185	8,5x15D	210	155	9	○	
	8568200	10,0x15D	240	180	10	○	
20 XD	8568355	5,5x20D	185	140	6	○	
	8568360	6,0x20D	185	140	6	○	
	8568380	8,0x20D	230	180	8	○	
30 XD	8568480	8,0x30D	315	265	8	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	◎	◎	◎	○				○

SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
	◎	◎						

● Delivery from stock
○ Available on short notice

CrN

GO TO LIVE STOCK CHECK



HIGH PERFORMANCE

- For deep drilling in Cu & Al alloys

Extra long non step drilling 15 D,20 D, 30 D

HIGH PERFORMANCE

- Zum Tiefbohren in Kupfer und Aluminium sowie Al-Legierungen

Extra länge Ohne Step 15 D, 20 D, 30 D

ALTA PRESTAZIONE

- Forature profonde per Cu & leghe di alluminio

Extra lunga foratura continua 15 D,20 D, 30 D

HAUTE PERFORMANCE

- Pour le forage profond dans Cu & alliages Al

Extra long forage en continu 15 D, 20 D, 30 D

HIGH PERFORMANCE

- Dyb boring i Cu & Al legering

Extra lang boring uden udspåning 15 D, 20 D, 30 D

HIGH PERFORMANCE

- For djup borrning i Cu. och Al.

Extra lång step fri borrning 15 D, 20 D, 30 D

ALTAS PRESTACIONES

- Para taladrado profundo en cobre y aluminio aleados

Extra-larga taladrado ininterrumpido 15 D, 20 D, 30 D

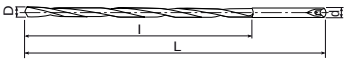
Высокая производительность

- Для глубокого сверления медных и алюминиевых сплавов

Непрерывное сверление глубиной 15 D, 20 D, 30 D







CrN

	EDP	D	L	l	d	Stock	Price
15 XD	8567130	3,0x15D	105	55	3	●	
	8567140	4,0x15D	125	75	4	●	
	8567150	5,0x15D	140	90	5	●	
	8567160	6,0x15D	160	110	6	●	
	8567165	6,5x15D	175	120	7	●	
20 XD	8567340	4,0x20D	140	90	4	●	
	8567345	4,5x20D	165	110	5	●	
	8567350	5,0x20D	165	115	5	●	
	8567355	5,5x20D	190	140	6	●	
	8567360	6,0x20D	190	140	6	●	
30 XD	8567450	5,0x30D	215	165	5	●	
	8567455	5,5x30D	250	200	6	●	
	8567460	6,0x30D	250	200	6	●	

	EDP	D	L	l	d	Stock	Price
15 XD	8567170	7,0x15D	175	125	7	●	
	8567180	8,0x15D	195	145	8	●	
	8567190	9,0x15D	210	160	9	●	
	8567200	10,0x15D	240	180	10	●	
20 XD	8567370	7,0x20D	210	160	7	●	
	8567380	8,0x20D	230	180	8	●	
	8567390	9,0x20D	260	210	9	●	
	8567400	10,0x20D	290	230	10	●	
30 XD	8567470	7,0x30D	280	230	7	●	
	8567480	8,0x30D	315	265	8	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS

SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
			○	○	◎			



HIGH PERFORMANCE
- General purpose 3D drill

3 D drilling

HIGH PERFORMANCE
- 3D Bohrer-Allgemeine Anwendungen

3 D Bohren

ALTA PRESTAZIONE
- Con 3D fori raccomandato per applicazioni generali

3 D foratura

HAUTE PERFORMANCE
- Foret 3D application générale

Forage 3 D

HIGH PERFORMANCE
- Universalt 3D bor

3 D boring

HIGH PERFORMANCE
- Allround 3 D

3 D borrning

ALTAS PRESTACIONES
- Broca 3D empleo general

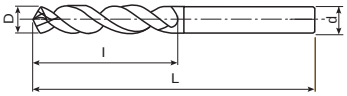
Taladrado 3 D

Высокая производительность
- Многоцелевое сверло 3D

Сверление глубиной 3D

HY-PRO

CARBIDE | TiAlN | 30° | h7 | 140° | m7 | min⁻¹ C.100



EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
30200300	3,0	62	20	6	●		30200710	7,1	79	34	8	●	
30200310	3,1	62	20	6	●		New Sizes 30200714	7,14 (9/32)	79	41	8	●	
New Sizes 30200317	3,17 (1/8)	62	20	6	●		30200720	7,2	79	41	8	●	
30200320	3,2	62	20	6	●		30200730	7,3	79	41	8	●	
30200330	3,3	62	20	6	●		30200740	7,4	79	41	8	●	
30200340	3,4	62	20	6	●		30200750	7,5	79	41	8	●	
30200350	3,5	62	20	6	●		New Sizes 30200754	7,54 (19/64)	79	41	8	●	
New Sizes 30200357	3,57 (9/64)	62	20	6	●		30200760	7,6	79	41	8	●	
30200360	3,6	62	20	6	●		30200770	7,7	79	41	8	●	
30200370	3,7	62	20	6	●		30200780	7,8	79	41	8	●	
30200380	3,8	66	24	6	●		30200790	7,9	79	41	8	●	
30200390	3,9	66	24	6	●		New Sizes 30200794	7,94 (5/16)	79	41	8	●	
New Sizes 30200397	3,97 (5/32)	66	24	6	●		30200800	8,0	79	41	8	●	
30200400	4,0	66	24	6	●		30200810	8,1	79	41	10	●	
30200410	4,1	66	24	6	●		30200820	8,2	79	41	10	●	
30200420	4,2	66	24	6	●		30200830	8,3	79	41	10	●	
30200430	4,3	66	24	6	●		New Sizes 30200833	8,33 (21/64)	89	47	10	●	
New Sizes 30200437	4,37 (11/64)	66	24	6	●		30200840	8,4	89	47	10	●	
30200440	4,4	66	24	6	●		30200850	8,5	89	47	10	●	
30200450	4,5	66	24	6	●		30200860	8,6	89	47	10	●	
30200460	4,6	66	24	6	●		30200870	8,7	89	47	10	●	
30200470	4,7	66	24	6	●		New Sizes 30200873	8,73 (11/32)	89	47	10	●	
New Sizes 30200476	4,76 (3/16)	66	24	6	●		30200880	8,8	89	47	10	●	
30200480	4,8	66	28	6	●		30200890	8,9	89	47	10	●	
30200490	4,9	66	28	6	●		30200900	9,0	89	47	10	●	
30200500	5,0	66	28	6	●		30200910	9,1	89	47	10	●	
30200510	5,1	66	28	6	●		New Sizes 30200913	9,13 (23/64)	89	47	10	●	
New Sizes 30200516	5,16 (13/64)	66	28	6	●		30200920	9,2	89	47	10	●	
30200520	5,2	66	28	6	●		30200930	9,3	89	47	10	●	
30200530	5,3	66	28	6	●		30200940	9,4	89	47	10	●	
30200540	5,4	66	28	6	●		30200950	9,5	89	47	10	●	
30200550	5,5	66	28	6	●		New Sizes 30200952	9,52 (3/8)	89	47	10	●	
New Sizes 30200556	5,56 (7/32)	66	28	6	●		30200960	9,6	89	47	10	●	
30200560	5,6	66	28	6	●		30200970	9,7	89	47	10	●	
30200570	5,7	66	28	6	●		30200980	9,8	89	47	10	●	
30200580	5,8	66	28	6	●		30200990	9,9	89	47	10	●	
30200590	5,9	66	28	6	●		New Sizes 30200992	9,92 (25/64)	89	47	10	●	
New Sizes 30200595	5,95 (15/64)	66	28	6	●		30201000	10,0	89	47	10	●	
30200600	6,0	66	28	6	●		30201010	10,1	89	47	12	●	
30200610	6,1	79	34	8	●		30201020	10,2	102	55	12	●	
30200620	6,2	79	34	8	●		30201030	10,3	102	55	12	●	
30200630	6,3	79	34	8	●		New Sizes 30201032	10,32 (13/32)	102	55	12	●	
New Sizes 30200635	6,35 (1/4)	79	34	8	●		30201040	10,4	102	55	12	●	
30200640	6,4	79	34	8	●		30201050	10,5	102	55	12	●	
30200650	6,5	79	34	8	●		30201060	10,6	102	55	12	●	
30200660	6,6	79	34	8	●		30201070	10,7	102	55	12	●	
30200670	6,7	79	34	8	●		New Sizes 30201072	10,72 (27/64)	102	55	12	●	
New Sizes 30200675	6,75 (17/64)	79	34	8	●		30201080	10,8	102	55	12	●	
30200680	6,8	79	34	8	●		30201090	10,9	102	55	12	●	
30200690	6,9	79	34	8	●		30201100	11,0	102	55	12	●	
30200700	7,0	79	34	8	●		30201110	11,1	102	55	12	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
○	◎	◎	◎	◎	○			○
SKD	**GG**	**GGG**	**Cu**	**Al**	**AC**	**Ti**	**Tiall**	**Inc**
○	◎	◎						

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE
- General purpose 3D drill

3 D drilling

HIGH PERFORMANCE
- 3D Bohrer-Allgemeine Anwendungen

3 D Bohren

ALTA PRESTAZIONE
- Con 3D fori raccomandato per applicazioni generali

3 D foratura

HAUTE PERFORMANCE
- Foret 3D application générale

Forage 3 D

HIGH PERFORMANCE
- Universalt 3D bor

3 D boring

HIGH PERFORMANCE
- Allround 3 D

3 D borrning

ALTAS PRESTACIONES
- Broca 3D empleo general

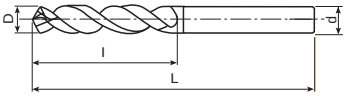
Taladrado 3 D

Высокая производительность
- Многоцелевое сверло 3D

Сверление глубиной 3D

HY-PRO

CARBIDE | TiAlN | 30° | h7 | 140° | m7 | min⁻¹ C.100



EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
30201111	11,11 (7/16)	102	55	12	●		30201350	13,5	107	60	14	●	
30201120	11,2	102	55	12	●		30201400	14,0	107	60	14	●	
30201130	11,3	102	55	12	●		30201429	14,29 (9/16)	115	65	16	●	
30201140	11,4	102	55	12	●		30201450	14,5	115	65	16	●	
30201150	11,5	102	55	12	●		30201500	15,0	115	65	16	●	
30201151	11,51 (29/64)	102	55	12	●		30201550	15,5	115	65	16	●	
30201160	11,6	102	55	12	●		30201587	15,87 (5/8)	115	65	16	●	
30201170	11,7	102	55	12	●		30201600	16,0	115	65	16	●	
30201180	11,8	102	55	12	●		30201650	16,5	123	73	18	●	
30201190	11,9	102	55	12	●		30201700	17,0	123	73	18	●	
30201191	11,91 (15/32)	102	55	12	●		30201750	17,5	123	73	18	●	
30201200	12,0	102	55	12	●		30201800	18,0	123	73	18	●	
30201230	12,30 (31/64)	107	60	14	●		30201850	18,5	131	79	20	●	
30201250	12,5	107	60	14	●		30201900	19,0	131	79	20	●	
30201270	12,70 (1/2)	107	60	14	●		30201950	19,5	131	79	20	●	
30201300	13,0	107	60	14	●		30202000	20,0	131	79	20	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
○	◎	◎	◎	◎	○			○
SKD	**GG**	**GGG**	**Cu**	**Al**	**AC**	**Ti**	**Tiall**	**Inc**
○	◎	◎						



HIGH PERFORMANCE
- General purpose 5D drill

5D drilling

HIGH PERFORMANCE
- 5D Bohrer-Allgemeine Anwendungen

5D Bohren

ALTA PRESTAZIONE
- Con 5D fori raccomandato per applicazioni generali

5D foratura

HAUTE PERFORMANCE
- Foret 5D application générale

Forage 5D

HIGH PERFORMANCE
- Universalt 5D bor

5D boring

HIGH PERFORMANCE
- Allround 5D

5D borrning

ALTAS PRESTACIONES
- Broca 5D empleo general

Taladrado 5D

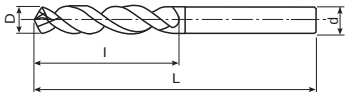
Высокая производительность
- Многоцелевое сверло 5D

Сверление глубиной 5D

HY-PRO







EDP	D	L	l	d	Stock	Price
31200300	3,0	66	28	6	●	
31200310	3,1	66	28	6	●	
31200317	3,17 (1/8)	66	28	6	●	
31200320	3,2	66	28	6	●	
31200330	3,3	66	28	6	●	
31200340	3,4	66	28	6	●	
31200350	3,5	66	28	6	●	
31200357	3,57 (9/64)	66	28	6	●	
31200360	3,6	66	28	6	●	
31200370	3,7	66	28	6	●	
31200380	3,8	74	36	6	●	
31200390	3,9	74	36	6	●	
31200397	3,97 (5/32)	74	36	6	●	
31200400	4,0	74	36	6	●	
31200410	4,1	74	36	6	●	
31200420	4,2	74	36	6	●	
31200430	4,3	74	36	6	●	
31200437	4,37 (11/64)	74	36	6	●	
31200440	4,4	74	36	6	●	
31200450	4,5	74	36	6	●	
31200460	4,6	74	36	6	●	
31200470	4,7	82	44	6	●	
31200476	4,76 (3/16)	82	44	6	●	
31200480	4,8	82	44	6	●	
31200490	4,9	82	44	6	●	
31200500	5,0	82	44	6	●	
31200510	5,1	82	44	6	●	
31200516	5,16 (13/64)	82	44	6	●	
31200520	5,2	82	44	6	●	
31200530	5,3	82	44	6	●	
31200540	5,4	82	44	6	●	
31200550	5,5	82	44	6	●	
31200556	5,56 (7/32)	82	44	6	●	
31200560	5,6	82	44	6	●	
31200570	5,7	82	44	6	●	
31200580	5,8	82	44	6	●	
31200590	5,9	82	44	6	●	
31200595	5,95 (15/64)	82	44	6	●	
31200600	6,0	82	44	6	●	
31200610	6,1	91	53	8	●	
31200620	6,2	91	53	8	●	
31200630	6,3	91	53	8	●	
31200635	6,35 (1/4)	91	53	8	●	
31200640	6,4	91	53	8	●	
31200650	6,5	91	53	8	●	
31200660	6,6	91	53	8	●	
31200670	6,7	91	53	8	●	
31200675	6,75 (17/64)	91	53	8	●	
31200680	6,8	91	53	8	●	
31200690	6,9	91	53	8	●	
31200700	7,0	91	53	8	●	
31200710	7,1	91	53	8	●	

EDP	D	L	l	d	Stock	Price
31200714	7,14 (9/32)	91	53	8	●	
31200720	7,2	91	53	8	●	
31200730	7,3	91	53	8	●	
31200740	7,4	91	53	8	●	
31200750	7,5	91	53	8	●	
31200754	7,54 (19/64)	91	53	8	●	
31200760	7,6	91	53	8	●	
31200770	7,7	91	53	8	●	
31200780	7,8	91	53	8	●	
31200790	7,9	91	53	8	●	
31200794	7,94 (5/16)	91	53	8	●	
31200800	8,0	91	53	8	●	
31200810	8,1	103	61	8	●	
31200820	8,2	103	61	10	●	
31200830	8,3	103	61	10	●	
31200833	8,33 (21/64)	103	61	10	●	
31200840	8,4	103	61	10	●	
31200850	8,5	103	61	10	●	
31200860	8,6	103	61	10	●	
31200870	8,7	103	61	10	●	
31200873	8,73 (11/32)	103	61	10	●	
31200880	8,8	103	61	10	●	
31200890	8,9	103	61	10	●	
31200900	9,0	103	61	10	●	
31200910	9,1	103	61	10	●	
31200913	9,13 (23/64)	103	61	10	●	
31200920	9,2	103	61	10	●	
31200930	9,3	103	61	10	●	
31200940	9,4	103	61	10	●	
31200950	9,5	103	61	10	●	
31200952	9,52 (3/8)	103	61	10	●	
31200960	9,6	103	61	10	●	
31200970	9,7	103	61	10	●	
31200980	9,8	103	61	10	●	
31200990	9,9	103	61	10	●	
31200992	9,92 (25/64)	103	61	10	●	
31201000	10,0	103	61	10	●	
31201010	10,1	118	71	12	●	
31201020	10,2	118	71	12	●	
31201030	10,3	118	71	12	●	
31201032	10,32 (13/32)	118	71	12	●	
31201040	10,4	118	71	12	●	
31201050	10,5	118	71	12	●	
31201060	10,6	118	71	12	●	
31201070	10,7	118	71	12	●	
31201072	10,72 (27/64)	118	71	12	●	
31201080	10,8	118	71	12	●	
31201090	10,9	118	71	12	●	
31201100	11,0	118	71	12	●	
31201110	11,1	118	71	12	●	
31201111	11,11 (7/16)	118	71	12	●	
31201120	11,2	118	71	12	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
○	◎	◎	◎	◎	○			○
SKD	**GG**	**GGG**	**Cu**	**Al**	**AC**	**Ti**	**Tiall**	**Inc**
○	◎	◎						

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE
- General purpose 5D drill

5D drilling

HIGH PERFORMANCE
- 5D Bohrer-Allgemeine Anwendungen

5D Bohren

ALTA PRESTAZIONE
- Con 5D fori raccomandato per applicazioni generali

5D foratura

HAUTE PERFORMANCE
- Foret 5D application générale

Forage 5D

HIGH PERFORMANCE
- Universalt 5D bor

5D boring

HIGH PERFORMANCE
- Allround 5D

5D borrning

ALTAS PRESTACIONES
- Broca 5D empleo general

Taladrado 5D

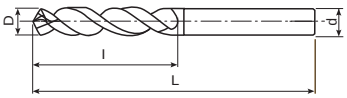
Высокая производительность
- Многоцелевое сверло 5D

Сверление глубиной 5D

HY-PRO







EDP	D	L	l	d	Stock	Price
31201130	11,3	118	71	12	●	
31201140	11,4	118	71	12	●	
31201150	11,5	118	71	12	●	
31201151	11,51 (29/64)	118	71	12	●	
31201160	11,6	118	71	12	●	
31201170	11,7	118	71	12	●	
31201180	11,8	118	71	12	●	
31201190	11,9	118	71	12	●	
31201191	11,91 (15/32)	118	71	12	●	
31201200	12,0	118	71	12	●	
31201230	12,3 (31/64)	124	77	14	●	
31201250	12,5	124	77	14	●	
31201270	12,7 (1/2)	124	77	14	●	
31201300	13,0	124	77	14	●	
31201350	13,5	124	77	14	●	

EDP	D	L	l	d	Stock	Price
31201400	14,0	124	77	14	●	
31201429	14,29 (9/16)	133	83	16	●	
31201450	14,5	133	83	16	●	
31201500	15,0	133	83	16	●	
31201550	15,5	133	83	16	●	
31201587	15,87 (5/8)	133	83	16	●	
31201600	16,0	133	93	18	●	
31201650	16,5	143	93	18	●	
31201700	17,0	143	93	18	●	
31201750	17,5	143	93	18	●	
31201800	18,0	143	93	18	●	
31201850	18,5	153	101	20	●	
31201900	19,0	153	101	20	●	
31201950	19,5	153	101	20	●	
31202000	20,0	153	101	20	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
○	◎	◎	◎	◎	○			○
SKD	**GG**	**GGG**	**Cu**	**Al**	**AC**	**Ti**	**Tiall**	**Inc**
○	◎	◎						



HIGH PERFORMANCE
- General purpose 3D drill

3 D drilling

HIGH PERFORMANCE
- 3D Bohrer-Allgemeine Anwendungen

3 D Bohren

ALTA PRESTAZIONE
- Con 3D fori raccomandato per applicazioni generali

3 D foratura

HAUTE PERFORMANCE
- Foret 3D application générale

Forage 3 D

HIGH PERFORMANCE
- Universalt 3D bor

3 D boring

HIGH PERFORMANCE
- Allround 3 D

3 D borrning

ALTAS PRESTACIONES
- Broca 3D empleo general

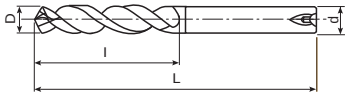
Taladrado 3 D

Высокая производительность
- Многоцелевое сверло 3D

Сверление глубиной 3D

HY-PRO

CARBIDE | TiAlN | 30° | h7 | 140° | m7 | min⁻¹ C.100



EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
30210300	3,0	62	20	6	●		30210710	7,1	79	34	8	●	
30210310	3,1	62	20	6	●		New Sizes 30210714	7,14 (9/32)	79	41	8	●	
New Sizes 30210317	3,17 (1/8)	62	20	6	●		30210720	7,2	79	41	8	●	
30210320	3,2	62	20	6	●		30210730	7,3	79	41	8	●	
30210330	3,3	62	20	6	●		30210740	7,4	79	41	8	●	
30210340	3,4	62	20	6	●		30210750	7,5	79	41	8	●	
30210350	3,5	62	20	6	●		New Sizes 30210754	7,54 (19/64)	79	41	8	●	
New Sizes 30210357	3,57 (9/64)	62	20	6	●		30210760	7,6	79	41	8	●	
30210360	3,6	62	20	6	●		30210770	7,7	79	41	8	●	
30210370	3,7	62	20	6	●		30210780	7,8	79	41	8	●	
30210380	3,8	66	24	6	●		30210790	7,9	79	41	8	●	
30210390	3,9	66	24	6	●		New Sizes 30210794	7,94 (5/16)	79	41	8	●	
New Sizes 30210397	3,97 (5/32)	66	24	6	●		30210800	8,0	79	41	8	●	
30210400	4,0	66	24	6	●		30210810	8,1	79	41	10	●	
30210410	4,1	66	24	6	●		30210820	8,2	79	41	10	●	
30210420	4,2	66	24	6	●		30210830	8,3	79	41	10	●	
30210430	4,3	66	24	6	●		New Sizes 30210833	8,33 (21/64)	89	47	10	●	
New Sizes 30210437	4,37 (11/64)	66	24	6	●		30210840	8,4	89	47	10	●	
30210440	4,4	66	24	6	●		30210850	8,5	89	47	10	●	
30210450	4,5	66	24	6	●		30210860	8,6	89	47	10	●	
30210460	4,6	66	24	6	●		30210870	8,7	89	47	10	●	
30210470	4,7	66	24	6	●		New Sizes 30210873	8,73 (11/32)	89	47	10	●	
New Sizes 30210476	4,76 (3/16)	66	24	6	●		30210880	8,8	89	47	10	●	
30210480	4,8	66	28	6	●		30210890	8,9	89	47	10	●	
30210490	4,9	66	28	6	●		30210900	9,0	89	47	10	●	
30210500	5,0	66	28	6	●		30210910	9,1	89	47	10	●	
30210510	5,1	66	28	6	●		New Sizes 30210913	9,13 (23/64)	89	47	10	●	
New Sizes 30210516	5,16 (13/64)	66	28	6	●		30210920	9,2	89	47	10	●	
30210520	5,2	66	28	6	●		30210930	9,3	89	47	10	●	
30210530	5,3	66	28	6	●		30210940	9,4	89	47	10	●	
30210540	5,4	66	28	6	●		30210950	9,5	89	47	10	●	
30210550	5,5	66	28	6	●		New Sizes 30210952	9,52 (3/8)	89	47	10	●	
New Sizes 30210556	5,56 (7/32)	66	28	6	●		30210960	9,6	89	47	10	●	
30210560	5,6	66	28	6	●		30210970	9,7	89	47	10	●	
30210570	5,7	66	28	6	●		30210980	9,8	89	47	10	●	
30210580	5,8	66	28	6	●		30210990	9,9	89	47	10	●	
30210590	5,9	66	28	6	●		New Sizes 30210992	9,92 (25/64)	89	47	10	●	
New Sizes 30210595	5,95 (15/64)	66	28	6	●		30211000	10,0	89	47	10	●	
30210600	6,0	66	28	6	●		30211010	10,1	89	47	12	●	
30210610	6,1	79	34	8	●		30211020	10,2	102	55	12	●	
30210620	6,2	79	34	8	●		30211030	10,3	102	55	12	●	
30210630	6,3	79	34	8	●		New Sizes 30211032	10,32 (13/32)	102	55	12	●	
New Sizes 30210635	6,35 (1/4)	79	34	8	●		30211040	10,4	102	55	12	●	
30210640	6,4	79	34	8	●		30211050	10,5	102	55	12	●	
30210650	6,5	79	34	8	●		30211060	10,6	102	55	12	●	
30210660	6,6	79	34	8	●		30211070	10,7	102	55	12	●	
30210670	6,7	79	34	8	●		New Sizes 30211072	10,72 (27/64)	102	55	12	●	
New Sizes 30210675	6,75 (17/64)	79	34	8	●		30211080	10,8	102	55	12	●	
30210680	6,8	79	34	8	●		30211090	10,9	102	55	12	●	
30210690	6,9	79	34	8	●		30211100	11,0	102	55	12	●	
30210700	7,0	79	34	8	●		30211110	11,1	102	55	12	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
SKD	**GG**	**GGG**	**Cu**	**Al**	**AC**	**Ti**	**Tiall**	**Inc**

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE
- General purpose 3D drill

3 D drilling

HIGH PERFORMANCE
- 3D Bohrer-Allgemeine Anwendungen

3 D Bohren

ALTA PRESTAZIONE
- Con 3D fori raccomandato per applicazioni generali

3 D foratura

HAUTE PERFORMANCE
- Foret 3D application générale

Forage 3 D

HIGH PERFORMANCE
- Universalt 3D bor

3 D boring

HIGH PERFORMANCE
- Allround 3 D

3 D borrning

ALTAS PRESTACIONES
- Broca 3D empleo general

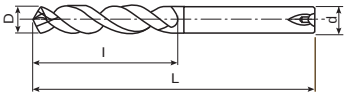
Taladrado 3 D

Высокая производительность
- Многоцелевое сверло 3D

Сверление глубиной 3D

HY-PRO

CARBIDE | TiAlN | 30° | h7 | 140° | m7 | min⁻¹ C.100



EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
30211111	11,11 (7/16)	102	55	12	●		30211350	13,5	107	60	14	●	
30211120	11,2	102	55	12	●		30211400	14,0	107	60	14	●	
30211130	11,3	102	55	12	●		30211429	14,29 (9/16)	115	65	16	●	
30211140	11,4	102	55	12	●		30211450	14,5	115	65	16	●	
30211150	11,5	102	55	12	●		30211500	15,0	115	65	16	●	
30211151	11,51 (29/64)	102	55	12	●		30211550	15,5	115	65	16	●	
30211160	11,6	102	55	12	●		30211587	15,87 (5/8)	115	65	16	●	
30211170	11,7	102	55	12	●		30211600	16,0	115	65	16	●	
30211180	11,8	102	55	12	●		30211650	16,5	123	73	18	●	
30211190	11,9	102	55	12	●		30211700	17,0	123	73	18	●	
30211191	11,91 (15/32)	102	55	12	●		30211750	17,5	123	73	18	●	
30211200	12,0	102	55	12	●		30211800	18,0	123	73	18	●	
30211230	12,30 (31/64)	107	60	14	●		30211850	18,5	131	79	20	●	
30211250	12,5	107	60	14	●		30211900	19,0	131	79	20	●	
30211270	12,70 (1/2)	107	60	14	●		30211950	19,5	131	79	20	●	
30211300	13,0	107	60	14	●		30212000	20,0	131	79	20	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
○	◎	◎	◎	◎	○			○
SKD	**GG**	**GGG**	**Cu**	**Al**	**AC**	**Ti**	**Tiall**	**Inc**
○	◎	◎						



HIGH PERFORMANCE
- General purpose 5D drill

5D drilling

HIGH PERFORMANCE
- 5D Bohrer-Allgemeine Anwendungen

5D Bohren

ALTA PRESTAZIONE
- Con 5D fori raccomandato per applicazioni generali

5D foratura

HAUTE PERFORMANCE
- Foret 5D application générale

Forage 5D

HIGH PERFORMANCE
- Universalt 5D bor

5D boring

HIGH PERFORMANCE
- Allround 5D

5D borrning

ALTAS PRESTACIONES
- Broca 5D empleo general

Taladrado 5D

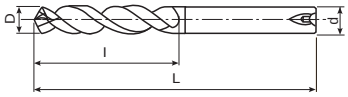
Высокая производительность
- Многоцелевое сверло 5D

Сверление глубиной 5D

HY-PRO







EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
30220300	3,0	66	28	6	●		30220714	7,14 (9/32)	91	53	8	●	
30220310	3,1	66	28	6	●		30220720	7,2	91	53	8	●	
30220317	3,17 (1/8)	66	28	6	●		30220730	7,3	91	53	8	●	
30220320	3,2	66	28	6	●		30220740	7,4	91	53	8	●	
30220330	3,3	66	28	6	●		30220750	7,5	91	53	8	●	
30220340	3,4	66	28	6	●		30220754	7,54 (19/64)	91	53	8	●	
30220350	3,5	66	28	6	●		30220760	7,6	91	53	8	●	
30220357	3,57 (9/64)	66	28	6	●		30220770	7,7	91	53	8	●	
30220360	3,6	66	28	6	●		30220780	7,8	91	53	8	●	
30220370	3,7	66	28	6	●		30220790	7,9	91	53	8	●	
30220380	3,8	74	36	6	●		30220794	7,94 (5/16)	91	53	8	●	
30220390	3,9	74	36	6	●		30220800	8,0	91	53	8	●	
30220397	3,97 (5/32)	74	36	6	●		30220810	8,1	103	61	8	●	
30220400	4,0	74	36	6	●		30220820	8,2	103	61	10	●	
30220410	4,1	74	36	6	●		30220830	8,3	103	61	10	●	
30220420	4,2	74	36	6	●		30220833	8,33 (21/64)	103	61	10	●	
30220430	4,3	74	36	6	●		30220840	8,4	103	61	10	●	
30220437	4,37 (11/64)	74	36	6	●		30220850	8,5	103	61	10	●	
30220440	4,4	74	36	6	●		30220860	8,6	103	61	10	●	
30220450	4,5	74	36	6	●		30220870	8,7	103	61	10	●	
30220460	4,6	74	36	6	●		30220873	8,73 (11/32)	103	61	10	●	
30220470	4,7	82	44	6	●		30220880	8,8	103	61	10	●	
30220476	4,76 (3/16)	82	44	6	●		30220890	8,9	103	61	10	●	
30220480	4,8	82	44	6	●		30220900	9,0	103	61	10	●	
30220490	4,9	82	44	6	●		30220910	9,1	103	61	10	●	
30220500	5,0	82	44	6	●		30220913	9,13 (23/64)	103	61	10	●	
30220510	5,1	82	44	6	●		30220920	9,2	103	61	10	●	
30220516	5,16 (13/64)	82	44	6	●		30220930	9,3	103	61	10	●	
30220520	5,2	82	44	6	●		30220940	9,4	103	61	10	●	
30220530	5,3	82	44	6	●		30220950	9,5	103	61	10	●	
30220540	5,4	82	44	6	●		30220952	9,52 (3/8)	103	61	10	●	
30220550	5,5	82	44	6	●		30220960	9,6	103	61	10	●	
30220556	5,56 (7/32)	82	44	6	●		30220970	9,7	103	61	10	●	
30220560	5,6	82	44	6	●		30220980	9,8	103	61	10	●	
30220570	5,7	82	44	6	●		30220990	9,9	103	61	10	●	
30220580	5,8	82	44	6	●		30220992	9,92 (25/64)	103	61	10	●	
30220590	5,9	82	44	6	●		30221000	10,0	103	61	10	●	
30220595	5,95 (15/64)	82	44	6	●		30221010	10,1	118	71	12	●	
30220600	6,0	82	44	6	●		30221020	10,2	118	71	12	●	
30220610	6,1	91	53	8	●		30221030	10,3	118	71	12	●	
30220620	6,2	91	53	8	●		30221032	10,32 (13/32)	118	71	12	●	
30220630	6,3	91	53	8	●		30221040	10,4	118	71	12	●	
30220635	6,35 (1/4)	91	53	8	●		30221050	10,5	118	71	12	●	
30220640	6,4	91	53	8	●		30221060	10,6	118	71	12	●	
30220650	6,5	91	53	8	●		30221070	10,7	118	71	12	●	
30220660	6,6	91	53	8	●		30221072	10,72 (27/64)	118	71	12	●	
30220670	6,7	91	53	8	●		30221080	10,8	118	71	12	●	
30220675	6,75 (17/64)	91	53	8	●		30221090	10,9	118	71	12	●	
30220680	6,8	91	53	8	●		30221100	11,0	118	71	12	●	
30220690	6,9	91	53	8	●		30221110	11,1	118	71	12	●	
30220700	7,0	91	53	8	●		30221111	11,11 (7/16)	118	71	12	●	
30220710	7,1	91	53	8	●		30221120	11,2	118	71	12	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
○	◎	◎	◎	◎	○			○
SKD	**GG**	**GGG**	**Cu**	**Al**	**AC**	**Ti**	**Tiall**	**Inc**
○	◎	◎						

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE
- General purpose 5D drill

5D drilling

HIGH PERFORMANCE
- 5D Bohrer-Allgemeine Anwendungen

5D Bohren

ALTA PRESTAZIONE
- Con 5D fori raccomandato per applicazioni generali

5D foratura

HAUTE PERFORMANCE
- Foret 5D application générale

Forage 5D

HIGH PERFORMANCE
- Universalt 5D bor

5D boring

HIGH PERFORMANCE
- Allround 5D

5D borrning

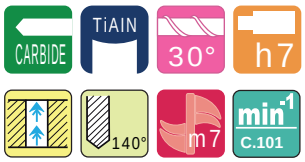
ALTAS PRESTACIONES
- Broca 5D empleo general

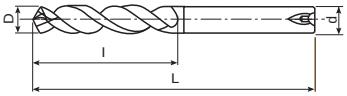
Taladrado 5D

Высокая производительность
- Многоцелевое сверло 5D

Сверление глубиной 5D

HY-PRO





EDP	D	L	l	d	Stock	Price
30221130	11,3	118	71	12	●	
30221140	11,4	118	71	12	●	
30221150	11,5	118	71	12	●	
30221151	11,51 (29/64)	118	71	12	●	
30221160	11,6	118	71	12	●	
30221170	11,7	118	71	12	●	
30221180	11,8	118	71	12	●	
30221190	11,9	118	71	12	●	
30221191	11,91 (15/32)	118	71	12	●	
30221200	12,0	118	71	12	●	
30221230	12,3 (31/64)	124	77	14	●	
30221250	12,5	124	77	14	●	
30221270	12,7 (1/2)	124	77	14	●	
30221300	13,0	124	77	14	●	
30221350	13,5	124	77	14	●	

EDP	D	L	l	d	Stock	Price
30221400	14,0	124	77	14	●	
30221429	14,29 (9/16)	133	83	16	●	
30221450	14,5	133	83	16	●	
30221500	15,0	133	83	16	●	
30221550	15,5	133	83	16	●	
30221587	15,87 (5/8)	133	83	16	●	
30221600	16,0	133	83	16	●	
30221650	16,5	143	93	18	●	
30221700	17,0	143	93	18	●	
30221750	17,5	143	93	18	●	
30221800	18,0	143	93	18	●	
30221850	18,5	153	101	20	●	
30221900	19,0	153	101	20	●	
30221950	19,5	153	101	20	●	
30222000	20,0	153	101	20	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
○	◎	◎	◎	◎	○			○
SKD	**GG**	**GGG**	**Cu**	**Al**	**AC**	**Ti**	**Tiall**	**Inc**
○	◎	◎						



HIGH PERFORMANCE
- General purpose 8D drill

8D drilling

HIGH PERFORMANCE
- 8D Bohrer-Allgemeine Anwendungen

8D Bohren

ALTA PRESTAZIONE
- Con 8D fori raccomandato per applicazioni generali

8D foratura

HAUTE PERFORMANCE
- Foret 8D application générale

Forage 8D

HIGH PERFORMANCE
- Universalt 8D bor

8D boring

HIGH PERFORMANCE
- Allround 8D

8D borrning

ALTAS PRESTACIONES
- Broca 8D empleo general

Taladrado 8D

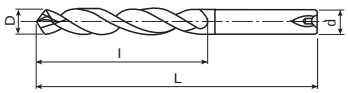
Высокая производительность
- Многоцелевое сверло 8D

Сверление глубиной 8D

HY-PRO







EDP	D	L	l	d	Stock	Price
32210500	5	90	50	6	●	
32210550	5,5	97	57	6	●	
32210600	6	97	57	6	●	
32210635	6,35	106	66	8	●	
32210650	6,5	106	66	8	●	
32210680	6,8	106	66	8	●	
32210700	7	116	76	8	●	
32210750	7,5	116	76	8	●	
32210780	7,8	116	76	8	●	
32210800	8	116	76	8	●	
32210850	8,5	131	87	10	●	
32210900	9	131	87	10	●	
32210950	9,5	139	95	10	●	
32210952	9,52	139	95	10	●	
32211000	10	139	95	10	●	

EDP	D	L	l	d	Stock	Price
32211020	10,2	155	106	12	●	
32211050	10,5	155	106	12	●	
32211100	11	155	106	12	●	
32211150	11,5	163	114	12	●	
32211200	12	163	114	12	●	
32211250	12,5	182	133	14	●	
32211270	12,7	182	133	14	●	
32211300	13	182	133	14	●	
32211350	13,5	182	133	14	●	
32211400	14	182	133	14	●	
32211450	14,5	204	152	16	●	
32211500	15	204	152	16	●	
32211550	15,5	204	152	16	●	
32211600	16	204	152	16	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
○	◎	◎	◎	◎	○			○
SKD	**GG**	**GGG**	**Cu**	**Al**	**AC**	**Ti**	**Tiall**	**Inc**
○	◎	◎						

● Delivery from stock
○ Available on short notice

WH55-5D



HIGH PERFORMANCE
- For hardened material up to 55 HRC

5D drilling

HIGH PERFORMANCE
- Für gehärtete Materialien bis 55 HRC

5D Bohren

ALTA PRESTAZIONE
- Per acciai temprati fino a 55 HRC

5D foratura

HAUTE PERFORMANCE
- Pour matériaux spérieur à 55 HRC

Forage 5D

HIGH PERFORMANCE
- For hærdede materialer op til 55 HRC

5D boring

HIGH PERFORMANCE
- För härdat stål upp till 55HRC

5D borrning

ALTAS PRESTACIONES
- Para aceros templados hasta 55 HRC

Taladrado 5D

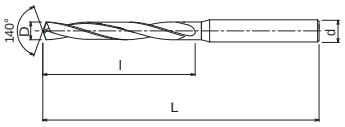
Высокая производительность
- Для закаленных материалов до 55 HRC

Сверление 5D

GO TO LIVE STOCK CHECK







EDP	D	L	l	d	Stock	Price
3312200	2	68	18	4	●	
3312250	2,5	73	23	4	●	
3312280	2,8	73	27	4	●	
3312300	3	78	29	6	●	
3312330	3,3	78	32	6	●	
3312350	3,5	78	32	6	●	
3312380	3,8	78	36	6	●	
3312400	4	78	36	6	●	
3312420	4,2	88	38	6	●	
3312450	4,5	88	41	6	●	
3312480	4,8	88	45	6	●	
3312500	5	88	45	6	●	
3312510	5,1	92	42	6	●	
3312550	5,5	92	44	6	●	
3312580	5,8	92	48	6	●	
3312600	6	92	48	6	●	
3312650	6,5	102	52	8	●	
3312680	6,8	102	56	8	●	

EDP	D	L	l	d	Stock	Price
3312700	7	102	56	8	●	
3312750	7,5	118	60	8	●	
3312780	7,8	118	64	8	●	
3312800	8	118	64	8	●	
3312850	8,5	128	68	10	●	
3312870	8,7	128	70	10	●	
3312880	8,8	128	72	10	●	
3312900	9	128	72	10	●	
3312950	9,5	136	76	10	●	
3312980	9,8	136	80	10	●	
3313000	10	136	80	10	●	
3313030	10,3	146	84	12	●	
3313050	10,5	146	84	12	●	
3313080	10,8	146	88	12	●	
3313100	11	146	88	12	●	
3313150	11,5	156	92	12	●	
3313180	11,8	156	96	12	●	
3313200	12	156	96	12	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
					◎	◎	○	

SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc

WHO55-5D



HIGH PERFORMANCE
- For hardened material up to 55 HRC

5D drilling

HIGH PERFORMANCE
- Für gehärtete Materialien bis 55 HRC

5D Bohren

ALTA PRESTAZIONE
- Per acciai temprati fino a 55 HRC

5D foratura

HAUTE PERFORMANCE
- Pour matériaux spérieur à 55 HRC

Forage 5D

HIGH PERFORMANCE
- For hærdede materialer op til 55 HRC

5D boring

HIGH PERFORMANCE
- För härdat stål upp till 55HRC

5D borrning

ALTAS PRESTACIONES
- Para aceros templados hasta 55 HRC

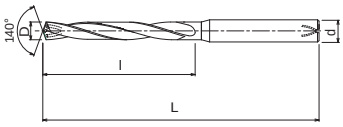
Taladrado 5D

Высокая производительность
- Для закаленных материалов до 55 HRC

Сверление 5D







EDP	D	L	l	d	Stock	Price
3316330	3,3	78	32	6	●	
3316340	3,4	78	32	6	●	
3316349	3,49	78	32	6	●	
3316350	3,5	78	32	6	●	
3316360	3,6	78	34	6	●	
3316370	3,7	78	34	6	●	
3316380	3,8	78	36	6	●	
3316390	3,9	78	36	6	●	
3316400	4	78	36	6	●	
3316410	4,1	88	38	6	●	
3316415	4,15	88	38	6	●	
3316420	4,2	88	38	6	●	
3316430	4,3	88	41	6	●	
3316440	4,4	88	41	6	●	
3316450	4,5	88	41	6	●	
3316460	4,6	88	43	6	●	
3316470	4,7	88	43	6	●	
3316480	4,8	88	45	6	●	
3316490	4,9	88	45	6	●	
3316500	5	88	45	6	●	
3316510	5,1	92	42	6	●	
3316520	5,2	92	42	6	●	
3316530	5,3	92	44	6	●	
3316540	5,4	92	44	6	●	
3316550	5,5	92	44	6	●	
3316556	5,56	92	46	6	●	
3316560	5,6	92	46	6	●	

EDP	D	L	l	d	Stock	Price
3316570	5,7	92	46	6	●	
3316580	5,8	92	48	6	●	
3316590	5,9	92	48	6	●	
3316600	6	92	48	6	●	
3316650	6,5	102	52	8	●	
3316680	6,8	102	56	8	●	
3316700	7	102	56	8	●	
3316750	7,5	118	60	8	●	
3316780	7,8	118	64	8	●	
3316800	8	118	64	8	●	
3316850	8,5	128	68	10	●	
3316858	8,58	128	70	10	●	
3316870	8,7	128	70	10	●	
3316880	8,8	128	72	10	●	
3316900	9	128	72	10	●	
3316950	9,5	136	76	10	●	
3316980	9,8	136	80	10	●	
3316997	9,97	136	80	10	●	
3317000	10	136	80	10	●	
3317030	10,3	146	84	12	●	
3317050	10,5	146	84	12	●	
3317080	10,8	146	88	12	●	
3317100	11	146	88	12	●	
3317150	11,5	156	92	12	●	
3317156	11,56	156	94	12	●	
3317180	11,8	156	96	12	●	
3317200	12	156	96	12	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
					◎	◎	○	

SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
								◎

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE
- For hardened material up to 70 HRC

HIGH PERFORMANCE
- Für gehärtete Materialien bis 70 HRC

ALTA PRESTAZIONE
- Per acciai temprati fino a 70 HRC

HAUTE PERFORMANCE
- Pour matériaux spérieur à 70 HRC

HIGH PERFORMANCE
- For hærdede materialer op til 70 HRC

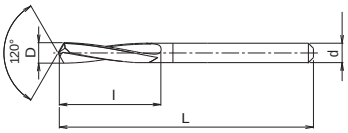
HIGH PERFORMANCE
- För härdat stål upp till 70HRC

ALTAS PRESTACIONES
- Para aceros templados hasta 70 HRC

Высокая производительность
- Для закаленных материалов до 70 HRC







EDP	D	L	l	d	Stock	Price
3318200	2	42	12	3	●	
3318210	2,1	42	12	3	●	
3318220	2,2	43	13	3	●	
3318230	2,3	43	13	3	●	
3318240	2,4	44	14	3	●	
3318250	2,5	44	14	3	●	
3318260	2,6	44	14	3	●	
3318270	2,7	46	16	3	●	
3318280	2,8	46	16	3	●	
3318290	2,9	46	16	3	●	
3318300	3	46	16	3	●	
3318310	3,1	48	18	4	●	
3318320	3,2	48	18	4	●	
3318330	3,3	48	18	4	●	
3318340	3,4	50	20	4	●	
3318350	3,5	50	20	4	●	
3318360	3,6	50	20	4	●	
3318370	3,7	50	20	4	●	
3318380	3,8	52	22	4	●	
3318390	3,9	52	22	4	●	
3318400	4	52	22	4	●	
3318410	4,1	68	25	5	○	
3318420	4,2	68	25	5	●	
3318430	4,3	68	28	5	○	
3318440	4,4	68	28	5	○	
3318450	4,5	68	28	5	●	
3318460	4,6	68	28	5	○	
3318470	4,7	68	28	5	○	
3318480	4,8	68	32	5	○	
3318490	4,9	68	32	5	○	
3318500	5	68	32	5	●	
3318510	5,1	74	32	6	●	
3318520	5,2	74	32	6	●	
3318530	5,3	74	32	6	●	
3318540	5,4	74	35	6	●	
3318550	5,5	74	35	6	●	
3318560	5,6	74	35	6	●	
3318570	5,7	74	35	6	●	
3318580	5,8	74	35	6	●	
3318590	5,9	74	35	6	●	
3318600	6	74	35	6	●	
3318610	6,1	83	40	7	○	
3318620	6,2	83	40	7	○	
3318630	6,3	83	40	7	○	
3318640	6,4	83	40	7	○	
3318650	6,5	83	40	7	●	
3318660	6,6	83	40	7	○	
3318670	6,7	83	40	7	○	
3318680	6,8	83	45	7	●	
3318690	6,9	83	45	7	○	
3318700	7	83	45	7	●	

EDP	D	L	l	d	Stock	Price
3318710	7,1	94	45	8	○	
3318720	7,2	94	45	8	○	
3318730	7,3	94	45	8	○	
3318740	7,4	94	45	8	○	
3318750	7,5	94	45	8	●	
3318760	7,6	94	50	8	○	
3318770	7,7	94	50	8	○	
3318780	7,8	94	50	8	○	
3318790	7,9	94	50	8	○	
3318800	8	94	50	8	●	
3318810	8,1	101	50	9	○	
3318820	8,2	101	50	9	●	
3318830	8,3	101	50	9	○	
3318840	8,4	101	50	9	○	
3318850	8,5	101	50	9	●	
3318860	8,6	101	57	9	○	
3318870	8,7	101	57	9	●	
3318880	8,8	101	57	9	○	
3318890	8,9	101	57	9	○	
3318900	9	101	57	9	●	
3318910	9,1	106	57	10	○	
3318920	9,2	106	57	10	○	
3318930	9,3	106	57	10	○	
3318940	9,4	106	57	10	○	
3318950	9,5	106	57	10	●	
3318960	9,6	106	63	10	○	
3318970	9,7	106	63	10	○	
3318980	9,8	106	63	10	○	
3318990	9,9	106	63	10	○	
3319000	10	106	63	10	●	
3319010	10,1	113	63	11	○	
3319020	10,2	113	63	11	○	
3319030	10,3	113	63	11	●	
3319040	10,4	113	63	11	○	
3319050	10,5	113	63	11	●	
3319060	10,6	113	63	11	○	
3319070	10,7	113	71	11	○	
3319080	10,8	113	71	11	●	
3319090	10,9	113	71	11	●	
3319100	11	113	71	11	●	
3319110	11,1	120	71	12	○	
3319120	11,2	120	71	12	○	
3319130	11,3	120	71	12	○	
3319140	11,4	120	71	12	○	
3319150	11,5	120	71	12	●	
3319160	11,6	120	71	12	○	
3319170	11,7	120	71	12	○	
3319180	11,8	120	71	12	○	
3319190	11,9	120	76	12	○	
3319200	12	120	76	12	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
							◎	

SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc



HIGH PERFORMANCE
- For hardend material up to 70 HRC

HIGH PERFORMANCE
- Für gehärtete Materialien bis 70 HRC

ALTA PRESTAZIONE
- Per materiali con durezza fino a 70 HRC

HAUTE PERFORMANCE
- Pour des matériaux durs jusqu'à 70 HRC

HIGH PERFORMANCE
- För hårde materialer op til 70 HRC

HIGH PERFORMANCE
- För hårda material upp till 70 HRC

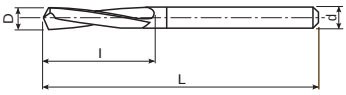
ALTAS PRESTACIONES
- Para materiales duros hasta 70 HRC

Высокая производительность
- Для закаленных сталей < 70 HRC

WH70-DRL (page C.61) is OSG's new offering for this tool







EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
8560200	2,0	42	12	3,0	○		8560740	7,4	85	45	7,4	○	
8560210	2,1	42	12	3,0	○		8560750	7,5	85	45	7,5	○	
8560220	2,2	43	13	3,0	○		8560760	7,6	98	50	7,6	○	
8560230	2,3	43	13	3,0	○		8560770	7,7	98	50	7,7	○	
8560240	2,4	44	14	3,0	○		8560780	7,8	98	50	7,8	○	
8560250	2,5	44	14	3,0	○		8560790	7,9	98	50	7,9	○	
8560260	2,6	44	14	3,0	○		8560800	8,0	98	50	8,0	○	
8560270	2,7	46	16	3,0	○		8560810	8,1	98	50	8,1	○	
8560280	2,8	46	16	3,0	○		8560820	8,2	98	50	8,2	○	
8560290	2,9	46	16	3,0	○		8560830	8,3	98	50	8,3	○	
8560300	3,0	46	16	3,0	○		8560840	8,4	98	50	8,4	○	
8560310	3,1	48	18	4,0	○		8560850	8,5	98	50	8,5	○	
8560320	3,2	48	18	4,0	○		8560860	8,6	105	57	8,6	○	
8560330	3,3	48	18	4,0	○		8560870	8,7	105	57	8,7	○	
8560340	3,4	50	20	4,0	○		8560880	8,8	105	57	8,8	○	
8560350	3,5	50	20	4,0	○		8560890	8,9	105	57	8,9	○	
8560360	3,6	50	20	4,0	○		8560900	9,0	105	57	9,0	○	
8560370	3,7	50	20	4,0	○		8560910	9,1	105	57	9,1	○	
8560380	3,8	52	22	4,0	○		8560920	9,2	105	57	9,2	○	
8560390	3,9	52	22	4,0	○		8560930	9,3	105	57	9,3	○	
8560400	4,0	52	22	4,0	○		8560940	9,4	105	57	9,4	○	
8560410	4,1	65	25	6,0	○		8560950	9,5	105	57	9,5	○	
8560420	4,2	65	25	6,0	○		8560960	9,6	111	63	9,6	○	
8560430	4,3	68	28	6,0	○		8560970	9,7	111	63	9,7	○	
8560440	4,4	68	28	6,0	○		8560980	9,8	111	63	9,8	○	
8560450	4,5	68	28	6,0	○		8560990	9,9	111	63	9,9	○	
8560460	4,6	68	28	6,0	○		8561000	10,0	111	63	10,0	○	
8560470	4,7	68	28	6,0	○		8561010	10,1	111	63	10,1	○	
8560480	4,8	72	32	6,0	○		8561020	10,2	111	63	10,2	○	
8560490	4,9	72	32	6,0	○		8561030	10,3	111	63	10,3	○	
8560500	5,0	72	32	6,0	○		8561040	10,4	111	63	10,4	○	
8560510	5,1	72	32	6,0	○		8561050	10,5	111	63	10,5	○	
8560520	5,2	72	32	6,0	○		8561060	10,6	111	63	10,6	○	
8560530	5,3	72	32	6,0	○		8561070	10,7	119	71	10,7	○	
8560540	5,4	75	35	6,0	○		8561080	10,8	119	71	10,8	○	
8560550	5,5	75	35	6,0	○		8561090	10,9	119	71	10,9	○	
8560560	5,6	75	35	6,0	○		8561100	11,0	119	71	11,0	○	
8560570	5,7	75	35	6,0	○		8561110	11,1	119	71	11,1	○	
8560580	5,8	75	35	6,0	○		8561120	11,2	119	71	11,2	○	
8560590	5,9	75	35	6,0	○		8561130	11,3	119	71	11,3	○	
8560600	6,0	75	35	6,0	○		8561140	11,4	119	71	11,4	○	
8560610	6,1	80	40	6,1	○		8561150	11,5	119	71	11,5	○	
8560620	6,2	80	40	6,2	○		8561160	11,6	119	71	11,6	○	
8560630	6,3	80	40	6,3	○		8561170	11,7	119	71	11,7	○	
8560640	6,4	80	40	6,4	○		8561180	11,8	119	71	11,8	○	
8560650	6,5	80	40	6,5	○		8561190	11,9	127	76	11,9	○	
8560660	6,6	80	40	6,6	○		8561200	12,0	127	76	12,0	○	
8560670	6,7	80	40	6,7	○		8561221	12,1	136	76	16,0	○	
8560680	6,8	85	45	6,8	○		8561226	12,6	139	79	16,0	○	
8560690	6,9	85	45	6,9	○		8561241	14,1	150	90	16,0	○	
8560700	7,0	85	45	7,0	○		8561246	14,6	150	90	16,0	○	
8560710	7,1	85	45	7,1	○		8561256	15,6	156	96	16,0	○	
8560720	7,2	85	45	7,2	○		8561261	16,1	162	102	20,0	○	
8560730	7,3	85	45	7,3	○		8561266	16,6	162	102	20,0	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
							◎	

SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc

● Delivery from stock
○ Available on short notice

Carbide

GO TO LIVE STOCK CHECK



HIGH PERFORMANCE
- For removing broken taps

HIGH PERFORMANCE
- Zum Entfernen von abgebrochenen Gewindebohren

ALTA PRESTAZIONE
- Per la rimozione di maschi rotti e bulloni danneggiati

HAUTE PERFORMANCE
- Pour extraction de tarauds cassés

HIGH PERFORMANCE
- Udboring af knust gevindtap

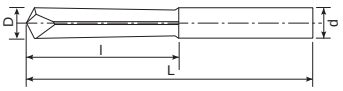
HIGH PERFORMANCE
- För borttagning av brutna gängtappar

ALTAS PRESTACIONES
- Para extraer machos rotos

Высокая производительность
- Для удаления сломанных метчиков



CARBIDE FIT 118°



EDP	D	L	l	d	Stock	Price
87702	2	30	10	2	●	
87703	3	40	15	3	●	
87704	4	45	20	4	●	
87705	5	50	25	5	●	
87706	6	60	30	6	●	
87707	7	80	35	8	●	

EDP	D	L	l	d	Stock	Price
87708	8	80	40	8	●	
87709	9	100	45	10	●	
87710	10	100	50	10	●	
87781	11	156	55	12	●	
87782	12	162	60	12	●	

Work procedure for Removing Damaged Tap in hole



Position the drill at the center of the damaged tap, securing both the workpiece and the drill firmly. When the head of the damaged tap is protruding, grind the damaged surface flat to make the center of the damaged tap easier to drill.

Make an initial, centered approach by drilling lightly, then quickly withdrawing the drill. For this step, do not use lubrication.

Select an appropriate drill by consulting the table. Drill the hole at a fixed feed speed, stopping the operation occasionally to remove chip waste. In addition, use plenty of high quality cutting fluid.

Once the hole has been cleared, the peripheral remnants of the tap can be removed with ease. Once the hole is cleaned, tapping can he resumed.

Cutting Conditions and Procedures to Note.

1. **Use a drilling speed of 20-25 m/min.**
2. **Hand feed of 0.01mm - 0.05mm/rev. is the norm.**
3. **Use a rigid holder.**
4. **Select a high quality cutting oil and apply sufficient amounts.**
5. **This tool should not be used to drill soft steel, aluminium alloy equivalents, or other soft materials.**
6. **Resharpening should be done periodically.**
7. **For through hole processing of heat treated steel etc., using a cut off - positioned under the work material - to prevent breakage caused by sudden torque.**

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
					○	○	◎	

SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE

- Ideal for alloy steel short

HIGH PERFORMANCE

- Besonders geeignet für legierten Stahl, kurze Bohrungen

ALTA PRESTAZIONE

- Corta, ideale per acciai legati

HAUTE PERFORMANCE

- Idéale pour des aciers alliés, court

HIGH PERFORMANCE

- Ideel for legeret stål, kort

HIGH PERFORMANCE

- Perfekt för legerat stål, kort

ALTAS PRESTACIONES

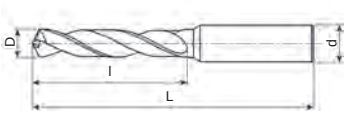
- Ideal para aceros aleados, corta

Высокая производительность

- Идеально для легированных сталей, короткое







EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
8599020	2,0	44	12	3	●		8599076	7,6	81	37	8	●	
8599021	2,1	44	12	3	●		8599077	7,7	81	37	8	●	
8599022	2,2	45	13	3	●		8599078	7,8	81	37	8	●	
8599023	2,3	45	13	3	●		8599079	7,9	81	37	8	●	
8599024	2,4	46	14	3	●		8599080	8,0	81	37	8	●	
8599025	2,5	46	14	3	●		8599081	8,1	87	37	10	●	
8599026	2,6	46	14	3	●		8599082	8,2	87	37	10	●	
8599027	2,7	48	16	3	●		8599083	8,3	87	37	10	●	
8599028	2,8	48	16	3	●		8599084	8,4	87	37	10	●	
8599029	2,9	48	16	3	●		8599085	8,5	87	37	10	●	
8599030	3,0	48	16	3	●		8599086	8,6	90	40	10	●	
8599031	3,1	50	18	3	●		8599087	8,7	90	40	10	●	
8599032	3,2	50	18	3	●		8599088	8,8	90	40	10	●	
8599033	3,3	50	18	4	●		8599089	8,9	90	40	10	●	
8599034	3,4	52	20	4	●		8599090	9,0	90	40	10	●	
8599035	3,5	52	20	4	●		8599091	9,1	90	40	10	●	
8599036	3,6	52	20	4	●		8599092	9,2	90	40	10	●	
8599037	3,7	52	20	4	●		8599093	9,3	90	40	10	●	
8599038	3,8	54	22	4	●		8599094	9,4	90	40	10	●	
8599039	3,9	54	22	4	●		8599095	9,5	90	40	10	●	
8599040	4,0	54	22	4	●		8599096	9,6	93	43	10	●	
8599041	4,1	66	22	6	●		8599097	9,7	93	43	10	●	
8599042	4,2	66	22	6	●		8599098	9,8	93	43	10	●	
8599043	4,3	68	24	6	●		8599099	9,9	93	43	10	●	
8599044	4,4	68	24	6	●		8599100	10,0	93	43	10	●	
8599045	4,5	68	24	6	●		8599101	10,1	100	43	12	●	
8599046	4,6	68	24	6	●		8599102	10,2	100	43	12	●	
8599047	4,7	68	24	6	●		8599103	10,3	100	43	12	●	
8599048	4,8	70	26	6	●		8599104	10,4	100	43	12	●	
8599049	4,9	70	26	6	●		8599105	10,5	100	43	12	●	
8599050	5,0	70	26	6	●		8599106	10,6	100	43	12	●	
8599051	5,1	70	26	6	●		8599107	10,7	104	47	12	●	
8599052	5,2	70	26	6	●		8599108	10,8	104	47	12	●	
8599053	5,3	70	26	6	●		8599109	10,9	104	47	12	●	
8599054	5,4	72	28	6	●		8599110	11,0	104	47	12	●	
8599055	5,5	72	28	6	●		8599111	11,1	104	47	12	●	
8599056	5,6	72	28	6	●		8599112	11,2	104	47	12	●	
8599057	5,7	72	28	6	●		8599113	11,3	104	47	12	●	
8599058	5,8	72	28	6	●		8599114	11,4	104	47	12	●	
8599059	5,9	72	28	6	●		8599115	11,5	104	47	12	●	
8599060	6,0	72	28	6	●		8599116	11,6	104	47	12	●	
8599061	6,1	75	31	8	●		8599117	11,7	104	47	12	●	
8599062	6,2	75	31	8	●		8599118	11,8	104	47	12	●	
8599063	6,3	75	31	8	●		8599119	11,9	108	51	12	●	
8599064	6,4	75	31	8	●		8599120	12,0	108	51	12	●	
8599065	6,5	75	31	8	●		8599121	12,1	108	51	12	●	
8599066	6,6	75	31	8	●		8599122	12,2	108	51	12	●	
8599067	6,7	75	31	8	●		8599123	12,3	108	51	12	●	
8599068	6,8	78	34	8	●		8599124	12,4	108	51	12	●	
8599069	6,9	78	34	8	●		8599125	12,5	108	51	12	●	
8599070	7,0	78	34	8	●		8599126	12,6	108	51	12	●	
8599071	7,1	78	34	8	●		8599127	12,7	108	51	12	●	
8599072	7,2	78	34	8	●		8599128	12,8	108	51	12	●	
8599073	7,3	78	34	8	●		8599129	12,9	108	51	12	●	
8599074	7,4	78	34	8	●		8599130	13,0	108	51	12	●	
8599075	7,5	78	34	8	●								

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
○	○	○	○	◎	◎	◎		
SKD	**GG**	**GGG**	**Cu**	**Al**	**AC**	**Ti**	**Tiall**	**Inc**
◎	◎	◎					◎	◎

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

VP-GDR



XPM

XPM

GO TO LIVE STOCK CHECK

HIGH PERFORMANCE
- Regular for high speed drilling

HIGH PERFORMANCE
- Geeignet für Hochleistungsbohren (HSC)

ALTA PRESTAZIONE
- Regolare, per forature ad alta velocità

HAUTE PERFORMANCE
- Normal, pour forage haute vitesse

HIGH PERFORMANCE
- Mellemlang, til high speed boring

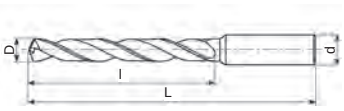
HIGH PERFORMANCE
- Normal, för high speed borrning

ALTAS PRESTACIONES
- Regular para taladrado a alta velocidad

Высокая производительность
- Сверло нормальной длины для скоростного сверления







EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
8593020	2,0	56	24	3	●		8593072	7,2	113	69	8	●	
8593021	2,1	56	24	3	●		8593073	7,3	113	69	8	●	
8593022	2,2	59	27	3	●		8593074	7,4	113	69	8	●	
8593023	2,3	59	27	3	●		8593075	7,5	113	69	8	●	
8593024	2,4	62	30	3	●		8593076	7,6	119	75	8	●	
8593025	2,5	62	30	3	●		8593077	7,7	119	75	8	●	
8593026	2,6	62	30	3	●		8593078	7,8	119	75	8	●	
8593027	2,7	65	33	3	●		8593079	7,9	119	75	8	●	
8593028	2,8	65	33	3	●		8593080	8,0	119	75	8	●	
8593029	2,9	65	33	3	●		8593081	8,1	125	75	10	●	
8593030	3,0	65	33	3	●		8593082	8,2	125	75	10	●	
8593031	3,1	68	36	4	●		8593083	8,3	125	75	10	●	
8593032	3,2	68	36	4	●		8593084	8,4	125	75	10	●	
8593033	3,3	68	36	4	●		8593085	8,5	125	75	10	●	
8593034	3,4	71	39	4	●		8593086	8,6	131	81	10	●	
8593035	3,5	71	39	4	●		8593087	8,7	131	81	10	●	
8593036	3,6	71	39	4	●		8593088	8,8	131	81	10	●	
8593037	3,7	71	39	4	●		8593089	8,9	131	81	10	●	
8593038	3,8	75	43	4	●		8593090	9,0	131	81	10	●	
8593039	3,9	75	43	4	●		8593091	9,1	131	81	10	●	
8593040	4,0	75	43	4	●		8593092	9,2	131	81	10	●	
8593041	4,1	87	43	6	●		8593093	9,3	131	81	10	●	
8593042	4,2	87	43	6	●		8593094	9,4	131	81	10	●	
8593043	4,3	91	47	6	●		8593095	9,5	131	81	10	●	
8593044	4,4	91	47	6	●		8593096	9,6	137	87	10	●	
8593045	4,5	91	47	6	●		8593097	9,7	137	87	10	●	
8593046	4,6	91	47	6	●		8593098	9,8	137	87	10	●	
8593047	4,7	91	47	6	●		8593099	9,9	137	87	10	●	
8593048	4,8	96	52	6	●		8593100	10,0	137	87	10	●	
8593049	4,9	96	52	6	●		8593101	10,1	144	87	12	●	
8593050	5,0	96	52	6	●		8593102	10,2	144	87	12	●	
8593051	5,1	96	52	6	●		8593103	10,3	144	87	12	●	
8593052	5,2	96	52	6	●		8593104	10,4	144	87	12	●	
8593053	5,3	96	52	6	●		8593105	10,5	144	87	12	●	
8593054	5,4	101	57	6	●		8593106	10,6	144	87	12	●	
8593055	5,5	101	57	6	●		8593107	10,7	151	94	12	●	
8593056	5,6	101	57	6	●		8593108	10,8	151	94	12	●	
8593057	5,7	101	57	6	●		8593109	10,9	151	94	12	●	
8593058	5,8	101	57	6	●		8593110	11,0	151	94	12	●	
8593059	5,9	101	57	6	●		8593111	11,1	151	94	12	●	
8593060	6,0	101	57	6	●		8593112	11,2	151	94	12	●	
8593061	6,1	107	63	8	●		8593113	11,3	151	94	12	●	
8593062	6,2	107	63	8	●		8593114	11,4	151	94	12	●	
8593063	6,3	107	63	8	●		8593115	11,5	151	94	12	●	
8593064	6,4	107	63	8	●		8593116	11,6	151	94	12	●	
8593065	6,5	107	63	8	●		8593117	11,7	151	94	12	●	
8593066	6,6	107	63	8	●		8593118	11,8	151	94	12	●	
8593067	6,7	107	63	8	●		8593119	11,9	158	101	12	●	
8593068	6,8	113	69	8	●		8593120	12,0	158	101	12	●	
8593069	6,9	113	69	8	●		8593121	12,1	158	101	12	●	
8593070	7,0	113	69	8	●		8593122	12,2	158	101	12	●	
8593071	7,1	113	69	8	●		8593123	12,3	158	101	12	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	◎	◎	◎	◎				
SKD	**GG**	**GGG**	**Cu**	**Al**	**AC**	**Ti**	**Tiall**	**Inc**
◎	◎	◎		○	◎	○	○	○



HIGH PERFORMANCE
- Regular for high speed drilling

HIGH PERFORMANCE
- Geeignet für Hochleistungsbohren (HSC)

ALTA PRESTAZIONE
- Regolare, per forature ad alta velocità

HAUTE PERFORMANCE
- Normal, pour forage haute vitesse

HIGH PERFORMANCE
- Mellemlang, til high speed boring

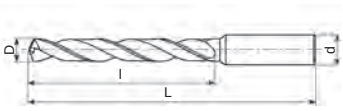
HIGH PERFORMANCE
- Normal, för high speed borrning

ALTAS PRESTACIONES
- Regular para taladrado a alta velocidad

Высокая производительность
- Сверло нормальной длины для скоростного сверления







EDP	D	L	l	d	Stock	Price
8593124	12,4	158	101	12	●	
8593125	12,5	158	101	12	●	
8593126	12,6	158	101	12	●	
8593127	12,7	158	101	12	●	
8593128	12,8	158	101	12	●	
8593129	12,9	158	101	12	●	
8593130	13,0	158	101	12	●	
8593135	13,5	166	106	16	●	
8593140	14,0	166	106	16	●	
8593145	14,5	169	109	16	●	
8593150	15,0	169	109	16	●	
8593155	15,5	172	112	16	●	
8593160	16,0	172	112	16	●	
8593165	16,5	181	115	20	●	
8593170	17,0	181	115	20	●	
8593175	17,5	184	118	20	●	
8593180	18,0	184	118	20	●	
8593185	18,5	188	122	20	●	
8593190	19,0	188	122	20	●	
8593195	19,5	191	125	20	●	

EDP	D	L	l	d	Stock	Price
8593200	20,0	191	125	20	●	
8593205	20,5	204	128	25	●	
8593210	21,0	204	128	25	●	
8593215	21,5	208	132	25	●	
8593220	22,0	208	132	25	●	
8593225	22,5	212	136	25	●	
8593230	23,0	212	136	25	●	
8593235	23,5	212	136	25	●	
8593240	24,0	216	140	25	●	
8593245	24,5	216	140	25	●	
8593250	25,0	216	140	25	●	
8593255	25,5	225	145	32	●	
8593260	26,0	225	145	32	●	
8593265	26,5	225	145	32	●	
8593270	27,0	230	150	32	●	
8593280	28,0	230	150	32	●	
8593290	29,0	235	155	32	●	
8593300	30,0	235	155	32	●	
8593310	31,0	240	160	32	●	
8593320	32,0	245	165	32	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	◎	◎	◎	◎				
SKD	**GG**	**GGG**	**Cu**	**Al**	**AC**	**Ti**	**Tiall**	**Inc**
◎	◎	◎		○	◎	○	○	○

● Delivery from stock
○ Available on short notice

VP-HO-GDR



HIGH PERFORMANCE
- Regular for high speed drilling

HIGH PERFORMANCE
- Geeignet für Hochleistungsbohren (HSC)

ALTA PRESTAZIONE
- Regolare, per forature ad alta velocità

HAUTE PERFORMANCE
- Normal, pour forage haute vitesse

HIGH PERFORMANCE
- Mellemlang, til high speed boring

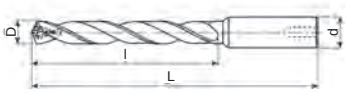
HIGH PERFORMANCE
- Normal, för high speed borrning

ALTAS PRESTACIONES
- Regular para taladrado a alta velocidad

Высокая производительность
- Сверло нормальной длины для скоростного сверления







EDP	D	L	l	d	Stock	Price
8593560	6,0	101	57	6	●	
8593565	6,5	107	63	6	●	
8593568	6,8	113	69	7	●	
8593570	7,0	113	69	7	●	
8593575	7,5	113	69	8	●	
8593580	8,0	119	75	8	●	
8593585	8,5	125	75	9	●	
8593586	8,6	131	81	9	●	
8593590	9,0	131	81	9	●	
8593595	9,5	131	81	10	●	
8593600	10,0	137	87	10	●	
8593603	10,3	144	87	11	●	
8593605	10,5	144	87	11	●	
8593610	11,0	151	94	11	●	
8593615	11,5	151	94	12	●	
8593620	12,0	158	101	12	●	
8593625	12,5	161	101	16	●	
8593630	13,0	161	101	16	●	
8593635	13,5	166	106	16	●	
8593640	14,0	166	106	16	●	
8593641	14,1	169	109	16	●	
8593645	14,5	169	109	16	●	
8593650	15,0	169	109	16	●	
8593655	15,5	172	112	16	●	
8593656	15,6	172	112	16	●	
8593660	16,0	172	112	16	●	
8593665	16,5	181	115	20	●	
8593670	17,0	181	115	20	●	

EDP	D	L	l	d	Stock	Price
8593675	17,5	184	118	20	●	
8593676	17,6	184	118	20	●	
8593680	18,0	184	118	20	●	
8593685	18,5	188	122	20	●	
8593690	19,0	188	122	20	●	
8593695	19,5	191	125	20	●	
8593696	19,6	191	125	20	●	
8593700	20,0	191	125	20	●	
8593705	20,5	204	128	25	●	
8593710	21,0	204	128	25	●	
8593711	21,1	204	128	25	●	
8593715	21,5	208	132	25	●	
8593720	22,0	208	132	25	●	
8593725	22,5	212	136	25	●	
8593730	23,0	212	136	25	●	
8593735	23,5	212	136	25	●	
8593740	24,0	216	140	25	●	
8593745	24,5	216	140	25	●	
8593750	25,0	216	140	25	●	
8593755	25,5	225	145	32	●	
8593760	26,0	225	145	32	●	
8593765	26,5	225	145	32	●	
8593770	27,0	230	150	32	●	
8593780	28,0	230	150	32	●	
8593790	29,0	235	155	32	●	
8593800	30,0	235	155	32	●	
8593810	31,0	240	160	32	●	
8593820	32,0	245	165	32	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	◎	◎	◎	◎	○			◎

SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
◎	◎	◎		○	◎	◎	◎	○

HSSE V3

GO TO LIVE STOCK CHECK



HIGH PERFORMANCE
- Short, for high speed drilling

HIGH PERFORMANCE
- Kurz, für Hochleistungsbohren (HSC)

ALTA PRESTAZIONE
- Corta, per forature ad alta velocità

HAUTE PERFORMANCE
- Court, pour forage haute vitesse

HIGH PERFORMANCE
- Kort, til high speed boring

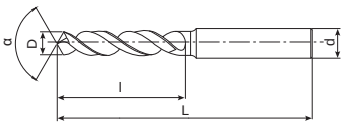
HIGH PERFORMANCE
- Kort för high speed borring

ALTAS PRESTACIONES
- Corta para taladrado a alta velocidad

Высокая производительность
- Короткое сверло для скоростного сверления







EDP	D	α	L	l	d	Stock	Price
8650100	1,00	140	38	6	3	●	
8650110	1,10	140	39	7	3	●	
8650120	1,20	140	40	8	3	●	
8650130	1,30	140	40	8	3	●	
8650140	1,40	140	41	9	3	●	
8650150	1,50	140	41	9	3	●	
8650160	1,60	140	42	10	3	●	
8650170	1,70	140	42	10	3	●	
8650180	1,80	140	43	11	3	●	
8650181	1,81	140	43	11	3	●	
8650183	1,83	140	43	11	3	●	
8650190	1,90	140	43	11	3	●	
8650200	2,00	130	44	12	3	●	
8650210	2,10	130	44	12	3	●	
8650211	2,11	130	44	12	3	●	
8650213	2,13	130	45	13	3	●	
8650220	2,20	130	45	13	3	●	
8650228	2,28	130	45	13	3	●	
8650230	2,30	130	45	13	3	●	
8650238	2,38	130	46	14	3	●	
8650240	2,40	130	46	14	3	●	
8650250	2,50	130	46	14	3	●	
8650260	2,60	130	46	14	3	●	
8650270	2,70	130	48	16	3	●	
8650276	2,76	130	48	16	3	●	
8650278	2,78	130	48	16	3	●	
8650280	2,80	130	48	16	3	●	
8650290	2,90	130	48	16	3	●	
8650300	3,00	130	48	16	3	●	
8650310	3,10	130	50	18	4	●	
8650320	3,20	130	50	18	4	●	
8650325	3,25	130	50	18	4	●	
8650330	3,30	130	50	18	4	●	
8650340	3,40	130	52	20	4	●	
8650350	3,50	130	52	20	4	●	
8650360	3,60	130	52	20	4	●	
8650365	3,65	130	52	20	4	●	
8650367	3,67	130	52	20	4	●	
8650370	3,70	130	52	20	4	●	
8650380	3,80	130	54	22	4	●	
8650390	3,90	130	54	22	4	●	
8650400	4,00	130	54	22	4	●	
8650410	4,10	120	66	22	6	●	
8650420	4,20	120	66	22	6	●	
8650430	4,30	120	68	24	6	●	
8650440	4,40	120	68	24	6	●	
8650450	4,50	120	68	24	6	●	
8650459	4,59	120	68	24	6	●	
8650460	4,60	120	68	24	6	●	
8650463	4,63	120	68	24	6	●	
8650470	4,70	120	68	24	6	●	
8650480	4,80	120	70	26	6	●	
8650490	4,90	120	70	26	6	●	

EDP	D	α	L	l	d	Stock	Price
8650500	5,00	120	70	26	6	●	
8650510	5,10	120	70	26	6	●	
8650520	5,20	120	70	26	6	●	
8650530	5,30	120	70	26	6	●	
8650540	5,40	120	72	28	6	●	
8650548	5,48	120	72	28	6	●	
8650550	5,50	120	72	28	6	●	
8650560	5,60	120	72	28	6	●	
8650570	5,70	120	72	28	6	●	
8650580	5,80	120	72	28	6	●	
8650590	5,90	120	72	28	6	●	
8650600	6,00	120	72	28	6	●	
8650610	6,10	120	75	31	8	●	
8650620	6,20	120	75	31	8	●	
8650630	6,30	120	75	31	8	●	
8650640	6,40	120	75	31	8	●	
8650650	6,50	120	75	31	8	●	
8650660	6,60	120	75	31	8	●	
8650680	6,80	120	78	34	8	●	
8650690	6,90	120	78	34	8	●	
8650700	7,00	120	78	34	8	●	
8650734	7,34	120	78	34	8	●	
8650738	7,38	120	78	34	8	●	
8650740	7,40	120	78	34	8	●	
8650750	7,50	120	78	34	8	●	
8650780	7,80	120	81	37	8	●	
8650790	7,90	120	81	37	8	●	
8650800	8,00	120	81	37	8	●	
8650810	8,10	120	87	37	10	●	
8650820	8,20	120	87	37	10	●	
8650830	8,30	120	87	37	10	●	
8650840	8,40	120	87	37	10	●	
8650850	8,50	120	87	37	10	●	
8650860	8,60	120	90	40	10	●	
8650870	8,70	120	90	40	10	●	
8650880	8,80	120	90	40	10	●	
8650900	9,00	120	90	40	10	●	
8650918	9,18	120	90	40	10	●	
8650920	9,20	120	90	40	10	●	
8650924	9,24	120	90	40	10	●	
8650934	9,34	120	90	40	10	●	
8650936	9,36	120	90	40	10	●	
8650950	9,50	120	90	40	10	●	
8650980	9,80	120	93	43	10	●	
8651000	10,00	120	93	43	10	●	
8651020	10,20	120	100	43	12	●	
8651030	10,30	120	100	43	12	●	
8651040	10,40	120	100	43	12	●	
8651050	10,50	120	100	43	12	●	
8651100	11,00	120	104	47	12	●	
8651120	11,20	120	104	47	12	●	
8651150	11,50	120	104	47	12	●	
8651200	12,00	120	108	51	12	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	○							◎

SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
			◎	◎	◎	◎		

● Delivery from stock
○ Available on short notice

NEXUS-GDR



HIGH PERFORMANCE
- Regular for high speed drilling

HIGH PERFORMANCE
- Geeignet für Hochleistungsbohren (HSC)

ALTA PRESTAZIONE
- Regolare, per forature ad alta velocità

HAUTE PERFORMANCE
- Normal, pour forage haute vitesse

HIGH PERFORMANCE
- Mellemlang, til high speed boring

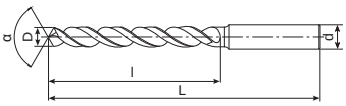
HIGH PERFORMANCE
- Normal, för high speed borrning

ALTAS PRESTACIONES
- Regular para taladrado a alta velocidad

Высокая производительность
- Сверло нормальной длины для скоростного сверления







GO TO LIVE STOCK CHECK

EDP	D	α	L	l	d	Stock	Price
8655200	2,0	130	56	24	3	●	
8655230	2,3	130	59	27	3	●	
8655250	2,5	130	62	30	3	●	
8655260	2,6	130	62	30	3	●	
8655280	2,8	130	65	33	3	●	
8655300	3,0	130	65	33	3	●	
8655330	3,3	130	68	36	4	●	
8655340	3,4	130	71	39	4	●	
8655350	3,5	130	71	39	4	●	
8655400	4,0	130	75	43	4	●	
8655420	4,2	120	87	43	6	●	
8655430	4,3	120	91	47	6	●	
8655450	4,5	120	91	47	6	●	
8655500	5,0	120	96	52	6	●	
8655510	5,1	120	96	52	6	●	
8655520	5,2	120	96	52	6	●	

EDP	D	α	L	l	d	Stock	Price
8655550	5,5	120	101	57	6	●	
8655600	6,0	120	101	57	6	●	
8655680	6,8	120	113	69	8	●	
8655690	6,9	120	113	69	8	●	
8655700	7,0	120	113	69	8	●	
8655800	8,0	120	119	75	8	●	
8655850	8,5	120	125	75	10	●	
8655860	8,6	120	131	81	10	●	
8655880	8,8	120	131	81	10	●	
8655900	9,0	120	131	81	10	●	
8656000	10,0	120	137	87	10	●	
8656030	10,3	120	144	87	12	●	
8656040	10,4	120	144	87	12	●	
8656050	10,5	120	144	87	12	●	
8656100	11,0	120	151	94	12	●	
8656200	12,0	120	158	101	12	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	○							◎

SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
			◎	◎	◎	◎		

EX-SUS-GDS



HSSE V3

GO TO LIVE STOCK CHECK

HIGH PERFORMANCE
- EX GOLD DRILL
- By 0.01 of D 0.5~6mm
- Special flute design to facilitate short chipping & accurate hole size
- For CNC high speed drilling

HIGH PERFORMANCE
- EX GOLD DRILL
- Abstufung 0,01 von D 0,5~6
- Spezielle Schneidengeometrie für kurze Bruchspäne
- Sehr gut geeignet fïr CNC High Speed Drilling

ALTA PRESTAZIONE
- EX GOLD DRILL
- Da 0,01 della D 0.5~6mm
- Il disegno speciale dell'elica della punta da origine a trucioli corti
- Per macchine CNC con avanzamento e velocità rapida

HAUTE PERFORMANCE
- EX GOLD DRILL
- Par 0,01 de D 0.5~6mm
- Le design spécial de l'hélice du foret donne des copeaux courts
- Pour machine CNC avec avance et vitesse rapide

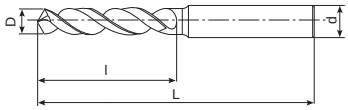
HIGH PERFORMANCE
- EX GOLD DRILL
- Fra Ø 0,5~6 / 0,01mm spring
- Special geometri for opnåelse af korte spåner og nøjagtige hulstørrelser
- Til high speed boring

HIGH PERFORMANCE
- EX GOLD DRILL
- Från Ø 0,5-6mm,varje 0,01mm
- Unik spetsgeometri, korta spån, hög precision
- För CNC High Speed borrning

ALTAS PRESTACIONES
- EX GOLD DRILL
- Por 0,01 de D 0,5 a 6mm
- Ranura diseñada para virutaje desmenuzado y agujeros precisos
- para taladrado CNC

Высокая производительность
- EX GOLD DRIL
- Через 0,01мм для D0.5-6мм
- Канавка спроектирована для обеспечения короткой стружки и точного размера отверстия
- Для скоростного сверления с ЧПУ





EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
61505	0,50	38	3,0	3	●		8595102	1,02	38	6,0	3	●	
8595051	0,51	38	3,0	3	●		8595103	1,03	38	6,0	3	●	
8595052	0,52	38	3,0	3	●		8595104	1,04	38	6,0	3	●	
8595053	0,53	38	3,0	3	●		8595105	1,05	38	6,0	3	●	
8595054	0,54	38	3,5	3	●		8595106	1,06	38	6,0	3	●	
8595055	0,55	38	3,5	3	●		8595107	1,07	39	7,0	3	●	
8595056	0,56	38	3,5	3	●		8595108	1,08	39	7,0	3	●	
8595057	0,57	38	3,5	3	●		8595109	1,09	39	7,0	3	●	
8595058	0,58	38	3,5	3	●		61511	1,10	39	7,0	3	●	
8595059	0,59	38	3,5	3	●		8595111	1,11	39	7,0	3	●	
61506	0,60	38	3,5	3	●		8595112	1,12	39	7,0	3	●	
8595061	0,61	38	4,0	3	●		8595113	1,13	39	7,0	3	●	
8595062	0,62	38	4,0	3	●		8595114	1,14	39	7,0	3	●	
8595063	0,63	38	4,0	3	●		8595115	1,15	39	7,0	3	●	
8595064	0,64	38	4,0	3	●		8595116	1,16	39	7,0	3	●	
8595065	0,65	38	4,0	3	●		8595117	1,17	39	7,0	3	●	
8595066	0,66	38	4,0	3	●		8595118	1,18	39	7,0	3	●	
8595067	0,67	38	4,0	3	●		8595119	1,19	40	8,0	3	●	
8595068	0,68	38	4,5	3	●		61512	1,20	40	8,0	3	●	
8595069	0,69	38	4,5	3	●		8595121	1,21	40	8,0	3	●	
61507	0,70	38	4,5	3	●		8595122	1,22	40	8,0	3	●	
8595071	0,71	38	4,5	3	●		8595123	1,23	40	8,0	3	●	
8595072	0,72	38	4,5	3	●		8595124	1,24	40	8,0	3	●	
8595073	0,73	38	4,5	3	●		8595125	1,25	40	8,0	3	●	
8595074	0,74	38	4,5	3	●		8595126	1,26	40	8,0	3	●	
8595075	0,75	38	4,5	3	●		8595127	1,27	40	8,0	3	●	
8595076	0,76	38	5,0	3	●		8595128	1,28	40	8,0	3	●	
8595077	0,77	38	5,0	3	●		8595129	1,29	40	8,0	3	●	
8595078	0,78	38	5,0	3	●		61513	1,30	40	8,0	3	●	
8595079	0,79	38	5,0	3	●		8595131	1,31	40	8,0	3	●	
61508	0,80	38	5,0	3	●		8595132	1,32	40	8,0	3	●	
8595081	0,81	38	5,0	3	●		8595133	1,33	41	8,0	3	●	
8595082	0,82	38	5,0	3	●		8595134	1,34	41	8,0	3	●	
8595083	0,83	38	5,0	3	●		8595135	1,35	41	8,0	3	●	
8595084	0,84	38	5,0	3	●		8595136	1,36	41	8,0	3	●	
8595085	0,85	38	5,0	3	●		8595137	1,37	41	9,0	3	●	
8595086	0,86	38	5,5	3	●		8595138	1,38	41	9,0	3	●	
8595087	0,87	38	5,5	3	●		8595139	1,39	41	9,0	3	●	
8595088	0,88	38	5,5	3	●		61514	1,40	41	9,0	3	●	
8595089	0,89	38	5,5	3	●		8595141	1,41	41	9,0	3	●	
61509	0,90	38	5,5	3	●		8595142	1,42	41	9,0	3	●	
8595091	0,91	38	5,5	3	●		8595143	1,43	41	9,0	3	●	
8595092	0,92	38	5,5	3	●		8595144	1,44	41	9,0	3	●	
8595093	0,93	38	5,5	3	●		8595145	1,45	41	9,0	3	●	
8595094	0,94	38	5,5	3	●		8595146	1,46	41	9,0	3	●	
8595095	0,95	38	6,0	3	●		8595147	1,47	41	9,0	3	●	
8595096	0,96	38	6,0	3	●		8595148	1,48	41	9,0	3	●	
8595097	0,97	38	6,0	3	●		8595149	1,49	41	9,0	3	●	
8595098	0,98	38	6,0	3	●		61515	1,50	41	9,0	3	●	
8595099	0,99	38	6,0	3	●		8595151	1,51	42	10,0	3	●	
61510	1,00	38	6,0	3	●		8595152	1,52	42	10,0	3	●	
8595101	1,01	38	6,0	3	●		8595153	1,53	42	10,0	3	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	○							◎

SKD	GG	GGG	Cu	Al	AC	Ti	TiAll	Inc
			◎	◎	○	◎		

● Delivery from stock
○ Available on short notice

EX-SUS-GDS

HSSE V3

HSSE V3

GO TO LIVE STOCK CHECK



HIGH PERFORMANCE

- EX GOLD DRILL
- By 0.01 of D 0.5~6mm
- Special flute design to facilitate short chipping & accurate hole size
- For CNC high speed drilling

HIGH PERFORMANCE

- EX GOLD DRILL
- Abstufung 0,01 von D 0,5~6
- Spezielle Schneidengeometrie für kurze Bruchspäne
- Sehr gut geeignet fïr CNC High Speed Drilling

ALTA PRESTAZIONE

- EX GOLD DRILL
- Da 0,01 della D 0.5~6mm
- Il disegno speciale dell'elica della punta da origine a trucioli corti
- Per macchine CNC con avanzamento e velocità rapida

HAUTE PERFORMANCE

- EX GOLD DRILL
- Par 0,01 de D 0.5~6mm
- Le design spécial de l'hélice du foret donne des copeaux courts
- Pour machine CNC avec avance et vitesse rapide

HIGH PERFORMANCE

- EX GOLD DRILL
- Fra Ø 0,5~6 / 0,01mm spring
- Special geometri for opnåelse af korte spåner og nøjagtige hulstørrelser
- Til high speed boring

HIGH PERFORMANCE

- EX GOLD DRILL
- Från Ø 0,5-6mm,varje 0,01mm
- Unik spetsgeometri, korta spån, hög precision
- För CNC High Speed borrning

ALTAS PRESTACIONES

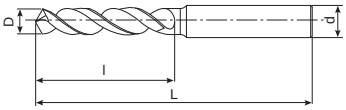
- EX GOLD DRILL
- Por 0,01 de D 0,5 a 6mm
- Ranura diseñada para virutaje desmenuzado y agujeros precisos
- para taladrado CNC

Высокая производительность

- EX GOLD DRIL
- Через 0,01мм для D0.5-6мм
- Канавка спроектирована для обеспечения короткой стружки и точного размера отверстия
- Для скоростного сверления с ЧПУ







EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
8595154	1,54	42	10,0	3	●		8595206	2,06	44	12,0	3	●	
8595155	1,55	42	10,0	3	●		8595207	2,07	44	12,0	3	●	
8595156	1,56	42	10,0	3	●		8595208	2,08	44	12,0	3	●	
8595157	1,57	42	10,0	3	●		8595209	2,09	44	12,0	3	●	
8595158	1,58	42	10,0	3	●		61521	2,10	44	12,0	3	●	
8595159	1,59	42	10,0	3	●		8595211	2,11	44	12,0	3	●	
61516	1,60	42	10,0	3	●		8595212	2,12	44	12,0	3	●	
8595161	1,61	42	10,0	3	●		8595213	2,13	45	13,0	3	●	
8595162	1,62	42	10,0	3	●		8595214	2,14	45	13,0	3	●	
8595163	1,63	42	10,0	3	●		8595215	2,15	45	13,0	3	●	
8595164	1,64	42	10,0	3	●		8595216	2,16	45	13,0	3	●	
8595165	1,65	42	10,0	3	●		8595217	2,17	45	13,0	3	●	
8595166	1,66	42	10,0	3	●		8595218	2,18	45	13,0	3	●	
8595167	1,67	42	10,0	3	●		8595219	2,19	45	13,0	3	●	
8595168	1,68	42	10,0	3	●		61522	2,20	45	13,0	3	●	
8595169	1,69	42	10,0	3	●		8595221	2,21	45	13,0	3	●	
61517	1,70	42	10,0	3	●		8595222	2,22	45	13,0	3	●	
8595171	1,71	43	11,0	3	●		8595223	2,23	45	13,0	3	●	
8595172	1,72	43	11,0	3	●		8595224	2,24	45	13,0	3	●	
8595173	1,73	43	11,0	3	●		8595225	2,25	45	13,0	3	●	
8595174	1,74	43	11,0	3	●		8595226	2,26	45	13,0	3	●	
8595175	1,75	43	11,0	3	●		8595227	2,27	45	13,0	3	●	
8595176	1,76	43	11,0	3	●		8595228	2,28	45	13,0	3	●	
8595177	1,77	43	11,0	3	●		8595229	2,29	45	13,0	3	●	
8595178	1,78	43	11,0	3	●		61523	2,30	45	13,0	3	●	
8595179	1,79	43	11,0	3	●		8595231	2,31	45	13,0	3	●	
61518	1,80	43	11,0	3	●		8595232	2,32	45	13,0	3	●	
8595181	1,81	43	11,0	3	●		8595233	2,33	45	13,0	3	●	
8595182	1,82	43	11,0	3	●		8595234	2,34	45	13,0	3	●	
8595183	1,83	43	11,0	3	●		8595235	2,35	45	13,0	3	●	
8595184	1,84	43	11,0	3	●		8595236	2,36	45	13,0	3	●	
8595185	1,85	43	11,0	3	●		8595237	2,37	46	14,0	3	●	
8595186	1,86	43	11,0	3	●		8595238	2,38	46	14,0	3	●	
8595187	1,87	43	11,0	3	●		8595239	2,39	46	14,0	3	●	
8595188	1,88	43	11,0	3	●		61524	2,40	46	14,0	3	●	
8595189	1,89	43	11,0	3	●		8595241	2,41	46	14,0	3	●	
61519	1,90	43	11,0	3	●		8595242	2,42	46	14,0	3	●	
8595191	1,91	44	12,0	3	●		8595243	2,43	46	14,0	3	●	
8595192	1,92	44	12,0	3	●		8595244	2,44	46	14,0	3	●	
8595193	1,93	44	12,0	3	●		8595245	2,45	46	14,0	3	●	
8595194	1,94	44	12,0	3	●		8595246	2,46	46	14,0	3	●	
8595195	1,95	44	12,0	3	●		8595247	2,47	46	14,0	3	●	
8595196	1,96	44	12,0	3	●		8595248	2,48	46	14,0	3	●	
8595197	1,97	44	12,0	3	●		8595249	2,49	46	14,0	3	●	
8595198	1,98	44	12,0	3	●		61525	2,50	46	14,0	3	●	
8595199	1,99	44	12,0	3	●		8595251	2,51	46	14,0	3	●	
61520	2,00	44	12,0	3	●		8595252	2,52	46	14,0	3	●	
8595201	2,01	44	12,0	3	●		8595253	2,53	46	14,0	3	●	
8595202	2,02	44	12,0	3	●		8595254	2,54	46	14,0	3	●	
8595203	2,03	44	12,0	3	●		8595255	2,55	46	14,0	3	●	
8595204	2,04	44	12,0	3	●		8595256	2,56	46	14,0	3	●	
8595205	2,05	44	12,0	3	●		8595257	2,57	46	14,0	3	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	○							◎

SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
			◎	◎	○	◎		

EX-SUS-GDS

HSSE V3

HSSE V3

GO TO LIVE STOCK CHECK



HIGH PERFORMANCE

- EX GOLD DRILL
- By 0.01 of D 0.5~6mm
- Special flute design to facilitate short chipping & accurate hole size
- For CNC high speed drilling

HIGH PERFORMANCE

- EX GOLD DRILL
- Abstufung 0,01 von D 0,5~6
- Spezielle Schneidengeometrie für kurze Bruchspäne
- Sehr gut geeignet fïr CNC High Speed Drilling

ALTA PRESTAZIONE

- EX GOLD DRILL
- Da 0,01 della D 0.5~6mm
- Il disegno speciale dell'elica della punta da origine a trucioli corti
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HAUTE PERFORMANCE

- EX GOLD DRILL
- Par 0,01 de D 0.5~6mm
- Le design spécial de l'hélice du foret donne des copeaux courts
- Pour machine CNC avec avance et vitesse rapide

HIGH PERFORMANCE

- EX GOLD DRILL
- Fra Ø 0,5~6 / 0,01mm spring
- Special geometri for opnåelse af korte spåner og nøjagtige hulstørrelser
- Til high speed boring

HIGH PERFORMANCE

- EX GOLD DRILL
- Från Ø 0,5-6mm,varje 0,01mm
- Unik spetsgeometri, korta spån, hög precision
- För CNC High Speed borrning

ALTAS PRESTACIONES

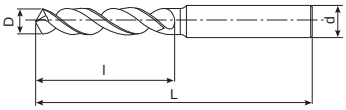
- EX GOLD DRILL
- Por 0,01 de D 0,5 a 6mm
- Ranura diseñada para virutaje desmenuzado y agujeros precisos
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Высокая производительность

- EX GOLD DRIL
- Через 0,01мм для D0.5-6мм
- Канавка спроектирована для обеспечения короткой стружки и точного размера отверстия
- Для скоростного сверления с ЧПУ







EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
8595258	2,58	46	14	3	●		61531	3,10	50	18	4	●	
8595259	2,59	46	14	3	●		8595311	3,11	50	18	4	●	
61526	2,60	46	14	3	●		8595312	3,12	50	18	4	●	
8595261	2,61	46	14	3	●		8595313	3,13	50	18	4	●	
8595262	2,62	46	14	3	●		8595314	3,14	50	18	4	●	
8595263	2,63	46	14	3	●		8595315	3,15	50	18	4	●	
8595264	2,64	46	14	3	●		8595316	3,16	50	18	4	●	
8595265	2,65	46	14	3	●		8595317	3,17	50	18	4	●	
8595266	2,66	48	16	3	●		8595318	3,18	50	18	4	●	
8595267	2,67	48	16	3	●		8595319	3,19	50	18	4	●	
8595268	2,68	48	16	3	●		61532	3,20	50	18	4	●	
8595269	2,69	48	16	3	●		8595321	3,21	50	18	4	●	
61527	2,70	48	16	3	●		8595322	3,22	50	18	4	●	
8595271	2,71	48	16	3	●		8595323	3,23	50	18	4	●	
8595272	2,72	48	16	3	●		8595324	3,24	50	18	4	●	
8595273	2,73	48	16	3	●		8595325	3,25	50	18	4	●	
8595274	2,74	48	16	3	●		8595326	3,26	50	18	4	●	
8595275	2,75	48	16	3	●		8595327	3,27	50	18	4	●	
8595276	2,76	48	16	3	●		8595328	3,28	50	18	4	●	
8595277	2,77	48	16	3	●		8595329	3,29	50	18	4	●	
8595278	2,78	48	16	3	●		61533	3,30	50	18	4	●	
8595279	2,79	48	16	3	●		8595331	3,31	50	18	4	●	
61528	2,80	48	16	3	●		8595332	3,32	50	18	4	●	
8595281	2,81	48	16	3	●		8595333	3,33	50	18	4	●	
8595282	2,82	48	16	3	●		8595334	3,34	50	18	4	●	
8595283	2,83	48	16	3	●		8595335	3,35	50	18	4	●	
8595284	2,84	48	16	3	●		8595336	3,36	52	20	4	●	
8595285	2,85	48	16	3	●		8595337	3,37	52	20	4	●	
8595286	2,86	48	16	3	●		8595338	3,38	52	20	4	●	
8595287	2,87	48	16	3	●		8595339	3,39	52	20	4	●	
8595288	2,88	48	16	3	●		61534	3,40	52	20	4	●	
8595289	2,89	48	16	3	●		8595341	3,41	52	20	4	●	
61529	2,90	48	16	3	●		8595342	3,42	52	20	4	●	
8595291	2,91	48	16	3	●		8595343	3,43	52	20	4	●	
8595292	2,92	48	16	3	●		8595344	3,44	52	20	4	●	
8595293	2,93	48	16	3	●		8595345	3,45	52	20	4	●	
8595294	2,94	48	16	3	●		8595346	3,46	52	20	4	●	
8595295	2,95	48	16	3	●		8595347	3,47	52	20	4	●	
8595296	2,96	48	16	3	●		8595348	3,48	52	20	4	●	
8595297	2,97	48	16	3	●		8595349	3,49	52	20	4	●	
8595298	2,98	48	16	3	●		61535	3,50	52	20	4	●	
8595299	2,99	48	16	3	●		8595351	3,51	52	20	4	●	
61530	3,00	48	16	3	●		8595352	3,52	52	20	4	●	
8595301	3,01	50	18	4	●		8595353	3,53	52	20	4	●	
8595302	3,02	50	18	4	●		8595354	3,54	52	20	4	●	
8595303	3,03	50	18	4	●		8595355	3,55	52	20	4	●	
8595304	3,04	50	18	4	●		8595356	3,56	52	20	4	●	
8595305	3,05	50	18	4	●		8595357	3,57	52	20	4	●	
8595306	3,06	50	18	4	●		8595358	3,58	52	20	4	●	
8595307	3,07	50	18	4	●		8595359	3,59	52	20	4	●	
8595308	3,08	50	18	4	●		61536	3,60	52	20	4	●	
8595309	3,09	50	18	4	●		8595361	3,61	52	20	4	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	○							◎

SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
			◎	◎	○	◎		

● Delivery from stock
○ Available on short notice

EX-SUS-GDS



HSSE V3

HSSE V3

GO TO LIVE STOCK CHECK

HIGH PERFORMANCE
- EX GOLD DRILL
- By 0.01 of D 0.5~6mm
- Special flute design to facilitate short chipping & accurate hole size
- For CNC high speed drilling

HIGH PERFORMANCE
- EX GOLD DRILL
- Abstufung 0,01 von D 0,5~6
- Spezielle Schneidengeometrie für kurze Bruchspäne
- Sehr gut geeignet für CNC High Speed Drilling

ALTA PRESTAZIONE
- EX GOLD DRILL
- Da 0,01 della D 0.5~6mm
- Il disegno speciale dell'elica della punta da origine a trucioli corti
- Per macchine CNC con avanzamento e velocità rapida

HAUTE PERFORMANCE
- EX GOLD DRILL
- Par 0,01 de D 0.5~6mm
- Le design spécial de l'hélice du foret donne des copeaux courts
- Pour machine CNC avec avance et vitesse rapide

HIGH PERFORMANCE
- EX GOLD DRILL
- Fra Ø 0,5~6 / 0,01mm spring
- Special geometri for opnåelse af korte spåner og nøjagtige hulstørrelser
- Til high speed boring

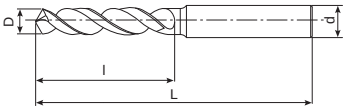
HIGH PERFORMANCE
- EX GOLD DRILL
- Från Ø 0,5-6mm,varje 0,01mm
- Unik spetsgeometri, korta spån, hög precision
- För CNC High Speed borrning

ALTAS PRESTACIONES
- EX GOLD DRILL
- Por 0,01 de D 0,5 a 6mm
- Ranura diseñada para virutaje desmenuzado y agujeros precisos
- para taladrado CNC

Высокая производительность
- EX GOLD DRIL
- Через 0,01мм для D0.5-6мм
- Канавка спроектирована для обеспечения короткой стружки и точного размера отверстия
- Для скоростного сверления с ЧПУ







EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
8595362	3,62	52	20	4	●		8595414	4,14	66	22	6	●	
8595363	3,63	52	20	4	●		8595415	4,15	66	22	6	●	
8595364	3,64	52	20	4	●		8595416	4,16	66	22	6	●	
8595365	3,65	52	20	4	●		8595417	4,17	66	22	6	●	
8595366	3,66	52	20	4	●		8595418	4,18	66	22	6	●	
8595367	3,67	52	20	4	●		8595419	4,19	66	22	6	●	
8595368	3,68	52	20	4	●		61542	4,20	66	22	6	●	
8595369	3,69	52	20	4	●		8595421	4,21	66	22	6	●	
61537	3,70	52	20	4	●		8595422	4,22	66	22	6	●	
8595371	3,71	52	20	4	●		8595423	4,23	66	22	6	●	
8595372	3,72	52	20	4	●		8595424	4,24	66	22	6	●	
8595373	3,73	52	20	4	●		8595425	4,25	66	22	6	●	
8595374	3,74	52	20	4	●		8595426	4,26	68	24	6	●	
8595375	3,75	52	20	4	●		8595427	4,27	68	24	6	●	
8595376	3,76	54	22	4	●		8595428	4,28	68	24	6	●	
8595377	3,77	54	22	4	●		8595429	4,29	68	24	6	●	
8595378	3,78	54	22	4	●		61543	4,30	68	24	6	●	
8595379	3,79	54	22	4	●		8595431	4,31	68	24	6	●	
61538	3,80	54	22	4	●		8595432	4,32	68	24	6	●	
8595381	3,81	54	22	4	●		8595433	4,33	68	24	6	●	
8595382	3,82	54	22	4	●		8595434	4,34	68	24	6	●	
8595383	3,83	54	22	4	●		8595435	4,35	68	24	6	●	
8595384	3,84	54	22	4	●		8595436	4,36	68	24	6	●	
8595385	3,85	54	22	4	●		8595437	4,37	68	24	6	●	
8595386	3,86	54	22	4	●		8595438	4,38	68	24	6	●	
8595387	3,87	54	22	4	●		8595439	4,39	68	24	6	●	
8595388	3,88	54	22	4	●		61544	4,40	68	24	6	●	
8595389	3,89	54	22	4	●		8595441	4,41	68	24	6	●	
61539	3,90	54	22	4	●		8595442	4,42	68	24	6	●	
8595391	3,91	54	22	4	●		8595443	4,43	68	24	6	●	
8595392	3,92	54	22	4	●		8595444	4,44	68	24	6	●	
8595393	3,93	54	22	4	●		8595445	4,45	68	24	6	●	
8595394	3,94	54	22	4	●		8595446	4,46	68	24	6	●	
8595395	3,95	54	22	4	●		8595447	4,47	68	24	6	●	
8595396	3,96	54	22	4	●		8595448	4,48	68	24	6	●	
8595397	3,97	54	22	4	●		8595449	4,49	68	24	6	●	
8595398	3,98	54	22	4	●		61545	4,50	68	24	6	●	
8595399	3,99	54	22	4	●		8595451	4,51	68	24	6	●	
61540	4.00	54	22	4	●		8595452	4,52	68	24	6	●	
8595401	4,01	66	22	6	●		8595453	4,53	68	24	6	●	
8595402	4,02	66	22	6	●		8595454	4,54	68	24	6	●	
8595403	4,03	66	22	6	●		8595455	4,55	68	24	6	●	
8595404	4,04	66	22	6	●		8595456	4,56	68	24	6	●	
8595405	4,05	66	22	6	●		8595457	4,57	68	24	6	●	
8595406	4,06	66	22	6	●		8595458	4,58	68	24	6	●	
8595407	4,07	66	22	6	●		8595459	4,59	68	24	6	●	
8595408	4,08	66	22	6	●		61546	4,60	68	24	6	●	
8595409	4,09	66	22	6	●		8595461	4,61	68	24	6	●	
61541	4,10	66	22	6	●		8595462	4,62	68	24	6	●	
8595411	4,11	66	22	6	●		8595463	4,63	68	24	6	●	
8595412	4,12	66	22	6	●		8595464	4,64	68	24	6	●	
8595413	4,13	66	22	6	●		8595465	4,65	68	24	6	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

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◎	○							◎

SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
			◎	◎	○	◎		



HSSE V3

GO TO LIVE STOCK CHECK

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HIGH PERFORMANCE

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- Spezielle Schneidengeometrie für kurze Bruchspäne
- Sehr gut geeignet fïr CNC High Speed Drilling

ALTA PRESTAZIONE

- EX GOLD DRILL
- Da 0,01 della D 0.5~6mm
- Il disegno speciale dell'elica della punta da origine a trucioli corti
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HAUTE PERFORMANCE

- EX GOLD DRILL
- Par 0,01 de D 0.5~6mm
- Le design spécial de l'hélice du foret donne des copeaux courts
- Pour machine CNC avec avance et vitesse rapide

HIGH PERFORMANCE

- EX GOLD DRILL
- Fra Ø 0,5~6 / 0,01mm spring
- Special geometri for opnåelse af korte spåner og nøjagtige hulstørrelser
- Til high speed boring

HIGH PERFORMANCE

- EX GOLD DRILL
- Från Ø 0,5-6mm,varje 0,01mm
- Unik spetsgeometri, korta spån, hög precision
- För CNC High Speed borrning

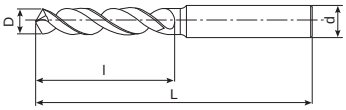
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EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
8595466	4,66	68	24	6	●		8595518	5,18	70	26	6	●	
8595467	4,67	68	24	6	●		8595519	5,19	70	26	6	●	
8595468	4,68	68	24	6	●		61552	5,20	70	26	6	●	
8595469	4,69	68	24	6	●		8595521	5,21	70	26	6	●	
61547	4,70	68	24	6	●		8595522	5,22	70	26	6	●	
8595471	4,71	68	24	6	●		8595523	5,23	70	26	6	●	
8595472	4,72	68	24	6	●		8595524	5,24	70	26	6	●	
8595473	4,73	68	24	6	●		8595525	5,25	70	26	6	●	
8595474	4,74	68	24	6	●		8595526	5,26	70	26	6	●	
8595475	4,75	68	24	6	●		8595527	5,27	70	26	6	●	
8595476	4,76	70	26	6	●		8595528	5,28	70	26	6	●	
8595477	4,77	70	26	6	●		8595529	5,29	70	26	6	●	
8595478	4,78	70	26	6	●		61553	5,30	70	26	6	●	
8595479	4,79	70	26	6	●		8595531	5,31	72	28	6	●	
61548	4,80	70	26	6	●		8595532	5,32	72	28	6	●	
8595481	4,81	70	26	6	●		8595533	5,33	72	28	6	●	
8595482	4,82	70	26	6	●		8595534	5,34	72	28	6	●	
8595483	4,83	70	26	6	●		8595535	5,35	72	28	6	●	
8595484	4,84	70	26	6	●		8595536	5,36	72	28	6	●	
8595485	4,85	70	26	6	●		8595537	5,37	72	28	6	●	
8595486	4,86	70	26	6	●		8595538	5,38	72	28	6	●	
8595487	4,87	70	26	6	●		8595539	5,39	72	28	6	●	
8595488	4,88	70	26	6	●		61554	5,40	72	28	6	●	
8595489	4,89	70	26	6	●		8595541	5,41	72	28	6	●	
61549	4,90	70	26	6	●		8595542	5,42	72	28	6	●	
8595491	4,91	70	26	6	●		8595543	5,43	72	28	6	●	
8595492	4,92	70	26	6	●		8595544	5,44	72	28	6	●	
8595493	4,93	70	26	6	●		8595545	5,45	72	28	6	●	
8595494	4,94	70	26	6	●		8595546	5,46	72	28	6	●	
8595495	4,95	70	26	6	●		8595547	5,47	72	28	6	●	
8595496	4,96	70	26	6	●		8595548	5,48	72	28	6	●	
8595497	4,97	70	26	6	●		8595549	5,49	72	28	6	●	
8595498	4,98	70	26	6	●		61555	5,50	72	28	6	●	
8595499	4,99	70	26	6	●		8595551	5,51	72	28	6	●	
61550	5.00	70	26	6	●		8595552	5,52	72	28	6	●	
8595501	5,01	70	26	6	●		8595553	5,53	72	28	6	●	
8595502	5,02	70	26	6	●		8595554	5,54	72	28	6	●	
8595503	5,03	70	26	6	●		8595555	5,55	72	28	6	●	
8595504	5,04	70	26	6	●		8595556	5,56	72	28	6	●	
8595505	5,05	70	26	6	●		8595557	5,57	72	28	6	●	
8595506	5,06	70	26	6	●		8595558	5,58	72	28	6	●	
8595507	5,07	70	26	6	●		8595559	5,59	72	28	6	●	
8595508	5,08	70	26	6	●		61556	5,60	72	28	6	●	
8595509	5,09	70	26	6	●		8595561	5,61	72	28	6	●	
61551	5,10	70	26	6	●		8595562	5,62	72	28	6	●	
8595511	5,11	70	26	6	●		8595563	5,63	72	28	6	●	
8595512	5,12	70	26	6	●		8595564	5,64	72	28	6	●	
8595513	5,13	70	26	6	●		8595565	5,65	72	28	6	●	
8595514	5,14	70	26	6	●		8595566	5,66	72	28	6	●	
8595515	5,15	70	26	6	●		8595567	5,67	72	28	6	●	
8595516	5,16	70	26	6	●		8595568	5,68	72	28	6	●	
8595517	5,17	70	26	6	●		8595569	5,69	72	28	6	●	

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SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
			◎	◎	○	◎		

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EX-SUS-GDS



HSSE V3

HSSE V3

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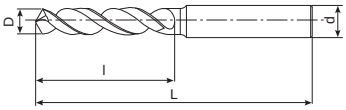
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- Från Ø 0,5-6mm,varje 0,01mm
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EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
61557	5,70	72	28	6	●		61582	8,20	87	37	10	●	
8595571	5,71	72	28	6	●		61583	8,30	87	37	10	●	
8595572	5,72	72	28	6	●		61584	8,40	87	37	10	●	
8595573	5,73	72	28	6	●		61585	8,50	87	37	10	●	
8595574	5,74	72	28	6	●		61586	8,60	90	40	10	●	
8595575	5,75	72	28	6	●		61587	8,70	90	40	10	●	
8595576	5,76	72	28	6	●		61588	8,80	90	40	10	●	
8595577	5,77	72	28	6	●		61589	8,90	90	40	10	●	
8595578	5,78	72	28	6	●		61590	9,00	90	40	10	●	
8595579	5,79	72	28	6	●		61591	9,10	90	40	10	●	
61558	5,80	72	28	6	●		61592	9,20	90	40	10	●	
8595581	5,81	72	28	6	●		61593	9,30	90	40	10	●	
8595582	5,82	72	28	6	●		61594	9,40	90	40	10	●	
8595583	5,83	72	28	6	●		61595	9,50	90	40	10	●	
8595584	5,84	72	28	6	●		61596	9,60	93	43	10	●	
8595585	5,85	72	28	6	●		61597	9,70	93	43	10	●	
8595586	5,86	72	28	6	●		61598	9,80	93	43	10	●	
8595587	5,87	72	28	6	●		61599	9,90	93	43	10	●	
8595588	5,88	72	28	6	●		61600	10,00	93	43	10	●	
8595589	5,89	72	28	6	●		61601	10,10	100	43	12	●	
61559	5,90	72	28	6	●		61602	10,20	100	43	12	●	
8595591	5,91	72	28	6	●		61603	10,30	100	43	12	●	
8595592	5,92	72	28	6	●		61604	10,40	100	43	12	●	
8595593	5,93	72	28	6	●		61605	10,50	100	43	12	●	
8595594	5,94	72	28	6	●		61606	10,60	100	43	12	●	
8595595	5,95	72	28	6	●		61607	10,70	104	47	12	●	
8595596	5,96	72	28	6	●		61608	10,80	104	47	12	●	
8595597	5,97	72	28	6	●		61609	10,90	104	47	12	●	
8595598	5,98	72	28	6	●		61610	11,00	104	47	12	●	
8595599	5,99	72	28	6	●		61611	11,10	104	47	12	●	
61560	6.00	72	28	6	●		61612	11,20	104	47	12	●	
61561	6,10	75	31	8	●		61613	11,30	104	47	12	●	
61562	6,20	75	31	8	●		61614	11,40	104	47	12	●	
61563	6,30	75	31	8	●		61615	11,50	104	47	12	●	
61564	6,40	75	31	8	●		61616	11,60	104	47	12	●	
61565	6,50	75	31	8	●		61617	11,70	104	47	12	●	
61566	6,60	75	31	8	●		61618	11,80	104	47	12	●	
61567	6,70	75	31	8	●		61619	11,90	108	51	12	●	
61568	6,80	78	34	8	●		61620	12,00	108	51	12	●	
61569	6,90	78	34	8	●		43011210	12,10	108	51	16	●	
61570	7,00	78	34	8	●		43011220	12,20	108	51	16	●	
61571	7,10	78	34	8	●		43011230	12,30	108	51	16	●	
61572	7,20	78	34	8	●		43011240	12,40	108	51	16	●	
61573	7,30	78	34	8	●		43011250	12,50	108	51	16	●	
61574	7,40	78	34	8	●		43011260	12,60	108	51	16	●	
61575	7,50	78	34	8	●		43011270	12,70	108	51	16	●	
61576	7,60	81	37	8	●		43011280	12,80	108	51	16	●	
61577	7,70	81	37	8	●		43011290	12,90	108	51	16	●	
61578	7,80	81	37	8	●		43011300	13,00	108	51	16	●	
61579	7,90	81	37	8	●		43011350	13,50	114	54	16	●	
61580	8,00	81	37	8	●		43011400	14,00	114	54	16	●	
61581	8,10	87	37	10	●		43011450	14,50	116	56	16	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	○							◎

SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
			◎	◎	○	◎		



HSSE V3

GO TO LIVE STOCK CHECK

HIGH PERFORMANCE

- EX GOLD DRILL
- By 0.01 of D 0.5~6mm
- Special flute design to facilitate short chipping & accurate hole size
- For CNC high speed drilling

HIGH PERFORMANCE

- EX GOLD DRILL
- Abstufung 0,01 von D 0,5~6
- Spezielle Schneidengeometrie für kurze Bruchspäne
- Sehr gut geeignet fïr CNC High Speed Drilling

ALTA PRESTAZIONE

- EX GOLD DRILL
- Da 0,01 della D 0.5~6mm
- Il disegno speciale dell'elica della punta da origine a trucioli corti
- Per macchine CNC con avanzamento e velocità rapida

HAUTE PERFORMANCE

- EX GOLD DRILL
- Par 0,01 de D 0.5~6mm
- Le design spécial de l'hélice du foret donne des copeaux courts
- Pour machine CNC avec avance et vitesse rapide

HIGH PERFORMANCE

- EX GOLD DRILL
- Fra Ø 0,5~6 / 0,01mm spring
- Special geometri for opnåelse af korte spåner og nøjagtige hulstørrelser
- Til high speed boring

HIGH PERFORMANCE

- EX GOLD DRILL
- Från Ø 0,5-6mm,varje 0,01mm
- Unik spetsgeometri, korta spån, hög precision
- För CNC High Speed borrning

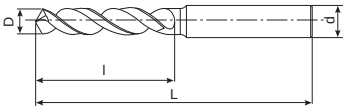
ALTAS PRESTACIONES

- EX GOLD DRILL
- Por 0,01 de D 0,5 a 6mm
- Ranura diseñada para virutaje desmenuzado y agujeros precisos
- para taladrado CNC

Высокая производительность

- EX GOLD DRIL
- Через 0,01мм для D0.5-6мм
- Канавка спроектирована для обеспечения короткой стружки и точного размера отверстия
- Для скоростного сверления с ЧПУ





EDP	D	L	l	d	Stock	Price
43011500	15,00	116	56	16	●	
43011550	15,50	118	58	16	●	
43011600	16,00	118	58	16	●	
43011650	16,50	126	60	20	●	
43011700	17,00	126	60	20	●	
43011750	17,50	128	62	20	●	

EDP	D	L	l	d	Stock	Price
43011800	18,00	128	62	20	●	
43011850	18,50	130	64	20	●	
43011900	19,00	130	64	20	●	
43011950	19,50	132	66	20	●	
43012000	20,00	132	66	20	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	○							◎

SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
			◎	◎	○	◎		

● Delivery from stock
○ Available on short notice

EX-SUS-GDR



HSSE V3

GO TO LIVE STOCK CHECK

HIGH PERFORMANCE

- EX GOLD DRILL
- By 0.01 of D 2~6
- Special flute design to facilitate short chipping & accurate hole size
- For CNC high speed drilling

HIGH PERFORMANCE

- EX GOLD DRILL
- Abstufung 0,01 von D 2~6
- Spezielle Schneidengeometrie für kurze Bruchspäne
- Sehr gut geeignet für CNC High Speed Drilling

ALTA PRESTAZIONE

- EX GOLD DRILL
- Da 0,01 della D 2~6
- Il disegno speciale dell'elica della punta da origine a trucioli corti
- Per macchine CNC con avanzamento e velocità rapida

HAUTE PERFORMANCE

- EX GOLD DRILL
- Par 0,01 de D 2~6
- Le design spécial de l'hélice du foret donne des copeaux courts
- Pour machine CNC avec avance et vitesse rapide

HIGH PERFORMANCE

- EX GOLD DRILL
- Fra Ø 2~6 / 0,01mm spring
- Special geometri for opnåelse af korte spåner og nøjagtige hulstørrelser
- Til high speed boring

HIGH PERFORMANCE

- EX GOLD DRILL
- Från Ø 2-6mm, varje 0,01mm
- Unik spetsgeometri, korta spån, hög precision
- För CNC High Speed borrning

ALTO RENDIMIENTO

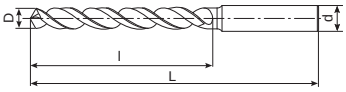
- EX GOLD DRIL
- Por 0,01 de D 2 a 6
- Ranura diseñada para virutaje desmenuzado y agujeros precisos
- para taladrado CNC a alta velocidad

Высокая производительность

- EX GOLD DRIL
- Через 0,01мм для D2-6мм
- Канавка спроектирована для обеспечения короткой стружки и точного размера отверстия
- Для скоростного сверления с ЧПУ







EDP	D	L	l	d	Stock	Price
62520	2,00	56	24	3	●	
8597201	2,01	56	24	3	●	
8597202	2,02	56	24	3	●	
8597203	2,03	56	24	3	●	
8597204	2,04	56	24	3	●	
8597205	2,05	56	24	3	●	
8597206	2,06	56	24	3	●	
8597207	2,07	56	24	3	●	
8597208	2,08	56	24	3	●	
8597209	2,09	56	24	3	●	
62521	2,10	56	24	3	●	
8597211	2,11	56	24	3	●	
8597212	2,12	56	24	3	●	
8597213	2,13	59	27	3	●	
8597214	2,14	59	27	3	●	
8597215	2,15	59	27	3	●	
8597216	2,16	59	27	3	●	
8597217	2,17	59	27	3	●	
8597218	2,18	59	27	3	●	
8597219	2,19	59	27	3	●	
62522	2,20	59	27	3	●	
8597221	2,21	59	27	3	●	
8597222	2,22	59	27	3	●	
8597223	2,23	59	27	3	●	
8597224	2,24	59	27	3	●	
8597225	2,25	59	27	3	●	
8597226	2,26	59	27	3	●	
8597227	2,27	59	27	3	●	
8597228	2,28	59	27	3	●	
8597229	2,29	59	27	3	●	
62523	2,30	59	27	3	●	
8597231	2,31	59	27	3	●	
8597232	2,32	59	27	3	●	
8597233	2,33	59	27	3	●	
8597234	2,34	59	27	3	●	
8597235	2,35	59	27	3	●	
8597236	2,36	59	27	3	●	
8597237	2,37	62	30	3	●	
8597238	2,38	62	30	3	●	
8597239	2,39	62	30	3	●	
62524	2,40	62	30	3	●	
8597241	2,41	62	30	3	●	
8597242	2,42	62	30	3	●	
8597243	2,43	62	30	3	●	
8597244	2,44	62	30	3	●	
8597245	2,45	62	30	3	●	
8597246	2,46	62	30	3	●	
8597247	2,47	62	30	3	●	
8597248	2,48	62	30	3	●	
8597249	2,49	62	30	3	●	
62525	2,50	62	30	3	●	
8597251	2,51	62	30	3	●	

EDP	D	L	l	d	Stock	Price
8597252	2,52	62	30	3	●	
8597253	2,53	62	30	3	●	
8597254	2,54	62	30	3	●	
8597255	2,55	62	30	3	●	
8597256	2,56	62	30	3	●	
8597257	2,57	62	30	3	●	
8597258	2,58	62	30	3	●	
8597259	2,59	62	30	3	●	
62526	2,60	62	30	3	●	
8597261	2,61	62	30	3	●	
8597262	2,62	62	30	3	●	
8597263	2,63	62	30	3	●	
8597264	2,64	62	30	3	●	
8597265	2,65	62	30	3	●	
8597266	2,66	65	33	3	●	
8597267	2,67	65	33	3	●	
8597268	2,68	65	33	3	●	
8597269	2,69	65	33	3	●	
62527	2,70	65	33	3	●	
8597271	2,71	65	33	3	●	
8597272	2,72	65	33	3	●	
8597273	2,73	65	33	3	●	
8597274	2,74	65	33	3	●	
8597275	2,75	65	33	3	●	
8597276	2,76	65	33	3	●	
8597277	2,77	65	33	3	●	
8597278	2,78	65	33	3	●	
8597279	2,79	65	33	3	●	
62528	2,80	65	33	3	●	
8597281	2,81	65	33	3	●	
8597282	2,82	65	33	3	●	
8597283	2,83	65	33	3	●	
8597284	2,84	65	33	3	●	
8597285	2,85	65	33	3	●	
8597286	2,86	65	33	3	●	
8597287	2,87	65	33	3	●	
8597288	2,88	65	33	3	●	
8597289	2,89	65	33	3	●	
62529	2,90	65	33	3	●	
8597291	2,91	65	33	3	●	
8597292	2,92	65	33	3	●	
8597293	2,93	65	33	3	●	
8597294	2,94	65	33	3	●	
8597295	2,95	65	33	3	●	
8597296	2,96	65	33	3	●	
8597297	2,97	65	33	3	●	
8597298	2,98	65	33	3	●	
8597299	2,99	65	33	3	●	
62530	3,00	65	33	3	●	
8597301	3,01	68	36	4	●	
8597302	3,02	68	36	4	●	
8597303	3,03	68	36	4	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	○							◎

SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
			◎	◎	○	◎		



HIGH PERFORMANCE

- EX GOLD DRILL
- By 0.01 of D 2~6
- Special flute design to facilitate short chipping & accurate hole size
- For CNC high speed drilling

HIGH PERFORMANCE

- EX GOLD DRILL
- Abstufung 0,01 von D 2~6
- Spezielle Schneidengeometrie für kurze Bruchspäne
- Sehr gut geeignet für CNC High Speed Drilling

ALTA PRESTAZIONE

- EX GOLD DRILL
- Da 0,01 della D 2~6
- Il disegno speciale dell'elica della punta da origine a trucioli corti
- Per macchine CNC con avanzamento e velocità rapida

HAUTE PERFORMANCE

- EX GOLD DRILL
- Par 0,01 de D 2~6
- Le design spécial de l'hélice du foret donne des copeaux courts
- Pour machine CNC avec avance et vitesse rapide

HIGH PERFORMANCE

- EX GOLD DRILL
- Fra Ø 2~6 / 0,01mm spring
- Special geometri for opnåelse af korte spåner og nøjagtige hulstørrelser
- Til high speed boring

HIGH PERFORMANCE

- EX GOLD DRILL
- Från Ø 2-6mm, varje 0,01mm
- Unik spetsgeometri, korta spån, hög precision
- För CNC High Speed borrning

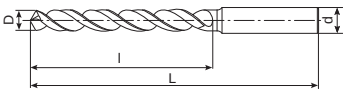
ALTO RENDIMIENTO

- EX GOLD DRIL
- Por 0,01 de D 2 a 6
- Ranura diseñada para virutaje desmenuzado y agujeros precisos
- para taladrado CNC a alta velocidad

Высокая производительность

- EX GOLD DRIL
- Через 0,01мм для D2-6мм
- Канавка спроектирована для обеспечения короткой стружки и точного размера отверстия
- Для скоростного сверления с ЧПУ

HSSE | TIN | 35°~40° | h7 | D≤12 | D>12 | 130° 2≤D≤4 | 120° D>4 | h8 | S D ≤ 13 | N D > 13 | min⁻¹ C.105



EDP	D	L	l	d	Stock	Price
8597304	3,04	68	36	4	●	
8597305	3,05	68	36	4	●	
8597306	3,06	68	36	4	●	
8597307	3,07	68	36	4	●	
8597308	3,08	68	36	4	●	
8597309	3,09	68	36	4	●	
62531	3,10	68	36	4	●	
8597311	3,11	68	36	4	●	
8597312	3,12	68	36	4	●	
8597313	3,13	68	36	4	●	
8597314	3,14	68	36	4	●	
8597315	3,15	68	36	4	●	
8597316	3,16	68	36	4	●	
8597317	3,17	68	36	4	●	
8597318	3,18	68	36	4	●	
8597319	3,19	68	36	4	●	
62532	3,20	68	36	4	●	
8597321	3,21	68	36	4	●	
8597322	3,22	68	36	4	●	
8597323	3,23	68	36	4	●	
8597324	3,24	68	36	4	●	
8597325	3,25	68	36	4	●	
8597326	3,26	68	36	4	●	
8597327	3,27	68	36	4	●	
8597328	3,28	68	36	4	●	
8597329	3,29	68	36	4	●	
62533	3,30	68	36	4	●	
8597331	3,31	68	36	4	●	
8597332	3,32	68	36	4	●	
8597333	3,33	68	36	4	●	
8597334	3,34	68	36	4	●	
8597335	3,35	68	36	4	●	
8597336	3,36	71	39	4	●	
8597337	3,37	71	39	4	●	
8597338	3,38	71	39	4	●	
8597339	3,39	71	39	4	●	
62534	3,40	71	39	4	●	
8597341	3,41	71	39	4	●	
8597342	3,42	71	39	4	●	
8597343	3,43	71	39	4	●	
8597344	3,44	71	39	4	●	
8597345	3,45	71	39	4	●	
8597346	3,46	71	39	4	●	
8597347	3,47	71	39	4	●	
8597348	3,48	71	39	4	●	
8597349	3,49	71	39	4	●	
62535	3,50	71	39	4	●	
8597351	3,51	71	39	4	●	
8597352	3,52	71	39	4	●	
8597353	3,53	71	39	4	●	
8597354	3,54	71	39	4	●	
8597355	3,55	71	39	4	●	

EDP	D	L	l	d	Stock	Price
8597356	3,56	71	39	4	●	
8597357	3,57	71	39	4	●	
8597358	3,58	71	39	4	●	
8597359	3,59	71	39	4	●	
62536	3,60	71	39	4	●	
8597361	3,61	71	39	4	●	
8597362	3,62	71	39	4	●	
8597363	3,63	71	39	4	●	
8597364	3,64	71	39	4	●	
8597365	3,65	71	39	4	●	
8597366	3,66	71	39	4	●	
8597367	3,67	71	39	4	●	
8597368	3,68	71	39	4	●	
8597369	3,69	71	39	4	●	
62537	3,70	71	39	4	●	
8597371	3,71	71	39	4	●	
8597372	3,72	71	39	4	●	
8597373	3,73	71	39	4	●	
8597374	3,74	71	39	4	●	
8597375	3,75	71	39	4	●	
8597376	3,76	75	43	4	●	
8597377	3,77	75	43	4	●	
8597378	3,78	75	43	4	●	
8597379	3,79	75	43	4	●	
62538	3,80	75	43	4	●	
8597381	3,81	75	43	4	●	
8597382	3,82	75	43	4	●	
8597383	3,83	75	43	4	●	
8597384	3,84	75	43	4	●	
8597385	3,85	75	43	4	●	
8597386	3,86	75	43	4	●	
8597387	3,87	75	43	4	●	
8597388	3,88	75	43	4	●	
8597389	3,89	75	43	4	●	
62539	3,90	75	43	4	●	
8597391	3,91	75	43	4	●	
8597392	3,92	75	43	4	●	
8597393	3,93	75	43	4	●	
8597394	3,94	75	43	4	●	
8597395	3,95	75	43	4	●	
8597396	3,96	75	43	4	●	
8597397	3,97	75	43	4	●	
8597398	3,98	75	43	4	●	
8597399	3,99	75	43	4	●	
62540	4,00	75	43	4	●	
8597401	4,01	87	43	6	●	
8597402	4,02	87	43	6	●	
8597403	4,03	87	43	6	●	
8597404	4,04	87	43	6	●	
8597405	4,05	87	43	6	●	
8597406	4,06	87	43	6	●	
8597407	4,07	87	43	6	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	○							◎
SKD	**GG**	**GGG**	**Cu**	**Al**	**AC**	**Ti**	**Tiall**	**Inc**
			◎	◎	○	◎		

EX-SUS-GDR



HSSE V3

HSSE V3

GO TO LIVE STOCK CHECK

HIGH PERFORMANCE
- EX GOLD DRILL
- By 0.01 of D 2~6
- Special flute design to facilitate short chipping & accurate hole size
- For CNC high speed drilling

HIGH PERFORMANCE
- EX GOLD DRILL
- Abstufung 0,01 von D 2~6
- Spezielle Schneidengeometrie für kurze Bruchspäne
- Sehr gut geeignet für CNC High Speed Drilling

ALTA PRESTAZIONE
- EX GOLD DRILL
- Da 0,01 della D 2~6
- Il disegno speciale dell'elica della punta da origine a trucioli corti
- Per macchine CNC con avanzamento e velocità rapida

HAUTE PERFORMANCE
- EX GOLD DRILL
- Par 0,01 de D 2~6
- Le design spécial de l'hélice du foret donne des copeaux courts
- Pour machine CNC avec avance et vitesse rapide

HIGH PERFORMANCE
- EX GOLD DRILL
- Fra Ø 2~6 / 0,01mm spring
- Special geometri for opnåelse af korte spåner og nøjagtige hulstørrelser
- Til high speed boring

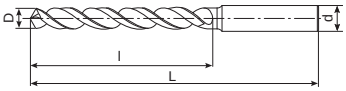
HIGH PERFORMANCE
- EX GOLD DRILL
- Från Ø 2-6mm, varje 0,01mm
- Unik spetsgeometri, korta spån, hög precision
- För CNC High Speed borrning

ALTO RENDIMIENTO
- EX GOLD DRIL
- Por 0,01 de D 2 a 6
- Ranura diseñada para virutaje desmenuzado y agujeros precisos
- para taladrado CNC a alta velocidad

Высокая производительность
- EX GOLD DRIL
- Через 0,01мм для D2-6мм
- Канавка спроектирована для обеспечения короткой стружки и точного размера отверстия
- Для скоростного сверления с ЧПУ







EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
8597408	4,08	87	43	6	●		62546	4,60	91	47	6	●	
8597409	4,09	87	43	6	●		8597461	4,61	91	47	6	●	
62541	4,10	87	43	6	●		8597462	4,62	91	47	6	●	
8597411	4,11	87	43	6	●		8597463	4,63	91	47	6	●	
8597412	4,12	87	43	6	●		8597464	4,64	91	47	6	●	
8597413	4,13	87	43	6	●		8597465	4,65	91	47	6	●	
8597414	4,14	87	43	6	●		8597466	4,66	91	47	6	●	
8597415	4,15	87	43	6	●		8597467	4,67	91	47	6	●	
8597416	4,16	87	43	6	●		8597468	4,68	91	47	6	●	
8597417	4,17	87	43	6	●		8597469	4,69	91	47	6	●	
8597418	4,18	87	43	6	●		62547	4,70	91	47	6	●	
8597419	4,19	87	43	6	●		8597471	4,71	91	47	6	●	
62542	4,20	87	43	6	●		8597472	4,72	91	47	6	●	
8597421	4,21	87	43	6	●		8597473	4,73	91	47	6	●	
8597422	4,22	87	43	6	●		8597474	4,74	91	47	6	●	
8597423	4,23	87	43	6	●		8597475	4,75	91	47	6	●	
8597424	4,24	87	43	6	●		8597476	4,76	96	52	6	●	
8597425	4,25	87	43	6	●		8597477	4,77	96	52	6	●	
8597426	4,26	91	47	6	●		8597478	4,78	96	52	6	●	
8597427	4,27	91	47	6	●		8597479	4,79	96	52	6	●	
8597428	4,28	91	47	6	●		62548	4,80	96	52	6	●	
8597429	4,29	91	47	6	●		8597481	4,81	96	52	6	●	
62543	4,30	91	47	6	●		8597482	4,82	96	52	6	●	
8597431	4,31	91	47	6	●		8597483	4,83	96	52	6	●	
8597432	4,32	91	47	6	●		8597484	4,84	96	52	6	●	
8597433	4,33	91	47	6	●		8597485	4,85	96	52	6	●	
8597434	4,34	91	47	6	●		8597486	4,86	96	52	6	●	
8597435	4,35	91	47	6	●		8597487	4,87	96	52	6	●	
8597436	4,36	91	47	6	●		8597488	4,88	96	52	6	●	
8597437	4,37	91	47	6	●		8597489	4,89	96	52	6	●	
8597438	4,38	91	47	6	●		62549	4,90	96	52	6	●	
8597439	4,39	91	47	6	●		8597491	4,91	96	52	6	●	
62544	4,40	91	47	6	●		8597492	4,92	96	52	6	●	
8597441	4,41	91	47	6	●		8597493	4,93	96	52	6	●	
8597442	4,42	91	47	6	●		8597494	4,94	96	52	6	●	
8597443	4,43	91	47	6	●		8597495	4,95	96	52	6	●	
8597444	4,44	91	47	6	●		8597496	4,96	96	52	6	●	
8597445	4,45	91	47	6	●		8597497	4,97	96	52	6	●	
8597446	4,46	91	47	6	●		8597498	4,98	96	52	6	●	
8597447	4,47	91	47	6	●		8597499	4,99	96	52	6	●	
8597448	4,48	91	47	6	●		62550	5,00	96	52	6	●	
8597449	4,49	91	47	6	●		8597501	5,01	96	52	6	●	
62545	4,50	91	47	6	●		8597502	5,02	96	52	6	●	
8597451	4,51	91	47	6	●		8597503	5,03	96	52	6	●	
8597452	4,52	91	47	6	●		8597504	5,04	96	52	6	●	
8597453	4,53	91	47	6	●		8597505	5,05	96	52	6	●	
8597454	4,54	91	47	6	●		8597506	5,06	96	52	6	●	
8597455	4,55	91	47	6	●		8597507	5,07	96	52	6	●	
8597456	4,56	91	47	6	●		8597508	5,08	96	52	6	●	
8597457	4,57	91	47	6	●		8597509	5,09	96	52	6	●	
8597458	4,58	91	47	6	●		62551	5,10	96	52	6	●	
8597459	4,59	91	47	6	●		8597511	5,11	96	52	6	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	○							◎

SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
			◎	◎	○	◎		

EX-SUS-GDR



HSSE V3

HSSE V3

GO TO LIVE STOCK CHECK

HIGH PERFORMANCE

- EX GOLD DRILL
- By 0.01 of D 2~6
- Special flute design to facilitate short chipping & accurate hole size
- For CNC high speed drilling

HIGH PERFORMANCE

- EX GOLD DRILL
- Abstufung 0,01 von D 2~6
- Spezielle Schneidengeometrie für kurze Bruchspäne
- Sehr gut geeignet für CNC High Speed Drilling

ALTA PRESTAZIONE

- EX GOLD DRILL
- Da 0,01 della D 2~6
- Il disegno speciale dell'elica della punta da origine a trucioli corti
- Per macchine CNC con avanzamento e velocità rapida

HAUTE PERFORMANCE

- EX GOLD DRILL
- Par 0,01 de D 2~6
- Le design spécial de l'hélice du foret donne des copeaux courts
- Pour machine CNC avec avance et vitesse rapide

HIGH PERFORMANCE

- EX GOLD DRILL
- Fra Ø 2~6 / 0,01mm spring
- Special geometri for opnåelse af korte spåner og nøjagtige hulstørrelser
- Til high speed boring

HIGH PERFORMANCE

- EX GOLD DRILL
- Från Ø 2-6mm, varje 0,01mm
- Unik spetsgeometri, korta spån, hög precision
- För CNC High Speed borrning

ALTO RENDIMIENTO

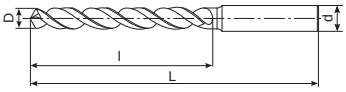
- EX GOLD DRIL
- Por 0,01 de D 2 a 6
- Ranura diseñada para virutaje desmenuzado y agujeros precisos
- para taladrado CNC a alta velocidad

Высокая производительность

- EX GOLD DRIL
- Через 0,01мм для D2-6мм
- Канавка спроектирована для обеспечения короткой стружки и точного размера отверстия
- Для скоростного сверления с ЧПУ







EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
8597512	5,12	96	52	6	●		8597564	5,64	101	57	6	●	
8597513	5,13	96	52	6	●		8597565	5,65	101	57	6	●	
8597514	5,14	96	52	6	●		8597566	5,66	101	57	6	●	
8597515	5,15	96	52	6	●		8597567	5,67	101	57	6	●	
8597516	5,16	96	52	6	●		8597568	5,68	101	57	6	●	
8597517	5,17	96	52	6	●		8597569	5,69	101	57	6	●	
8597518	5,18	96	52	6	●		62557	5,70	101	57	6	●	
8597519	5,19	96	52	6	●		8597571	5,71	101	57	6	●	
62552	5,20	96	52	6	●		8597572	5,72	101	57	6	●	
8597521	5,21	96	52	6	●		8597573	5,73	101	57	6	●	
8597522	5,22	96	52	6	●		8597574	5,74	101	57	6	●	
8597523	5,23	96	52	6	●		8597575	5,75	101	57	6	●	
8597524	5,24	96	52	6	●		8597576	5,76	101	57	6	●	
8597525	5,25	96	52	6	●		8597577	5,77	101	57	6	●	
8597526	5,26	96	52	6	●		8597578	5,78	101	57	6	●	
8597527	5,27	96	52	6	●		8597579	5,79	101	57	6	●	
8597528	5,28	96	52	6	●		62558	5,80	101	57	6	●	
8597529	5,29	96	52	6	●		8597581	5,81	101	57	6	●	
62553	5,30	96	52	6	●		8597582	5,82	101	57	6	●	
8597531	5,31	101	57	6	●		8597583	5,83	101	57	6	●	
8597532	5,32	101	57	6	●		8597584	5,84	101	57	6	●	
8597533	5,33	101	57	6	●		8597585	5,85	101	57	6	●	
8597534	5,34	101	57	6	●		8597586	5,86	101	57	6	●	
8597535	5,35	101	57	6	●		8597587	5,87	101	57	6	●	
8597536	5,36	101	57	6	●		8597588	5,88	101	57	6	●	
8597537	5,37	101	57	6	●		8597589	5,89	101	57	6	●	
8597538	5,38	101	57	6	●		62559	5,90	101	57	6	●	
8597539	5,39	101	57	6	●		8597591	5,91	101	57	6	●	
62554	5,40	101	57	6	●		8597592	5,92	101	57	6	●	
8597541	5,41	101	57	6	●		8597593	5,93	101	57	6	●	
8597542	5,42	101	57	6	●		8597594	5,94	101	57	6	●	
8597543	5,43	101	57	6	●		8597595	5,95	101	57	6	●	
8597544	5,44	101	57	6	●		8597596	5,96	101	57	6	●	
8597545	5,45	101	57	6	●		8597597	5,97	101	57	6	●	
8597546	5,46	101	57	6	●		8597598	5,98	101	57	6	●	
8597547	5,47	101	57	6	●		8597599	5,99	101	57	6	●	
8597548	5,48	101	57	6	●		62560	6,00	101	57	6	●	
8597549	5,49	101	57	6	●		62561	6,10	107	63	8	●	
62555	5,50	101	57	6	●		62562	6,20	107	63	8	●	
8597551	5,51	101	57	6	●		62563	6,30	107	63	8	●	
8597552	5,52	101	57	6	●		62564	6,40	107	63	8	●	
8597553	5,53	101	57	6	●		62565	6,50	107	63	8	●	
8597554	5,54	101	57	6	●		62566	6,60	107	63	8	●	
8597555	5,55	101	57	6	●		62567	6,70	107	63	8	●	
8597556	5,56	101	57	6	●		62568	6,80	113	69	8	●	
8597557	5,57	101	57	6	●		62569	6,90	113	69	8	●	
8597558	5,58	101	57	6	●		62570	7,00	113	69	8	●	
8597559	5,59	101	57	6	●		62571	7,10	113	69	8	●	
62556	5,60	101	57	6	●		62572	7,20	113	69	8	●	
8597561	5,61	101	57	6	●		62573	7,30	113	69	8	●	
8597562	5,62	101	57	6	●		62574	7,40	113	69	8	●	
8597563	5,63	101	57	6	●		62575	7,50	113	69	8	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	○							◎

SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
			◎	◎	○	◎		

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE

- EX GOLD DRILL
- By 0.01 of D 2~6
- Special flute design to facilitate short chipping & accurate hole size
- For CNC high speed drilling

HIGH PERFORMANCE

- EX GOLD DRILL
- Abstufung 0,01 von D 2~6
- Spezielle Schneidengeometrie für kurze Bruchspäne
- Sehr gut geeignet für CNC High Speed Drilling

ALTA PRESTAZIONE

- EX GOLD DRILL
- Da 0,01 della D 2~6
- Il disegno speciale dell'elica della punta da origine a trucioli corti
- Per macchine CNC con avanzamento e velocità rapida

HAUTE PERFORMANCE

- EX GOLD DRILL
- Par 0,01 de D 2~6
- Le design spécial de l'hélice du foret donne des copeaux courts
- Pour machine CNC avec avance et vitesse rapide

HIGH PERFORMANCE

- EX GOLD DRILL
- Fra Ø 2~6 / 0,01mm spring
- Special geometri for opnåelse af korte spåner og nøjagtige hulstørrelser
- Til high speed boring

HIGH PERFORMANCE

- EX GOLD DRILL
- Från Ø 2-6mm, varje 0,01mm
- Unik spetsgeometri, korta spån, hög precision
- För CNC High Speed borrning

ALTO RENDIMIENTO

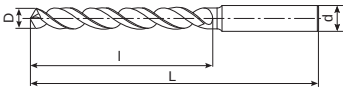
- EX GOLD DRIL
- Por 0,01 de D 2 a 6
- Ranura diseñada para virutaje desmenuzado y agujeros precisos
- para taladrado CNC a alta velocidad

Высокая производительность

- EX GOLD DRIL
- Через 0,01мм для D2-6мм
- Канавка спроектирована для обеспечения короткой стружки и точного размера отверстия
- Для скоростного сверления с ЧПУ







EDP	D	L	l	d	Stock	Price
62576	7,60	119	75	8	●	
62577	7,70	119	75	8	●	
62578	7,80	119	75	8	●	
62579	7,90	119	75	8	●	
62580	8,00	119	75	8	●	
62581	8,10	125	75	10	●	
62582	8,20	125	75	10	●	
62583	8,30	125	75	10	●	
62584	8,40	125	75	10	●	
62585	8,50	125	75	10	●	
62586	8,60	131	81	10	●	
62587	8,70	131	81	10	●	
62588	8,80	131	81	10	●	
62589	8,90	131	81	10	●	
62590	9,00	131	81	10	●	
62591	9,10	131	81	10	●	
62592	9,20	131	81	10	●	
62593	9,30	131	81	10	●	
62594	9,40	131	81	10	●	
62595	9,50	131	81	10	●	
62596	9,60	137	87	10	●	
62597	9,70	137	87	10	●	
62598	9,80	137	87	10	●	
62599	9,90	137	87	10	●	
62600	10,00	137	87	10	●	
62601	10,10	144	87	12	●	
62602	10,20	144	87	12	●	
62603	10,30	144	87	12	●	
62604	10,40	144	87	12	●	
62605	10,50	144	87	12	●	
62606	10,60	144	87	12	●	
62607	10,70	151	94	12	●	
62608	10,80	151	94	12	●	
62609	10,90	151	94	12	●	
62610	11,00	151	94	12	●	

EDP	D	L	l	d	Stock	Price
62611	11,10	151	94	12	●	
62612	11,20	151	94	12	●	
62613	11,30	151	94	12	●	
62614	11,40	151	94	12	●	
62615	11,50	151	94	12	●	
62616	11,60	151	94	12	●	
62617	11,70	151	94	12	●	
62618	11,80	151	94	12	●	
62619	11,90	158	101	12	●	
62620	12,00	158	101	12	●	
43021210	12,10	158	101	16	●	
43021220	12,20	158	101	16	●	
43021230	12,30	158	101	16	●	
43021240	12,40	158	101	16	●	
43021250	12,50	158	101	16	●	
43021260	12,60	158	101	16	●	
43021270	12,70	158	101	16	●	
43021280	12,80	158	101	16	●	
43021290	12,90	158	101	16	●	
43021300	13,00	158	101	16	●	
43021350	13,50	166	106	16	●	
43021400	14,00	166	106	16	●	
43021450	14,50	169	109	16	●	
43021500	15,00	169	109	16	●	
43021550	15,50	172	112	16	●	
43021600	16,00	172	112	16	●	
43021650	16,50	181	115	20	●	
43021700	17,00	181	115	20	●	
43021750	17,50	184	118	20	●	
43021800	18,00	184	118	20	●	
43021850	18,50	188	122	20	●	
43021900	19,00	188	122	20	●	
43021950	19,50	191	125	20	●	
43022000	20,00	191	125	20	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	○							◎

SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
			◎	◎	○	◎		



HIGH PERFORMANCE
- Regular for high speed drilling

HIGH PERFORMANCE
- Geeignet für Hochleistungsbohren (HSC)

ALTA PRESTAZIONE
- Regolare, per forature ad alta velocità

HAUTE PERFORMANCE
- Normal, pour forage haute vitesse

HIGH PERFORMANCE
- Mellemlang, til high speed boring

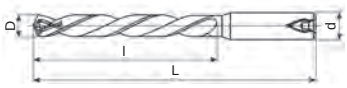
HIGH PERFORMANCE
- Normal, för high speed borrning

ALTAS PRESTACIONES
- Regular para taladrado a alta velocidad

Высокая производительность
- Сверло нормальной длины для скоростного сверления







EDP	D	L	l	d	Stock	Price
43040600	6,0	101	57	6	●	
43040610	6,1	107	63	6	●	
43040620	6,2	107	63	6	●	
43040630	6,3	107	63	6	●	
43040640	6,4	107	63	6	●	
43040650	6,5	107	63	6	●	
43040660	6,6	107	63	7	●	
43040670	6,7	107	63	7	●	
43040680	6,8	113	69	7	●	
43040690	6,9	113	69	7	●	
43040700	7,0	113	69	7	●	
43040710	7,1	113	69	8	●	
43040720	7,2	113	69	8	●	
43040730	7,3	113	69	8	●	
43040740	7,4	113	69	8	●	
43040750	7,5	113	69	8	●	
43040760	7,6	119	75	8	●	
43040770	7,7	119	75	8	●	
43040780	7,8	119	75	8	●	
43040790	7,9	119	75	8	●	
43040800	8,0	119	75	8	●	
43040810	8,1	125	75	9	●	
43040820	8,2	125	75	9	●	
43040830	8,3	125	75	9	●	
43040840	8,4	125	75	9	●	
43040850	8,5	125	75	9	●	
43040860	8,6	131	81	9	●	
43040870	8,7	131	81	9	●	
43040880	8,8	131	81	9	●	
43040890	8,9	131	81	9	●	
43040900	9,0	131	81	9	●	
43040910	9,1	131	81	10	●	
43040920	9,2	131	81	10	●	
43040930	9,3	131	81	10	●	
43040940	9,4	131	81	10	●	
43040950	9,5	131	81	10	●	
43040960	9,6	137	87	10	●	
43040970	9,7	137	87	10	●	
43040980	9,8	137	87	10	●	
43040990	9,9	137	87	10	●	
43041000	10,0	137	87	10	●	
43041010	10,1	144	87	11	●	
43041020	10,2	144	87	11	●	
43041030	10,3	144	87	11	●	
43041040	10,4	144	87	11	●	
43041050	10,5	144	87	11	●	
43041060	10,6	144	87	11	●	
43041070	10,7	151	94	11	●	

EDP	D	L	l	d	Stock	Price
43041080	10,8	151	94	11	●	
43041090	10,9	151	94	11	●	
43041100	11,0	151	94	11	●	
43041110	11,1	151	94	12	●	
43041120	11,2	151	94	12	●	
43041130	11,3	151	94	12	●	
43041140	11,4	151	94	12	●	
43041150	11,5	151	94	12	●	
43041160	11,6	151	94	12	●	
43041170	11,7	151	94	12	●	
43041180	11,8	151	94	12	●	
43041190	11,9	158	101	12	●	
43041200	12,0	158	101	12	●	
43041250	12,5	140	80	16	●	
43041300	13,0	145	85	16	●	
43041350	13,5	150	90	16	●	
43041400	14,0	150	90	16	●	
43041450	14,5	155	95	16	●	
43041500	15,0	161	95	20	●	
43041550	15,5	166	100	20	●	
43041600	16,0	166	100	20	●	
43041650	16,5	172	106	20	●	
43041700	17,0	172	106	20	●	
43041750	17,5	178	112	20	●	
43041800	18,0	178	112	20	●	
43041850	18,5	184	118	20	●	
43041900	19,0	194	118	25	●	
43041950	19,5	201	125	25	●	
43042000	20,0	201	125	25	●	
43042050	20,5	204	128	25	●	
43042100	21,0	204	128	25	●	
43042150	21,5	208	132	25	●	
43042200	22,0	208	132	25	●	
43042250	22,5	212	136	25	●	
43042300	23,0	212	136	25	●	
43042350	23,5	212	136	25	●	
43042400	24,0	220	140	32	●	
43042450	24,5	220	140	32	●	
43042500	25,0	220	140	32	●	
43042550	25,5	225	145	32	●	
43042600	26,0	225	145	32	●	
43042650	26,5	225	145	32	●	
43042700	27,0	230	150	32	●	
43042800	28,0	230	150	32	●	
43042900	29,0	235	155	32	●	
43043000	30,0	235	155	32	●	
43043100	31,0	240	160	32	●	
43043200	32,0	245	165	32	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	◎	◎	◎	◎				◎

SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
○	○	○	○	○	◎	○	○	○

● Delivery from stock
○ Available on short notice

HSS-Co

GO TO LIVE STOCK CHECK



HIGH PERFORMANCE
- HSS extra long drill.

Non step drilling
10 D, 15 D, 20 D

Without internal coolant

HIGH PERFORMANCE
- HSS extra lange Bohrer

Ohne Step
10 D, 15 D, 20 D

Ohne innerer Kühlmittelzuführ

ALTA PRESTAZIONE
- HSS Punte extra lunga

Foratura continua
10 D, 15 D, 20 D

senza fori di lubrificazione

HAUTE PERFORMANCE
- Foret HSSE revêtu extra long.

Forage en continu
10 D, 15 D, 20 D

sans arrosage central

HIGH PERFORMANCE
- HSS ekstra lang
.

Uden udspåning i
10 D, 15 D, 20 D

Uden kølekanaler

HIGH PERFORMANCE
- HSS extra långa borr

Step fri borrning
10D, 15D, 20D

utan Kylkanaler

ALTAS PRESTACIONES
- Broca HSS extra larga.

Taladrado ininterrumpido
10 D, 15 D, 20 D

sin agujeros de refrigeración

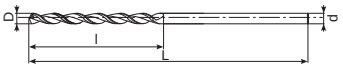
Высокая производительность
- Сверхдлинное сверло из быстрорежущей стали

Непрерывное сверление глубиной
10 D, 15 D, 20 D

Без внутреннего охлаждения



HSS-Co | WXL | 40° | h7 | 120° | h8 | R D ≥ 3 | X D < 3 | min⁻¹ C.106



10 XD

EDP	D	L	l	d	Stock	Price
8622816	1,6	75	26	1,6	●	
8622818	1,8	75	26	1,8	●	
8622820	2,0	75	26	2,0	●	
8622821	2,1	75	33	2,1	●	
8622822	2,2	75	33	2,2	●	
8622823	2,3	75	33	2,3	●	
8622824	2,4	75	33	2,4	●	
8622825	2,5	75	33	2,5	●	
8622826	2,6	90	40	2,6	●	
8622827	2,7	90	40	2,7	●	
8622828	2,8	90	40	2,8	●	
8622829	2,9	90	40	2,9	●	
8622830	3,0	90	40	3,0	●	
8622831	3,1	100	45	3,1	●	
8622832	3,2	100	45	3,2	●	
8622833	3,3	100	45	3,3	●	
8622834	3,4	100	50	3,4	●	
8622835	3,5	100	50	3,5	●	
8622836	3,6	100	50	3,6	●	
8622837	3,7	100	50	3,7	●	
8622838	3,8	100	50	3,8	●	
8622839	3,9	100	50	3,9	●	
8622840	4,0	100	50	4,0	●	
8622841	4,1	115	55	4,1	●	
8622842	4,2	115	55	4,2	●	
8622843	4,3	115	60	4,3	●	
8622844	4,4	115	60	4,4	●	
8622845	4,5	115	60	4,5	●	
8622846	4,6	115	60	4,6	●	
8622847	4,7	115	60	4,7	●	
8622848	4,8	115	65	4,8	●	
8622849	4,9	115	65	4,9	●	
8622850	5,0	115	65	5,0	●	
8622851	5,1	128	70	5,1	●	
8622852	5,2	128	70	5,2	●	
8622853	5,3	128	70	5,3	●	
8622854	5,4	128	78	5,4	●	
8622855	5,5	128	78	5,5	●	
8622856	5,6	128	78	5,6	●	
8622857	5,7	128	78	5,7	●	
8622858	5,8	128	78	5,8	●	
8622859	5,9	128	78	5,9	●	
8622860	6,0	128	78	6,0	●	
8622861	6,1	140	78	6,1	●	
8622862	6,2	140	87	6,2	●	
8622863	6,3	140	87	6,3	●	
8622864	6,4	140	87	6,4	●	
8622865	6,5	140	87	6,5	●	
8622866	6,6	140	87	6,6	●	
8622867	6,7	140	87	6,7	●	
8622868	6,8	140	90	6,8	●	
8622869	6,9	140	90	6,9	●	

10 XD

EDP	D	L	l	d	Stock	Price
8622870	7,0	140	90	7,0	●	
8622871	7,1	155	100	7,1	●	
8622872	7,2	155	100	7,2	●	
8622873	7,3	155	100	7,3	●	
8622874	7,4	155	100	7,4	●	
8622875	7,5	155	100	7,5	●	
8622876	7,6	155	105	7,6	●	
8622877	7,7	155	105	7,7	●	
8622878	7,8	155	105	7,8	●	
8622879	7,9	155	105	7,9	●	
8622880	8,0	155	105	8,0	●	
8622881	8,1	165	110	8,1	●	
8622882	8,2	165	110	8,2	●	
8622883	8,3	165	110	8,3	●	
8622884	8,4	165	110	8,4	●	
8622885	8,5	165	110	8,5	●	
8622886	8,6	165	115	8,6	●	
8622887	8,7	165	115	8,7	●	
8622888	8,8	165	115	8,8	●	
8622889	8,9	165	115	8,9	●	
8622890	9,0	165	115	9,0	●	
8622891	9,1	190	125	9,1	●	
8622892	9,2	190	125	9,2	●	
8622893	9,3	190	125	9,3	●	
8622894	9,4	190	125	9,4	●	
8622895	9,5	190	125	9,5	●	
8622896	9,6	190	130	9,6	●	
8622897	9,7	190	130	9,7	●	
8622898	9,8	190	130	9,8	●	
8622899	9,9	190	130	9,9	●	
8622900	10,0	190	130	10,0	●	
8622901	10,1	205	140	10,1	●	
8622902	10,2	205	140	10,2	●	
8622903	10,3	205	140	10,3	●	
8622904	10,4	205	140	10,4	●	
8622905	10,5	205	140	10,5	●	
8622906	10,6	205	145	10,6	●	
8622907	10,7	205	145	10,7	●	
8622908	10,8	205	145	10,8	●	
8622909	10,9	205	145	10,9	●	
8622910	11,0	205	145	11,0	●	
8622911	11,1	215	155	11,1	●	
8622912	11,2	215	155	11,2	●	
8622913	11,3	215	155	11,3	●	
8622914	11,4	215	155	11,4	●	
8622915	11,5	215	155	11,5	●	
8622916	11,6	215	155	11,6	●	
8622917	11,7	215	155	11,7	●	
8622918	11,8	215	155	11,8	●	
8622919	11,9	215	155	11,9	●	
8622920	12,0	215	155	12,0	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
○	◎	◎	◎					

SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
	◎	◎			◎			



HIGH PERFORMANCE
- HSS extra long drill.

Non step drilling
10 D, 15 D, 20 D

Without internal coolant

HIGH PERFORMANCE
- HSS extra lange Bohrer

Ohne Step
10 D, 15 D, 20 D

Ohne innerer Kühlmittelzuführ

ALTA PRESTAZIONE
- HSS Punte extra lunga

Foratura continua
10 D, 15 D, 20 D

senza fori di lubrificazione

HAUTE PERFORMANCE
- Foret HSSE revêtu extra long.

Forage en continu
10 D, 15 D, 20 D

sans arrosage central

HIGH PERFORMANCE
- HSS ekstra lang
.

Uden udspåning i
10 D, 15 D, 20 D

Uden kølekanaler

HIGH PERFORMANCE
- HSS extra långa borr

Step fri borrning
10D, 15D, 20D

utan Kylkanaler

ALTAS PRESTACIONES
- Broca HSS extra larga.

Taladrado ininterrumpido
10 D, 15 D, 20 D

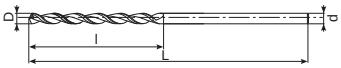
sin agujeros de refrigeración

Высокая производительность
- Сверхдлинное сверло из быстрорежущей стали

Непрерывное сверление глубиной
10 D, 15 D, 20 D

Без внутреннего охлаждения





	EDP	D	L	l	d	Stock	Price
15 XD	8623016	1,6	70	30	1,6	●	
	8623018	1,8	75	34	1,8	●	
	8623020	2,0	80	36	2,0	●	
	8623021	2,1	80	38	2,1	●	
	8623022	2,2	80	40	2,2	●	
	8623023	2,3	85	42	2,3	●	
	8623024	2,4	85	44	2,4	●	
	8623025	2,5	85	46	2,5	●	
	8623026	2,6	100	48	2,6	●	
	8623027	2,7	100	50	2,7	●	
	8623028	2,8	100	50	2,8	●	
	8623029	2,9	105	54	2,9	●	
	8623030	3,0	105	54	3,0	●	
	8623031	3,1	110	56	3,1	●	
	8623032	3,2	110	58	3,2	●	
	8623033	3,3	110	60	3,3	●	
	8623034	3,4	115	62	3,4	●	
	8623035	3,5	115	64	3,5	●	
	8623036	3,6	115	66	3,6	●	
	8623037	3,7	120	68	3,7	●	
	8623038	3,8	120	70	3,8	●	
	8623039	3,9	120	70	3,9	●	
	8623040	4,0	120	72	4,0	●	
	8623041	4,1	135	74	4,1	●	
	8623042	4,2	135	76	4,2	●	
	8623043	4,3	140	78	4,3	●	
	8623044	4,4	140	80	4,4	●	
	8623045	4,5	140	82	4,5	●	
	8623046	4,6	145	84	4,6	●	
	8623047	4,7	145	86	4,7	●	
	8623048	4,8	145	86	4,8	●	
	8623049	4,9	150	88	4,9	●	
	8623050	5,0	150	90	5,0	●	
	8623051	5,1	150	92	5,1	●	

	EDP	D	L	l	d	Stock	Price
15 XD	8623052	5,2	155	94	5,2	●	
	8623053	5,3	155	96	5,3	●	
	8623054	5,4	155	98	5,4	●	
	8623055	5,5	155	100	5,5	●	
	8623056	5,6	160	102	5,6	●	
	8623057	5,7	165	104	5,7	●	
	8623058	5,8	165	106	5,8	●	
	8623060	6,0	170	108	6,0	●	
	8623062	6,2	170	112	6,2	●	
	8623063	6,3	175	114	6,3	●	
	8623065	6,5	200	118	6,5	●	
	8623066	6,6	200	120	6,6	●	
	8623068	6,8	200	124	6,8	●	
	8623069	6,9	200	126	6,9	●	
	8623070	7,0	200	126	7,0	●	
	8623071	7,1	200	128	7,1	●	
	8623075	7,5	205	136	7,5	●	
	8623080	8,0	215	144	8,0	●	
	8623081	8,1	215	146	8,1	●	
	8623082	8,2	220	148	8,2	●	
	8623085	8,5	225	154	8,5	●	
	8623086	8,6	225	156	8,6	●	
	8623088	8,8	230	160	8,8	●	
	8623090	9,0	230	162	9,0	●	
	8623093	9,3	240	168	9,3	●	
	8623095	9,5	240	172	9,5	●	
	8623097	9,7	245	176	9,7	●	
	8623098	9,8	245	178	9,8	●	
	8623100	10,0	250	180	10,0	●	
	8623105	10,5	270	190	10,5	●	
	8623110	11,0	280	200	11,0	●	
	8623115	11,5	290	208	11,5	●	
	8623118	11,8	295	214	11,8	●	
	8623120	12,0	300	216	12,0	●	

	EDP	D	L	l	d	Stock	Price
20 XD	8623216	1,6	85	38	1,6	●	
	8623218	1,8	85	42	1,8	●	
	8623220	2,0	85	46	2,0	●	
	8623221	2,1	90	50	2,1	●	
	8623222	2,2	90	52	2,2	●	
	8623223	2,3	95	54	2,3	●	
	8623224	2,4	95	56	2,4	●	
	8623225	2,5	100	58	2,5	●	
	8623226	2,6	110	60	2,6	●	
	8623227	2,7	115	64	2,7	●	
	8623228	2,8	115	66	2,8	●	
	8623229	2,9	120	68	2,9	●	
	8623230	3,0	120	70	3,0	●	
	8623231	3,1	125	72	3,1	●	
	8623232	3,2	125	74	3,2	●	
	8623233	3,3	125	76	3,3	●	
	8623234	3,4	130	80	3,4	●	
	8623235	3,5	130	82	3,5	●	
	8623237	3,7	135	86	3,7	●	
	8623238	3,8	140	88	3,8	●	
	8623240	4,0	140	92	4,0	●	
	8623241	4,1	155	96	4,1	●	
	8623242	4,2	155	98	4,2	●	
	8623243	4,3	160	100	4,3	●	

	EDP	D	L	l	d	Stock	Price
20 XD	8623245	4,5	165	104	4,5	●	
	8623246	4,6	165	106	4,6	●	
	8623248	4,8	170	112	4,8	●	
	8623250	5,0	175	116	5,0	●	
	8623251	5,1	180	118	5,1	●	
	8623252	5,2	180	120	5,2	●	
	8623255	5,5	185	128	5,5	●	
	8623257	5,7	190	132	5,7	●	
	8623258	5,8	200	134	5,8	●	
	8623260	6,0	200	138	6,0	●	
	8623263	6,3	200	146	6,3	●	
	8623265	6,5	225	150	6,5	●	
	8623268	6,8	225	158	6,8	●	
	8623269	6,9	230	160	6,9	●	
	8623270	7,0	230	162	7,0	●	
	8623275	7,5	245	174	7,5	●	
	8623280	8,0	255	184	8,0	●	
	8623281	8,1	255	188	8,1	●	
	8623282	8,2	260	190	8,2	●	
	8623285	8,5	265	196	8,5	●	
	8623290	9,0	275	208	9,0	●	
	8623300	10,0	300	230	10,0	●	
	8623310	11,0	350	254	11,0	●	
	8623320	12,0	350	276	12,0	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
○	◎	◎	◎					
SKD	**GG**	**GGG**	**Cu**	**Al**	**AC**	**Ti**	**Tiall**	**Inc**
	◎	◎			◎			

● Delivery from stock
○ Available on short notice

EX-GDXL

HSS-Co

HSS-Co



HIGH PERFORMANCE

HSS extra long drill for general applications

HIGH PERFORMANCE

Extra langer Bohrer, für allgemeine Anwendungen

ALTA PRESTAZIONE

Extra lungo per applicazioni generali

HAUTE PERFORMANCE

Extra long, pour applications universelles

HIGH PERFORMANCE

HSS ekstra lang, generelt brug

HIGH PERFORMANCE

Extra långa borr, allround

ALTAS PRESTACIONES

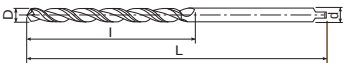
Broca extra-larga para aplicaciones generales

Высокая производительность

Особо длинное, общего назначения







EDP	D	L	l	d	Stock	Price
8590520	2,0	100	40	2,0	○	
8591020	2,0	100	50	2,0	○	
8590521	2,1	100	40	2,1	○	
8591021	2,1	100	50	2,1	○	
8590522	2,2	100	40	2,2	○	
8591022	2,2	100	50	2,2	○	
8590523	2,3	100	40	2,3	○	
8591023	2,3	100	50	2,3	○	
8590524	2,4	100	40	2,4	○	
8591024	2,4	100	50	2,4	○	
8591025	2,5	100	50	2,5	○	
8591026	2,6	100	50	2,6	○	
8591027	2,7	100	50	2,7	○	
8591028	2,8	100	50	2,8	○	
8591029	2,9	100	50	2,9	○	
8591030	3,0	100	55	3,0	○	
8591530	3,0	150	75	3,0	○	
8592030	3,0	200	100	3,0	○	
8591031	3,1	100	55	3,1	○	
8591531	3,1	150	75	3,1	○	
8592031	3,1	200	100	3,1	○	
8591032	3,2	100	55	3,2	○	
8591532	3,2	150	75	3,2	○	
8592032	3,2	200	100	3,2	○	
8591033	3,3	100	55	3,3	○	
8591533	3,3	150	75	3,3	○	
8592033	3,3	200	100	3,3	○	
8591034	3,4	100	55	3,4	○	
8591534	3,4	150	75	3,4	○	
8592034	3,4	200	100	3,4	○	
8591035	3,5	100	55	3,5	○	
8591535	3,5	150	75	3,5	○	
8592035	3,5	200	100	3,5	○	
8591036	3,6	100	55	3,6	○	
8591536	3,6	150	75	3,6	○	
8592036	3,6	200	100	3,6	○	
8591037	3,7	100	55	3,7	○	
8591537	3,7	150	75	3,7	○	
8592037	3,7	200	100	3,7	○	
8591038	3,8	100	55	3,8	○	
8591538	3,8	150	75	3,8	○	
8592038	3,8	200	100	3,8	○	
8591039	3,9	100	55	3,9	○	
8591539	3,9	150	75	3,9	○	
8592039	3,9	200	100	3,9	○	
8591040	4,0	100	60	4,0	○	
8591540	4,0	150	80	4,0	○	
8592040	4,0	200	100	4,0	○	
8591041	4,1	100	60	4,1	○	
8591541	4,1	150	80	4,1	○	
8592041	4,1	200	100	4,1	○	
8591042	4,2	100	60	4,2	○	

EDP	D	L	l	d	Stock	Price
8591542	4,2	150	80	4,2	○	
8592042	4,2	200	100	4,2	○	
8591043	4,3	100	60	4,3	○	
8591543	4,3	150	80	4,3	○	
8592043	4,3	200	100	4,3	○	
8591044	4,4	100	60	4,4	○	
8591544	4,4	150	80	4,4	○	
8592044	4,4	200	100	4,4	○	
8591045	4,5	100	60	4,5	○	
8591545	4,5	150	80	4,5	○	
8592045	4,5	200	100	4,5	○	
8591046	4,6	100	60	4,6	○	
8591546	4,6	150	80	4,6	○	
8592046	4,6	200	100	4,6	○	
8591547	4,7	150	80	4,7	○	
8592047	4,7	200	100	4,7	○	
8591548	4,8	150	80	4,8	○	
8592048	4,8	200	100	4,8	○	
8591549	4,9	150	80	4,9	○	
8592049	4,9	200	100	4,9	○	
8591550	5,0	150	85	5,0	○	
8592050	5,0	200	105	5,0	○	
8592550	5,0	250	130	5,0	○	
8604050	5,0	250	160	5,0	○	
8591551	5,1	150	85	5,1	○	
8592051	5,1	200	105	5,1	○	
8604051	5,1	250	160	5,1	○	
8591552	5,2	150	85	5,2	○	
8592052	5,2	200	105	5,2	○	
8604052	5,2	250	160	5,2	○	
8591553	5,3	150	85	5,3	○	
8592053	5,3	200	105	5,3	○	
8604053	5,3	250	160	5,3	○	
8591554	5,4	150	85	5,4	○	
8592054	5,4	200	105	5,4	○	
8604054	5,4	250	160	5,4	○	
8591555	5,5	150	85	5,5	○	
8592055	5,5	200	105	5,5	○	
8604055	5,5	250	160	5,5	○	
8591556	5,6	150	85	5,6	○	
8592056	5,6	200	105	5,6	○	
8604056	5,6	250	160	5,6	○	
8591557	5,7	150	85	5,7	○	
8592057	5,7	200	105	5,7	○	
8604057	5,7	250	160	5,7	○	
8591558	5,8	150	85	5,8	○	
8592058	5,8	200	105	5,8	○	
8604058	5,8	250	160	5,8	○	
8591559	5,9	150	85	5,9	○	
8592059	5,9	200	105	5,9	○	
8604059	5,9	250	160	5,9	○	
8591560	6,0	150	90	6,0	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
○	◎	◎	◎	○				
SKD	**GG**	**GGG**	**Cu**	**Al**	**AC**	**Ti**	**Tiall**	**Inc**
	◎	◎			○			

EX-GDXL



HIGH PERFORMANCE
HSS extra long drill for general applications

HIGH PERFORMANCE
Extra langer Bohrer, für allgemeine Anwendungen

ALTA PRESTAZIONE
Extra lungo per applicazioni generali

HAUTE PERFORMANCE
Extra long, pour applications universelles

HIGH PERFORMANCE
HSS ekstra lang, generelt brug

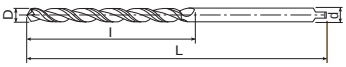
HIGH PERFORMANCE
Extra långa borr, allround

ALTAS PRESTACIONES
Broca extra-larga para aplicaciones generales

Высокая производительность
Особо длинное, общего назначения







EDP	D	L	l	d	Stock	Price
8592060	6,0	200	110	6,0	○	
8604060	6,0	250	160	6,0	○	
8604260	6,0	300	200	6,0	○	
8591561	6,1	150	90	6,1	○	
8592061	6,1	200	110	6,1	○	
8604061	6,1	250	160	6,1	○	
8604261	6,1	300	200	6,1	○	
8591562	6,2	150	90	6,2	○	
8592062	6,2	200	110	6,2	○	
8604062	6,2	250	160	6,2	○	
8604262	6,2	300	200	6,2	○	
8591563	6,3	150	90	6,3	○	
8592063	6,3	200	110	6,3	○	
8604063	6,3	250	160	6,3	○	
8604263	6,3	300	200	6,3	○	
8591564	6,4	150	90	6,4	○	
8592064	6,4	200	110	6,4	○	
8604064	6,4	250	160	6,4	○	
8604264	6,4	300	200	6,4	○	
8591565	6,5	150	90	6,5	○	
8592065	6,5	200	110	6,5	○	
8604065	6,5	250	160	6,5	○	
8604265	6,5	300	200	6,5	○	
8591566	6,6	150	90	6,6	○	
8592066	6,6	200	110	6,6	○	
8604066	6,6	250	160	6,6	○	
8604266	6,6	300	200	6,6	○	
8591567	6,7	150	90	6,7	○	
8592067	6,7	200	110	6,7	○	
8604067	6,7	250	160	6,7	○	
8604267	6,7	300	200	6,7	○	
8591568	6,8	150	90	6,8	○	
8592068	6,8	200	110	6,8	○	
8604068	6,8	250	160	6,8	○	
8604268	6,8	300	200	6,8	○	
8591569	6,9	150	90	6,9	○	
8592069	6,9	200	110	6,9	○	
8604069	6,9	250	160	6,9	○	
8604269	6,9	300	200	6,9	○	
8591570	7,0	150	90	7,0	○	
8592070	7,0	200	110	7,0	○	
8604070	7,0	250	160	7,0	○	
8604270	7,0	300	200	7,0	○	
8591571	7,1	150	90	7,1	○	
8592071	7,1	200	110	7,1	○	
8604071	7,1	250	160	7,1	○	
8604271	7,1	300	200	7,1	○	
8591572	7,2	150	90	7,2	○	
8592072	7,2	200	110	7,2	○	
8604072	7,2	250	160	7,2	○	
8604272	7,2	300	200	7,2	○	
8591573	7,3	150	90	7,3	○	

EDP	D	L	l	d	Stock	Price
8592073	7,3	200	110	7,3	○	
8604073	7,3	250	160	7,3	○	
8604273	7,3	300	200	7,3	○	
8591574	7,4	150	90	7,4	○	
8592074	7,4	200	110	7,4	○	
8604074	7,4	250	160	7,4	○	
8604274	7,4	300	200	7,4	○	
8591575	7,5	150	90	7,5	○	
8592075	7,5	200	110	7,5	○	
8604075	7,5	250	160	7,5	○	
8604275	7,5	300	200	7,5	○	
8592076	7,6	200	110	7,6	○	
8604076	7,6	250	160	7,6	○	
8604276	7,6	300	200	7,6	○	
8592077	7,7	200	110	7,7	○	
8604077	7,7	250	160	7,7	○	
8604277	7,7	300	200	7,7	○	
8592078	7,8	200	110	7,8	○	
8604078	7,8	250	160	7,8	○	
8604278	7,8	300	200	7,8	○	
8592079	7,9	200	110	7,9	○	
8604079	7,9	250	160	7,9	○	
8604279	7,9	300	200	7,9	○	
8592080	8,0	200	110	8,0	○	
8604080	8,0	250	160	8,0	○	
8604280	8,0	300	200	8,0	○	
8592081	8,1	200	115	8,1	○	
8604081	8,1	250	160	8,1	○	
8604281	8,1	300	200	8,1	○	
8592082	8,2	200	115	8,2	○	
8604082	8,2	250	160	8,2	○	
8604282	8,2	300	200	8,2	○	
8592083	8,3	200	115	8,3	○	
8604083	8,3	250	160	8,3	○	
8604283	8,3	300	200	8,3	○	
8592084	8,4	200	115	8,4	○	
8604084	8,4	250	160	8,4	○	
8604284	8,4	300	200	8,4	○	
8592085	8,5	200	115	8,5	○	
8604085	8,5	250	160	8,5	○	
8604285	8,5	300	200	8,5	○	
8592086	8,6	200	115	8,6	○	
8604086	8,6	250	160	8,6	○	
8604286	8,6	300	200	8,6	○	
8592087	8,7	200	115	8,7	○	
8604087	8,7	250	160	8,7	○	
8604287	8,7	300	200	8,7	○	
8592088	8,8	200	115	8,8	○	
8604088	8,8	250	160	8,8	○	
8604288	8,8	300	200	8,8	○	
8592089	8,9	200	115	8,9	○	
8604089	8,9	250	160	8,9	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
○	◎	◎	◎	○				
SKD	**GG**	**GGG**	**Cu**	**Al**	**AC**	**Ti**	**Tiall**	**Inc**
	◎	◎			○			

● Delivery from stock
○ Available on short notice

EX-GDXL

HSS-Co



HIGH PERFORMANCE

HSS extra long drill for general applications

HIGH PERFORMANCE

Extra langer Bohrer, für allgemeine Anwendungen

ALTA PRESTAZIONE

Extra lungo per applicazioni generali

HAUTE PERFORMANCE

Extra long, pour applications universelles

HIGH PERFORMANCE

HSS ekstra lang, generelt brug

HIGH PERFORMANCE

Extra långa borr, allround

ALTAS PRESTACIONES

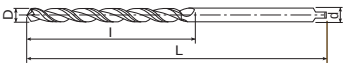
Broca extra-larga para aplicaciones generales

Высокая производительность

Особо длинное, общего назначения







GO TO LIVE STOCK CHECK

EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
8604289	8,9	300	200	8,9	○		8592107	10,7	200	120	10,7	○	
8592090	9,0	200	115	9,0	○		8604107	10,7	250	160	10,7	○	
8604090	9,0	250	160	9,0	○		8604307	10,7	300	200	10,7	○	
8604290	9,0	300	200	9,0	○		8592108	10,8	200	120	10,8	○	
8592091	9,1	200	115	9,1	○		8604108	10,8	250	160	10,8	○	
8604091	9,1	250	160	9,1	○		8604308	10,8	300	200	10,8	○	
8604291	9,1	300	200	9,1	○		8592109	10,9	200	120	10,9	○	
8592092	9,2	200	115	9,2	○		8604109	10,9	250	160	10,9	○	
8604092	9,2	250	160	9,2	○		8604309	10,9	300	200	10,9	○	
8604292	9,2	300	200	9,2	○		8592110	11,0	200	120	11,0	○	
8592093	9,3	200	115	9,3	○		8604110	11,0	250	160	11,0	○	
8604093	9,3	250	160	9,3	○		8604310	11,0	300	200	11,0	○	
8604293	9,3	300	200	9,3	○		8592111	11,1	200	120	11,1	○	
8592094	9,4	200	115	9,4	○		8604111	11,1	250	160	11,1	○	
8604094	9,4	250	160	9,4	○		8604311	11,1	300	200	11,1	○	
8604294	9,4	300	200	9,4	○		8592112	11,2	200	120	11,2	○	
8592095	9,5	200	115	9,5	○		8604112	11,2	250	160	11,2	○	
8604095	9,5	250	160	9,5	○		8604312	11,2	300	200	11,2	○	
8604295	9,5	300	200	9,5	○		8592113	11,3	200	120	11,3	○	
8592096	9,6	200	115	9,6	○		8604113	11,3	250	160	11,3	○	
8604096	9,6	250	160	9,6	○		8604313	11,3	300	200	11,3	○	
8604296	9,6	300	200	9,6	○		8592114	11,4	200	120	11,4	○	
8592097	9,7	200	115	9,7	○		8604114	11,4	250	160	11,4	○	
8604097	9,7	250	160	9,7	○		8604314	11,4	300	200	11,4	○	
8604297	9,7	300	200	9,7	○		8592115	11,5	200	120	11,5	○	
8592098	9,8	200	115	9,8	○		8604115	11,5	250	160	11,5	○	
8604098	9,8	250	160	9,8	○		8604315	11,5	300	200	11,5	○	
8604298	9,8	300	200	9,8	○		8592116	11,6	200	120	11,6	○	
8592099	9,9	200	115	9,9	○		8604116	11,6	250	160	11,6	○	
8604099	9,9	250	160	9,9	○		8604316	11,6	300	200	11,6	○	
8604299	9,9	300	200	9,9	○		8592117	11,7	200	120	11,7	○	
8592100	10,0	200	120	10,0	○		8604117	11,7	250	160	11,7	○	
8604100	10,0	250	160	10,0	○		8604317	11,7	300	200	11,7	○	
8604300	10,0	300	200	10,0	○		8592118	11,8	200	120	11,8	○	
8592101	10,1	200	120	10,1	○		8604118	11,8	250	160	11,8	○	
8604101	10,1	250	160	10,1	○		8604318	11,8	300	200	11,8	○	
8604301	10,1	300	200	10,1	○		8592119	11,9	200	120	11,9	○	
8592102	10,2	200	120	10,2	○		8604119	11,9	250	160	11,9	○	
8604102	10,2	250	160	10,2	○		8604319	11,9	300	200	11,9	○	
8604302	10,2	300	200	10,2	○		8592120	12,0	200	120	12,0	○	
8592103	10,3	200	120	10,3	○		8604120	12,0	250	160	12,0	○	
8604103	10,3	250	160	10,3	○		8604320	12,0	300	200	12,0	○	
8604303	10,3	300	200	10,3	○		8592121	12,1	200	120	12,1	○	
8592104	10,4	200	120	10,4	○		8604121	12,1	250	160	12,1	○	
8604104	10,4	250	160	10,4	○		8604321	12,1	300	200	12,1	○	
8604304	10,4	300	200	10,4	○		8592122	12,2	200	120	12,2	○	
8592105	10,5	200	120	10,5	○		8604122	12,2	250	160	12,2	○	
8604105	10,5	250	160	10,5	○		8604322	12,2	300	200	12,2	○	
8604305	10,5	300	200	10,5	○		8592123	12,3	200	120	12,3	○	
8592106	10,6	200	120	10,6	○		8604123	12,3	250	160	12,3	○	
8604106	10,6	250	160	10,6	○		8604323	12,3	300	200	12,3	○	
8604306	10,6	300	200	10,6	○		8592124	12,4	200	120	12,4	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
○	◎	◎	◎	○				
SKD	**GG**	**GGG**	**Cu**	**Al**	**AC**	**Ti**	**Tiall**	**Inc**
	◎	◎			○			

HSS-Co

GO TO LIVE STOCK CHECK



HIGH PERFORMANCE
HSS extra long drill for general applications

HIGH PERFORMANCE
Extra langer Bohrer, für allgemeine Anwendungen

ALTA PRESTAZIONE
Extra lungo per applicazioni generali

HAUTE PERFORMANCE
Extra long, pour applications universelles

HIGH PERFORMANCE
HSS ekstra lang, generelt brug

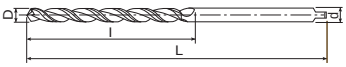
HIGH PERFORMANCE
Extra långa borr, allround

ALTAS PRESTACIONES
Broca extra-larga para aplicaciones generales

Высокая производительность
Особо длинное, общего назначения







EDP	D	L	l	d	Stock	Price
8604124	12,4	250	160	12,4	○	
8604324	12,4	300	200	12,4	○	
8592125	12,5	200	120	12,5	○	
8604125	12,5	250	160	12,5	○	
8604325	12,5	300	200	12,5	○	
8592126	12,6	200	120	12,6	○	
8604126	12,6	250	160	12,6	○	
8604326	12,6	300	200	12,6	○	
8592127	12,7	200	120	12,7	○	
8604127	12,7	250	160	12,7	○	

EDP	D	L	l	d	Stock	Price
8604327	12,7	300	200	12,7	○	
8592128	12,8	200	120	12,8	○	
8604128	12,8	250	160	12,8	○	
8604328	12,8	300	200	12,8	○	
8592129	12,9	200	120	12,9	○	
8604129	12,9	250	160	12,9	○	
8604329	12,9	300	200	12,9	○	
8592130	13,0	200	120	13,0	○	
8604130	13,0	250	160	13,0	○	
8604330	13,0	300	200	13,0	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
○	◎	◎	◎	○				
SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
	◎	◎			○			

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE
- General purpose applications

HIGH PERFORMANCE
- Für allgemeine Bearbeitung

ALTA PRESTAZIONE
- Per applicazioni generali

HAUTE PERFORMANCE
- Pour applications générales

HIGH PERFORMANCE
- Til generelt brug

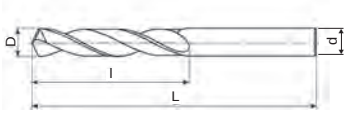
HIGH PERFORMANCE
- Allround bearbetning

ALTAS PRESTACIONES
- Para aplicaciones generales

Высокая производительность
- Общего назначения







EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
8594020	2,0	49	24	2,0	●		8594076	7,6	117	75	7,6	●	
8594021	2,1	49	24	2,1	●		8594077	7,7	117	75	7,7	●	
8594022	2,2	53	27	2,2	●		8594078	7,8	117	75	7,8	●	
8594023	2,3	53	27	2,3	●		8594079	7,9	117	75	7,9	●	
8594024	2,4	57	30	2,4	●		8594080	8,0	117	75	8,0	●	
8594025	2,5	57	30	2,5	●		8594081	8,1	117	75	8,1	●	
8594026	2,6	57	30	2,6	●		8594082	8,2	117	75	8,2	●	
8594027	2,7	61	33	2,7	●		8594083	8,3	117	75	8,3	●	
8594028	2,8	61	33	2,8	●		8594084	8,4	117	75	8,4	●	
8594029	2,9	61	33	2,9	●		8594085	8,5	117	75	8,5	●	
8594030	3,0	61	33	3,0	●		8594086	8,6	125	81	8,6	●	
8594031	3,1	65	36	3,1	●		8594087	8,7	125	81	8,7	●	
8594032	3,2	65	36	3,2	●		8594088	8,8	125	81	8,8	●	
8594033	3,3	65	36	3,3	●		8594089	8,9	125	81	8,9	●	
8594034	3,4	70	39	3,4	●		8594090	9,0	125	81	9,0	●	
8594035	3,5	70	39	3,5	●		8594091	9,1	125	81	9,1	●	
8594036	3,6	70	39	3,6	●		8594092	9,2	125	81	9,2	●	
8594037	3,7	70	39	3,7	●		8594093	9,3	125	81	9,3	●	
8594038	3,8	75	43	3,8	●		8594094	9,4	125	81	9,4	●	
8594039	3,9	75	43	3,9	●		8594095	9,5	125	81	9,5	●	
8594040	4,0	75	43	4,0	●		8594096	9,6	133	87	9,6	●	
8594041	4,1	75	43	4,1	●		8594097	9,7	133	87	9,7	●	
8594042	4,2	75	43	4,2	●		8594098	9,8	133	87	9,8	●	
8594043	4,3	80	47	4,3	●		8594099	9,9	133	87	9,9	●	
8594044	4,4	80	47	4,4	●		8594100	10,0	133	87	10,0	●	
8594045	4,5	80	47	4,5	●		8594101	10,1	133	87	10,1	●	
8594046	4,6	80	47	4,6	●		8594102	10,2	133	87	10,2	●	
8594047	4,7	80	47	4,7	●		8594103	10,3	133	87	10,3	●	
8594048	4,8	86	52	4,8	●		8594104	10,4	133	87	10,4	●	
8594049	4,9	86	52	4,9	●		8594105	10,5	133	87	10,5	●	
8594050	5,0	86	52	5,0	●		8594106	10,6	133	87	10,6	●	
8594051	5,1	86	52	5,1	●		8594107	10,7	142	94	10,7	●	
8594052	5,2	86	52	5,2	●		8594108	10,8	142	94	10,8	●	
8594053	5,3	86	52	5,3	●		8594109	10,9	142	94	10,9	●	
8594054	5,4	93	57	5,4	●		8594110	11,0	142	94	11,0	●	
8594055	5,5	93	57	5,5	●		8594111	11,1	142	94	11,1	●	
8594056	5,6	93	57	5,6	●		8594112	11,2	142	94	11,2	●	
8594057	5,7	93	57	5,7	●		8594113	11,3	142	94	11,3	●	
8594058	5,8	93	57	5,8	●		8594114	11,4	142	94	11,4	●	
8594059	5,9	93	57	5,9	●		8594115	11,5	142	94	11,5	●	
8594060	6,0	93	57	6,0	●		8594116	11,6	142	94	11,6	●	
8594061	6,1	101	63	6,1	●		8594117	11,7	142	94	11,7	●	
8594062	6,2	101	63	6,2	●		8594118	11,8	142	94	11,8	●	
8594063	6,3	101	63	6,3	●		8594119	11,9	151	101	11,9	●	
8594064	6,4	101	63	6,4	●		8594120	12,0	151	101	12,0	●	
8594065	6,5	101	63	6,5	●		8594121	12,1	151	101	12,1	●	
8594066	6,6	101	63	6,6	●		8594122	12,2	151	101	12,2	●	
8594067	6,7	109	63	6,7	●		8594123	12,3	151	101	12,3	●	
8594068	6,8	109	69	6,8	●		8594124	12,4	151	101	12,4	●	
8594069	6,9	109	69	6,9	●		8594125	12,5	151	101	12,5	●	
8594070	7,0	109	69	7,0	●		8594126	12,6	151	101	12,6	●	
8594071	7,1	109	69	7,1	●		8594127	12,7	151	101	12,7	●	
8594072	7,2	109	69	7,2	●		8594128	12,8	151	101	12,8	●	
8594073	7,3	109	69	7,3	●		8594129	12,9	151	101	12,9	●	
8594074	7,4	109	69	7,4	●		8594130	13,0	151	101	13,0	●	
8594075	7,5	109	69	7,5	●								

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	◎	○	◎					

SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
○	○	○		○	○			

ULTRA FX



HIGH PERFORMANCE
- For centering and chamfering

HIGH PERFORMANCE
- Zum Zentrieren und Fräsen

ALTA PRESTAZIONE
- Per centratura e svasatura su centri di lavoro

HAUTE PERFORMANCE
- A centrer et à chanfreiner

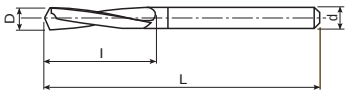
HIGH PERFORMANCE
- Til centrering og rejfning

HIGH PERFORMANCE
- Til centrering och fasning

ALTAS PRESTACIONES
- Para puntear y chaflanar

Высокая производительность
- Для центрования и снятия фасок





EDP	D	L	l	d	Stock	Price
8561503	3	48	9	3	●	
8561504	4	54	12	4	●	
8561506	6	72	15	6	●	
8561508	8	81	20	8	●	
8561510	10	93	24	10	●	

EDP	D	L	l	d	Stock	Price
8561512	12	108	28	12	●	
8561516	16	118	41	16	●	
8561520	20	132	46	20	●	
8561525	25	151	53	25	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

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◎	◎	◎	◎	◎	○			

SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
◎	◎	◎	○		○	○	○	○

● Delivery from stock
○ Available on short notice



■ For centering and chamfering

■ Zum Zentrieren und Fräsen

■ Per centratura e svasatura su centri di lavoro

■ A centrer et à chanfreiner

■ Til centrering og rejfning

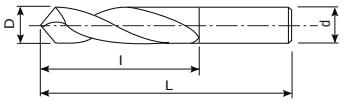
■ Til centrering och fasning

■ Para puntear y chaflanar

■ Для центрования и снятия фасок

HY-PRO

CARBIDE | 20° | h7 | 90° | 120° | 142° | min^{-1} C.107



GO TO LIVE STOCK CHECK
GO TO LIVE STOCK CHECK
GO TO LIVE STOCK CHECK

HYP

HYP

EDP	D	L	l	d	α	Stock	Price
20900300	3	35	8	3	90	●	
20900400	4	40	10	4	90	●	
20900600	6	50	16	6	90	●	
20900800	8	60	23	8	90	●	
20901000	10	70	24	10	90	●	
20901200	12	70	25	12	90	●	
20901600	16	80	30	16	90	●	
20902000	20	100	35	20	90	●	
21200300	3	35	8	3	120	●	
21200400	4	40	10	4	120	●	
21200600	6	50	16	6	120	●	
21200800	8	60	23	8	120	●	

EDP	D	L	l	d	α	Stock	Price
21201000	10	70	24	10	120	●	
21201200	12	70	25	12	120	●	
21201600	16	80	30	16	120	●	
21202000	20	100	35	20	120	●	
21420300	3	35	8	3	142	●	
21420400	4	40	10	4	142	●	
21420600	6	50	16	6	142	●	
21420800	8	60	23	8	142	●	
21421000	10	70	24	10	142	●	
21421200	12	70	25	12	142	●	
21421600	16	80	30	16	142	●	
21422000	20	100	35	20	142	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	◎	◎	◎	◎	○			
SKD	**GG**	**GGG**	**Cu**	**Al**	**AC**	**Ti**	**Tiall**	**Inc**
◎	◎	◎	○		○	○	○	○

(TIN)-NC-LDS

HSS

HSS



■ For centering and chamfering

■ Zum Zentrieren und Fräsen

■ Per centratura e svasatura su centri di lavoro

■ A centrer et à chanfreiner

■ Til centrering og rejfning

■ Til centrering och fasning

■ Para puntear y chaflanar

■ Для центрования и снятия фасок

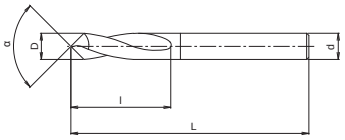
The TIN-NC-LDS with TIN coating increases tool live and allows higher speed.

GO TO LIVE STOCK CHECK

GO TO LIVE STOCK CHECK

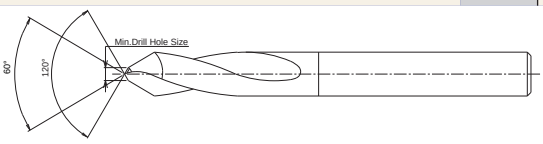




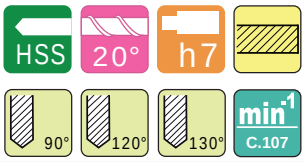


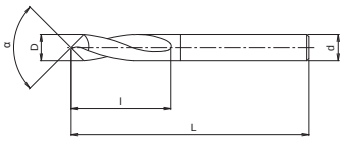
EDP	D	α	L	l	d	Drill hole size	Stock	Price
63703	3	60	48	11	3	1,5	●	
63603	3	90	48	11	3	1,1	●	
63653	3	120	48	11	3	-	●	
63704	4	60	54	15	4	1,7	●	
63604	4	90	54	15	4	1,3	●	
63654	4	120	54	15	4	-	●	
63706	6	60	72	20	6	1,9	●	
63606	6	90	72	20	6	1,5	●	
63656	6	120	72	20	6	-	●	
63708	8	60	81	26	8	1,9	●	
63608	8	90	81	26	8	1,6	●	
63658	8	120	81	26	8	-	●	

EDP	D	α	L	l	d	Drill hole size	Stock	Price
63710	10	60	93	30	10	2,1	●	
63610	10	90	93	30	10	2,1	●	
63660	10	120	93	30	10	-	●	
63712	12	60	108	36	12	2,1	●	
63612	12	90	108	36	12	2,1	●	
63662	12	120	108	36	12	-	●	
63616	16	90	118	41	16	3	●	
63618	20	90	132	53	20	3	●	
63620	25	90	151	60	25	3	●	



The (TIN)-NC-LDS with point angle 60° has a 120° point angle within the minimum drill hole diameter in order to prevent the chisel edges from crashing.





EDP	D	α	L	l	d	Drill hole size	Stock	Price
62903	3	90	48	11	3	1,1	●	
62923	3	120	48	11	3	-	●	
62943	3	130	48	11	3	-	●	
62904	4	90	54	15	4	1,3	●	
62924	4	120	54	15	4	-	●	
62944	4	130	54	15	4	-	●	
62906	6	90	72	20	6	1,5	●	
62926	6	120	72	20	6	-	●	
62946	6	130	72	20	6	-	●	
62908	8	90	81	26	8	1,6	●	
62928	8	120	81	26	8	-	●	
62948	8	130	81	26	8	-	●	
62910	10	90	93	30	10	2,1	●	
62930	10	120	93	30	10	-	●	

EDP	D	α	L	l	d	Drill hole size	Stock	Price
62950	10	130	93	30	10	-	●	
62912	12	90	108	36	12	2,1	●	
62932	12	120	108	36	12	-	●	
62952	12	130	108	36	12	-	●	
62916	16	90	118	41	16	3	●	
62936	16	120	118	41	16	-	●	
62956	16	130	118	41	16	-	●	
62918	20	90	132	53	20	3	●	
62938	20	120	132	53	20	-	●	
62958	20	130	132	53	20	-	●	
62920	25	90	151	60	25	3	●	
62940	25	120	151	60	25	-	●	
62960	25	130	151	60	25	-	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	◎	◎	◎	○				◎
SKD	**GG**	**GGG**	**Cu**	**Al**	**AC**	**Ti**	**Tiall**	**Inc**
◎	◎	◎	◎		◎	◎		

● Delivery from stock
○ Available on short notice

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- Multi-Purpose Centering and Chamfering Tool.
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- Multifunktionsverktyg för centrering, fasning osv.
- Herramienta multi-función para centrar y chaflanar
- Универсальный инструмент для центрования и снятия фасок

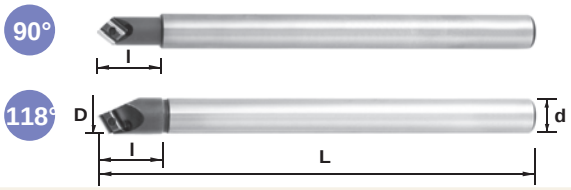
HY-PRO

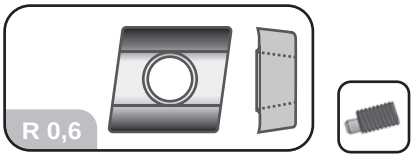
min⁻¹ C.107

Multi-Purpose Centering and chamfering Tool.

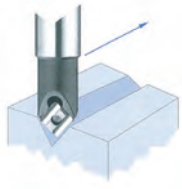
EDP	Point Angle	D	L	l	d		Stock	Price
738015	90°	13,50	110	28	16	1	●	
738025	118°	16,15	110	28	16	1	●	
738055	90°	13,50	200	28	16	1	●	
738065	118°	16,15	200	28	16	1	●	

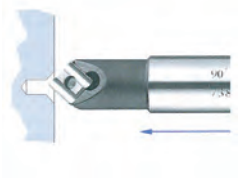
EDP	Type	Application		Stock	Price
73811000	NK1010	Aluminium, Cast Iron	10	●	
73812000	NK2020	Steel	10	●	
73801100	-	L-6 Replacement Screw	1	●	





EDP	Accesoires - Zubehör - Accesori - Accessoires Tilbehør - Tillbehör - Accesorios - Akkcecyapы	Stock	Price
73801600	K-3 Multi Driver for L-6, L-10 screws	●	

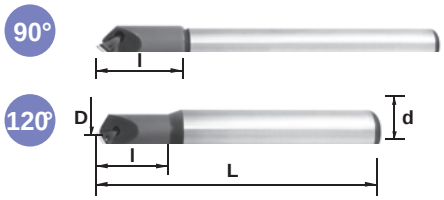


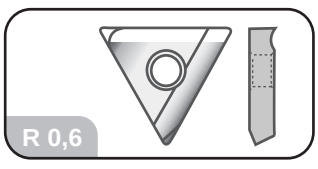




EDP	Point Angle	D	L	l	d		Stock	Price
738095	90°	22,5	130	30	20	1	●	
738096	120°	26,6	130	35	25	1	●	
738097	90°	22,5	200	30	20	1	●	
738098	120°	26,6	200	50	32	1	●	

EDP	Type	Application		Stock	Price
73819000	NK2020	For Steel	10	●	
73819100	NK1010	Cast & Aluminium	10	●	
73819011	NK6060	For Steel TiAlN	10	●	
73819111	NK8080	Cast & Aluminium TiAlN	10	●	
73801200	-	L-10 Replacement Screw	1	●	





EDP	Accesoires - Zubehör - Accesori - Accessoires Tilbehør - Tillbehör - Accesorios - Akkcecyapы		Stock	Price
73801600	K-3 Multi Driver for L-6, L-10 screws	1	●	

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GO TO LIVE STOCK CHECK

GO TO LIVE STOCK CHECK



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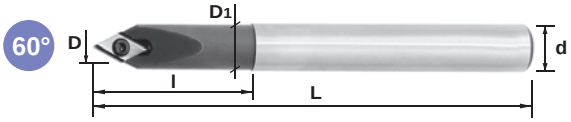
HY-PRO

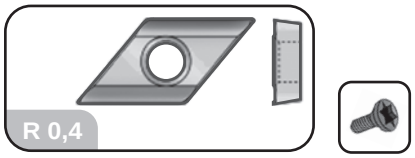
min⁻¹ C.107

Multi-Purpose Centering and chamfering Tool.

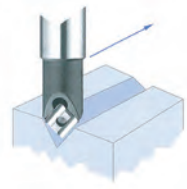
EDP	Angle	D	D1	L	l	d		Stock	Price
738085	60°	12	15	150	55	16	1	●	

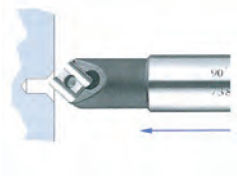
EDP	Type	Application		Stock	Price
73818005	NK1010-60	Aluminium, Cast Iron	10	●	
73801300	-	L-15 Replacement Screw	10	●	





EDP	Accesoires - Zubehör - Accesori - Accessoires Tilbehør - Tillbehör - Accesorios - Akkcecуарыl		Stock	Price
73801700	N-6 Multi Driver for L-15 screw		1	●

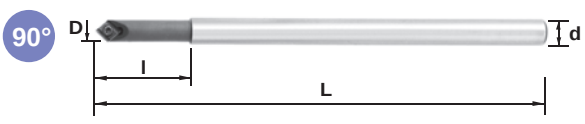


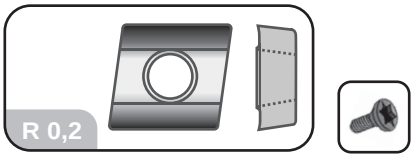




EDP	Point Angle	D	L	l	d		Stock	Price
738031	90°	9	105	33	10	1	●	
738036	90°	9	165	33	10	1	●	

EDP	Type	Application		Stock	Price
73813005	NK5050	Aluminium, Cast iron	10	●	
73801400	-	L-13 Replacement Screw	1	●	





EDP	Accesoires - Zubehör - Accesori - Accessoires Tilbehør - Tillbehør - Accesorios - Akkcecуарыl		Stock	Price
73801500	N-5 Multi Driver for L-13 screw		1	●



- 60° Multi-Purpose Chamfering Tool.
- 60° Vielseitig einsetzbares Faswerkzeug
- 60° Utensile per scanalature, multiuso
- 60° Foret multi-fonction pour chanfreinage
- 60° Universalt platteværktøj til centering og rejfning.
- 60° för fasning
- 60° Herramienta multi-función para chaflanar
- 60° Универсальный инструмент для центрования и снятия фасок

HY-PRO

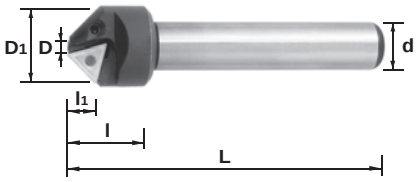
min⁻¹ C.107

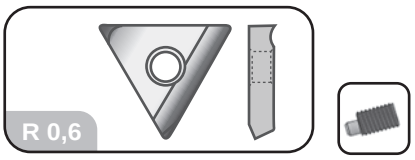
Multi-Purpose Centering and chamfering Tool.

EDP	D	D1	L	l	l1	d		Stock	Price
738075	8	29,4	130	30	10,7	20	1	●	

EDP	Type	Application		Stock	Price
73817000	2001	General Purpose	10	●	
73801100	-	L-6 Replacement Screw	1	●	

90°





EDP	Accesoires - Zubehör - Accesori - Accessoires Tilbehør - Tillbehör - Accesorios - Akkcecyapы		Stock	Price
73801600	K-3 Multi Driver for L-6, L-10 screws		1	●

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение								
C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
◎	◎	○	○	○	○			○
SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inc
○	◎	○		◎	◎			

● Delivery from stock
○ Available on short notice

WX-MS-GDS

	Carbon Steel Ck15 ■ Ck50 ~900 N/mm²		SCM SCM440 ~1060 N/mm²		Special Alloy SUJ2 SUS 440		Kovart FE-NI-CO		Cu C1020 ■ C2600		Al A5052 ■ 7075		AC AC4C ■ ADC	
Vc	20 ~ 80 m/min		20 ~ 56 m/min		20 ~ 36 m/min		20 ~ 45 m/min		20 ~ 45 m/min		32 ~ 80 m/min		32 ~ 63 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
0,2	25.000	0,002	25.000	0,002	25.000	0,002	25.000	0,002	25.000	0,002	25.000	0,004	25.000	0,002
0,3	20.000	0,003	20.000	0,003	20.000	0,003	20.000	0,003	20.000	0,003	20.000	0,007	20.000	0,003
0,5	15.000	0,007	14.000	0,007	13.000	0,007	13.000	0,007	13.000	0,007	15.000	0,015	15.000	0,007
1	12.000	0,02	11.000	0,02	10.000	0,02	6.400	0,01	6.400	0,01	12.000	0,030	12.000	0,010
1,5	10.000	0,02~0,04	8.400	0,02~0,04	6.800	0,03~0,05	4.800	0,012~0,03	4.800	0,012~0,03	10.000	0,03~0,08	10.000	0,12~0,03
2	8.000	0,03~0,05	6.500	0,03~0,05	5.000	0,04~0,06	4.000	0,016~0,04	4.000	0,016~0,04	8.000	0,04~0,01	8.000	0,016~0,04
3	5.500	0,07~0,07	4.500	0,04~0,07	3.400	0,06~0,09	3.000	0,024~0,06	3.000	0,024~0,06	6.500	0,06~0,15	6.500	0,024~0,06
4	4.000	0,06~0,1	3.200	0,06~0,1	2.500	0,08~0,12	2.500	0,03~0,08	2.500	0,03~0,08	5.000	0,08~0,2	5.000	0,03~0,08
5	3.200	0,07~0,12	2.600	0,07~0,12	2.000	0,10~0,15	2.000	0,04~0,10	2.000	0,04~0,10	4.200	0,10~0,25	4.000	0,04~0,1

MRS-GDL

	Martensitic Stainless Steels SUS420J2 SUS440C		Austenitic Stainless Steels SUS303 SUS304 SUS316 SUS316L		Ferritic Stainless Steels SUS430 SUS430F		Precipitation Hardening Stainless Steels SUS630	
Vc	20 ~ 50 m/min		15 ~ 40 m/min		20 ~ 50 m/min		15 ~ 40 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
0,5	12.700 ~ 31.800	0,005 ~ 0,015	9.500 ~ 25.400	0,005 ~ 0,015	12.700 ~ 31.800	0,005 ~ 0,015	9.500 ~ 25.400	0,005 ~ 0,015
1	6.300 ~ 15.900	0,010 ~ 0,030	4.700 ~ 12.700	0,010 ~ 0,030	6.300 ~ 15.900	0,010 ~ 0,030	4.700 ~ 12.700	0,010 ~ 0,030
1,5	4.200 ~ 10.600	0,015 ~ 0,045	3.100 ~ 8.400	0,015 ~ 0,045	4.200 ~ 10.600	0,015 ~ 0,045	3.100 ~ 8.400	0,015 ~ 0,045
2	3.180 ~ 7.900	0,020 ~ 0,060	2.300 ~ 6.300	0,020 ~ 0,060	3.180 ~ 7.900	0,020 ~ 0,060	2.300 ~ 6.300	0,020 ~ 0,060
2,5	2.500 ~ 6.300	0,025 ~ 0,075	1.900 ~ 5.000	0,025 ~ 0,075	2.500 ~ 6.300	0,025 ~ 0,075	1.900 ~ 5.000	0,025 ~ 0,075
3	2.100 ~ 5.300	0,030 ~ 0,090	1.500 ~ 4.200	0,030 ~ 0,090	2.100 ~ 5.300	0,030 ~ 0,090	1.500 ~ 4.200	0,030 ~ 0,090

FS-GDS/FS-GDN

Standard drilling - Standard Bohren - Foratura standard - Perçage standard
Standard boring - Standard borrning -Taladrado estándar - Стандартное сверление

	C≤0,2% (C<0,35%) St40 ■ SCM ~710 N/mm²		C≥0,3% (C≥0,3%) CK50 ~1060 N/mm²		Special Alloy SUJ2		Hardened Steel SKD61 34 ~ 43 HRC		Hardened Steel 43 ~ 48 HRC		Hardened Steel SKD11 48 ~ 53 HRC		GG GG25 ~ 350 N/mm²		GGG GGG40 ~ 500 N/mm²	
Vc	80 ~ 125 m/min		80 ~ 125 m/min		63 ~ 80 m/min		40 ~ 63 m/min		32 ~ 45 m/min		25 ~ 36 m/min		80 ~ 125 m/min		63 ~ 90 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
2	12.000	0,06~0,08	12.000	0,06~0,08	11.000	0,06~0,08	8.000	0,06~0,08	6.000	0,05~0,07	4.500	0,03~0,06	15.000	0,06~0,08	11.000	0,06~0,08
3	9.600	0,09~0,12	9.600	0,09~0,12	7.500	0,09~0,12	5.300	0,09~0,12	4.000	0,07~0,11	3.200	0,05~0,09	10.000	0,09~0,12	7.600	0,09~0,12
4	8.000	0,10~0,15	8.000	0,10~0,15	5.650	0,10~0,15	4.000	0,10~0,15	3.000	0,08~0,13	2.600	0,06~0,10	8.000	0,10~0,15	6.000	0,10~0,15
5	6.400	0,12~0,18	6.400	0,12~0,18	4.550	0,12~0,18	3.300	0,12~0,18	2.400	0,10~0,15	2.000	0,08~0,12	6.400	0,12~0,18	4.800	0,12~0,18
6	5.300	0,14~0,20	5.300	0,14~0,20	3.800	0,14~0,20	2.750	0,14~0,20	2.000	0,12~0,18	1.700	0,09~0,15	5.300	0,14~0,20	4.000	0,14~0,20
8	4.000	0,16~0,24	4.000	0,16~0,24	2.850	0,16~0,24	2.100	0,16~0,24	1.500	0,14~0,22	1.300	0,12~0,20	4.000	0,16~0,24	3.000	0,16~0,24
10	3.200	0,18~0,27	3.200	0,18~0,27	2.250	0,18~0,27	1.700	0,18~0,27	1.200	0,15~0,25	1.000	0,13~0,23	3.200	0,18~0,27	2.400	0,18~0,27
12	2.650	0,20~0,30	2.650	0,20~0,30	1.900	0,20~0,30	1.400	0,20~0,30	1.000	0,17~0,26	850	0,14~0,24	2.700	0,20~0,30	2.000	0,20~0,30
14	2.300	0,22~0,35	2.300	0,22~0,35	1.600	0,22~0,35	1.200	0,22~0,35	860	0,18~0,30	730	0,15~0,26	2.300	0,22~0,35	1.700	0,22~0,35
16	2.000	0,25~0,36	2.000	0,25~0,36	1.400	0,25~0,36	1.050	0,25~0,36	760	0,20~0,32	640	0,16~0,26	2.000	0,25~0,36	1.500	0,25~0,36
18	1.800	0,28~0,38	1.800	0,28~0,38	1.250	0,28~0,38	920	0,28~0,38	670	0,23~0,33	570	0,18~0,28	1.800	0,28~0,38	1.350	0,28~0,38
20	1.600	0,30~0,40	1.600	0,30~0,40	1.150	0,30~0,40	850	0,30~0,40	600	0,25~0,35	500	0,20~0,30	1.600	0,30~0,40	1.200	0,30~0,40

FS-GDS/FS-GDN

High speed drilling - HSC Bohren - Foratura alta velocità - Perçage haute vitesse
High speed boring - High Speed borrning - Taladrado a lata velocidad - Высокоскоростное сверление

	C≤0,2% (C<0,3%) St40 ■ SCM ~710 N/mm²		C≥0,3% CK50 ~1060 N/mm²		Special Alloy 100Cr6		GG GG25 ~ 350 N/mm²		GGG GGG40 ~ 500 N/mm²	
Vc	125 ~ 150 m/min		125 ~ 150 m/min		80 ~ 100 m/min		125 ~ 150 m/min		90 ~ 125 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
2	20.000	0,06~0,08	20.000	0,06~0,08	14.000	0,06~0,08	20.000	0,06~0,08	17.000	0,06~0,08
3	13.000	0,09~0,12	14.000	0,09~0,12	9.500	0,09~0,12	14.000	0,09~0,12	11.000	0,09~0,12
4	10.000	0,10~0,15	10.000	0,10~0,15	7.100	0,10~0,15	11.000	0,10~0,15	8.700	0,10~0,15
5	8.000	0,12~0,18	8.600	0,12~0,18	5.700	0,12~0,18	9.000	0,12~0,18	7.000	0,12~0,18
6	6.650	0,14~0,20	7.200	0,14~0,20	4.700	0,14~0,20	7.500	0,14~0,20	5.800	0,14~0,20
8	5.000	0,16~0,24	5.400	0,16~0,24	3.600	0,16~0,24	5.600	0,16~0,24	4.400	0,16~0,24
10	4.000	0,18~0,27	4.300	0,18~0,27	2.900	0,18~0,27	4.500	0,18~0,27	3.500	0,18~0,27
12	3.300	0,20~0,30	3.600	0,20~0,30	2.400	0,20~0,30	3.800	0,20~0,30	3.000	0,20~0,30
14	2.900	0,22~0,35	3.100	0,22~0,35	2.100	0,22~0,35	3.200	0,22~0,35	2.500	0,22~0,35
16	2.500	0,25~0,36	2.700	0,25~0,36	1.800	0,25~0,36	2.800	0,25~0,36	2.200	0,25~0,36
18	2.200	0,28~0,38	2.400	0,28~0,38	1.600	0,28~0,38	2.500	0,28~0,38	2.000	0,28~0,38
20	2.000	0,30~0,40	2.200	0,30~0,40	1.450	0,30~0,40	2.300	0,30~0,40	1.800	0,30~0,40

FS-GDS/FS-GDN

Dry drilling - Trockenen Bohren - Foratura a seco - Perçage à sec
Til tørbearbejdning - För torrbearbetning -Para taladrado en seco - Для «сухого» сверления



	C≤0,2% (C<0,35%) St40 ■ SCM ~710 N/mm²		C≥0,3% (C≥0,3%) CK50 ~1060 N/mm²		Special Alloy SUJ2		Hardened Steel SKD61 34 ~ 43 HRC		43 ~ 48 HRC		SKD11 48 ~ 53 HRC		GG GG25 ~ 350 N/mm²		GGG GGG40 ~ 500 N/mm²	
Vc	80 ~ 125 m/min		80 ~ 125 m/min		63 ~ 80 m/min		40 ~ 63 m/min		32 ~ 45 m/min		25 ~ 36 m/min		80 ~ 125 m/min		63 ~ 90 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
2	8.000	0,03~0,06	7.000	0,03~0,06	5.000	0,03~0,06	4.450	0,05~0,07	3.500	0,03~0,06	2.850	0,03~0,06	8.000	0,03~0,06	6.350	0,03~0,06
3	5.500	0,05~0,09	5.000	0,05~0,09	3.500	0,05~0,09	3.000	0,07~0,11	2.400	0,05~0,09	1.950	0,05~0,09	5.500	0,05~0,09	4.250	0,05~0,09
4	4.200	0,06~0,10	3.800	0,06~0,10	2.700	0,06~0,10	2.350	0,08~0,13	1.900	0,06~0,10	1.500	0,06~0,10	4.300	0,06~0,10	3.350	0,06~0,10
5	3.450	0,08~0,12	3.100	0,08~0,12	2.200	0,08~0,12	2.000	0,10~0,15	1.600	0,08~0,12	1.250	0,08~0,12	3.450	0,08~0,12	2.800	0,08~0,12
6	3.000	0,09~0,15	2.650	0,09~0,15	1.900	0,09~0,15	1.700	0,12~0,18	1.400	0,09~0,15	1.050	0,09~0,15	2.900	0,09~0,15	2.400	0,09~0,15
8	2.200	0,12~0,20	2.000	0,12~0,20	1.400	0,12~0,20	1.250	0,14~0,22	1.050	0,12~0,20	800	0,12~0,20	2.200	0,12~0,20	1.800	0,12~0,20
10	1.800	0,13~0,23	1.600	0,13~0,23	1.150	0,13~0,23	1.000	0,15~0,25	850	0,13~0,23	650	0,13~0,23	1.750	0,13~0,23	1.450	0,13~0,23
12	1.450	0,14~0,24	1.350	0,14~0,24	950	0,14~0,24	850	0,17~0,26	700	0,14~0,24	550	0,14~0,24	1.450	0,14~0,24	1.200	0,14~0,24
14	1.250	0,15~0,26	1.150	0,15~0,26	800	0,15~0,26	730	0,18~0,30	600	0,15~0,26	460	0,15~0,26	1.250	0,15~0,26	1.000	0,15~0,26
16	1.100	0,16~0,26	1.000	0,16~0,26	700	0,16~0,26	640	0,20~0,32	520	0,16~0,26	400	0,16~0,26	1.100	0,16~0,26	900	0,16~0,26
18	1.000	0,18~0,28	900	0,18~0,28	650	0,18~0,28	570	0,23~0,33	460	0,18~0,28	350	0,18~0,28	970	0,18~0,28	800	0,18~0,28
20	900	0,20~0,30	800	0,20~0,30	570	0,20~0,30	510	0,25~0,35	420	0,20~0,30	320	0,20~0,30	880	0,20~0,30	720	0,20~0,30

FT-GDS/FT-GDN

Standard drilling - Standard Bohren - Foratura standard - Perçage standard
Standard boring - Standard borrning -Taladrado estándar - Стандартное сверление



	C<0,35% (C<0,35%) St40 ■ SCM ~710 N/mm²		C≥0,35% (C≥0,35%) CK50 ~1060 N/mm²		Special Alloy SUJ2		SUS Serie SUS300 Serie SUS400		Hardened Steel SKD61 43 HRC		43 ~ 48 HRC		GG GG25 ~ 350 N/mm²		GGG GGG40 ~ 500 N/mm²	
Vc	63 ~ 100 m/min		63 ~ 100 m/min		50 ~ 71 m/min		25 ~ 40 m/min		40 ~ 63 m/min		32 ~ 45 m/min		63 ~ 100 m/min		50 ~ 80 m/min	
Ø	S (min⁻¹)	F (mm/rev)	S (min⁻¹)	F (mm/rev)	S (min⁻¹)	F (mm/rev)	S (min⁻¹)	F (mm/rev)	S (min⁻¹)	F (mm/rev)	S (min⁻¹)	F (mm/rev)	S (min⁻¹)	F (mm/rev)	S (min⁻¹)	F (mm/rev)
2	11.000	0,06~0,08	11.000	0,06~0,08	9.000	0,06~0,08	4.700	0,06~0,08	7.600	0,06~0,08	6.000	0,06~0,08	12.000	0,06~0,08	10.000	0,06~0,08
3	8.000	0,09~0,12	8.000	0,09~0,12	6.000	0,09~0,12	3.200	0,09~0,12	5.000	0,09~0,12	4.000	0,09~0,12	8.000	0,09~0,12	6.900	0,09~0,12
4	6.300	0,10~0,15	6.300	0,10~0,15	4.750	0,10~0,15	2.400	0,10~0,15	3.800	0,10~0,15	3.000	0,10~0,15	6.300	0,10~0,15	5.200	0,10~0,15
5	5.000	0,12~0,18	5.000	0,12~0,18	3.800	0,12~0,18	1.900	0,12~0,18	3.000	0,12~0,18	2.450	0,12~0,18	5.000	0,12~0,18	4.100	0,12~0,18
6	4.200	0,14~0,20	4.200	0,14~0,20	3.200	0,14~0,20	1.600	0,14~0,20	2.550	0,14~0,20	2.050	0,14~0,20	4.200	0,14~0,20	3.450	0,14~0,20
8	3.200	0,16~0,24	3.200	0,16~0,24	2.400	0,16~0,24	1.200	0,16~0,24	1.900	0,16~0,24	1.550	0,16~0,24	3.200	0,16~0,24	2.600	0,16~0,24
10	2.550	0,18~0,27	2.550	0,18~0,27	1.900	0,18~0,27	950	0,18~0,27	1.550	0,18~0,27	1.250	0,18~0,27	2.600	0,18~0,27	2.100	0,18~0,27
12	2.100	0,20~0,30	2.100	0,20~0,30	1.600	0,20~0,30	800	0,20~0,30	1.300	0,20~0,30	1.050	0,20~0,30	2.200	0,20~0,30	1.750	0,20~0,30
14	1.800	0,22~0,35	1.800	0,22~0,35	1.350	0,22~0,35	700	0,22~0,35	1.100	0,22~0,35	880	0,22~0,35	1.800	0,22~0,35	1.500	0,22~0,35
16	1.600	0,25~0,36	1.600	0,25~0,36	1.200	0,25~0,36	600	0,25~0,36	950	0,25~0,36	770	0,25~0,36	1.600	0,25~0,36	1.300	0,25~0,36
18	1.400	0,28~0,38	1.400	0,28~0,38	1.050	0,28~0,38	530	0,28~0,38	850	0,28~0,38	680	0,28~0,38	1.400	0,28~0,38	1.200	0,28~0,38
20	1.300	0,30~0,40	1.300	0,30~0,40	960	0,30~0,40	480	0,30~0,40	760	0,30~0,40	610	0,30~0,40	1.300	0,30~0,40	1.050	0,30~0,40

WDO-3D/5D



	Carbon Steel S50C		Alloy Steel SCM440		Alloy Steel SCM440 - 30HRC		Cast Iron FC250		Ductile Cast IRON FCD700		Stainless Steels SUS304	
Vc	80 ~ 120 m/min		80 ~ 120 m/min		60 ~ 90 m/min		80 ~ 120 m/min		60 ~ 100 m/min		40 ~ 70 m/min	
Ø	S (min⁻¹)	F (mm/rev)	S (min⁻¹)	F (mm/rev)	S (min⁻¹)	F (mm/rev)	S (min⁻¹)	F (mm/rev)	S (min⁻¹)	F (mm/rev)	S (min⁻¹)	F (mm/rev)
3	10.600	0,06~0,12	10.600	0,06~0,12	7.400	0,06~0,12	10.600	0,06~0,12	8.500	0,06~0,12	6.400	0,06~0,12
4	8.000	0,08~0,16	8.000	0,08~0,16	5.600	0,08~0,16	8.000	0,08~0,16	6.400	0,08~0,16	4.800	0,08~0,16
5	6.400	0,10~0,20	6.400	0,10~0,20	4.500	0,10~0,20	6.400	0,10~0,20	5.100	0,10~0,20	3.800	0,10~0,20
6	5.300	0,12~0,24	5.300	0,12~0,24	3.700	0,12~0,24	5.300	0,12~0,24	4.200	0,12~0,24	3.200	0,12~0,24
7	4.500	0,14~0,26	4.500	0,14~0,26	3.200	0,14~0,26	4.500	0,14~0,26	3.600	0,14~0,26	2.700	0,14~0,26
8	4.000	0,16~0,28	4.000	0,16~0,28	2.800	0,16~0,28	4.000	0,16~0,28	3.200	0,16~0,28	2.400	0,16~0,28
9	3.500	0,18~0,30	3.500	0,18~0,30	2.500	0,18~0,30	3.500	0,18~0,30	2.800	0,18~0,30	2.100	0,18~0,30
10	3.200	0,20~0,30	3.200	0,20~0,30	2.200	0,20~0,30	3.200	0,20~0,30	2.500	0,20~0,30	1.900	0,20~0,30
11	2.900	0,20~0,30	2.900	0,20~0,30	2.000	0,20~0,30	2.900	0,20~0,30	2.300	0,20~0,30	1.700	0,20~0,30
12	2.700	0,21~0,30	2.700	0,21~0,30	1.900	0,21~0,30	2.700	0,21~0,30	2.100	0,21~0,30	1.600	0,21~0,30
13	2.400	0,21~0,33	2.400	0,21~0,33	1.700	0,21~0,33	2.400	0,21~0,33	2.000	0,21~0,33	1.500	0,21~0,33
14	2.300	0,22~0,35	2.300	0,22~0,35	1.600	0,22~0,35	2.300	0,22~0,35	1.800	0,22~0,35	1.400	0,22~0,35
16	2.000	0,25~0,36	2.000	0,25~0,36	1.400	0,25~0,36	2.000	0,25~0,36	1.600	0,25~0,36	1.200	0,25~0,36
18	1.800	0,28~0,38	1.800	0,28~0,38	1.200	0,28~0,38	1.800	0,28~0,38	1.400	0,28~0,38	1.100	0,28~0,38
20	1.600	0,30~0,40	1.600	0,30~0,40	1.100	0,30~0,40	1.600	0,30~0,40	1.300	0,30~0,40	1.000	0,30~0,40

WD-2D/WD-4D

Standard drilling - Standard Bohren - Foratura standard - Perçage standard
Standard boring - Standard borrning -Taladrado estándar - Стандартное сверление



	C<0,35% (C<0,35%) St40 ■ SCM ~710 N/mm²		C≥0,35% (C≥0,35%) CK50 ~1060 N/mm²		Special Alloy SUJ2		SUS Serie SUS300 Serie SUS400		Hardened Steel SKD61 43 HRC		Hardened Steel 43 ~ 48 HRC		GG GG25 ~ 350 N/mm²		GGG GGG40 ~ 500 N/mm²	
Vc	63 ~ 100 m/min		63 ~ 100 m/min		50 ~ 71 m/min		25 ~ 40 m/min		40 ~ 63 m/min		32 ~ 45 m/min		63 ~ 100 m/min		50 ~ 80 m/min	
Ø	S (min⁻¹)	F (mm/rev)	S (min⁻¹)	F (mm/rev)	S (min⁻¹)	F (mm/rev)	S (min⁻¹)	F (mm/rev)	S (min⁻¹)	F (mm/rev)	S (min⁻¹)	F (mm/rev)	S (min⁻¹)	F (mm/rev)	S (min⁻¹)	F (mm/rev)
2	11.000	0,06~0,08	11.000	0,06~0,08	9.000	0,06~0,08	4.700	0,06~0,08	7.600	0,06~0,08	6.000	0,06~0,08	12.000	0,06~0,08	10.000	0,06~0,08
3	8.000	0,09~0,12	8.000	0,09~0,12	6.000	0,09~0,12	3.200	0,09~0,12	5.000	0,09~0,12	4.000	0,09~0,12	8.000	0,09~0,12	6.900	0,09~0,12
4	6.300	0,10~0,15	6.300	0,10~0,15	4.750	0,10~0,15	2.400	0,10~0,15	3.800	0,10~0,15	3.000	0,10~0,15	6.300	0,10~0,15	5.200	0,10~0,15
5	5.000	0,12~0,18	5.000	0,12~0,18	3.800	0,12~0,18	1.900	0,12~0,18	3.000	0,12~0,18	2.450	0,12~0,18	5.000	0,12~0,18	4.100	0,12~0,18
6	4.200	0,14~0,20	4.200	0,14~0,20	3.200	0,14~0,20	1.600	0,14~0,20	2.550	0,14~0,20	2.050	0,14~0,20	4.200	0,14~0,20	3.450	0,14~0,20
8	3.200	0,16~0,24	3.200	0,16~0,24	2.400	0,16~0,24	1.200	0,16~0,24	1.900	0,16~0,24	1.550	0,16~0,24	3.200	0,16~0,24	2.600	0,16~0,24
10	2.550	0,18~0,27	2.550	0,18~0,27	1.900	0,18~0,27	950	0,18~0,27	1.550	0,18~0,27	1.250	0,18~0,27	2.600	0,18~0,27	2.100	0,18~0,27
12	2.100	0,20~0,30	2.100	0,20~0,30	1.600	0,20~0,30	800	0,20~0,30	1.300	0,20~0,30	1.050	0,20~0,30	2.200	0,20~0,30	1.750	0,20~0,30
14	1.800	0,22~0,35	1.800	0,22~0,35	1.350	0,22~0,35	700	0,22~0,35	1.100	0,22~0,35	880	0,22~0,35	1.800	0,22~0,35	1.500	0,22~0,35
16	1.600	0,25~0,36	1.600	0,25~0,36	1.200	0,25~0,36	600	0,25~0,36	950	0,25~0,36	770	0,25~0,36	1.600	0,25~0,36	1.300	0,25~0,36
18	1.400	0,28~0,38	1.400	0,28~0,38	1.050	0,28~0,38	530	0,28~0,38	850	0,28~0,38	680	0,28~0,38	1.400	0,28~0,38	1.200	0,28~0,38
20	1.300	0,30~0,40	1.300	0,30~0,40	960	0,30~0,40	480	0,30~0,40	760	0,30~0,40	610	0,30~0,40	1.300	0,30~0,40	1.050	0,30~0,40

FTO-GDN

Standard drilling - Standard Bohren - Foratura standard - Perçage standard
Standard boring - Standard borrning -Taladrado estándar - Стандартное сверление



	C≤0,2% (C<0,3%) St40 ■ Scr420 ~710 N/mm²		C>0,3% (C≥0,3%) CK50 ■ SCM ~1060 N/mm²		Special Alloy 100Cr6		Hardened Steel SKD61 34 ~ 43 HRC		Hardened Steel 43 ~ 48 HRC		Hardened Steel SKD11 48 ~ 53 HRC	
Vc	80 ~ 150 m/min		80 ~ 150 m/min		63 ~ 100 m/min		40 ~ 70 m/min		32 ~ 50 m/min		25 ~ 40 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
3	12.000	0,09~0,12	13.000	0,09~0,12	7.600	0,09~0,12	6.400	0,09~0,12	5.300	0,07~0,11	3.800	0,05~0,09
4	9.500	0,10~0,15	10.000	0,10~0,15	5.700	0,10~0,15	4.800	0,10~0,15	4.000	0,08~0,13	2.950	0,06~0,10
5	7.600	0,12~0,18	8.000	0,12~0,18	4.600	0,12~0,18	3.800	0,12~0,18	3.200	0,10~0,15	2.300	0,08~0,12
6	6.400	0,14~0,20	6.600	0,14~0,20	3.800	0,14~0,20	3.200	0,14~0,20	2.650	0,12~0,18	1.900	0,09~0,15
8	4.800	0,16~0,24	5.000	0,16~0,24	2.900	0,16~0,24	2.400	0,16~0,24	2.000	0,14~0,22	1.450	0,12~0,20
10	3.800	0,18~0,27	4.000	0,18~0,27	2.300	0,18~0,27	1.900	0,18~0,27	1.600	0,15~0,25	1.150	0,13~0,23
12	3.200	0,20~0,30	3.300	0,20~0,30	1.900	0,20~0,30	1.600	0,20~0,30	1.300	0,17~0,26	950	0,14~0,24
14	2.700	0,22~0,35	2.800	0,22~0,35	1.600	0,22~0,35	1.350	0,22~0,35	1.150	0,18~0,30	800	0,15~0,26
16	2.400	0,25~0,36	2.500	0,25~0,36	1.400	0,25~0,36	1.200	0,25~0,36	1.000	0,20~0,32	700	0,16~0,26
18	2.100	0,28~0,38	2.200	0,28~0,38	1.350	0,28~0,38	1.100	0,28~0,38	900	0,23~0,33	650	0,18~0,28
20	1.900	0,30~0,40	2.000	0,30~0,40	1.150	0,30~0,40	1.000	0,30~0,40	800	0,25~0,35	600	0,20~0,30

FTO-GDN

Standard drilling - Standard Bohren - Foratura standard - Perçage standard
Standard boring - Standard borrning -Taladrado estándar - Стандартное сверление



	Cast Iron GG25 ~350 N/mm²		Ductile Cast Iron GGG40 ~50 N/mm²		Stainless Steels SUS300 ■ SUS400		Aluminium Alloy AC ■ ADC ~13%Si	
Vc	80 ~ 150 m/min		63 ~ 100 m/min		50 ~ 80 m/min		125 ~ 250 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
3	12.000	0,09~0,12	8.500	0,09~0,12	6.300	0,09~0,12	20.000	0,02~0,28
4	9.000	0,10~0,15	6.350	0,10~0,15	4.700	0,10~0,15	15.000	0,24~0,38
5	7.600	0,12~0,18	5.100	0,12~0,18	3.800	0,12~0,18	12.000	0,28~0,40
6	6.400	0,14~0,20	4.250	0,14~0,20	3.200	0,14~0,20	10.000	0,34~0,48
8	4.800	0,16~0,24	3.200	0,16~0,24	2.400	0,16~0,24	8.000	0,38~0,53
10	3.800	0,18~0,27	2.550	0,18~0,27	1.900	0,18~0,27	6.000	0,45~0,63
12	3.200	0,20~0,30	2.100	0,20~0,30	1.600	0,20~0,30	5.000	0,53~0,75
14	2.700	0,22~0,35	1.800	0,22~0,35	1.350	0,22~0,35	4.500	0,57~0,81
16	2.400	0,25~0,36	1.600	0,25~0,36	1.200	0,25~0,36	4.000	0,61~0,85
18	2.100	0,28~0,38	1.400	0,28~0,38	1.050	0,28~0,38	3.500	0,63~0,90
20	1.900	0,30~0,40	1.250	0,30~0,40	950	0,30~0,40	3.200	0,68~0,98

FTO-GDN

High speed drilling - HSC Bohren - Foratura alta velocità - Perçage haute vitesse
High speed boring - High Speed borrning - Taladrado a lata velocidad - Высокоскоростное сверление



	C<0,3% (C<0,3%) St40 ■ Scr420 ~710 N/mm²		C≥0,3% (C≥0,3%) CK50 ■ SCM ~1060 N/mm²		GG GG25 ~350 N/mm²		GGG GGG40 ~500 N/mm²	
Vc	150 ~ 200 m/min		150 ~ 200 m/min		150 ~ 200 m/min		100 ~ 150 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
3	15.000	0,09~0,12	18.000	0,09~0,12	17.000	0,09~0,12	12.000	0,09~0,12
4	12.000	0,10~0,15	13.500	0,10~0,15	12.700	0,10~0,15	9.600	0,10~0,15
5	9.600	0,12~0,18	11.000	0,12~0,18	10.200	0,12~0,18	7.600	0,12~0,18
6	8.000	0,14~0,20	9.300	0,14~0,20	8.500	0,14~0,20	6.400	0,14~0,20
8	6.000	0,16~0,24	7.000	0,16~0,24	6.400	0,16~0,24	4.800	0,16~0,24
10	4.800	0,18~0,27	5.600	0,18~0,27	5.100	0,18~0,27	3.800	0,18~0,27
12	4.000	0,20~0,30	4.600	0,20~0,30	4.200	0,20~0,30	3.200	0,20~0,30
14	3.400	0,22~0,35	4.000	0,22~0,35	3.600	0,22~0,35	2.700	0,22~0,35
16	3.000	0,25~0,36	3.500	0,25~0,36	3.200	0,25~0,36	2.400	0,25~0,36
18	2.700	0,28~0,38	3.100	0,28~0,38	2.800	0,28~0,38	2.100	0,28~0,38
20	2.400	0,30~0,40	2.800	0,30~0,40	2.500	0,30~0,40	1.900	0,30~0,40

TRS-HO-3D/5D

	Mild Steels - Low Carbon Steels SS400 ■ S10C ■ ~150HB ~500 N/mm²		Carbon Steels S35C ■ S50C ■ ~210HB ~710 N/mm²		Alloys Steels SCM ■ SCr ■ SNCM ■ 16~28HRC 710~900 N/mm²	
Vc	80 ~ 120 m/min		80 ~ 120 m/min		60 ~ 90 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
5	6.400	0,18 ~ 0,25	6.400	0,18 ~ 0,25	4.800	0,18 ~ 0,25
6	5.300	0,21 ~ 0,30	5.300	0,21 ~ 0,30	4.000	0,21 ~ 0,30
7	4.500	0,25 ~ 0,35	4.500	0,25 ~ 0,35	3.400	0,25 ~ 0,35
8	4.000	0,28 ~ 0,40	4.000	0,28 ~ 0,40	3.000	0,28 ~ 0,40
9	3.500	0,32 ~ 0,45	3.500	0,32 ~ 0,45	2.700	0,32 ~ 0,45
10	3.200	0,35 ~ 0,50	3.200	0,35 ~ 0,50	2.400	0,35 ~ 0,50
11	2.900	0,39 ~ 0,55	2.900	0,39 ~ 0,55	2.200	0,39 ~ 0,50
12	2.700	0,42 ~ 0,60	2.700	0,42 ~ 0,60	2.000	0,42 ~ 0,54
13	2.400	0,46 ~ 0,65	2.400	0,46 ~ 0,65	1.800	0,46 ~ 0,59
14	2.300	0,49 ~ 0,70	2.300	0,49 ~ 0,70	1.700	0,49 ~ 0,63
16	2.000	0,48 ~ 0,72	2.000	0,48 ~ 0,72	1.500	0,48 ~ 0,64
18	1.800	0,54 ~ 0,81	1.800	0,54 ~ 0,81	1.300	0,54 ~ 0,72

TRS-HO-3D/5D

	Alloys Steels SCM ■ SCr ■ SNCM ■ 28~35HRC 900~1100 N/mm²		Cast Iron FC250 ~350 N/mm²		Ductile Cast Iron FCD450 ■ FCD600 400~600 N/mm²	
Vc	60 ~ 90 m/min		80 ~ 120 m/min		60 ~ 100 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
5	4.800	0,18 ~ 0,25	6.400	0,18 ~ 0,30	5.100	0,18 ~ 0,25
6	4.000	0,21 ~ 0,30	5.300	0,21 ~ 0,36	4.200	0,21 ~ 0,30
7	3.400	0,25 ~ 0,35	4.500	0,25 ~ 0,42	3.600	0,25 ~ 0,35
8	3.000	0,28 ~ 0,40	4.000	0,28 ~ 0,48	3.200	0,28 ~ 0,40
9	2.700	0,32 ~ 0,45	3.500	0,32 ~ 0,54	2.800	0,32 ~ 0,45
10	2.400	0,35 ~ 0,50	3.200	0,35 ~ 0,60	2.500	0,35 ~ 0,50
11	2.200	0,39 ~ 0,50	2.900	0,39 ~ 0,66	2.300	0,39 ~ 0,55
12	2.000	0,42 ~ 0,54	2.700	0,42 ~ 0,72	2.100	0,42 ~ 0,60
13	1.800	0,46 ~ 0,59	2.400	0,46 ~ 0,78	2.000	0,46 ~ 0,65
14	1.700	0,49 ~ 0,63	2.300	0,49 ~ 0,84	1.800	0,49 ~ 0,70
16	1.500	0,48 ~ 0,64	2.000	0,56 ~ 0,80	1.600	0,48 ~ 0,72
18	1.300	0,54 ~ 0,72	1.800	0,63 ~ 0,90	1.400	0,54 ~ 0,81

D-STAD

		
Vc	50 ~ 100 m/min	
Ø	RPM	F (mm/rev.)
4	4.000 ~ 8.000	0,03 ~ 0,05
6	2.600 ~ 5.300	0,04 ~ 0,075
6,35	2.500 ~ 5.000	0,04 ~ 0,075
8	2.000 ~ 4.000	0,05 ~ 0,08

WDO-10D/15D/20D/30D

	Mild Steels Low Carbon Steels SS400 ■ S10C ~ 150HB ~ 500 N/mm²		Carbon Steels S35C ■ S50C ~ 210HB ~ 710 N/mm²		Alloy Steels SCM ■ SCr ■ SNCM 16 ~ 28HRC 710 ~ 900 N/mm²		Cast Iron FC250 ~ 350 N/mm²		Ductile Cast Iron FCD450 FCD600 400 ~ 600 N/mm²		Stainless Steels SUS400 400 ~ 800 N/mm²	
Vc	60 ~ 125 m/min		60 ~ 125 m/min		60 ~ 125 m/min		60 ~ 125 m/min		50 ~ 80 m/min		40 ~ 80 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
3	7.500	0,06 ~ 0,12	7.500	0,06 ~ 0,12	7.500	0,06 ~ 0,12	7.500	0,06 ~ 0,12	7.500	0,06 ~ 0,12	5.300	0,06 ~ 0,12
4	6.400	0,08 ~ 0,16	6.400	0,08 ~ 0,16	6.400	0,08 ~ 0,16	6.400	0,08 ~ 0,16	5.600	0,08 ~ 0,16	5.000	0,08 ~ 0,16
5	5.800	0,10 ~ 0,20	5.800	0,10 ~ 0,20	5.800	0,10 ~ 0,20	5.800	0,10 ~ 0,20	4.500	0,10 ~ 0,20	4.500	0,10 ~ 0,20
6	4.800	0,12 ~ 0,24	4.800	0,12 ~ 0,24	4.800	0,12 ~ 0,24	4.800	0,12 ~ 0,24	3.800	0,12 ~ 0,24	3.800	0,12 ~ 0,24
8	3.600	0,16 ~ 0,28	3.600	0,16 ~ 0,28	3.600	0,16 ~ 0,28	3.600	0,16 ~ 0,28	2.800	0,16 ~ 0,28	2.800	0,16 ~ 0,28
10	2.900	0,20 ~ 0,35	2.900	0,20 ~ 0,35	2.900	0,20 ~ 0,35	2.900	0,20 ~ 0,35	2.300	0,20 ~ 0,35	2.300	0,20 ~ 0,35
12	2.400	0,24 ~ 0,42	2.400	0,24 ~ 0,42	2.400	0,24 ~ 0,42	2.400	0,24 ~ 0,42	1.900	0,24 ~ 0,42	1.900	0,24 ~ 0,42

FTO-GDXL

Standard drilling - Standard Bohren - Foratura standard - Perçage standard
Standard boring - Standard borrning -Taladrado estándar - Стандартное сверление



	Carbon Steel (C≥0,3%) S50C ■ SCM440 710 ~ 1060 N/mm²		GG FC250 250 ~ 350 N/mm²		GGG FCD700 400 ~ 500 N/mm²		SUS SUS300 SUS400		C≤0,3% SCr420 ■ SCM420 ~710 N/mm²	
Vc	63 ~ 125 m/min		63 ~ 125 m/min		60 ~ 80 m/min		50 ~ 80 m/min		63 ~ 125 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
3	7.500	0,06~0,12	7.500	0,06~0,12	7.500	0,06~0,12	5.300	0,06~0,12	7.500	0,06~0,12
4	6.400	0,08~0,16	6.400	0,08~0,16	5.600	0,08~0,16	5.000	0,08~0,16	6.400	0,08~0,16
5	5.800	0,10~0,20	5.800	0,10~0,20	4.500	0,10~0,20	4.500	0,10~0,20	5.800	0,10~0,20
6	4.800	0,12~0,24	4.800	0,12~0,24	3.800	0,12~0,24	3.800	0,12~0,24	4.800	0,12~0,24
8	3.600	0,16~0,28	3.600	0,16~0,28	2.800	0,16~0,28	2.800	0,16~0,28	3.600	0,16~0,28
10	2.900	0,20~0,35	2.900	0,20~0,35	2.300	0,20~0,35	2.300	0,20~0,35	2.900	0,20~0,35
12	2.400	0,24~0,42	2.400	0,24~0,42	1.900	0,24~0,42	1.900	0,24~0,42	2.400	0,24~0,42

CAO-GDXL

Standard drilling - Standard Bohren - Foratura standard - Perçage standard
Standard boring - Standard borrning -Taladrado estándar - Стандартное сверление



	AC ADC ■ AC		Al A20... ■ A70...		Al A50... ■ A60...		Cu C1020 ■ C1100		Cu CrCu	
Vc	80 ~ 200 m/min		60 ~ 120 m/min		80 ~ 200 m/min		80 ~ 200 m/min		60 ~ 120 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
3	12.800	0,09~0,15	10.700	0,09~0,15	12.800	0,06~0,12	12.800	0,06~0,12	10.700	0,05~0,09
4	9.600	0,12~0,20	8.000	0,12~0,20	9.600	0,08~0,16	9.600	0,08~0,16	8.000	0,06~0,10
5	7.700	0,15~0,25	6.400	0,15~0,25	7.700	0,10~0,20	7.700	0,10~0,20	6.400	0,06~0,10
6	6.400	0,18~0,30	5.400	0,18~0,30	6.400	0,12~0,20	6.400	0,12~0,20	5.400	0,06~0,10
8	4.800	0,20~0,40	4.000	0,20~0,40	4.800	0,12~0,25	4.800	0,12~0,25	4.000	0,08~0,15
10	3.900	0,25~0,50	3.200	0,25~0,50	3.900	0,15~0,25	3.900	0,15~0,25	3.200	0,08~0,15

HYP-HP-3D/HYP-HPO-3D

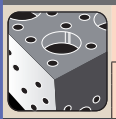
Standard drilling - Standard Bohren - Foratura standard - Perçage standard
Standard boring - Standard borrning -Taladrado estándar - Стандартное сверление



	Steel < 700 N/mm²	Steel < 850 N/mm²	Steel < 1000 N/mm²	Cu	A5052 / A7075	Al < 13% Si < 130 HB
Vc	100 ~ 150 m/min	80 ~ 120 m/min	70 ~ 110 m/min	50 ~ 90 m/min	60 ~ 110 m/min	120 ~ 220 m/min
Ø	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)
3	0,09~0,12	0,09~0,12	0,09~0,12	0,02~0,03	0,09~0,20	0,09~0,28
4	0,10~0,15	0,10~0,15	0,10~0,15	0,02~0,04	0,10~0,24	0,10~0,38
5	0,12~0,18	0,12~0,18	0,12~0,18	0,03~0,05	0,12~0,28	0,12~0,40
6	0,14~0,20	0,14~0,20	0,14~0,20	0,03~0,06	0,14~0,34	0,14~0,48
8	0,16~0,24	0,16~0,24	0,16~0,24	0,04~0,08	0,16~0,38	0,16~0,53
10	0,18~0,27	0,18~0,27	0,18~0,27	0,05~0,10	0,18~0,45	0,18~0,63
12	0,20~0,30	0,20~0,30	0,20~0,30	0,06~0,12	0,20~0,53	0,20~0,75
14	0,22~0,35	0,22~0,35	0,22~0,35	0,08~0,16	0,22~0,57	0,22~0,81
16	0,25~0,36	0,25~0,36	0,25~0,36	0,10~0,18	0,25~0,61	0,25~0,85
18	0,28~0,38	0,28~0,38	0,28~0,38	0,12~0,20	0,28~0,63	0,28~0,90
20	0,30~0,40	0,30~0,40	0,30~0,40	0,20~0,28	0,28~0,68	0,30~0,98

HYP-HP-3D/HYP-HPO-3D

Standard drilling - Standard Bohren - Foratura standard - Perçage standard
Standard boring - Standard borrning -Taladrado estándar - Стандартное сверление



	GG (G) < 180 HB	GG (G) < 300 HB	SUS < 820 HB	High-Alloy Steel < 1200 N/mm²	Special Alloys < 30 HRC	Hardened Steel < 60 HRC
Vc	150 ~ 200 m/min	100 ~ 150 m/min	40 ~ 50 m/min	50 ~60 m/min	15 ~ 25 m/min	15 ~ 25 m/min
Ø	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)
3	0,12~0,15	0,12~0,15	0,09~0,12	0,07~0,11	0,05~0,09	0,03~0,05
4	0,13~0,18	0,13~0,18	0,10~0,15	0,08~0,13	0,06~0,10	0,04~0,06
5	0,15~0,22	0,15~0,22	0,12~0,18	0,10~0,15	0,08~0,12	0,05~0,07
6	0,18~0,25	0,18~0,25	0,14~0,20	0,12~0,18	0,09~0,15	0,05~0,07
8	0,20~0,30	0,20~0,30	0,16~0,24	0,14~0,22	0,12~0,20	0,06~0,08
10	0,23~0,33	0,23~0,33	0,18~0,27	0,15~0,25	0,13~0,23	0,07~0,10
12	0,25~0,38	0,25~0,38	0,20~0,30	0,17~0,26	0,14~0,24	0,09~0,12
14	0,30~0,43	0,30~0,43	0,22~0,35	0,18~0,30	0,15~0,26	0,10~0,13
16	0,35~0,50	0,35~0,50	0,25~0,36	0,20~0,32	0,16~0,26	0,10~0,13
18	0,38~0,55	0,38~0,55	0,28~0,38	0,23~0,33	0,18~0,28	0,12~0,16
20	0,40~0,63	0,40~0,63	0,30~0,40	0,25~0,35	0,20~0,30	0,14~0,18

HYP-HP-5D/HYP-HPO-5D/HYP-HPO-8D

Standard drilling - Standard Bohren - Foratura standard - Perçage standard
Standard boring - Standard borrning -Taladrado estándar - Стандартное сверление



	Steel			Cu	A5052 / A7075	Al < 13% Si
	< 700 N/mm²	< 850 N/mm²	< 1000 N/mm²			< 130 HB
Vc	100 ~ 150 m/min	80 ~ 120 m/min	70 ~ 110 m/min	50 ~ 90 m/min	60 ~ 110 m/min	120 ~ 220 m/min
Ø	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)
3	0,09~0,12	0,09~0,12	0,09~0,12	0,02~0,03	0,09~0,20	0,09~0,28
4	0,10~0,15	0,10~0,15	0,10~0,15	0,02~0,04	0,10~0,24	0,10~0,38
5	0,12~0,18	0,12~0,18	0,12~0,18	0,03~0,05	0,12~0,28	0,12~0,40
6	0,14~0,20	0,14~0,20	0,14~0,20	0,03~0,06	0,14~0,34	0,14~0,48
8	0,16~0,24	0,16~0,24	0,16~0,24	0,04~0,08	0,16~0,38	0,16~0,53
10	0,18~0,27	0,18~0,27	0,18~0,27	0,05~0,10	0,18~0,45	0,18~0,63
12	0,20~0,30	0,20~0,30	0,20~0,30	0,06~0,12	0,20~0,53	0,20~0,75
14	0,22~0,35	0,22~0,35	0,22~0,35	0,08~0,16	0,22~0,57	0,22~0,81
16	0,25~0,36	0,25~0,36	0,25~0,36	0,10~0,18	0,25~0,61	0,25~0,85
18	0,28~0,38	0,28~0,38	0,28~0,38	0,12~0,20	0,28~0,63	0,28~0,90
20	0,30~0,40	0,30~0,40	0,30~0,40	0,20~0,28	0,28~0,68	0,30~0,98

HYP-HP-5D/HYP-HPO-5D/HYP-HPO-8D

Standard drilling - Standard Bohren - Foratura standard - Perçage standard
Standard boring - Standard borrning -Taladrado estándar - Стандартное сверление



	GG (G)		SUS	High-Alloy Steel	Special Alloys	Hardened Steel
	< 180 HB	< 300 HB	< 820 HB	< 1200 N/mm²	< 30 HRC	< 60 HRC
Vc	150 ~ 200 m/min	100 ~ 150 m/min	40 ~ 50 m/min	50 ~60 m/min	15 ~ 25 m/min	15 ~ 25 m/min
Ø	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)
3	0,12~0,15	0,12~0,15	0,09~0,12	0,07~0,11	0,05~0,09	0,03~0,05
4	0,13~0,18	0,13~0,18	0,10~0,15	0,08~0,13	0,06~0,10	0,04~0,06
5	0,15~0,22	0,15~0,22	0,12~0,18	0,10~0,15	0,08~0,12	0,05~0,07
6	0,18~0,25	0,18~0,25	0,14~0,20	0,12~0,18	0,09~0,15	0,05~0,07
8	0,20~0,30	0,20~0,30	0,16~0,24	0,14~0,22	0,12~0,20	0,06~0,08
10	0,23~0,33	0,23~0,33	0,18~0,27	0,15~0,25	0,13~0,23	0,07~0,10
12	0,25~0,38	0,25~0,38	0,20~0,30	0,17~0,26	0,14~0,24	0,09~0,12
14	0,30~0,43	0,30~0,43	0,22~0,35	0,18~0,30	0,15~0,26	0,10~0,13
16	0,35~0,50	0,35~0,50	0,25~0,36	0,20~0,32	0,16~0,26	0,10~0,13
18	0,38~0,55	0,38~0,55	0,28~0,38	0,23~0,33	0,18~0,28	0,12~0,16
20	0,40~0,63	0,40~0,63	0,30~0,40	0,25~0,35	0,20~0,30	0,14~0,18

WH55-5D



	SKD61 Special Alloy Steels ■ Hardened Steels Prehardened Steels 40 ~ 45 HRC		DAC55, DH31S, SKD61, SKD11, STAVAX			
			45 ~ 50 HRC		50 ~ 56 HRC	
Vc	35 ~ 35 m/min		80 ~ 120 m/min		60 ~ 90 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
2	6.400	0,02 ~ 0,04	4.000	0,02 ~ 0,04	4.000	0,02 ~ 0,04
3	4.200	0,03 ~ 0,06	2.700	0,03 ~ 0,06	2.700	0,03 ~ 0,06
4	3.200	0,04 ~ 0,08	2.000	0,04 ~ 0,08	2.000	0,04 ~ 0,08
5	2.500	0,05 ~ 0,10	1.600	0,05 ~ 0,10	1.600	0,05 ~ 0,10
6	2.100	0,06 ~ 0,12	1.300	0,06 ~ 0,12	1.300	0,06 ~ 0,12
7	1.800	0,07 ~ 0,14	1.100	0,07 ~ 0,14	1.100	0,07 ~ 0,14
8	1.600	0,08 ~ 0,16	1.000	0,08 ~ 0,16	1.000	0,08 ~ 0,16
9	1.400	0,09 ~ 0,18	900	0,09 ~ 0,18	900	0,09 ~ 0,18
10	1.300	0,10 ~ 0,20	800	0,10 ~ 0,20	800	0,10 ~ 0,20
11	1.150	0,11 ~ 0,22	720	0,11 ~ 0,22	720	0,11 ~ 0,22
12	1.100	0,12 ~ 0,24	700	0,12 ~ 0,24	700	0,12 ~ 0,24

WHO55-5D

	SKD61 Special Alloy Steels ■ Hardened Steels ■ Prehardened Steels 40 ~ 45 HRC		DAC55, DH31S, SKD61, SKD11, STAVAX				Inconel 38 ~ 43 HRC	
			45 ~ 50 HRC		50 ~ 56 HRC			
Vc	35 ~ 35 m/min		20 ~ 30 m/min		20 ~ 30 m/min		10 ~ 30 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
3,3	3.900	0,033 ~ 0,066	2.400	0,033 ~ 0,066	2.400	0,033 ~ 0,066	1.900	0,033 ~ 0,066
4	3.200	0,04 ~ 0,08	2.000	0,04 ~ 0,08	2.000	0,04 ~ 0,08	1.600	0,04 ~ 0,08
5	2.500	0,05 ~ 0,10	1.600	0,05 ~ 0,10	1.600	0,05 ~ 0,10	1.300	0,05 ~ 0,10
6	2.100	0,06 ~ 0,12	1.300	0,06 ~ 0,12	1.300	0,06 ~ 0,12	1.100	0,06 ~ 0,12
7	1.800	0,07 ~ 0,14	1.100	0,07 ~ 0,14	1.100	0,07 ~ 0,14	900	0,07 ~ 0,14
8	1.600	0,08 ~ 0,16	1.000	0,08 ~ 0,16	1.000	0,08 ~ 0,16	800	0,08 ~ 0,16
9	1.400	0,09 ~ 0,18	900	0,09 ~ 0,18	900	0,09 ~ 0,18	700	0,09 ~ 0,18
10	1.300	0,10 ~ 0,20	800	0,10 ~ 0,20	800	0,10 ~ 0,20	600	0,10 ~ 0,20
11	1.150	0,11 ~ 0,22	720	0,11 ~ 0,22	720	0,11 ~ 0,22	600	0,11 ~ 0,22
12	1.100	0,12 ~ 0,24	700	0,12 ~ 0,24	700	0,12 ~ 0,24	500	0,12 ~ 0,24

WH70-DRL

	SKD11 ■ SKT ■ SUS440 55 ~ 60HRC		SKH ■ SKD11 ■ SKS 60 ~ 70HRC	
Vc	10 ~ 16 m/min		8 ~ 13 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
2	2.000	~ 0,04	1.900	~ 0,04
3	1.330	~ 0,04	1.250	~ 0,04
4	1.000	~ 0,04	950	~ 0,04
5	800	~ 0,04	750	~ 0,04
6	670	~ 0,04	630	~ 0,04
8	500	~ 0,04	480	~ 0,04
10	400	~ 0,04	380	~ 0,04
12	330	~ 0,04	320	~ 0,04
14,1	280	~ 0,04	270	~ 0,04
16,1	250	~ 0,04	240	~ 0,04
17,6	235	~ 0,04	190	~ 0,04
18,6	220	~ 0,04	180	~ 0,04

SH-DRL

	SKD SKD61 50 ~ 55 HRC		SKD SKD11 ■ SKT ■ SUS440 55 ~ 60 HRC		SKD SKD11 ■ SKS ■ SKH 60 ~ 70 HRC	
Vc	14 ~ 22 m/min		10 ~ 16 m/min		8 ~ 13 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
2	2.860	~ 0,04	2.000	~ 0,04	1.900	~ 0,03
3	1.900	~ 0,04	1.330	~ 0,04	1.250	~ 0,04
4	1.430	~ 0,04	1.000	~ 0,04	950	~ 0,04
5	1.150	~ 0,04	800	~ 0,04	750	~ 0,04
6	960	~ 0,04	670	~ 0,04	630	~ 0,04
8	720	~ 0,04	500	~ 0,04	480	~ 0,04
10	570	~ 0,04	400	~ 0,04	380	~ 0,04
12	480	~ 0,04	330	~ 0,04	320	~ 0,04
14,1	435	~ 0,04	280	~ 0,04	270	~ 0,04
16,1	380	~ 0,04	250	~ 0,04	240	~ 0,04
17,6	325	~ 0,04	235	~ 0,04	190	~ 0,04
18,6	310	~ 0,04	220	~ 0,04	180	~ 0,04

VPH-GDS

	~ 35HRC ■ 35~45 HRC ■ 45~50 HRC ■ 50~70 HRC						SKD				SCM	
	34~43 HRC 1060~1400 N/mm²		43~48 HRC 1400~1600 N/mm²		48~53 HRC 1600~1900 N/mm²		SKD11 ~1060 N/mm²		SKD61 ~900 N/mm²		100Cr6 710~900 N/mm²	
Vc	12 ~ 18 m/min		6 ~ 10 m/min		5 ~ 8 m/min		10 ~ 16 m/min		12 ~ 20 m/min		25 ~ 32 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
2	2.550	0,02~0,05	1.250	0,02~0,04	1.050	0,02~0,04	2.100	0,06~0,09	2.550	0,06~0,09	4.500	0,06~0,09
3	1.700	0,03~0,08	850	0,03~0,06	700	0,03~0,06	1.400	0,10~0,13	1.700	0,10~0,13	3.000	0,10~0,13
4	1.250	0,04~0,10	640	0,04~0,08	520	0,04~0,08	1.030	0,11~0,15	1.270	0,11~0,15	2.250	0,11~0,15
5	1.000	0,05~0,13	510	0,05~0,10	400	0,05~0,10	830	0,12~0,18	1.020	0,12~0,18	1.800	0,12~0,18
6	850	0,06~0,15	430	0,06~0,12	350	0,06~0,12	690	0,13~0,19	850	0,13~0,19	1.500	0,13~0,19
7	730	0,07~0,18	360	0,07~0,14	260	0,07~0,14	600	0,15~0,22	730	0,15~0,22	1.300	0,15~0,22
8	640	0,08~0,20	320	0,08~0,16	230	0,08~0,16	520	0,16~0,24	640	0,16~0,24	1.100	0,16~0,24
9	570	0,09~0,23	280	0,09~0,18	210	0,09~0,18	460	0,18~0,26	570	0,18~0,26	1.000	0,18~0,26
10	510	0,10~0,25	260	0,10~0,20	200	0,10~0,20	410	0,20~0,28	510	0,20~0,28	900	0,20~0,28
11	460	0,11~0,28	230	0,11~0,22	180	0,11~0,22	380	0,22~0,31	460	0,22~0,31	820	0,22~0,31
12	430	0,12~0,30	210	0,12~0,24	170	0,12~0,24	350	0,24~0,34	430	0,24~0,34	760	0,24~0,34
13	400	0,13~0,32	200	0,13~0,26	160	0,13~0,26	320	0,26~0,36	390	0,26~0,36	700	0,26~0,36

VPH-GDS

	Ti Alloy Ti-6Al-4V (32~38 HRC)		Inconel Inconel 718 (38~43 HRC)		Carbon Steel CK50 500 ~ 710 N/mm²		C≤0,2% 41CrMo4 ~500 N/mm²		GG GG25 ~350 N/mm²	
Vc	6 ~ 10 m/min		6 ~ 8 m/min		25 ~ 36 m/min		38 ~ 50 m/min		40 ~ 63 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
2	1.200	0,02~0,04	1.100	0,02~0,04	5.000	0,06~0,09	6.350	0,06~0,09	8.400	0,08~0,11
3	800	0,03~0,06	740	0,03~0,06	3.400	0,10~0,13	4.250	0,10~0,13	5.600	0,11~0,16
4	700	0,04~0,08	550	0,04~0,08	2.550	0,11~0,15	3.200	0,11~0,15	4.220	0,13~0,19
5	500	0,05~0,10	450	0,05~0,10	2.050	0,12~0,18	2.550	0,12~0,18	3.370	0,16~0,22
6	440	0,06~0,12	370	0,06~0,12	1.700	0,13~0,19	2.100	0,13~0,19	2.800	0,19~0,26
7	350	0,07~0,14	320	0,07~0,14	1.450	0,15~0,22	1.800	0,15~0,22	2.400	0,20~0,28
8	320	0,08~0,16	280	0,08~0,16	1.270	0,16~0,24	1.600	0,16~0,24	2.100	0,21~0,30
9	280	0,09~0,18	250	0,09~0,18	1.130	0,18~0,26	1.400	0,18~0,26	1.900	0,23~0,33
10	260	0,10~0,20	220	0,10~0,20	1.000	0,20~0,28	1.270	0,20~0,28	1.700	0,25~0,36
11	230	0,11~0,22	200	0,11~0,22	930	0,22~0,31	1.150	0,22~0,31	1.550	0,28~0,39
12	210	0,12~0,24	190	0,12~0,24	850	0,24~0,34	1.060	0,24~0,34	1.400	0,30~0,42
13	200	0,13~0,26	170	0,13~0,26	790	0,26~0,36	980	0,26~0,36	1.300	0,31~0,42

VP-GDR

	C≤0,2% CK15 ■ St40 ~500 N/mm²		C≥0,3% CK50 500~710 N/mm²		SCM 100Cr6 710~900 N/mm²		Special Alloy SKD61 ~28 HRC ~900 N/mm²		Special Alloy SKD11 28~34 HRC 900~1060 N/mm²		GG GG25 ~ 350 N/mm²		AC AC4C ■ ADC	
Vc	38 ~ 50 m/min		25 ~ 36 m/min		25 ~ 32 m/min		12 ~ 20 m/min		10 ~ 16 m/min		40 ~ 63 m/min		70 ~ 120 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
2	6.350	0,06~0,09	5.100	0,06~0,09	4.450	0,06~0,09	2.550	0,06~0,09	2.050	0,06~0,09	8.435	0,08~0,11	15.000	0,12~0,18
3	4.250	0,10~0,13	3.400	0,10~0,13	2.970	0,10~0,13	1.700	0,10~0,13	1.370	0,10~0,13	5.620	0,11~0,16	10.000	0,20~0,28
4	3.200	0,11~0,15	2.550	0,11~0,15	2.230	0,11~0,15	1.270	0,11~0,15	1.035	0,11~0,15	4.220	0,13~0,19	8.000	0,24~0,38
5	2.550	0,12~0,18	2.040	0,12~0,18	1.780	0,12~0,18	1.020	0,12~0,18	825	0,12~0,18	3.375	0,16~0,22	6.350	0,28~0,40
6	2.100	0,13~0,19	1.700	0,13~0,19	1.490	0,13~0,19	850	0,13~0,19	690	0,13~0,19	2.810	0,19~0,26	5.300	0,34~0,48
8	1.600	0,16~0,24	1.270	0,16~0,24	1.110	0,16~0,24	635	0,16~0,24	515	0,16~0,24	2.110	0,21~0,30	4.000	0,38~0,53
10	1.270	0,20~0,28	1.020	0,20~0,28	890	0,20~0,28	510	0,20~0,28	410	0,20~0,28	1.690	0,25~0,36	3.200	0,45~0,63
12	1.060	0,24~0,34	850	0,24~0,34	740	0,24~0,34	425	0,24~0,34	345	0,24~0,34	1.400	0,30~0,42	2.700	0,53~0,75
13	980	0,26~0,36	780	0,26~0,36	690	0,26~0,36	390	0,26~0,36	320	0,26~0,36	1.300	0,31~0,42	2.500	0,56~0,79
14	900	0,28~0,39	720	0,28~0,39	640	0,28~0,39	360	0,28~0,39	300	0,28~0,39	1.200	0,32~0,44	2.300	0,57~0,81
16	800	0,30~0,43	640	0,30~0,43	560	0,30~0,43	320	0,30~0,43	260	0,30~0,43	1.050	0,34~0,46	2.000	0,61~0,85
18	700	0,34~0,49	560	0,34~0,49	500	0,34~0,49	280	0,34~0,49	230	0,34~0,49	950	0,36~0,50	1.800	0,63~0,90
20	650	0,36~0,50	500	0,36~0,50	450	0,36~0,50	260	0,36~0,50	210	0,36~0,50	830	0,40~0,56	1.600	0,68~0,98
22	580	0,40~0,55	460	0,40~0,55	400	0,40~0,55	230	0,40~0,55	190	0,40~0,55	750	0,42~0,59	1.500	0,73~1,06
24	530	0,41~0,60	420	0,41~0,60	370	0,41~0,60	210	0,41~0,60	170	0,41~0,60	700	0,46~0,65	1.350	0,77~1,13
26	500	0,42~0,65	400	0,42~0,65	340	0,42~0,65	200	0,42~0,65	160	0,42~0,65	650	0,47~0,68	1.250	0,81~1,20
28	450	0,45~0,70	360	0,45~0,70	320	0,45~0,70	180	0,45~0,70	150	0,45~0,70	600	0,50~0,73	1.150	0,84~1,26
30	420	0,48~0,75	340	0,48~0,75	300	0,48~0,75	170	0,48~0,75	140	0,48~0,75	550	0,54~0,78	1.100	0,87~1,32
32	400	0,51~0,80	320	0,51~0,80	280	0,51~0,80	160	0,51~0,80	130	0,51~0,80	520	0,58~0,83	1.000	0,90~1,38

VP-HO-GDR

	C≤0,2% ~500 N/mm²		Carbon Steel CK50 500~710 N/mm²		SCM 100Cr6 710~900 N/mm²		SUS SUS300 SUS400		Special Alloy SKD61 ~28 HRC ~900 N/mm²		Special Alloy SKD11 28~34 HRC 900~1060 N/mm²		35~45 HRC 34~43 HRC 1060~1400 N/mm²		GG GG25 ~350 N/mm²		AC GG25 AC4C ■ ADC	
Vc	36 ~ 80 m/min		25 ~ 50 m/min		25 ~ 36 m/min		18 ~ 25 m/min		12 ~ 22 m/min		10 ~ 16 m/min		9 ~ 13 m/min		36 ~ 63 m/min		70 ~ 140 m/min	
Ø	S (min⁻¹)	F (mm/rev)	S (min⁻¹)	F (mm/rev)	S (min⁻¹)	F (mm/rev)	S (min⁻¹)	F (mm/rev)	S (min⁻¹)	F (mm/rev)	S (min⁻¹)	F (mm/rev)	S (min⁻¹)	F (mm/rev)	S (min⁻¹)	F (mm/rev)	S (min⁻¹)	F (mm/rev)
6	3.000	0,13~0,19	1.900	0,13~0,19	1.500	0,13~0,19	1.100	0,13~0,19	850	0,13~0,19	660	0,13~0,19	630	0,08~0,15	2.500	0,19~0,26	5.300	0,34~0,48
8	2.300	0,17~0,24	1.400	0,17~0,24	1.100	0,17~0,24	830	0,17~0,24	640	0,17~0,24	450	0,17~0,24	470	0,13~0,20	1.900	0,21~0,30	4.000	0,38~0,53
10	1.800	0,20~0,28	1.100	0,20~0,28	950	0,20~0,28	660	0,20~0,28	500	0,20~0,28	400	0,20~0,28	380	0,16~0,24	1.500	0,25~0,36	3.200	0,45~0,63
12	1.500	0,24~0,34	950	0,24~0,34	800	0,24~0,34	550	0,24~0,34	420	0,24~0,34	330	0,24~0,34	320	0,19~0,28	1.250	0,30~0,34	2.700	0,53~0,75
13	1.400	0,26~0,36	900	0,26~0,36	750	0,26~0,36	510	0,26~0,36	400	0,26~0,36	300	0,26~0,36	290	0,20~0,30	1.200	0,31~0,42	2.500	0,56~0,79
14	1.350	0,28~0,39	820	0,28~0,39	700	0,28~0,39	470	0,28~0,39	360	0,28~0,39	280	0,28~0,39	270	0,20~0,32	1.100	0,32~0,44	2.300	0,57~0,81
16	1.200	0,30~0,43	720	0,30~0,43	600	0,30~0,43	420	0,30~0,43	320	0,30~0,43	250	0,30~0,43	240	0,22~0,32	1.000	0,34~0,46	2.000	0,61~0,85
18	1.100	0,34~0,49	650	0,34~0,49	550	0,34~0,49	370	0,34~0,49	280	0,34~0,49	220	0,34~0,49	210	0,24~0,40	900	0,36~0,50	1.800	0,63~0,90
20	950	0,36~0,50	580	0,36~0,50	480	0,36~0,50	330	0,36~0,50	260	0,36~0,50	200	0,36~0,50	190	0,27~0,45	800	0,40~0,56	1.600	0,68~0,98
22	850	0,40~0,55	520	0,40~0,55	450	0,40~0,55	300	0,40~0,55	230	0,40~0,55	180	0,40~0,55	170	0,28~0,48	700	0,42~0,59	1.500	0,73~1,06
24	800	0,41~0,60	480	0,41~0,60	400	0,41~0,60	280	0,41~0,60	210	0,41~0,60	170	0,41~0,60	160	0,29~0,52	650	0,46~0,65	1.350	0,77~1,13
26	750	0,42~0,65	450	0,42~0,65	370	0,42~0,65	250	0,42~0,65	200	0,42~0,65	150	0,42~0,65	150	0,30~0,56	600	0,47~0,68	1.250	0,81~1,20
28	700	0,45~0,70	410	0,45~0,70	350	0,45~0,70	240	0,45~0,70	180	0,45~0,70	140	0,45~0,70	140	0,31~0,59	550	0,50~0,73	1.150	0,84~1,26
30	650	0,48~0,75	400	0,48~0,75	320	0,48~0,75	220	0,48~0,75	170	0,48~0,75	130	0,48~0,75	130	0,32~0,63	500	0,54~0,78	1.100	0,87~1,32
32	600	0,51~0,80	360	0,51~0,80	300	0,51~0,80	200	0,51~0,80	160	0,51~0,80	120	0,51~0,80	120	0,32~0,67	480	0,58~0,83	1.000	0,90~1,38

NEXUS-GDS/NEXUS-GDR

	SUS									
	AUSTENITIC SUS304 - 200		AUSTENITIC SUS304 - 200		MARTENSITIC SUS420 - 440		FERRITIC SUS430 - 405		PRECIPITATION SUS630 - 631	
Vc	12 ~ 15 m/min		15 ~ 25 m/min		15 ~ 25 m/min		15 ~ 30 m/min		10 ~ 20 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
1	4.460	0,01~0,018	6.370	0,02~0,04	6.370	0,01~0,02	7.000	0,01~0.03	4.770	0,01~0,03
2	2.230	0,02~0,036	3.180	0,05~0,07	3.180	0,02~0,04	3.500	0,03~0,05	2.390	0,03~0,05
3	1.490	0,03~0,054	2.120	0,06~0,09	2.120	0,03~0,06	2.330	0,04~0,06	1.590	0,04~0,06
4	1.030	0,04~0,08	1.590	0,08~0,12	1.590	0,04~0,08	1.750	0,06~0,08	1.190	0,06~0,08
5	830	0,05~0,10	1.270	0,10~0,15	1.270	0,05~0,10	1.400	0,08~0,10	950	0,08~0,10
6	690	0,06~0,12	1.060	0,12~0,18	1.060	0,06~0,12	1.170	0,09~0,12	800	0,09~0,12
8	480	0,08~0,16	800	0,16~0,24	800	0,08~0,16	880	0,12~0,16	600	0,12~0,16
10	380	0,10~ 0,20	640	0,20~0,28	640	0,10~0,20	700	0,15~0,20	480	0,15~0,20
12	320	0,12~0,24	530	0,24~0,34	530	0,12~0,24	580	0,18~0,24	400	0,18~0,24

NEXUS-GDS/NEXUS-GDR

	Al A5052 - 7075		AC AC4C - ADC		Cu C1020 - 2600		C≤0,2% S15C - SS400 ~500 N/mm²	
Vc	32 ~ 63 m/min		63 ~ 100 m/min		40 ~ 60 m/min		40 ~ 60 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
1	15.000	0,02~0,06	25.000	0,02~0,06	15.920	0,01~0,03	15.920	0,02~0,05
2	8.000	0,04~0,12	10.000	0,04~0,12	7.960	0,04~0,06	7.960	0,06~0,09
3	5.300	0,06~0,18	6.700	0,06~0,18	5.310	0,06~0,09	5.310	0,10~0,13
4	4.000	0,08~0,24	6.400	0,08~0,24	3.980	0,08~0,11	3.980	0,11~0,15
5	3.200	0,10~0,30	5.000	0,10~0,30	3.180	0,10~0,13	3.180	0,12~0,18
6	2.700	0,12~0,36	4.200	0,12~0,36	2.650	0,12~0,15	2.650	0,13~0,19
8	2.000	0,16~0,45	3.200	0,16~0,45	1.990	0,16~0,20	1.990	0,17~0,24
10	1.600	0,20~ 0,55	2.500	0,20~0,55	1.590	0,20~0,25	1.590	0,20~0,28
12	1.350	0,24~0,66	2.100	0,24~0,66	1.330	0,24~0,30	1.330	0,24~0,34

Drilling depth	≤4D	≤5D	≤6D
Coefficient for reducing speed	x0,9	x0,8	x0,8

D= drill dia

EX-SUS-GDS/EX-SUS-GDR



	SUS								Al		AC		Cu		C≤0,2%	
	Austenitic SUS304 SUS200		Martensitic SUS420 SUS440		Ferritic SUS430 SUS405		Precipitation SUS630 SUS631		A5052 - 7075		AC4C - ADC		C1020 - 2600		CK15 - St40 ~500 N/mm²	
Vc	13 ~ 18 m/min		15 ~ 20 m/min		15 ~ 20 m/min		8 ~ 12 m/min		32 ~ 63 m/min		63 ~ 100 m/min		25 ~ 50 m/min		32 ~ 40 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
1	4.800	0,02~0,04	5.550	0,02~0,04	5.550	0,01~0,03	3.200	0,01~0,03	15.000	0,02~0,06	25.000	0,02~0,06	12.000	0,01~0,03	10.000	0,02~0,05
2	2.400	0,05~0,07	2.850	0,05~0,07	2.850	0,03~0,05	1.600	0,03~0,05	8.000	0,04~0,12	10.000	0,04~0,12	5.100	0,04~0,06	5.700	0,06~0,09
3	1.600	0,06~0,09	1.900	0,06~0,09	1.900	0,04~0,06	1.100	0,04~0,06	5.300	0,06~0,18	6.700	0,06~0,18	3.400	0,06~0,09	3.850	0,10~0,13
4	1.200	0,08~0,12	1.450	0,08~0,12	1.450	0,06~0,08	800	0,06~0,08	4.000	0,08~0,24	6.400	0,08~0,24	2.550	0,08~0,11	2.900	0,11~0,15
5	950	0,10~0,15	1.150	0,12~0,15	1.150	0,08~0,10	650	0,08~0,10	3.200	0,10~0,30	5.000	0,10~0,30	2.050	0,10~0,13	2.260	0,12~0,18
6	800	0,12~0,18	950	0,15~0,18	950	0,09~0,12	550	0,09~0,12	2.700	0,12~0,36	4.200	0,12~0,36	1.700	0,12~0,15	1.900	0,13~0,19
8	600	0,16~0,24	720	0,20~0,24	720	0,12~0,16	400	0,12~0,16	2.000	0,16~0,45	3.200	0,16~0,45	1.250	0,16~0,20	1.400	0,17~0,24
10	480	0,20~0,28	570	0,25~0,30	570	0,15~0,20	320	0,15~0,20	1.600	0,20~0,55	2.500	0,20~0,55	1.000	0,20~0,25	1.120	0,20~0,28
12	400	0,24~0,34	480	0,30~0,36	480	0,18~0,24	280	0,18~0,24	1.350	0,24~0,66	2.100	0,24~0,66	850	0,24~0,30	950	0,24~0,34
13	370	0,26~0,36	440	0,32~0,40	440	0,20~0,26	250	0,20~0,26	1.250	0,25~0,72	2.000	0,25~0,72	780	0,26~0,32	880	0,26~0,36
14	340	0,28~0,39	410	0,35~0,45	410	0,21~0,30	225	0,21~0,30	1.140	0,27~0,74	1.850	0,27~0,74	730	0,26~0,34	820	0,27~0,39
15	320	0,29~0,40	380	0,36~0,48	380	0,22~0,31	210	0,22~0,31	1.060	0,29~0,80	1.700	0,29~0,80	680	0,26~0,36	760	0,28~0,42
16	300	0,30~0,43	355	0,37~0,50	355	0,23~0,32	200	0,23~0,32	1.000	0,30~0,83	1.600	0,30~0,83	640	0,27~0,37	720	0,29~0,43
17	280	0,31~0,45	335	0,38~0,52	335	0,24~0,34	185	0,24~0,34	940	0,31~0,88	1.500	0,31~0,88	600	0,28~0,39	675	0,30~0,46
18	265	0,32~0,47	320	0,39~0,54	320	0,25~0,36	175	0,25~0,36	885	0,32~0,94	1.450	0,32~0,94	570	0,29~0,41	640	0,32~0,49
19	250	0,33~0,48	300	0,40~0,55	300	0,25~0,38	170	0,25~0,38	840	0,34~0,97	1.350	0,34~0,97	540	0,30~0,43	600	0,33~0,51
20	240	0,34~0,50	285	0,04~0,56	285	0,26~0,40	160	0,26~0,40	800	0,36~1,00	1.300	0,36~1,00	510	0,30~0,44	570	0,34~0,52

V-HDO-GDR

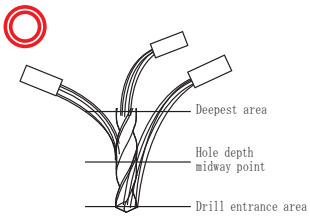


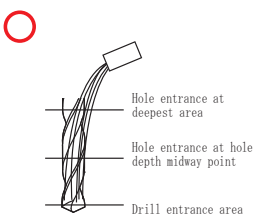
	C≤0,2% St37 ~500 N/mm²		C≤0,3% CK50 500~710 N/mm²		SCM 100Cr6 750~1200 N/mm²		SUS Série SUS300 Série SUS400		SKD SKD61 ~ 35 HRC		SKD X40CrMoV51 35 ~ 40 HRC		GG GG25 - GGG40		AC AIMG3 - AIMG51	
Vc	32 ~ 63 m/min		22 ~ 36 m/min		20 ~ 32 m/min		16 ~ 24 m/min		10 ~ 18 m/min		8 ~ 12 m/min		32 ~ 50 m/min		63 ~ 125 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
6	2.100	0,13~0,19	1.550	0,13~0,19	1.400	0,13~0,19	1.050	0,13~0,19	740	0,13~0,19	530	0,06~0,12	2.200	0,19~0,26	5.000	0,34~0,48
8	1.600	0,17~0,24	1.150	0,17~0,24	1.050	0,17~0,24	800	0,17~0,24	550	0,17~0,24	400	0,08~0,16	1.650	0,21~0,30	3.750	0,38~0,53
10	1.250	0,20~0,28	920	0,20~0,28	830	0,20~0,28	640	0,20~0,28	445	0,20~0,28	320	0,10~0,20	1.300	0,25~0,36	3.000	0,45~0,63
12	1.050	0,24~0,34	770	0,24~0,34	700	0,24~0,34	530	0,24~0,34	370	0,24~0,34	265	0,12~0,24	1.100	0,30~0,42	2.500	0,53~0,75
14	900	0,28~0,39	660	0,28~0,39	600	0,28~0,39	450	0,28~0,39	320	0,28~0,39	230	0,16~0,29	950	0,32~0,44	2.150	0,57~0,81
16	800	0,30~0,43	580	0,30~0,43	520	0,30~0,43	400	0,30~0,43	280	0,30~0,43	200	0,16~0,29	820	0,34~0,46	1.900	0,61~0,85
18	700	0,34~0,49	510	0,34~0,49	460	0,34~0,49	350	0,34~0,49	250	0,34~0,49	180	0,18~0,32	730	0,36~0,50	1.700	0,63~0,90
20	650	0,36~0,50	460	0,36~0,50	415	0,36~0,50	320	0,36~0,50	220	0,36~0,50	160	0,18~0,34	650	0,40~0,56	1.500	0,68~0,98
22	580	0,40~0,55	420	0,40~0,55	380	0,40~0,55	290	0,40~0,55	200	0,40~0,55	145	0,20~0,37	600	0,42~0,59	1.400	0,73~1,06
24	530	0,41~0,60	380	0,41~0,60	350	0,41~0,60	270	0,41~0,60	185	0,41~0,60	130	0,20~0,38	550	0,46~0,65	1.250	0,77~1,13
26	490	0,42~0,65	360	0,42~0,65	320	0,42~0,65	250	0,42~0,65	170	0,42~0,65	120	0,21~0,42	500	0,47~0,68	1.150	0,81~1,20
28	450	0,45~0,70	330	0,45~0,70	300	0,45~0,70	230	0,45~0,70	160	0,45~0,70	115	0,21~0,45	470	0,50~0,73	1.100	0,84~1,26
30	420	0,48~0,75	310	0,48~0,75	280	0,48~0,75	210	0,48~0,75	150	0,48~0,75	105	0,24~0,46	450	0,54~0,78	1.000	0,87~1,32
32	400	0,51~0,80	300	0,51~0,80	260	0,51~0,80	200	0,51~0,80	140	0,51~0,80	100	0,22~0,48	410	0,58~0,83	950	0,90~1,38

TDXL

	C≤0,2% S50C ■ S35C 500 ~ 710 N/mm²		SCM SCr ■ SNCM 710 ~ 900 N/mm²		SKD DIE STEELS SKD ■ SK ■ DH31 ■ DAC 710 ~ 900 N/mm²		GGG FCD400 ■ FCD500 ~ 500 N/mm²		GG FC200 ■ FC300 ~ 300 N/mm²	
Vc	20 ~ 24 m/min		18 ~ 22 m/min		12 ~ 16 m/min		16 ~ 20 m/min		18 ~ 24 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
1,6	4.000	0,016~0,03	4.000	0,016~0,03	2.700	0,016~0,03	3.600	0,01~0,03	4.150	0,03~0,05
2	3.200	0,02~0,05	3.200	0,02~0,04	2.200	0,02~0,04	2.850	0,01~0,04	3.350	0,04~0,06
3	2.200	0,03~0,08	2.200	0,03~0,08	1.500	0,03~0,07	1.900	0,02~0,08	2.250	0,06~0,10
4	1.600	0,04~0,10	1.600	0,04~0,10	1.150	0,04~0,09	1.460	0,02~0,10	1.650	0,08~0,13
5	1.300	0,05~0,13	1.300	0,05~0,13	900	0,05~0,12	1.150	0,03~0,13	1.350	0,10~0,16
6	1.100	0,06~0,15	1.100	0,06~0,15	750	0,06~0,14	955	0,04~0,15	1.100	0,12~0,19
8	800	0,08~0,20	800	0,08~0,20	550	0,08~0,18	715	0,05~0,20	835	0,16~0,26
10	650	0,10~0,25	650	0,10~0,25	450	0,10~0,23	575	0,06~0,25	670	0,20~0,32
12	550	0,13~0,30	550	0,12~0,30	380	0,12~0,28	475	0,07~0,30	555	0,24~0,38

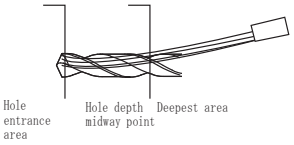
Vertical Machine



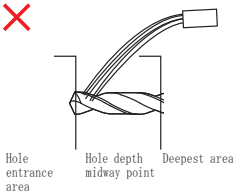


Allow the coolant to move along the drill if the discharge flow rate is low or the number of nozzles is too few

Horizontal Machine



If there are too few coolant nozzles is small, increase the amount of coolant and its discharge pressure and allow the coolant to move along the drill so that it is applied constantly to the entrance.

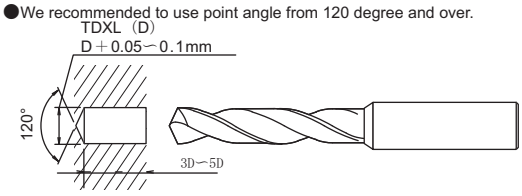


If there are too few coolant nozzles is small, the coolant that is applied to the hole entrance will stray from the hole along the way

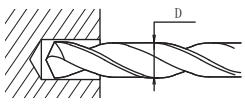
① Make a pilot hole.

Recommended drill : EX-SUS-GDS

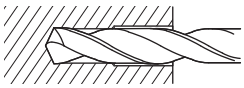
- For a pilot hole, select 0.05mm to 0.1mm larger size drill than TDXL. For deep hole, we recommend to drill deeper pilot hole.
- For a vertical machining center. When drilling many holes in a small area with vertical machining center. We recommend only centering by 130 degree point angle LDS to avoid chips building up in pilot holes, which can cause drill chipping or breakage. When drilling the pilot hole it is recommended to make the hole 3xD in depth, at a feed rate equal to (Drill φx 0.01) per revolution. Straightness will be less accurate than a comparable operation in a horizontal machining center.
- We recommended to use point angle from 120 degree and over.



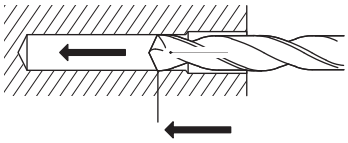
② Insert the TDXL into a pilot hole with low revolution. (~500 min⁻¹)



③ Start supplying the coolant.

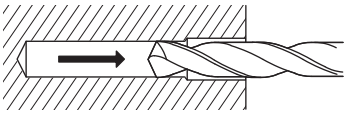


④ Increase the revolution to the designated speed and start drilling. At the start of drilling, set the feed rate to 1% of the drill dia. and increase the feed rate when the depth reaches between 3xD and 5xD.



Increase feed rate to between 1 and 2% Set it to 1%D between 3xD and 5xD

⑤ After drilling, move the drill away from the bottom of the hole; then reduce its speed while pulling it out of the hole..



EX-GDXL

	Carbon Steel CK15 ■ St40 ~500 N/mm²		Carbon Steel CK45 500 ~ 710 N/mm²		SCM SCM 710 ~ 900 N/mm²		Special Alloy Steels SKD61 ~ 900 N/mm² ~ 28 HRC		Special Alloy Steels SKD11 ~ 1060 N/mm² 28 ~ 34 HRC		GG FC250 ~ 350 N/mm²		Al AC AC4C ■ ADC	
Vc	16 ~ 24 m/min		20 ~ 25 m/min		12 ~ 16 m/min		10 ~ 20 m/min		6 ~ 10 m/min		20 ~ 30 m/min		20 ~ 35 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
2	3.200	0,03~0,07	3.600	0,03~0,07	2.200	0,03~0,07	2.400	0,03~0,07	1.270	0,02~0,05	4.000	0,02~0,05	4.400	0,03~0,07
3	2.100	0,05~0,10	2.400	0,05~0,10	1.500	0,05~0,10	1.700	0,05~0,10	850	0,04~0,07	2.700	0,04~0,07	3.000	0,05~0,10
4	1.600	0,06~0,12	1.800	0,06~0,12	1.100	0,06~0,12	1.250	0,06~0,12	640	0,05~0,09	2.000	0,05~0,09	2.200	0,06~0,12
5	1.250	0,08~0,13	1.450	0,08~0,13	900	0,08~0,13	1.000	0,08~0,13	510	0,07~0,10	1.600	0,07~0,10	1.800	0,08~0,13
6	1.050	0,10~0,14	1.200	0,10~0,14	750	0,10~0,14	850	0,10~0,14	420	0,09~0,12	1.350	0,09~0,12	1.500	0,10~0,14
7	900	0,12~0,16	1.000	0,12~0,16	640	0,12~0,16	730	0,12~0,16	360	0,10~0,14	1.150	0,10~0,14	1.300	0,12~0,16
8	800	0,14~0,18	900	0,14~0,18	560	0,14~0,18	640	0,14~0,18	320	0,12~0,16	1.000	0,12~0,16	1.100	0,14~0,18
9	700	0,16~0,20	800	0,16~0,20	500	0,16~0,20	570	0,16~0,20	280	0,13~0,18	900	0,13~0,18	1.000	0,16~0,02
10	640	0,18~0,22	720	0,18~0,22	450	0,18~0,22	510	0,18~0,22	260	0,14~0,20	800	0,14~0,2	900	0,18~0,22
11	580	0,20~0,24	650	0,20~0,24	400	0,20~0,24	460	0,20~0,24	230	0,15~0,22	750	0,15~0,22	800	0,20~0,24
12	530	0,22~0,26	600	0,22~0,26	370	0,22~0,26	430	0,22~0,26	210	0,17~0,24	660	0,17~0,24	750	0,22~0,26
13	490	0,24~0,28	550	0,24~0,28	340	0,24~0,28	390	0,24~0,28	200	0,20~0,26	610	0,20~0,26	700	0,24~0,28

V-SDR

	C≤0,2% CK15 ■ St40 ~500 N/mm²		Carbon Steel CK45 ■ CK50 500 ~ 710 N/mm²		SCM SCM ■ SNC ■ SNCM 710 ~ 900 N/mm²		Special Steel SKD61 35 HRC		Special Steel SKD11		GG GG25 ~ 350 N/mm²		AC AC4C ■ ADC	
Vc	22 ~ 40 m/min		16 ~ 30 m/min		12 ~ 25 m/min		8 ~ 16 m/min		6 ~ 12 m/min		22 ~ 40 m/min		50 ~ 100 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
2	5.700	0,02~0,08	4.000	0,02~0,08	3.500	0,02~0,08	1.900	0,02~0,08	1.600	0,02~0,08	5.700	0,07~0,10	10.000	0,07~0,10
3	3.850	0,03~0,10	2.800	0,03~0,10	2.400	0,03~0,10	1.320	0,03~0,10	1.060	0,03~0,10	3.850	0,11~0,14	10.000	0,11~0,14
4	2.900	0,04~0,13	2.100	0,04~0,13	1.800	0,04~0,13	950	0,04~0,13	800	0,04~0,13	2.900	0,12~0,17	7.500	0,12~0,17
5	2.260	0,05~0,15	1.600	0,05~0,15	1.400	0,05~0,15	750	0,05~0,15	630	0,05~0,15	2.260	0,14~0,20	6.300	0,14~0,20
6	1.900	0,06~0,17	1.320	0,06~0,17	1.180	0,06~0,17	630	0,06~0,17	530	0,06~0,17	1.900	0,17~0,24	5.000	0,17~0,24
8	1.400	0,08~0,21	1.000	0,08~0,21	900	0,08~0,21	480	0,08~0,21	400	0,08~0,21	1.400	0,19~0,28	4.000	0,19~0,28
10	1.120	0,10~0,22	800	0,10~0,22	710	0,10~0,22	380	0,10~0,22	320	0,10~0,22	1.120	0,22~0,33	3.150	0,22~0,33
12	950	0,12~0,27	670	0,12~0,27	600	0,12~0,27	320	0,12~0,27	270	0,12~0,27	950	0,26~0,38	2.650	0,26~0,38
13	880	0,13~0,29	620	0,13~0,29	550	0,13~0,29	300	0,13~0,29	250	0,13~0,29	880	0,27~0,39	2.450	0,27~0,39

FX-LDS/HYP-LDS

	C≤0,2% St40 ~ 500 N/mm²		Carbon Steel CK45 500 ~ 710 N/mm²		SCM SCM440 710 ~ 900 N/mm²		Special Steel SKD61 28 HRC		Special Steel SKD11 34 HRC		GG GG25 ~ 350 N/mm²		AC AC4D	
Vc	63 ~ 80 m/min		40 ~ 63 m/min		32 ~ 50 m/min		20 ~ 28 m/min		16 ~ 22 m/min		63 ~ 100 m/min		80 ~ 160 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
3	7.500	0,04~0,08	5.500	0,04~0,08	4.500	0,04~0,08	2.500	0,04~0,08	2.000	0,04~0,08	8.000	0,05~0,09	12.000	0,10~0,22
4	5.700	0,05~0,10	4.100	0,05~0,10	3.300	0,05~0,10	1.900	0,05~0,10	1.500	0,05~0,10	6.500	0,07~0,12	9.500	0,12~0,25
6	3.800	0,06~0,12	2.700	0,06~0,12	2.300	0,06~0,12	1.250	0,06~0,12	1.000	0,06~0,12	4.300	0,12~0,18	6.400	0,14~0,28
8	2.800	0,08~0,15	2.000	0,08~0,15	1.700	0,08~0,15	950	0,08~0,15	750	0,08~0,15	3.200	0,13~0,20	4.800	0,18~0,32
10	2.300	0,10~0,18	1.700	0,10~0,18	1.400	0,10~0,18	750	0,10~0,18	600	0,10~0,18	2.600	0,17~0,25	3.800	0,22~0,36
12	1.900	0,12~0,21	1.400	0,12~0,21	1.200	0,12~0,21	650	0,12~0,21	500	0,12~0,21	2.200	0,21~0,30	3.200	0,25~0,40
16	1.400	0,16~0,28	1.000	0,16~0,28	900	0,16~0,28	500	0,16~0,28	380	0,16~0,28	1.600	0,24~0,32	2.400	0,32~0,48
20	1.150	0,20~0,34	820	0,20~0,34	700	0,20~0,34	400	0,20~0,34	300	0,20~0,34	1.300	0,26~0,40	1.900	0,40~0,60
25	900	0,25~0,45	650	0,25~0,45	560	0,25~0,45	300	0,25~0,45	250	0,25~0,45	1.000	0,30~0,50	1.500	0,50~0,75

TIN-NC-LDS/NC-LDS

	C≤0,2% St40		Carbon Steel CK45		SCM SCM440		Special Steel SKD61 35 HRC		Special Steel SKD11 34 HRC		GG GG25 ~ 350 N/mm²		SUS SUS304		AC AC4D	
Vc	32 ~ 40 m/min		22 ~ 30 m/min		20 ~ 25 m/min		10 ~ 13 m/min		8 ~ 12 m/min		25 ~ 32 m/min		8 ~ 12 m/min		51 ~ 100 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
3	3.850	0,04~0,08	2.800	0,04~0,08	2.400	0,04~0,08	1.220	0,04~0,08	1.060	0,04~0,08	3.100	0,04~0,09	1.060	0,04~0,08	8.000	0,10~0,22
4	2.900	0,05~0,10	2.100	0,05~0,10	1.800	0,05~0,10	910	0,05~0,10	800	0,05~0,10	2.400	0,05~0,12	800	0,05~0,10	6.000	0,12~0,25
6	1.900	0,06~0,12	1.320	0,06~0,12	1.180	0,06~0,12	610	0,06~0,12	530	0,06~0,12	1.600	0,06~0,18	530	0,06~0,12	4.000	0,14~0,28
8	1.400	0,08~0,15	1.000	0,08~0,15	900	0,08~0,15	450	0,08~0,15	400	0,08~0,15	1.200	0,08~0,20	400	0,08~0,15	3.000	0,18~0,32
10	1.120	0,10~0,18	800	0,10~0,18	710	0,10~0,18	360	0,10~0,18	320	0,10~0,18	950	0,10~0,25	320	0,10~0,18	2.400	0,22~0,36
12	950	0,12~0,21	670	0,12~0,21	600	0,12~0,21	300	0,12~0,21	270	0,12~0,21	800	0,12~0,30	270	0,12~0,21	2.000	0,25~0,40
16	720	0,16~0,28	520	0,16~0,28	450	0,16~0,28	220	0,16~0,28	200	0,16~0,28	600	0,16~0,32	200	0,16~0,28	1.500	0,32~0,48
20	560	0,20~0,34	400	0,20~0,34	360	0,20~0,34	180	0,20~0,34	160	0,20~0,34	480	0,20~0,40	160	0,20~0,34	1.200	0,40~0,60
25	450	0,25~0,45	320	0,25~0,45	290	0,25~0,45	150	0,25~0,45	130	0,25~0,45	380	0,25~0,50	130	0,25~0,45	960	0,50~0,75

HY-PRO-CARB

Center Drilling & V-Grooving - V - fräsen und zentrieren - Pointage et chanfreinage en V
Centering og V-spors fræsning - Centrering och V-spårsfräsning - Punteado y ramurado en V - Центрирование и фрезерование V-образных канавок

	C≤0,2%	SUS	Die Steels	GG	Al
Grade	NK2020	NK2020	NK2020	NK1010	NK1010
(rev./min)	3.000	2.000	3.000	3.200	4.000
F (mm/min)	80	50	50	200	150

HY-PRO-CARB

Chamfer Milling (Down Cut) - Anfasfräsen (Gleichlauf) - Operazione di smussi - Fraisage de chanfreins
Fas fræsning - Fasning (Down Cut) - Fresado de chaflán (corte a favor) - Фрезерование фасок (попутное фрезерование)

	C≤0,2%	SUS	Die Steels	GG	Al
Grade	NK2020	NK2020	NK2020	NK1010	NK1010
(rev./min)	3.000	2.500	3.000	3.000	4.000
F (mm/min)	200	150	150	200	300

REAMERS

CARBIDE



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HIGH PERFORMANCE
- Carbide straight reamer

HIGH PERFORMANCE
- Geradgenutete Vollhartmetallreibahle

ALTA PRESTAZIONE
- Alesatore cilindrico in metallo duro

HAUTE PERFORMANCE
- Alésoir carbure taille droite

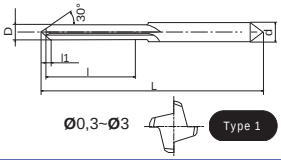
HIGH PERFORMANCE
- Hårdmetal rival med lige skær

HIGH PERFORMANCE
- HM brotsch med raka skär

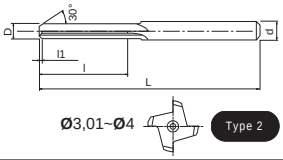
ALTO RENDIMIENTO
- Escariador de ranuras rectas en metal duro

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Твердосплавная прямозубая развертка

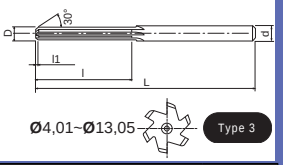
CARBIDE | 0 ~ -0.005 | h6 | min^{-1} D.120-121



Ø0,3~Ø3 — Type 1



Ø3,01~Ø4 — Type 2



Ø4,01~Ø13,05 — Type 3

EDP	D	L	l	l1	d	ZΔ	Type	Stock	Price
8900030	0,30	50	4	0,10	2	4	1	○	
8900031	0,31	50	4	0,10	2	4	1	○	
8900032	0,32	50	4	0,10	2	4	1	○	
8900033	0,33	50	4	0,10	2	4	1	○	
8900034	0,34	50	4	0,10	2	4	1	○	
8900035	0,35	50	4	0,10	2	4	1	○	
8900036	0,36	50	4	0,10	2	4	1	○	
8900037	0,37	50	4	0,10	2	4	1	○	
8900038	0,38	50	4	0,10	2	4	1	○	
8900039	0,39	50	4	0,10	2	4	1	○	
8900040	0,40	50	4	0,10	2	4	1	○	
8900041	0,41	50	4	0,10	2	4	1	○	
8900042	0,42	50	4	0,10	2	4	1	○	
8900043	0,43	50	4	0,10	2	4	1	○	
8900044	0,44	50	4	0,10	2	4	1	○	
8900045	0,45	50	4	0,10	2	4	1	○	
8900046	0,46	50	4	0,10	2	4	1	○	
8900047	0,47	50	4	0,10	2	4	1	○	
8900048	0,48	50	5	0,10	2	4	1	○	
8900049	0,49	50	5	0,10	2	4	1	○	
8900050	0,50	50	5	0,10	2	4	1	○	
8900051	0,51	50	5	0,10	2	4	1	○	
8900052	0,52	50	5	0,10	2	4	1	○	
8900053	0,53	50	5	0,10	2	4	1	○	
8900054	0,54	50	6	0,10	2	4	1	○	
8900055	0,55	50	6	0,10	2	4	1	○	
8900056	0,56	50	6	0,10	2	4	1	○	
8900057	0,57	50	6	0,10	2	4	1	○	
8900058	0,58	50	6	0,10	2	4	1	○	
8900059	0,59	50	6	0,10	2	4	1	○	
8900060	0,60	50	6	0,10	2	4	1	○	
8900061	0,61	50	8	0,10	2	4	1	○	
8900062	0,62	50	8	0,10	2	4	1	○	
8900063	0,63	50	8	0,10	2	4	1	○	
8900064	0,64	50	8	0,10	2	4	1	○	
8900065	0,65	50	8	0,10	2	4	1	○	
8900066	0,66	50	8	0,10	2	4	1	○	
8900067	0,67	50	8	0,10	2	4	1	○	
8900068	0,68	50	10	0,10	2	4	1	○	
8900069	0,69	50	10	0,10	2	4	1	○	
8900070	0,70	50	10	0,10	2	4	1	○	
8900071	0,71	50	10	0,10	2	4	1	○	
8900072	0,72	50	10	0,10	2	4	1	○	
8900073	0,73	50	10	0,10	2	4	1	○	
8900074	0,74	50	10	0,10	2	4	1	○	
8900075	0,75	50	10	0,10	2	4	1	○	
8900076	0,76	50	12	0,10	2	4	1	○	
8900077	0,77	50	12	0,10	2	4	1	○	
8900078	0,78	50	12	0,10	2	4	1	○	
8900079	0,79	50	12	0,10	2	4	1	○	
8900080	0,80	50	12	0,10	2	4	1	○	
8900081	0,81	50	12	0,20	2	4	1	○	
8900082	0,82	50	12	0,20	2	4	1	○	
8900083	0,83	50	12	0,20	2	4	1	○	
8900084	0,84	50	12	0,20	2	4	1	○	
8900085	0,85	50	12	0,20	2	4	1	○	
8900086	0,86	50	12	0,20	2	4	1	○	
8900087	0,87	50	12	0,20	2	4	1	○	
8900088	0,88	50	12	0,20	2	4	1	○	
8900089	0,89	50	12	0,20	2	4	1	○	
8900090	0,90	50	12	0,20	2	4	1	○	
8900091	0,91	50	12	0,20	2	4	1	○	
8900092	0,92	50	12	0,20	2	4	1	○	

EDP	D	L	l	l1	d	ZΔ	Type	Stock	Price
8900093	0,93	50	12	0,20	2	4	1	○	
8900094	0,94	50	12	0,20	2	4	1	○	
8900095	0,95	50	12	0,20	2	4	1	○	
8900096	0,96	50	14	0,20	2	4	1	○	
8900097	0,97	50	14	0,20	2	4	1	○	
8900098	0,98	50	14	0,20	2	4	1	○	
8900099	0,99	50	14	0,20	2	4	1	○	
8900100	1,00	50	14	0,20	2	4	1	○	
8900101	1,01	50	14	0,20	2	4	1	○	
8900102	1,02	50	14	0,20	2	4	1	○	
8900103	1,03	50	14	0,20	2	4	1	○	
8900104	1,04	50	14	0,20	2	4	1	○	
8900105	1,05	50	14	0,20	2	4	1	○	
8900106	1,06	50	14	0,20	2	4	1	○	
8900107	1,07	50	14	0,20	2	4	1	○	
8900108	1,08	50	14	0,20	2	4	1	○	
8900109	1,09	50	14	0,20	2	4	1	○	
8900110	1,10	50	14	0,20	2	4	1	○	
8900111	1,11	50	14	0,20	2	4	1	○	
8900112	1,12	50	14	0,20	2	4	1	○	
8900113	1,13	50	14	0,20	2	4	1	○	
8900114	1,14	50	14	0,20	2	4	1	○	
8900115	1,15	50	14	0,20	2	4	1	○	
8900116	1,16	50	14	0,20	2	4	1	○	
8900117	1,17	50	14	0,20	2	4	1	○	
8900118	1,18	50	14	0,20	2	4	1	○	
8900119	1,19	50	16	0,20	2	4	1	○	
8900120	1,20	50	16	0,20	2	4	1	○	
8900121	1,21	50	16	0,20	2	4	1	○	
8900122	1,22	50	16	0,20	2	4	1	○	
8900123	1,23	50	16	0,20	2	4	1	○	
8900124	1,24	50	16	0,20	2	4	1	○	
8900125	1,25	50	16	0,20	2	4	1	○	
8900126	1,26	50	16	0,30	2	4	1	○	
8900127	1,27	50	16	0,30	2	4	1	○	
8900128	1,28	50	16	0,30	2	4	1	○	
8900129	1,29	50	16	0,30	2	4	1	○	
8900130	1,30	50	16	0,30	2	4	1	○	
8900131	1,31	50	16	0,30	2	4	1	○	
8900132	1,32	50	16	0,30	2	4	1	○	
8900133	1,33	50	16	0,30	2	4	1	○	
8900134	1,34	50	16	0,30	2	4	1	○	
8900135	1,35	50	16	0,30	2	4	1	○	
8900136	1,36	50	16	0,30	2	4	1	○	
8900137	1,37	50	16	0,30	2	4	1	○	
8900138	1,38	50	16	0,30	2	4	1	○	
8900139	1,39	50	16	0,30	2	4	1	○	
8900140	1,40	50	16	0,30	2	4	1	○	
8900141	1,41	50	16	0,30	2	4	1	○	
8900142	1,42	50	16	0,30	2	4	1	○	
8900143	1,43	50	16	0,30	2	4	1	○	
8900144	1,44	50	16	0,30	2	4	1	○	
8900145	1,45	50	16	0,30	2	4	1	○	
8900146	1,46	50	16	0,30	2	4	1	○	
8900147	1,47	50	16	0,30	2	4	1	○	
8900148	1,48	50	16	0,30	2	4	1	○	
8900149	1,49	50	16	0,30	2	4	1	○	
8900150	1,50	50	16	0,30	2	4	1	○	
8900151	1,51	50	18	0,30	2	4	1	○	
8900152	1,52	50	18	0,30	2	4	1	○	
8900153	1,53	50	18	0,30	2	4	1	○	
8900154	1,54	50	18	0,30	2	4	1	○	
8900155	1,55	50	18	0,30	2	4	1	○	

Carbide Reamer

GO TO LIVE STOCK CHECK



HIGH PERFORMANCE
- Carbide straight reamer

HIGH PERFORMANCE
- Geradgenutete Vollhartmetallreibahle

ALTA PRESTAZIONE
- Alesatore cilindrico in metallo duro

HAUTE PERFORMANCE
- Alésoir carbure taille droite

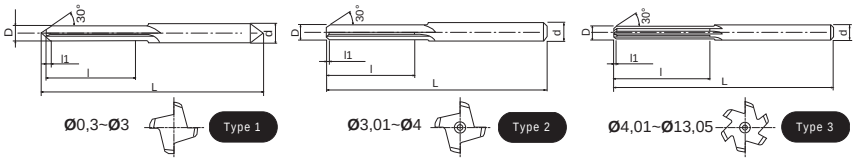
HIGH PERFORMANCE
- Hårdmetal rival med lige skær

HIGH PERFORMANCE
- HM brotsch med raka skär

ALTO RENDIMIENTO
- Escariador de ranuras rectas en metal duro

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Твердосплавная прямозубая развертка

CARBIDE | 0 ~ -0.005 | h6 | min^{-1} D.120-121



EDP	D	L	l	l1	d	ZΔ	Type	Stock	Price
8900156	1,56	50	18	0,30	2	4	1	○	
8900157	1,57	50	18	0,30	2	4	1	○	
8900158	1,58	50	18	0,30	2	4	1	○	
8900159	1,59	50	18	0,30	2	4	1	○	
8900160	1,60	50	18	0,30	2	4	1	○	
8900161	1,61	50	18	0,40	2	4	1	○	
8900162	1,62	50	18	0,40	2	4	1	○	
8900163	1,63	50	18	0,40	2	4	1	○	
8900164	1,64	50	18	0,40	2	4	1	○	
8900165	1,65	50	18	0,40	2	4	1	○	
8900166	1,66	50	18	0,40	2	4	1	○	
8900167	1,67	50	18	0,40	2	4	1	○	
8900168	1,68	50	18	0,40	2	4	1	○	
8900169	1,69	50	18	0,40	2	4	1	○	
8900170	1,70	50	18	0,40	2	4	1	○	
8900171	1,71	50	18	0,40	2	4	1	○	
8900172	1,72	50	18	0,40	2	4	1	○	
8900173	1,73	50	18	0,40	2	4	1	○	
8900174	1,74	50	18	0,40	2	4	1	○	
8900175	1,75	50	18	0,40	2	4	1	○	
8900176	1,76	50	18	0,40	2	4	1	○	
8900177	1,77	50	18	0,40	2	4	1	○	
8900178	1,78	50	18	0,40	2	4	1	○	
8900179	1,79	50	18	0,40	2	4	1	○	
8900180	1,80	50	18	0,40	2	4	1	○	
8900181	1,81	50	18	0,40	2	4	1	○	
8900182	1,82	50	18	0,40	2	4	1	○	
8900183	1,83	50	18	0,40	2	4	1	○	
8900184	1,84	50	18	0,40	2	4	1	○	
8900185	1,85	50	18	0,40	2	4	1	○	
8900186	1,86	50	18	0,40	2	4	1	○	
8900187	1,87	50	18	0,40	2	4	1	○	
8900188	1,88	50	18	0,40	2	4	1	○	
8900189	1,89	50	18	0,40	2	4	1	○	
8900190	1,90	50	18	0,40	2	4	1	○	
8900191	1,91	50	20	0,40	2	4	1	○	
8900192	1,92	50	20	0,40	2	4	1	○	
8900193	1,93	50	20	0,40	2	4	1	○	
8900194	1,94	50	20	0,40	2	4	1	○	
8900195	1,95	50	20	0,40	2	4	1	○	
8900196	1,96	50	20	0,40	2	4	1	○	
8900197	1,97	50	20	0,40	2	4	1	○	
8900198	1,98	50	20	0,40	2	4	1	○	
8900199	1,99	50	20	0,40	2	4	1	○	
8900200	2,00	50	20	0,40	2	4	1	○	
8900201	2,01	50	20	0,50	2,5	4	1	○	
8900202	2,02	50	20	0,50	2,5	4	1	○	
8900203	2,03	50	20	0,50	2,5	4	1	○	
8900204	2,04	50	20	0,50	2,5	4	1	○	
8900205	2,05	50	20	0,50	2,5	4	1	○	
8900206	2,06	50	20	0,50	2,5	4	1	○	
8900207	2,07	50	20	0,50	2,5	4	1	○	
8900208	2,08	50	20	0,50	2,5	4	1	○	
8900209	2,09	50	20	0,50	2,5	4	1	○	
8900210	2,10	50	20	0,50	2,5	4	1	○	
8900211	2,11	50	20	0,50	2,5	4	1	○	
8900212	2,12	50	20	0,50	2,5	4	1	○	
8900213	2,13	50	20	0,50	2,5	4	1	○	
8900214	2,14	50	20	0,50	2,5	4	1	○	
8900215	2,15	50	20	0,50	2,5	4	1	○	
8900216	2,16	50	20	0,50	2,5	4	1	○	
8900217	2,17	50	20	0,50	2,5	4	1	○	
8900218	2,18	50	20	0,50	2,5	4	1	○	

EDP	D	L	l	l1	d	ZΔ	Type	Stock	Price
8900219	2,19	50	20	0,50	2,5	4	1	○	
8900220	2,20	50	20	0,50	2,5	4	1	○	
8900221	2,21	50	20	0,50	2,5	4	1	○	
8900222	2,22	50	20	0,50	2,5	4	1	○	
8900223	2,23	50	20	0,50	2,5	4	1	○	
8900224	2,24	50	20	0,50	2,5	4	1	○	
8900225	2,25	50	20	0,50	2,5	4	1	○	
8900226	2,26	50	20	0,50	2,5	4	1	○	
8900227	2,27	50	20	0,50	2,5	4	1	○	
8900228	2,28	50	20	0,50	2,5	4	1	○	
8900229	2,29	50	20	0,50	2,5	4	1	○	
8900230	2,30	50	20	0,50	2,5	4	1	○	
8900231	2,31	50	20	0,50	2,5	4	1	○	
8900232	2,32	50	20	0,50	2,5	4	1	○	
8900233	2,33	50	20	0,50	2,5	4	1	○	
8900234	2,34	50	20	0,50	2,5	4	1	○	
8900235	2,35	50	20	0,50	2,5	4	1	○	
8900236	2,36	50	20	0,50	2,5	4	1	○	
8900237	2,37	50	22	0,50	2,5	4	1	○	
8900238	2,38	50	22	0,50	2,5	4	1	○	
8900239	2,39	50	22	0,50	2,5	4	1	○	
8900240	2,40	50	22	0,50	2,5	4	1	○	
8900241	2,41	50	22	0,50	2,5	4	1	○	
8900242	2,42	50	22	0,50	2,5	4	1	○	
8900243	2,43	50	22	0,50	2,5	4	1	○	
8900244	2,44	50	22	0,50	2,5	4	1	○	
8900245	2,45	50	22	0,50	2,5	4	1	○	
8900246	2,46	50	22	0,50	2,5	4	1	○	
8900247	2,47	50	22	0,50	2,5	4	1	○	
8900248	2,48	50	22	0,50	2,5	4	1	○	
8900249	2,49	50	22	0,50	2,5	4	1	○	
8900250	2,50	50	22	0,50	2,5	4	1	○	
8900251	2,51	60	22	0,60	3	4	1	○	
8900252	2,52	60	22	0,60	3	4	1	○	
8900253	2,53	60	22	0,60	3	4	1	○	
8900254	2,54	60	22	0,60	3	4	1	○	
8900255	2,55	60	22	0,60	3	4	1	○	
8900256	2,56	60	22	0,60	3	4	1	○	
8900257	2,57	60	22	0,60	3	4	1	○	
8900258	2,58	60	22	0,60	3	4	1	○	
8900259	2,59	60	22	0,60	3	4	1	○	
8900260	2,60	60	22	0,60	3	4	1	○	
8900261	2,61	60	22	0,60	3	4	1	○	
8900262	2,62	60	22	0,60	3	4	1	○	
8900263	2,63	60	22	0,60	3	4	1	○	
8900264	2,64	60	22	0,60	3	4	1	○	
8900265	2,65	60	22	0,60	3	4	1	○	
8900266	2,66	60	22	0,60	3	4	1	○	
8900267	2,67	60	22	0,60	3	4	1	○	
8900268	2,68	60	22	0,60	3	4	1	○	
8900269	2,69	60	22	0,60	3	4	1	○	
8900270	2,70	60	22	0,60	3	4	1	○	
8900271	2,71	60	22	0,60	3	4	1	○	
8900272	2,72	60	22	0,60	3	4	1	○	
8900273	2,73	60	22	0,60	3	4	1	○	
8900274	2,74	60	22	0,60	3	4	1	○	
8900275	2,75	60	22	0,60	3	4	1	○	
8900276	2,76	60	22	0,60	3	4	1	○	
8900277	2,77	60	22	0,60	3	4	1	○	
8900278	2,78	60	22	0,60	3	4	1	○	
8900279	2,79	60	22	0,60	3	4	1	○	
8900280	2,80	60	22	0,60	3	4	1	○	
8900281	2,81	60	25	0,60	3	4	1	○	

● Delivery from stock
○ Available on short notice

Carbide Reamer

GO TO LIVE STOCK CHECK



HIGH PERFORMANCE
- Carbide straight reamer

HIGH PERFORMANCE
- Geradgenutete Vollhartmetallreibahle

ALTA PRESTAZIONE
- Alesatore cilindrico in metallo duro

HAUTE PERFORMANCE
- Alésoir carbure taille droite

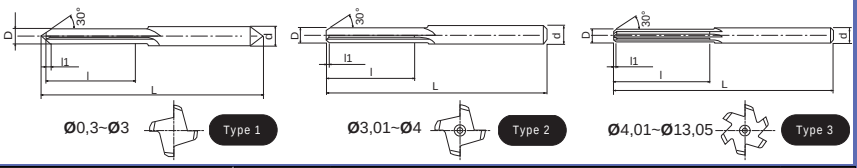
HIGH PERFORMANCE
- Hårdmetal rival med lige skær

HIGH PERFORMANCE
- HM brotsch med raka skär

ALTO RENDIMIENTO
- Escariador de ranuras rectas en metal duro

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Твердосплавная прямозубая развертка

CARBIDE | 0 ~ -0.005 | h6 | min⁻¹ D.120-121



Ø0,3~Ø3 Type 1 | Ø3,01~Ø4 Type 2 | Ø4,01~Ø13,05 Type 3

EDP	D	L	l	l1	d	ZΔ	Type	Stock	Price
8900282	2,82	60	25	0,60	3	4	1	○	
8900283	2,83	60	25	0,60	3	4	1	○	
8900284	2,84	60	25	0,60	3	4	1	○	
8900285	2,85	60	25	0,60	3	4	1	○	
8900286	2,86	60	25	0,60	3	4	1	○	
8900287	2,87	60	25	0,60	3	4	1	○	
8900288	2,88	60	25	0,60	3	4	1	○	
8900289	2,89	60	25	0,60	3	4	1	○	
8900290	2,90	60	25	0,60	3	4	1	○	
8900291	2,91	60	25	0,60	3	4	1	○	
8900292	2,92	60	25	0,60	3	4	1	○	
8900293	2,93	60	25	0,60	3	4	1	○	
8900294	2,94	60	25	0,60	3	4	1	○	
8900295	2,95	60	25	0,60	3	4	1	○	
8900296	2,96	60	25	0,60	3	4	1	○	
8900297	2,97	60	25	0,60	3	4	1	○	
8900298	2,98	60	25	0,60	3	4	1	○	
8900299	2,99	60	25	0,60	3	4	1	○	
8900300	3,00	60	25	0,60	3	4	1	○	
8900301	3,01	60	28	0,60	3,5	4	2	○	
8900302	3,02	60	28	0,60	3,5	4	2	○	
8900303	3,03	60	28	0,60	3,5	4	2	○	
8900304	3,04	60	28	0,60	3,5	4	2	○	
8900305	3,05	60	28	0,60	3,5	4	2	○	
8900306	3,06	60	28	0,60	3,5	4	2	○	
8900307	3,07	60	28	0,60	3,5	4	2	○	
8900308	3,08	60	28	0,60	3,5	4	2	○	
8900309	3,09	60	28	0,60	3,5	4	2	○	
8900310	3,10	60	28	0,60	3,5	4	2	○	
8900311	3,11	60	28	0,60	3,5	4	2	○	
8900312	3,12	60	28	0,60	3,5	4	2	○	
8900313	3,13	60	28	0,60	3,5	4	2	○	
8900314	3,14	60	28	0,60	3,5	4	2	○	
8900315	3,15	60	28	0,60	3,5	4	2	○	
8900316	3,16	60	28	0,80	3,5	4	2	○	
8900317	3,17	60	28	0,80	3,5	4	2	○	
8900318	3,18	60	28	0,80	3,5	4	2	○	
8900319	3,19	60	28	0,80	3,5	4	2	○	
8900320	3,20	60	28	0,80	3,5	4	2	○	
8900321	3,21	60	28	0,80	3,5	4	2	○	
8900322	3,22	60	28	0,80	3,5	4	2	○	
8900323	3,23	60	28	0,80	3,5	4	2	○	
8900324	3,24	60	28	0,80	3,5	4	2	○	
8900325	3,25	60	28	0,80	3,5	4	2	○	
8900326	3,26	60	28	0,80	3,5	4	2	○	
8900327	3,27	60	28	0,80	3,5	4	2	○	
8900328	3,28	60	28	0,80	3,5	4	2	○	
8900329	3,29	60	28	0,80	3,5	4	2	○	
8900330	3,30	60	28	0,80	3,5	4	2	○	
8900331	3,31	60	28	0,80	3,5	4	2	○	
8900332	3,32	60	28	0,80	3,5	4	2	○	
8900333	3,33	60	28	0,80	3,5	4	2	○	
8900334	3,34	60	28	0,80	3,5	4	2	○	
8900335	3,35	60	28	0,80	3,5	4	2	○	
8900336	3,36	60	28	0,80	3,5	4	2	○	
8900337	3,37	60	28	0,80	3,5	4	2	○	
8900338	3,38	60	28	0,80	3,5	4	2	○	
8900339	3,39	60	28	0,80	3,5	4	2	○	
8900340	3,40	60	28	0,80	3,5	4	2	○	
8900341	3,41	60	28	0,80	3,5	4	2	○	
8900342	3,42	60	28	0,80	3,5	4	2	○	
8900343	3,43	60	28	0,80	3,5	4	2	○	
8900344	3,44	60	28	0,80	3,5	4	2	○	

EDP	D	L	l	l1	d	ZΔ	Type	Stock	Price
8900345	3,45	60	28	0,80	3,5	4	2	○	
8900346	3,46	60	28	0,80	3,5	4	2	○	
8900347	3,47	60	28	0,80	3,5	4	2	○	
8900348	3,48	60	28	0,80	3,5	4	2	○	
8900349	3,49	60	28	0,80	3,5	4	2	○	
8900350	3,50	60	28	0,80	3,5	4	2	○	
8900351	3,51	70	28	0,80	4	4	2	○	
8900352	3,52	70	28	0,80	4	4	2	○	
8900353	3,53	70	28	0,80	4	4	2	○	
8900354	3,54	70	28	0,80	4	4	2	○	
8900355	3,55	70	28	0,80	4	4	2	○	
8900356	3,56	70	28	0,80	4	4	2	○	
8900357	3,57	70	28	0,80	4	4	2	○	
8900358	3,58	70	28	0,80	4	4	2	○	
8900359	3,59	70	28	0,80	4	4	2	○	
8900360	3,60	70	28	0,80	4	4	2	○	
8900361	3,61	70	28	0,80	4	4	2	○	
8900362	3,62	70	28	0,80	4	4	2	○	
8900363	3,63	70	28	0,80	4	4	2	○	
8900364	3,64	70	28	0,80	4	4	2	○	
8900365	3,65	70	28	0,80	4	4	2	○	
8900366	3,66	70	28	0,80	4	4	2	○	
8900367	3,67	70	28	0,80	4	4	2	○	
8900368	3,68	70	28	0,80	4	4	2	○	
8900369	3,69	70	28	0,80	4	4	2	○	
8900370	3,70	70	28	0,80	4	4	2	○	
8900371	3,71	70	28	0,80	4	4	2	○	
8900372	3,72	70	28	0,80	4	4	2	○	
8900373	3,73	70	28	0,80	4	4	2	○	
8900374	3,74	70	28	0,80	4	4	2	○	
8900375	3,75	70	28	0,80	4	4	2	○	
8900376	3,76	70	28	0,80	4	4	2	○	
8900377	3,77	70	28	0,80	4	4	2	○	
8900378	3,78	70	28	0,80	4	4	2	○	
8900379	3,79	70	28	0,80	4	4	2	○	
8900380	3,80	70	28	0,80	4	4	2	○	
8900381	3,81	70	28	0,80	4	4	2	○	
8900382	3,82	70	28	0,80	4	4	2	○	
8900383	3,83	70	28	0,80	4	4	2	○	
8900384	3,84	70	28	0,80	4	4	2	○	
8900385	3,85	70	28	0,80	4	4	2	○	
8900386	3,86	70	28	0,80	4	4	2	○	
8900387	3,87	70	28	0,80	4	4	2	○	
8900388	3,88	70	28	0,80	4	4	2	○	
8900389	3,89	70	28	0,80	4	4	2	○	
8900390	3,90	70	28	0,80	4	4	2	○	
8900391	3,91	70	28	0,80	4	4	2	○	
8900392	3,92	70	28	0,80	4	4	2	○	
8900393	3,93	70	28	0,80	4	4	2	○	
8900394	3,94	70	28	0,80	4	4	2	○	
8900395	3,95	70	28	0,80	4	4	2	○	
8900396	3,96	70	28	0,80	4	4	2	○	
8900397	3,97	70	28	0,80	4	4	2	○	
8900398	3,98	70	28	0,80	4	4	2	○	
8900399	3,99	70	28	0,80	4	4	2	○	
8900400	4,00	70	28	0,80	4	4	2	○	
8900401	4,01	70	28	0,80	4,5	6	3	○	
8900402	4,02	70	28	0,80	4,5	6	3	○	
8900403	4,03	70	28	0,80	4,5	6	3	○	
8900404	4,04	70	28	0,80	4,5	6	3	○	
8900405	4,05	70	28	0,80	4,5	6	3	○	
8900406	4,06	70	28	0,80	4,5	6	3	○	
8900407	4,07	70	28	0,80	4,5	6	3	○	

● Delivery from stock
○ Available on short notice

Carbide Reamer



GO TO LIVE STOCK CHECK

HIGH PERFORMANCE
- Carbide straight reamer

HIGH PERFORMANCE
- Geradgenutete Vollhartmetallreibahle

ALTA PRESTAZIONE
- Alesatore cilindrico in metallo duro

HAUTE PERFORMANCE
- Alésoir carbure taille droite

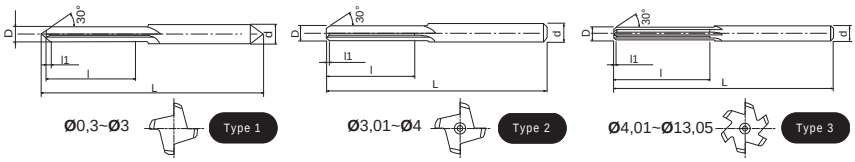
HIGH PERFORMANCE
- Hårdmetal rival med lige skær

HIGH PERFORMANCE
- HM brotsch med raka skär

ALTO RENDIMIENTO
- Escariador de ranuras rectas en metal duro

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Твердосплавная прямозубая развертка

CARBIDE | 0 ~ -0.005 | h6 | min^{-1} D.120-121



EDP	D	L	l	l1	d	ZΔ	Type	Stock	Price
8900408	4,08	70	28	0,80	4,5	6	3	○	
8900409	4,09	70	28	0,80	4,5	6	3	○	
8900410	4,10	70	28	0,80	4,5	6	3	○	
8900411	4,11	70	28	0,80	4,5	6	3	○	
8900412	4,12	70	28	0,80	4,5	6	3	○	
8900413	4,13	70	28	0,80	4,5	6	3	○	
8900414	4,14	70	28	0,80	4,5	6	3	○	
8900415	4,15	70	28	0,80	4,5	6	3	○	
8900416	4,16	70	28	0,80	4,5	6	3	○	
8900417	4,17	70	28	0,80	4,5	6	3	○	
8900418	4,18	70	28	0,80	4,5	6	3	○	
8900419	4,19	70	28	0,80	4,5	6	3	○	
8900420	4,20	70	28	0,80	4,5	6	3	○	
8900421	4,21	70	28	0,80	4,5	6	3	○	
8900422	4,22	70	28	0,80	4,5	6	3	○	
8900423	4,23	70	28	0,80	4,5	6	3	○	
8900424	4,24	70	28	0,80	4,5	6	3	○	
8900425	4,25	70	28	0,80	4,5	6	3	○	
8900426	4,26	70	28	0,80	4,5	6	3	○	
8900427	4,27	70	28	0,80	4,5	6	3	○	
8900428	4,28	70	28	0,80	4,5	6	3	○	
8900429	4,29	70	28	0,80	4,5	6	3	○	
8900430	4,30	70	28	0,80	4,5	6	3	○	
8900431	4,31	70	28	0,80	4,5	6	3	○	
8900432	4,32	70	28	0,80	4,5	6	3	○	
8900433	4,33	70	28	0,80	4,5	6	3	○	
8900434	4,34	70	28	0,80	4,5	6	3	○	
8900435	4,35	70	28	0,80	4,5	6	3	○	
8900436	4,36	70	28	0,80	4,5	6	3	○	
8900437	4,37	70	28	0,80	4,5	6	3	○	
8900438	4,38	70	28	0,80	4,5	6	3	○	
8900439	4,39	70	28	0,80	4,5	6	3	○	
8900440	4,40	70	28	0,80	4,5	6	3	○	
8900441	4,41	70	28	0,80	4,5	6	3	○	
8900442	4,42	70	28	0,80	4,5	6	3	○	
8900443	4,43	70	28	0,80	4,5	6	3	○	
8900444	4,44	70	28	0,80	4,5	6	3	○	
8900445	4,45	70	28	0,80	4,5	6	3	○	
8900446	4,46	70	28	0,80	4,5	6	3	○	
8900447	4,47	70	28	0,80	4,5	6	3	○	
8900448	4,48	70	28	0,80	4,5	6	3	○	
8900449	4,49	70	28	0,80	4,5	6	3	○	
8900450	4,50	70	28	0,80	4,5	6	3	○	
8900451	4,51	80	28	0,80	5	6	3	○	
8900452	4,52	80	28	0,80	5	6	3	○	
8900453	4,53	80	28	0,80	5	6	3	○	
8900454	4,54	80	28	0,80	5	6	3	○	
8900455	4,55	80	28	0,80	5	6	3	○	
8900456	4,56	80	28	0,80	5	6	3	○	
8900457	4,57	80	28	0,80	5	6	3	○	
8900458	4,58	80	28	0,80	5	6	3	○	
8900459	4,59	80	28	0,80	5	6	3	○	
8900460	4,60	80	28	0,80	5	6	3	○	
8900461	4,61	80	28	0,80	5	6	3	○	
8900462	4,62	80	28	0,80	5	6	3	○	
8900463	4,63	80	28	0,80	5	6	3	○	
8900464	4,64	80	28	0,80	5	6	3	○	
8900465	4,65	80	28	0,80	5	6	3	○	
8900466	4,66	80	28	0,80	5	6	3	○	
8900467	4,67	80	28	0,80	5	6	3	○	
8900468	4,68	80	28	0,80	5	6	3	○	
8900469	4,69	80	28	0,80	5	6	3	○	
8900470	4,70	80	28	0,80	5	6	3	○	

EDP	D	L	l	l1	d	ZΔ	Type	Stock	Price
8900471	4,71	80	28	0,80	5	6	3	○	
8900472	4,72	80	28	0,80	5	6	3	○	
8900473	4,73	80	28	0,80	5	6	3	○	
8900474	4,74	80	28	0,80	5	6	3	○	
8900475	4,75	80	28	0,80	5	6	3	○	
8900476	4,76	80	32	0,80	5	6	3	○	
8900477	4,77	80	32	0,80	5	6	3	○	
8900478	4,78	80	32	0,80	5	6	3	○	
8900479	4,79	80	32	0,80	5	6	3	○	
8900480	4,80	80	32	0,80	5	6	3	○	
8900481	4,81	80	32	0,80	5	6	3	○	
8900482	4,82	80	32	0,80	5	6	3	○	
8900483	4,83	80	32	0,80	5	6	3	○	
8900484	4,84	80	32	0,80	5	6	3	○	
8900485	4,85	80	32	0,80	5	6	3	○	
8900486	4,86	80	32	0,80	5	6	3	○	
8900487	4,87	80	32	0,80	5	6	3	○	
8900488	4,88	80	32	0,80	5	6	3	○	
8900489	4,89	80	32	0,80	5	6	3	○	
8900490	4,90	80	32	0,80	5	6	3	○	
8900491	4,91	80	32	0,80	5	6	3	○	
8900492	4,92	80	32	0,80	5	6	3	○	
8900493	4,93	80	32	0,80	5	6	3	○	
8900494	4,94	80	32	0,80	5	6	3	○	
8900495	4,95	80	32	0,80	5	6	3	○	
8900496	4,96	80	32	0,80	5	6	3	○	
8900497	4,97	80	32	0,80	5	6	3	○	
8900498	4,98	80	32	0,80	5	6	3	○	
8900499	4,99	80	32	0,80	5	6	3	○	
8900500	5,00	80	32	0,80	5	6	3	○	
8900501	5,01	80	32	0,80	5,5	6	3	○	
8900502	5,02	80	32	0,80	5,5	6	3	○	
8900503	5,03	80	32	0,80	5,5	6	3	○	
8900504	5,04	80	32	0,80	5,5	6	3	○	
8900505	5,05	80	32	0,80	5,5	6	3	○	
8900506	5,06	80	32	0,80	5,5	6	3	○	
8900507	5,07	80	32	0,80	5,5	6	3	○	
8900508	5,08	80	32	0,80	5,5	6	3	○	
8900509	5,09	80	32	0,80	5,5	6	3	○	
8900510	5,10	80	32	0,80	5,5	6	3	○	
8900511	5,11	80	32	0,80	5,5	6	3	○	
8900512	5,12	80	32	0,80	5,5	6	3	○	
8900513	5,13	80	32	0,80	5,5	6	3	○	
8900514	5,14	80	32	0,80	5,5	6	3	○	
8900515	5,15	80	32	0,80	5,5	6	3	○	
8900516	5,16	80	32	0,80	5,5	6	3	○	
8900517	5,17	80	32	0,80	5,5	6	3	○	
8900518	5,18	80	32	0,80	5,5	6	3	○	
8900519	5,19	80	32	0,80	5,5	6	3	○	
8900520	5,20	80	32	0,80	5,5	6	3	○	
8900521	5,21	80	32	0,80	5,5	6	3	○	
8900522	5,22	80	32	0,80	5,5	6	3	○	
8900523	5,23	80	32	0,80	5,5	6	3	○	
8900524	5,24	80	32	0,80	5,5	6	3	○	
8900525	5,25	80	32	0,80	5,5	6	3	○	
8900526	5,26	80	32	0,80	5,5	6	3	○	
8900527	5,27	80	32	0,80	5,5	6	3	○	
8900528	5,28	80	32	0,80	5,5	6	3	○	
8900529	5,29	80	32	0,80	5,5	6	3	○	
8900530	5,30	80	32	0,80	5,5	6	3	○	
8900531	5,31	80	32	0,80	5,5	6	3	○	
8900532	5,32	80	32	0,80	5,5	6	3	○	
8900533	5,33	80	32	0,80	5,5	6	3	○	

● Delivery from stock
○ Available on short notice

Carbide Reamer



HIGH PERFORMANCE
- Carbide straight reamer

HIGH PERFORMANCE
- Geradgenutete Vollhartmetallreibahle

ALTA PRESTAZIONE
- Alesatore cilindrico in metallo duro

HAUTE PERFORMANCE
- Alésoir carbure taille droite

HIGH PERFORMANCE
- Hårdmetal rival med lige skær

HIGH PERFORMANCE
- HM brotsch med raka skär

ALTO RENDIMIENTO
- Escariador de ranuras rectas en metal duro

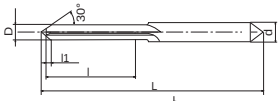
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Твердосплавная прямозубая развертка

CARBIDE

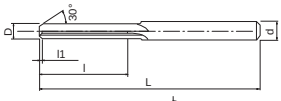
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h6

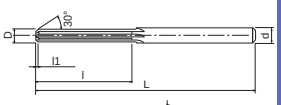
min^{-1} D.120-121



Ø0,3~Ø3 Type 1



Ø3,01~Ø4 Type 2



Ø4,01~Ø13,05 Type 3

EDP	D	L	l	l1	d	ZΔ	Type	Stock	Price
8900534	5,34	80	32	0,80	5,5	6	3	○	
8900535	5,35	80	32	0,80	5,5	6	3	○	
8900536	5,36	80	32	0,80	5,5	6	3	○	
8900537	5,37	80	32	0,80	5,5	6	3	○	
8900538	5,38	80	32	0,80	5,5	6	3	○	
8900539	5,39	80	32	0,80	5,5	6	3	○	
8900540	5,40	80	32	0,80	5,5	6	3	○	
8900541	5,41	80	32	0,80	5,5	6	3	○	
8900542	5,42	80	32	0,80	5,5	6	3	○	
8900543	5,43	80	32	0,80	5,5	6	3	○	
8900544	5,44	80	32	0,80	5,5	6	3	○	
8900545	5,45	80	32	0,80	5,5	6	3	○	
8900546	5,46	80	32	0,80	5,5	6	3	○	
8900547	5,47	80	32	0,80	5,5	6	3	○	
8900548	5,48	80	32	0,80	5,5	6	3	○	
8900549	5,49	80	32	0,80	5,5	6	3	○	
8900550	5,50	80	32	0,80	5,5	6	3	○	
8900551	5,51	80	32	0,80	5,5	6	3	○	
8900552	5,52	80	32	0,80	5,5	6	3	○	
8900553	5,53	80	32	0,80	5,5	6	3	○	
8900554	5,54	80	32	0,80	5,5	6	3	○	
8900555	5,55	80	32	0,80	5,5	6	3	○	
8900556	5,56	80	32	0,80	6	6	3	○	
8900557	5,57	80	32	0,80	6	6	3	○	
8900558	5,58	80	32	0,80	6	6	3	○	
8900559	5,59	80	32	0,80	6	6	3	○	
8900560	5,60	80	32	0,80	6	6	3	○	
8900561	5,61	80	32	0,80	6	6	3	○	
8900562	5,62	80	32	0,80	6	6	3	○	
8900563	5,63	80	32	0,80	6	6	3	○	
8900564	5,64	80	32	0,80	6	6	3	○	
8900565	5,65	80	32	0,80	6	6	3	○	
8900566	5,66	80	32	0,80	6	6	3	○	
8900567	5,67	80	32	0,80	6	6	3	○	
8900568	5,68	80	32	0,80	6	6	3	○	
8900569	5,69	80	32	0,80	6	6	3	○	
8900570	5,70	80	32	0,80	6	6	3	○	
8900571	5,71	80	32	0,80	6	6	3	○	
8900572	5,72	80	32	0,80	6	6	3	○	
8900573	5,73	80	32	0,80	6	6	3	○	
8900574	5,74	80	32	0,80	6	6	3	○	
8900575	5,75	80	32	0,80	6	6	3	○	
8900576	5,76	80	32	0,80	6	6	3	○	
8900577	5,77	80	32	0,80	6	6	3	○	
8900578	5,78	80	32	0,80	6	6	3	○	
8900579	5,79	80	32	0,80	6	6	3	○	
8900580	5,80	80	32	0,80	6	6	3	○	
8900581	5,81	80	32	0,80	6	6	3	○	
8900582	5,82	80	32	0,80	6	6	3	○	
8900583	5,83	80	32	0,80	6	6	3	○	
8900584	5,84	80	32	0,80	6	6	3	○	
8900585	5,85	80	32	0,80	6	6	3	○	
8900586	5,86	80	32	0,80	6	6	3	○	
8900587	5,87	80	32	0,80	6	6	3	○	
8900588	5,88	80	32	0,80	6	6	3	○	
8900589	5,89	80	32	0,80	6	6	3	○	
8900590	5,90	80	32	0,80	6	6	3	○	
8900591	5,91	80	32	0,80	6	6	3	○	
8900592	5,92	80	32	0,80	6	6	3	○	
8900593	5,93	80	32	0,80	6	6	3	○	
8900594	5,94	80	32	0,80	6	6	3	○	
8900595	5,95	80	32	0,80	6	6	3	○	
8900596	5,96	80	32	0,80	6	6	3	○	

EDP	D	L	l	l1	d	ZΔ	Type	Stock	Price
8900597	5,97	80	32	0,80	6	6	3	○	
8900598	5,98	80	32	0,80	6	6	3	○	
8900599	5,99	80	32	0,80	6	6	3	○	
8900600	6,00	80	32	0,80	6	6	3	○	
8900601	6,01	80	35	0,80	7	6	3	○	
8900602	6,02	80	35	0,80	7	6	3	○	
8900603	6,03	80	35	0,80	7	6	3	○	
8900604	6,04	80	35	0,80	7	6	3	○	
8900605	6,05	80	35	0,80	7	6	3	○	
8900606	6,06	80	35	0,80	7	6	3	○	
8900607	6,07	80	35	0,80	7	6	3	○	
8900608	6,08	80	35	0,80	7	6	3	○	
8900609	6,09	80	35	0,80	7	6	3	○	
8900610	6,10	80	35	0,80	7	6	3	○	
8900611	6,11	80	35	0,80	7	6	3	○	
8900612	6,12	80	35	0,80	7	6	3	○	
8900613	6,13	80	35	0,80	7	6	3	○	
8900614	6,14	80	35	0,80	7	6	3	○	
8900615	6,15	80	35	0,80	7	6	3	○	
8900616	6,16	80	35	0,80	7	6	3	○	
8900617	6,17	80	35	0,80	7	6	3	○	
8900618	6,18	80	35	0,80	7	6	3	○	
8900619	6,19	80	35	0,80	7	6	3	○	
8900620	6,20	80	35	0,80	7	6	3	○	
8900621	6,21	80	35	0,80	7	6	3	○	
8900622	6,22	80	35	0,80	7	6	3	○	
8900623	6,23	80	35	0,80	7	6	3	○	
8900624	6,24	80	35	0,80	7	6	3	○	
8900625	6,25	80	35	0,80	7	6	3	○	
8900626	6,26	80	35	0,80	7	6	3	○	
8900627	6,27	80	35	0,80	7	6	3	○	
8900628	6,28	80	35	0,80	7	6	3	○	
8900629	6,29	80	35	0,80	7	6	3	○	
8900630	6,30	80	35	0,80	7	6	3	○	
8900631	6,31	80	35	0,80	7	6	3	○	
8900632	6,32	80	35	0,80	7	6	3	○	
8900633	6,33	80	35	0,80	7	6	3	○	
8900634	6,34	80	35	0,80	7	6	3	○	
8900635	6,35	80	35	0,80	7	6	3	○	
8900636	6,36	80	35	0,80	7	6	3	○	
8900637	6,37	80	35	0,80	7	6	3	○	
8900638	6,38	80	35	0,80	7	6	3	○	
8900639	6,39	80	35	0,80	7	6	3	○	
8900640	6,40	80	35	0,80	7	6	3	○	
8900641	6,41	80	35	0,80	7	6	3	○	
8900642	6,42	80	35	0,80	7	6	3	○	
8900643	6,43	80	35	0,80	7	6	3	○	
8900644	6,44	80	35	0,80	7	6	3	○	
8900645	6,45	80	35	0,80	7	6	3	○	
8900646	6,46	80	35	0,80	7	6	3	○	
8900647	6,47	80	35	0,80	7	6	3	○	
8900648	6,48	80	35	0,80	7	6	3	○	
8900649	6,49	80	35	0,80	7	6	3	○	
8900650	6,50	80	35	0,80	7	6	3	○	
8900651	6,51	80	35	0,80	7	6	3	○	
8900652	6,52	80	35	0,80	7	6	3	○	
8900653	6,53	80	35	0,80	7	6	3	○	
8900654	6,54	80	35	0,80	7	6	3	○	
8900655	6,55	80	35	0,80	7	6	3	○	
8900656	6,56	80	35	0,80	7	6	3	○	
8900657	6,57	80	35	0,80	7	6	3	○	
8900658	6,58	80	35	0,80	7	6	3	○	
8900659	6,59	80	35	0,80	7	6	3	○	

● Delivery from stock
○ Available on short notice

Carbide Reamer



HIGH PERFORMANCE
- Carbide straight reamer

HIGH PERFORMANCE
- Geradgenutete Vollhartmetallreibahle

ALTA PRESTAZIONE
- Alesatore cilindrico in metallo duro

HAUTE PERFORMANCE
- Alésoir carbure taille droite

HIGH PERFORMANCE
- Hårdmetal rival med lige skær

HIGH PERFORMANCE
- HM brotsch med raka skär

ALTO RENDIMIENTO
- Escariador de ranuras rectas en metal duro

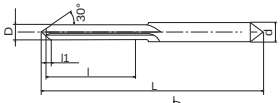
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Твердосплавная прямозубая развертка

CARBIDE

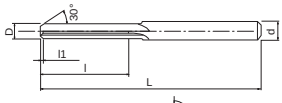
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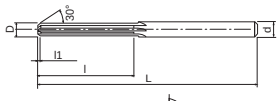
min^{-1} D.120-121



Ø0,3~Ø3 Type 1



Ø3,01~Ø4 Type 2



Ø4,01~Ø13,05 Type 3

EDP	D	L	l	l1	d	ZΔ	Type	Stock	Price
8900660	6,60	80	35	0,80	7	6	3	○	
8900661	6,61	80	35	0,80	7	6	3	○	
8900662	6,62	80	35	0,80	7	6	3	○	
8900663	6,63	80	35	0,80	7	6	3	○	
8900664	6,64	80	35	0,80	7	6	3	○	
8900665	6,65	80	35	0,80	7	6	3	○	
8900666	6,66	80	35	0,80	7	6	3	○	
8900667	6,67	80	35	0,80	7	6	3	○	
8900668	6,68	80	35	0,80	7	6	3	○	
8900669	6,69	80	35	0,80	7	6	3	○	
8900670	6,70	80	35	0,80	7	6	3	○	
8900671	6,71	80	35	0,80	7	6	3	○	
8900672	6,72	80	35	0,80	7	6	3	○	
8900673	6,73	80	35	0,80	7	6	3	○	
8900674	6,74	80	35	0,80	7	6	3	○	
8900675	6,75	80	35	0,80	7	6	3	○	
8900676	6,76	80	35	0,80	7	6	3	○	
8900677	6,77	80	35	0,80	7	6	3	○	
8900678	6,78	80	35	0,80	7	6	3	○	
8900679	6,79	80	35	0,80	7	6	3	○	
8900680	6,80	80	35	0,80	7	6	3	○	
8900681	6,81	80	35	0,80	7	6	3	○	
8900682	6,82	80	35	0,80	7	6	3	○	
8900683	6,83	80	35	0,80	7	6	3	○	
8900684	6,84	80	35	0,80	7	6	3	○	
8900685	6,85	80	35	0,80	7	6	3	○	
8900686	6,86	80	35	0,80	7	6	3	○	
8900687	6,87	80	35	0,80	7	6	3	○	
8900688	6,88	80	35	0,80	7	6	3	○	
8900689	6,89	80	35	0,80	7	6	3	○	
8900690	6,90	80	35	0,80	7	6	3	○	
8900691	6,91	80	35	0,80	7	6	3	○	
8900692	6,92	80	35	0,80	7	6	3	○	
8900693	6,93	80	35	0,80	7	6	3	○	
8900694	6,94	80	35	0,80	7	6	3	○	
8900695	6,95	80	35	0,80	7	6	3	○	
8900696	6,96	80	35	0,80	7	6	3	○	
8900697	6,97	80	35	0,80	7	6	3	○	
8900698	6,98	80	35	0,80	7	6	3	○	
8900699	6,99	80	35	0,80	7	6	3	○	
8900700	7,00	80	35	0,80	7	6	3	○	
8900701	7,01	90	35	0,80	8	6	3	○	
8900702	7,02	90	35	0,80	8	6	3	○	
8900703	7,03	90	35	0,80	8	6	3	○	
8900704	7,04	90	35	0,80	8	6	3	○	
8900705	7,05	90	35	0,80	8	6	3	○	
8900706	7,06	90	35	0,80	8	6	3	○	
8900707	7,07	90	35	0,80	8	6	3	○	
8900708	7,08	90	35	0,80	8	6	3	○	
8900709	7,09	90	35	0,80	8	6	3	○	
8900710	7,10	90	35	0,80	8	6	3	○	
8900711	7,11	90	35	0,80	8	6	3	○	
8900712	7,12	90	35	0,80	8	6	3	○	
8900713	7,13	90	35	0,80	8	6	3	○	
8900714	7,14	90	35	0,80	8	6	3	○	
8900715	7,15	90	35	0,80	8	6	3	○	
8900716	7,16	90	35	0,80	8	6	3	○	
8900717	7,17	90	35	0,80	8	6	3	○	
8900718	7,18	90	35	0,80	8	6	3	○	
8900719	7,19	90	35	0,80	8	6	3	○	
8900720	7,20	90	35	0,80	8	6	3	○	
8900721	7,21	90	35	0,80	8	6	3	○	
8900722	7,22	90	35	0,80	8	6	3	○	

EDP	D	L	l	l1	d	ZΔ	Type	Stock	Price
8900723	7,23	90	35	0,80	8	6	3	○	
8900724	7,24	90	35	0,80	8	6	3	○	
8900725	7,25	90	35	0,80	8	6	3	○	
8900726	7,26	90	35	0,80	8	6	3	○	
8900727	7,27	90	35	0,80	8	6	3	○	
8900728	7,28	90	35	0,80	8	6	3	○	
8900729	7,29	90	35	0,80	8	6	3	○	
8900730	7,30	90	35	0,80	8	6	3	○	
8900731	7,31	90	35	0,80	8	6	3	○	
8900732	7,32	90	35	0,80	8	6	3	○	
8900733	7,33	90	35	0,80	8	6	3	○	
8900734	7,34	90	35	0,80	8	6	3	○	
8900735	7,35	90	35	0,80	8	6	3	○	
8900736	7,36	90	35	0,80	8	6	3	○	
8900737	7,37	90	35	0,80	8	6	3	○	
8900738	7,38	90	35	0,80	8	6	3	○	
8900739	7,39	90	35	0,80	8	6	3	○	
8900740	7,40	90	35	0,80	8	6	3	○	
8900741	7,41	90	35	0,80	8	6	3	○	
8900742	7,42	90	35	0,80	8	6	3	○	
8900743	7,43	90	35	0,80	8	6	3	○	
8900744	7,44	90	35	0,80	8	6	3	○	
8900745	7,45	90	35	0,80	8	6	3	○	
8900746	7,46	90	35	0,80	8	6	3	○	
8900747	7,47	90	35	0,80	8	6	3	○	
8900748	7,48	90	35	0,80	8	6	3	○	
8900749	7,49	90	35	0,80	8	6	3	○	
8900750	7,50	90	35	0,80	8	6	3	○	
8900751	7,51	90	40	0,80	8	6	3	○	
8900752	7,52	90	40	0,80	8	6	3	○	
8900753	7,53	90	40	0,80	8	6	3	○	
8900754	7,54	90	40	0,80	8	6	3	○	
8900755	7,55	90	40	0,80	8	6	3	○	
8900756	7,56	90	40	0,80	8	6	3	○	
8900757	7,57	90	40	0,80	8	6	3	○	
8900758	7,58	90	40	0,80	8	6	3	○	
8900759	7,59	90	40	0,80	8	6	3	○	
8900760	7,60	90	40	0,80	8	6	3	○	
8900761	7,61	90	40	0,80	8	6	3	○	
8900762	7,62	90	40	0,80	8	6	3	○	
8900763	7,63	90	40	0,80	8	6	3	○	
8900764	7,64	90	40	0,80	8	6	3	○	
8900765	7,65	90	40	0,80	8	6	3	○	
8900766	7,66	90	40	0,80	8	6	3	○	
8900767	7,67	90	40	0,80	8	6	3	○	
8900768	7,68	90	40	0,80	8	6	3	○	
8900769	7,69	90	40	0,80	8	6	3	○	
8900770	7,70	90	40	0,80	8	6	3	○	
8900771	7,71	90	40	0,80	8	6	3	○	
8900772	7,72	90	40	0,80	8	6	3	○	
8900773	7,73	90	40	0,80	8	6	3	○	
8900774	7,74	90	40	0,80	8	6	3	○	
8900775	7,75	90	40	0,80	8	6	3	○	
8900776	7,76	90	40	0,80	8	6	3	○	
8900777	7,77	90	40	0,80	8	6	3	○	
8900778	7,78	90	40	0,80	8	6	3	○	
8900779	7,79	90	40	0,80	8	6	3	○	
8900780	7,80	90	40	0,80	8	6	3	○	
8900781	7,81	90	40	0,80	8	6	3	○	
8900782	7,82	90	40	0,80	8	6	3	○	
8900783	7,83	90	40	0,80	8	6	3	○	
8900784	7,84	90	40	0,80	8	6	3	○	
8900785	7,85	90	40	0,80	8	6	3	○	

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE
- Carbide straight reamer

HIGH PERFORMANCE
- Geradgenutete Vollhartmetallreibahle

ALTA PRESTAZIONE
- Alesatore cilindrico in metallo duro

HAUTE PERFORMANCE
- Alésoir carbure taille droite

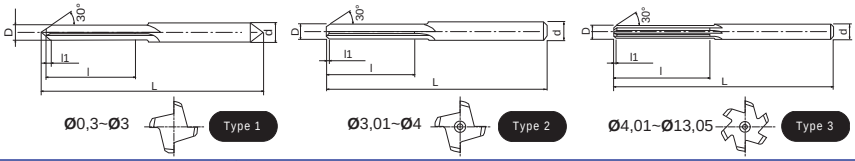
HIGH PERFORMANCE
- Hårdmetal rival med lige skær

HIGH PERFORMANCE
- HM brotsch med raka skär

ALTO RENDIMIENTO
- Escariador de ranuras rectas en metal duro

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Твердосплавная прямозубая развертка

CARBIDE | 0 ~ -0.005 | h6 | min^{-1} D.120-121



EDP	D	L	l	l1	d	ZΔ	Type	Stock	Price
8900786	7,86	90	40	0,80	8	6	3	○	
8900787	7,87	90	40	0,80	8	6	3	○	
8900788	7,88	90	40	0,80	8	6	3	○	
8900789	7,89	90	40	0,80	8	6	3	○	
8900790	7,90	90	40	0,80	8	6	3	○	
8900791	7,91	90	40	0,80	8	6	3	○	
8900792	7,92	90	40	0,80	8	6	3	○	
8900793	7,93	90	40	0,80	8	6	3	○	
8900794	7,94	90	40	0,80	8	6	3	○	
8900795	7,95	90	40	0,80	8	6	3	○	
8900796	7,96	90	40	0,80	8	6	3	○	
8900797	7,97	90	40	0,80	8	6	3	○	
8900798	7,98	90	40	0,80	8	6	3	○	
8900799	7,99	90	40	0,80	8	6	3	○	
8900800	8,00	90	40	0,80	8	6	3	○	
8900801	8,01	90	40	1,00	9	6	3	○	
8900802	8,02	90	40	1,00	9	6	3	○	
8900803	8,03	90	40	1,00	9	6	3	○	
8900804	8,04	90	40	1,00	9	6	3	○	
8900805	8,05	90	40	1,00	9	6	3	○	
8900806	8,06	90	40	1,00	9	6	3	○	
8900807	8,07	90	40	1,00	9	6	3	○	
8900808	8,08	90	40	1,00	9	6	3	○	
8900809	8,09	90	40	1,00	9	6	3	○	
8900810	8,10	90	40	1,00	9	6	3	○	
8900811	8,11	90	40	1,00	9	6	3	○	
8900812	8,12	90	40	1,00	9	6	3	○	
8900813	8,13	90	40	1,00	9	6	3	○	
8900814	8,14	90	40	1,00	9	6	3	○	
8900815	8,15	90	40	1,00	9	6	3	○	
8900816	8,16	90	40	1,00	9	6	3	○	
8900817	8,17	90	40	1,00	9	6	3	○	
8900818	8,18	90	40	1,00	9	6	3	○	
8900819	8,19	90	40	1,00	9	6	3	○	
8900820	8,20	90	40	1,00	9	6	3	○	
8900821	8,21	90	40	1,00	9	6	3	○	
8900822	8,22	90	40	1,00	9	6	3	○	
8900823	8,23	90	40	1,00	9	6	3	○	
8900824	8,24	90	40	1,00	9	6	3	○	
8900825	8,25	90	40	1,00	9	6	3	○	
8900826	8,26	90	40	1,00	9	6	3	○	
8900827	8,27	90	40	1,00	9	6	3	○	
8900828	8,28	90	40	1,00	9	6	3	○	
8900829	8,29	90	40	1,00	9	6	3	○	
8900830	8,30	90	40	1,00	9	6	3	○	
8900831	8,31	90	40	1,00	9	6	3	○	
8900832	8,32	90	40	1,00	9	6	3	○	
8900833	8,33	90	40	1,00	9	6	3	○	
8900834	8,34	90	40	1,00	9	6	3	○	
8900835	8,35	90	40	1,00	9	6	3	○	
8900836	8,36	90	40	1,00	9	6	3	○	
8900837	8,37	90	40	1,00	9	6	3	○	
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8900839	8,39	90	40	1,00	9	6	3	○	
8900840	8,40	90	40	1,00	9	6	3	○	
8900841	8,41	90	40	1,00	9	6	3	○	
8900842	8,42	90	40	1,00	9	6	3	○	
8900843	8,43	90	40	1,00	9	6	3	○	
8900844	8,44	90	40	1,00	9	6	3	○	
8900845	8,45	90	40	1,00	9	6	3	○	
8900846	8,46	90	40	1,00	9	6	3	○	
8900847	8,47	90	40	1,00	9	6	3	○	
8900848	8,48	90	40	1,00	9	6	3	○	

EDP	D	L	l	l1	d	ZΔ	Type	Stock	Price
8900849	8,49	90	40	1,00	9	6	3	○	
8900850	8,50	90	40	1,00	9	6	3	○	
8900851	8,51	90	40	1,00	9	6	3	○	
8900852	8,52	90	40	1,00	9	6	3	○	
8900853	8,53	90	40	1,00	9	6	3	○	
8900854	8,54	90	40	1,00	9	6	3	○	
8900855	8,55	90	40	1,00	9	6	3	○	
8900856	8,56	90	40	1,00	9	6	3	○	
8900857	8,57	90	40	1,00	9	6	3	○	
8900858	8,58	90	40	1,00	9	6	3	○	
8900859	8,59	90	40	1,00	9	6	3	○	
8900860	8,60	90	40	1,00	9	6	3	○	
8900861	8,61	90	40	1,00	9	6	3	○	
8900862	8,62	90	40	1,00	9	6	3	○	
8900863	8,63	90	40	1,00	9	6	3	○	
8900864	8,64	90	40	1,00	9	6	3	○	
8900865	8,65	90	40	1,00	9	6	3	○	
8900866	8,66	90	40	1,00	9	6	3	○	
8900867	8,67	90	40	1,00	9	6	3	○	
8900868	8,68	90	40	1,00	9	6	3	○	
8900869	8,69	90	40	1,00	9	6	3	○	
8900870	8,70	90	40	1,00	9	6	3	○	
8900871	8,71	90	40	1,00	9	6	3	○	
8900872	8,72	90	40	1,00	9	6	3	○	
8900873	8,73	90	40	1,00	9	6	3	○	
8900874	8,74	90	40	1,00	9	6	3	○	
8900875	8,75	90	40	1,00	9	6	3	○	
8900876	8,76	90	40	1,00	9	6	3	○	
8900877	8,77	90	40	1,00	9	6	3	○	
8900878	8,78	90	40	1,00	9	6	3	○	
8900879	8,79	90	40	1,00	9	6	3	○	
8900880	8,80	90	40	1,00	9	6	3	○	
8900881	8,81	90	40	1,00	9	6	3	○	
8900882	8,82	90	40	1,00	9	6	3	○	
8900883	8,83	90	40	1,00	9	6	3	○	
8900884	8,84	90	40	1,00	9	6	3	○	
8900885	8,85	90	40	1,00	9	6	3	○	
8900886	8,86	90	40	1,00	9	6	3	○	
8900887	8,87	90	40	1,00	9	6	3	○	
8900888	8,88	90	40	1,00	9	6	3	○	
8900889	8,89	90	40	1,00	9	6	3	○	
8900890	8,90	90	40	1,00	9	6	3	○	
8900891	8,91	90	40	1,00	9	6	3	○	
8900892	8,92	90	40	1,00	9	6	3	○	
8900893	8,93	90	40	1,00	9	6	3	○	
8900894	8,94	90	40	1,00	9	6	3	○	
8900895	8,95	90	40	1,00	9	6	3	○	
8900896	8,96	90	40	1,00	9	6	3	○	
8900897	8,97	90	40	1,00	9	6	3	○	
8900898	8,98	90	40	1,00	9	6	3	○	
8900899	8,99	90	40	1,00	9	6	3	○	
8900900	9,00	90	40	1,00	9	6	3	○	
8900901	9,01	100	40	1,00	10	6	3	○	
8900902	9,02	100	40	1,00	10	6	3	○	
8900903	9,03	100	40	1,00	10	6	3	○	
8900904	9,04	100	40	1,00	10	6	3	○	
8900905	9,05	100	40	1,00	10	6	3	○	
8900906	9,06	100	40	1,00	10	6	3	○	
8900907	9,07	100	40	1,00	10	6	3	○	
8900908	9,08	100	40	1,00	10	6	3	○	
8900909	9,09	100	40	1,00	10	6	3	○	
8900910	9,10	100	40	1,00	10	6	3	○	
8900911	9,11	100	40	1,00	10	6	3	○	

Carbide Reamer



HIGH PERFORMANCE
- Carbide straight reamer

HIGH PERFORMANCE
- Geradgenutete Vollhartmetallreibahle

ALTA PRESTAZIONE
- Alesatore cilindrico in metallo duro

HAUTE PERFORMANCE
- Alésoir carbure taille droite

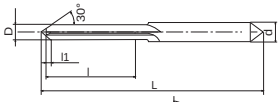
HIGH PERFORMANCE
- Hårdmetal rival med lige skær

HIGH PERFORMANCE
- HM brotsch med raka skär

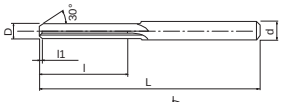
ALTO RENDIMIENTO
- Escariador de ranuras rectas en metal duro

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Твердосплавная прямозубая развертка

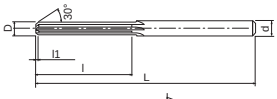
CARBIDE | 0 ~ -0.005 | h6 | min^{-1} D.120-121



Ø0,3~Ø3 — Type 1



Ø3,01~Ø4 — Type 2



Ø4,01~Ø13,05 — Type 3

EDP	D	L	l	l1	d	ZΔ	Type	Stock	Price
8900912	9,12	100	40	1,00	10	6	3	○	
8900913	9,13	100	40	1,00	10	6	3	○	
8900914	9,14	100	40	1,00	10	6	3	○	
8900915	9,15	100	40	1,00	10	6	3	○	
8900916	9,16	100	40	1,00	10	6	3	○	
8900917	9,17	100	40	1,00	10	6	3	○	
8900918	9,18	100	40	1,00	10	6	3	○	
8900919	9,19	100	40	1,00	10	6	3	○	
8900920	9,20	100	40	1,00	10	6	3	○	
8900921	9,21	100	40	1,00	10	6	3	○	
8900922	9,22	100	40	1,00	10	6	3	○	
8900923	9,23	100	40	1,00	10	6	3	○	
8900924	9,24	100	40	1,00	10	6	3	○	
8900925	9,25	100	40	1,00	10	6	3	○	
8900926	9,26	100	40	1,00	10	6	3	○	
8900927	9,27	100	40	1,00	10	6	3	○	
8900928	9,28	100	40	1,00	10	6	3	○	
8900929	9,29	100	40	1,00	10	6	3	○	
8900930	9,30	100	40	1,00	10	6	3	○	
8900931	9,31	100	40	1,00	10	6	3	○	
8900932	9,32	100	40	1,00	10	6	3	○	
8900933	9,33	100	40	1,00	10	6	3	○	
8900934	9,34	100	40	1,00	10	6	3	○	
8900935	9,35	100	40	1,00	10	6	3	○	
8900936	9,36	100	40	1,00	10	6	3	○	
8900937	9,37	100	40	1,00	10	6	3	○	
8900938	9,38	100	40	1,00	10	6	3	○	
8900939	9,39	100	40	1,00	10	6	3	○	
8900940	9,40	100	40	1,00	10	6	3	○	
8900941	9,41	100	40	1,00	10	6	3	○	
8900942	9,42	100	40	1,00	10	6	3	○	
8900943	9,43	100	40	1,00	10	6	3	○	
8900944	9,44	100	40	1,00	10	6	3	○	
8900945	9,45	100	40	1,00	10	6	3	○	
8900946	9,46	100	40	1,00	10	6	3	○	
8900947	9,47	100	40	1,00	10	6	3	○	
8900948	9,48	100	40	1,00	10	6	3	○	
8900949	9,49	100	40	1,00	10	6	3	○	
8900950	9,50	100	40	1,00	10	6	3	○	
8900951	9,51	100	45	1,00	10	6	3	○	
8900952	9,52	100	45	1,00	10	6	3	○	
8900953	9,53	100	45	1,00	10	6	3	○	
8900954	9,54	100	45	1,00	10	6	3	○	
8900955	9,55	100	45	1,00	10	6	3	○	
8900956	9,56	100	45	1,00	10	6	3	○	
8900957	9,57	100	45	1,00	10	6	3	○	
8900958	9,58	100	45	1,00	10	6	3	○	
8900959	9,59	100	45	1,00	10	6	3	○	
8900960	9,60	100	45	1,00	10	6	3	○	
8900961	9,61	100	45	1,00	10	6	3	○	
8900962	9,62	100	45	1,00	10	6	3	○	
8900963	9,63	100	45	1,00	10	6	3	○	
8900964	9,64	100	45	1,00	10	6	3	○	
8900965	9,65	100	45	1,00	10	6	3	○	
8900966	9,66	100	45	1,00	10	6	3	○	
8900967	9,67	100	45	1,00	10	6	3	○	
8900968	9,68	100	45	1,00	10	6	3	○	
8900969	9,69	100	45	1,00	10	6	3	○	
8900970	9,70	100	45	1,00	10	6	3	○	
8900971	9,71	100	45	1,00	10	6	3	○	
8900972	9,72	100	45	1,00	10	6	3	○	
8900973	9,73	100	45	1,00	10	6	3	○	
8900974	9,74	100	45	1,00	10	6	3	○	

EDP	D	L	l	l1	d	ZΔ	Type	Stock	Price
8900975	9,75	100	45	1,00	10	6	3	○	
8900976	9,76	100	45	1,00	10	6	3	○	
8900977	9,77	100	45	1,00	10	6	3	○	
8900978	9,78	100	45	1,00	10	6	3	○	
8900979	9,79	100	45	1,00	10	6	3	○	
8900980	9,80	100	45	1,00	10	6	3	○	
8900981	9,81	100	45	1,00	10	6	3	○	
8900982	9,82	100	45	1,00	10	6	3	○	
8900983	9,83	100	45	1,00	10	6	3	○	
8900984	9,84	100	45	1,00	10	6	3	○	
8900985	9,85	100	45	1,00	10	6	3	○	
8900986	9,86	100	45	1,00	10	6	3	○	
8900987	9,87	100	45	1,00	10	6	3	○	
8900988	9,88	100	45	1,00	10	6	3	○	
8900989	9,89	100	45	1,00	10	6	3	○	
8900990	9,90	100	45	1,00	10	6	3	○	
8900991	9,91	100	45	1,00	10	6	3	○	
8900992	9,92	100	45	1,00	10	6	3	○	
8900993	9,93	100	45	1,00	10	6	3	○	
8900994	9,94	100	45	1,00	10	6	3	○	
8900995	9,95	100	45	1,00	10	6	3	○	
8900996	9,96	100	45	1,00	10	6	3	○	
8900997	9,97	100	45	1,00	10	6	3	○	
8900998	9,98	100	45	1,00	10	6	3	○	
8900999	9,99	100	45	1,00	10	6	3	○	
8901000	10,00	100	45	1,00	10	6	3	○	
8901001	10,01	100	45	1,00	11	6	3	○	
8901002	10,02	100	45	1,00	11	6	3	○	
8901003	10,03	100	45	1,00	11	6	3	○	
8901004	10,04	100	45	1,00	11	6	3	○	
8901005	10,05	100	45	1,00	11	6	3	○	
8901006	10,06	100	45	1,00	11	6	3	○	
8901007	10,07	100	45	1,00	11	6	3	○	
8901008	10,08	100	45	1,00	11	6	3	○	
8901009	10,09	100	45	1,00	11	6	3	○	
8901010	10,10	100	45	1,00	11	6	3	○	
8901011	10,11	100	45	1,00	11	6	3	○	
8901012	10,12	100	45	1,00	11	6	3	○	
8901013	10,13	100	45	1,00	11	6	3	○	
8901014	10,14	100	45	1,00	11	6	3	○	
8901015	10,15	100	45	1,00	11	6	3	○	
8901016	10,16	100	45	1,00	11	6	3	○	
8901017	10,17	100	45	1,00	11	6	3	○	
8901018	10,18	100	45	1,00	11	6	3	○	
8901019	10,19	100	45	1,00	11	6	3	○	
8901020	10,20	100	45	1,00	11	6	3	○	
8901021	10,21	100	45	1,00	11	6	3	○	
8901022	10,22	100	45	1,00	11	6	3	○	
8901023	10,23	100	45	1,00	11	6	3	○	
8901024	10,24	100	45	1,00	11	6	3	○	
8901025	10,25	100	45	1,00	11	6	3	○	
8901026	10,26	100	45	1,00	11	6	3	○	
8901027	10,27	100	45	1,00	11	6	3	○	
8901028	10,28	100	45	1,00	11	6	3	○	
8901029	10,29	100	45	1,00	11	6	3	○	
8901030	10,30	100	45	1,00	11	6	3	○	
8901031	10,31	100	45	1,00	11	6	3	○	
8901032	10,32	100	45	1,00	11	6	3	○	
8901033	10,33	100	45	1,00	11	6	3	○	
8901034	10,34	100	45	1,00	11	6	3	○	
8901035	10,35	100	45	1,00	11	6	3	○	
8901036	10,36	100	45	1,00	11	6	3	○	
8901037	10,37	100	45	1,00	11	6	3	○	

● Delivery from stock
○ Available on short notice

Carbide Reamer

GO TO LIVE STOCK CHECK



HIGH PERFORMANCE
- Carbide straight reamer

HIGH PERFORMANCE
- Geradgenutete Vollhartmetallreibahle

ALTA PRESTAZIONE
- Alesatore cilindrico in metallo duro

HAUTE PERFORMANCE
- Alésoir carbure taille droite

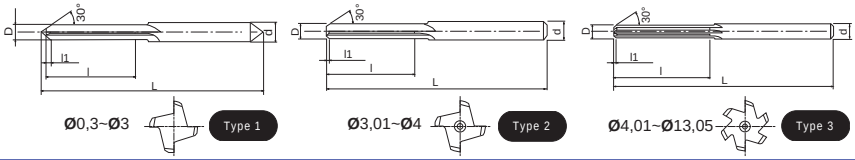
HIGH PERFORMANCE
- Hårdmetal rival med lige skær

HIGH PERFORMANCE
- HM brotsch med raka skär

ALTO RENDIMIENTO
- Escariador de ranuras rectas en metal duro

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Твердосплавная прямозубая развертка

CARBIDE | 0 ~ -0.005 | h6 | min⁻¹ D.120-121



EDP	D	L	l	l1	d	ZΔ	Type	Stock	Price
8901038	10,38	100	45	1,00	11	6	3	○	
8901039	10,39	100	45	1,00	11	6	3	○	
8901040	10,40	100	45	1,00	11	6	3	○	
8901041	10,41	100	45	1,00	11	6	3	○	
8901042	10,42	100	45	1,00	11	6	3	○	
8901043	10,43	100	45	1,00	11	6	3	○	
8901044	10,44	100	45	1,00	11	6	3	○	
8901045	10,45	100	45	1,00	11	6	3	○	
8901046	10,46	100	45	1,00	11	6	3	○	
8901047	10,47	100	45	1,00	11	6	3	○	
8901048	10,48	100	45	1,00	11	6	3	○	
8901049	10,49	100	45	1,00	11	6	3	○	
8901050	10,50	100	45	1,00	11	6	3	○	
8901051	10,51	100	45	1,00	11	6	3	○	
8901052	10,52	100	45	1,00	11	6	3	○	
8901053	10,53	100	45	1,00	11	6	3	○	
8901054	10,54	100	45	1,00	11	6	3	○	
8901055	10,55	100	45	1,00	11	6	3	○	
8901056	10,56	100	45	1,00	11	6	3	○	
8901057	10,57	100	45	1,00	11	6	3	○	
8901058	10,58	100	45	1,00	11	6	3	○	
8901059	10,59	100	45	1,00	11	6	3	○	
8901060	10,60	100	45	1,00	11	6	3	○	
8901061	10,61	100	45	1,00	11	6	3	○	
8901062	10,62	100	45	1,00	11	6	3	○	
8901063	10,63	100	45	1,00	11	6	3	○	
8901064	10,64	100	45	1,00	11	6	3	○	
8901065	10,65	100	45	1,00	11	6	3	○	
8901066	10,66	100	45	1,00	11	6	3	○	
8901067	10,67	100	45	1,00	11	6	3	○	
8901068	10,68	100	45	1,00	11	6	3	○	
8901069	10,69	100	45	1,00	11	6	3	○	
8901070	10,70	100	45	1,00	11	6	3	○	
8901071	10,71	100	45	1,00	11	6	3	○	
8901072	10,72	100	45	1,00	11	6	3	○	
8901073	10,73	100	45	1,00	11	6	3	○	
8901074	10,74	100	45	1,00	11	6	3	○	
8901075	10,75	100	45	1,00	11	6	3	○	
8901076	10,76	100	45	1,00	11	6	3	○	
8901077	10,77	100	45	1,00	11	6	3	○	
8901078	10,78	100	45	1,00	11	6	3	○	
8901079	10,79	100	45	1,00	11	6	3	○	
8901080	10,80	100	45	1,00	11	6	3	○	
8901081	10,81	100	45	1,00	11	6	3	○	
8901082	10,82	100	45	1,00	11	6	3	○	
8901083	10,83	100	45	1,00	11	6	3	○	
8901084	10,84	100	45	1,00	11	6	3	○	
8901085	10,85	100	45	1,00	11	6	3	○	
8901086	10,86	100	45	1,00	11	6	3	○	
8901087	10,87	100	45	1,00	11	6	3	○	
8901088	10,88	100	45	1,00	11	6	3	○	
8901089	10,89	100	45	1,00	11	6	3	○	
8901090	10,90	100	45	1,00	11	6	3	○	
8901091	10,91	100	45	1,00	11	6	3	○	
8901092	10,92	100	45	1,00	11	6	3	○	
8901093	10,93	100	45	1,00	11	6	3	○	
8901094	10,94	100	45	1,00	11	6	3	○	
8901095	10,95	100	45	1,00	11	6	3	○	
8901096	10,96	100	45	1,00	11	6	3	○	
8901097	10,97	100	45	1,00	11	6	3	○	
8901098	10,98	100	45	1,00	11	6	3	○	
8901099	10,99	100	45	1,00	11	6	3	○	
8901100	11,00	100	45	1,00	11	6	3	○	

EDP	D	L	l	l1	d	ZΔ	Type	Stock	Price
8901101	11,01	110	45	1,00	11	6	3	○	
8901102	11,02	110	45	1,00	11	6	3	○	
8901103	11,03	110	45	1,00	11	6	3	○	
8901104	11,04	110	45	1,00	11	6	3	○	
8901105	11,05	110	45	1,00	11	6	3	○	
8901106	11,06	110	45	1,00	11	6	3	○	
8901107	11,07	110	45	1,00	11	6	3	○	
8901108	11,08	110	45	1,00	11	6	3	○	
8901109	11,09	110	45	1,00	11	6	3	○	
8901110	11,10	110	45	1,00	11	6	3	○	
8901111	11,11	110	45	1,00	11	6	3	○	
8901112	11,12	110	45	1,00	11	6	3	○	
8901113	11,13	110	45	1,00	11	6	3	○	
8901114	11,14	110	45	1,00	11	6	3	○	
8901115	11,15	110	45	1,00	11	6	3	○	
8901116	11,16	110	45	1,00	11	6	3	○	
8901117	11,17	110	45	1,00	11	6	3	○	
8901118	11,18	110	45	1,00	11	6	3	○	
8901119	11,19	110	45	1,00	11	6	3	○	
8901120	11,20	110	45	1,00	11	6	3	○	
8901121	11,21	110	45	1,00	11	6	3	○	
8901122	11,22	110	45	1,00	11	6	3	○	
8901123	11,23	110	45	1,00	11	6	3	○	
8901124	11,24	110	45	1,00	11	6	3	○	
8901125	11,25	110	45	1,00	11	6	3	○	
8901126	11,26	110	45	1,00	11	6	3	○	
8901127	11,27	110	45	1,00	11	6	3	○	
8901128	11,28	110	45	1,00	11	6	3	○	
8901129	11,29	110	45	1,00	11	6	3	○	
8901130	11,30	110	45	1,00	11	6	3	○	
8901131	11,31	110	45	1,00	11	6	3	○	
8901132	11,32	110	45	1,00	11	6	3	○	
8901133	11,33	110	45	1,00	11	6	3	○	
8901134	11,34	110	45	1,00	11	6	3	○	
8901135	11,35	110	45	1,00	11	6	3	○	
8901136	11,36	110	45	1,00	11	6	3	○	
8901137	11,37	110	45	1,00	11	6	3	○	
8901138	11,38	110	45	1,00	11	6	3	○	
8901139	11,39	110	45	1,00	11	6	3	○	
8901140	11,40	110	45	1,00	11	6	3	○	
8901141	11,41	110	45	1,00	11	6	3	○	
8901142	11,42	110	45	1,00	11	6	3	○	
8901143	11,43	110	45	1,00	11	6	3	○	
8901144	11,44	110	45	1,00	11	6	3	○	
8901145	11,45	110	45	1,00	11	6	3	○	
8901146	11,46	110	45	1,00	11	6	3	○	
8901147	11,47	110	45	1,00	11	6	3	○	
8901148	11,48	110	45	1,00	11	6	3	○	
8901149	11,49	110	45	1,00	11	6	3	○	
8901150	11,50	110	45	1,00	11	6	3	○	
8901151	11,51	110	45	1,00	11	6	3	○	
8901152	11,52	110	45	1,00	11	6	3	○	
8901153	11,53	110	45	1,00	11	6	3	○	
8901154	11,54	110	45	1,00	11	6	3	○	
8901155	11,55	110	45	1,00	11	6	3	○	
8901156	11,56	110	45	1,00	11	6	3	○	
8901157	11,57	110	45	1,00	11	6	3	○	
8901158	11,58	110	45	1,00	11	6	3	○	
8901159	11,59	110	45	1,00	11	6	3	○	
8901160	11,60	110	45	1,00	11	6	3	○	
8901161	11,61	110	45	1,00	11	6	3	○	
8901162	11,62	110	45	1,00	11	6	3	○	
8901163	11,63	110	45	1,00	11	6	3	○	

● Delivery from stock
○ Available on short notice

Carbide Reamer



GO TO LIVE STOCK CHECK

HIGH PERFORMANCE
- Carbide straight reamer

HIGH PERFORMANCE
- Geradgenutete Vollhartmetallreibahle

ALTA PRESTAZIONE
- Alesatore cilindrico in metallo duro

HAUTE PERFORMANCE
- Alésoir carbure taille droite

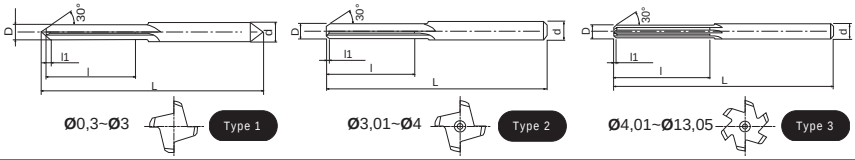
HIGH PERFORMANCE
- Hårdmetal rival med lige skær

HIGH PERFORMANCE
- HM brotsch med raka skär

ALTO RENDIMIENTO
- Escariador de ranuras rectas en metal duro

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Твердосплавная прямозубая развертка

CARBIDE | 0 ~ -0.005 | h6 | min^{-1} D.120-121



Ø0,3~Ø3 Type 1 | Ø3,01~Ø4 Type 2 | Ø4,01~Ø13,05 Type 3

EDP	D	L	l	l1	d	ZΔ	Type	Stock	Price
8901164	11,64	110	45	1,00	12	6	3	○	
8901165	11,65	110	45	1,00	12	6	3	○	
8901166	11,66	110	45	1,00	12	6	3	○	
8901167	11,67	110	45	1,00	12	6	3	○	
8901168	11,68	110	45	1,00	12	6	3	○	
8901169	11,69	110	45	1,00	12	6	3	○	
8901170	11,70	110	45	1,00	12	6	3	○	
8901171	11,71	110	45	1,00	12	6	3	○	
8901172	11,72	110	45	1,00	12	6	3	○	
8901173	11,73	110	45	1,00	12	6	3	○	
8901174	11,74	110	45	1,00	12	6	3	○	
8901175	11,75	110	45	1,00	12	6	3	○	
8901176	11,76	110	45	1,00	12	6	3	○	
8901177	11,77	110	45	1,00	12	6	3	○	
8901178	11,78	110	45	1,00	12	6	3	○	
8901179	11,79	110	45	1,00	12	6	3	○	
8901180	11,80	110	45	1,00	12	6	3	○	
8901181	11,81	110	50	1,00	12	6	3	○	
8901182	11,82	110	50	1,00	12	6	3	○	
8901183	11,83	110	50	1,00	12	6	3	○	
8901184	11,84	110	50	1,00	12	6	3	○	
8901185	11,85	110	50	1,00	12	6	3	○	
8901186	11,86	110	50	1,00	12	6	3	○	
8901187	11,87	110	50	1,00	12	6	3	○	
8901188	11,88	110	50	1,00	12	6	3	○	
8901189	11,89	110	50	1,00	12	6	3	○	
8901190	11,90	110	50	1,00	12	6	3	○	
8901191	11,91	110	50	1,00	12	6	3	○	
8901192	11,92	110	50	1,00	12	6	3	○	
8901193	11,93	110	50	1,00	12	6	3	○	
8901194	11,94	110	50	1,00	12	6	3	○	
8901195	11,95	110	50	1,00	12	6	3	○	
8901196	11,96	110	50	1,00	12	6	3	○	
8901197	11,97	110	50	1,00	12	6	3	○	
8901198	11,98	110	50	1,00	12	6	3	○	
8901199	11,99	110	50	1,00	12	6	3	○	
8901200	12,00	110	50	1,00	12	6	3	○	
8901201	12,01	110	50	1,00	13	6	3	○	
8901202	12,02	110	50	1,00	13	6	3	○	
8901203	12,03	110	50	1,00	13	6	3	○	
8901204	12,04	110	50	1,00	13	6	3	○	
8901205	12,05	110	50	1,00	13	6	3	○	
8901206	12,06	110	50	1,00	13	6	3	○	
8901207	12,07	110	50	1,00	13	6	3	○	
8901208	12,08	110	50	1,00	13	6	3	○	
8901209	12,09	110	50	1,00	13	6	3	○	
8901210	12,10	110	50	1,00	13	6	3	○	
8901211	12,11	110	50	1,00	13	6	3	○	
8901212	12,12	110	50	1,00	13	6	3	○	
8901213	12,13	110	50	1,00	13	6	3	○	
8901214	12,14	110	50	1,00	13	6	3	○	
8901215	12,15	110	50	1,00	13	6	3	○	
8901216	12,16	110	50	1,00	13	6	3	○	
8901217	12,17	110	50	1,00	13	6	3	○	
8901218	12,18	110	50	1,00	13	6	3	○	
8901219	12,19	110	50	1,00	13	6	3	○	
8901220	12,20	110	50	1,00	13	6	3	○	
8901221	12,21	110	50	1,00	13	6	3	○	
8901222	12,22	110	50	1,00	13	6	3	○	
8901223	12,23	110	50	1,00	13	6	3	○	
8901224	12,24	110	50	1,00	13	6	3	○	
8901225	12,25	110	50	1,00	13	6	3	○	
8901226	12,26	110	50	1,00	13	6	3	○	

EDP	D	L	l	l1	d	ZΔ	Type	Stock	Price
8901227	12,27	110	50	1,00	13	6	3	○	
8901228	12,28	110	50	1,00	13	6	3	○	
8901229	12,29	110	50	1,00	13	6	3	○	
8901230	12,30	110	50	1,00	13	6	3	○	
8901231	12,31	110	50	1,00	13	6	3	○	
8901232	12,32	110	50	1,00	13	6	3	○	
8901233	12,33	110	50	1,00	13	6	3	○	
8901234	12,34	110	50	1,00	13	6	3	○	
8901235	12,35	110	50	1,00	13	6	3	○	
8901236	12,36	110	50	1,00	13	6	3	○	
8901237	12,37	110	50	1,00	13	6	3	○	
8901238	12,38	110	50	1,00	13	6	3	○	
8901239	12,39	110	50	1,00	13	6	3	○	
8901240	12,40	110	50	1,00	13	6	3	○	
8901241	12,41	110	50	1,00	13	6	3	○	
8901242	12,42	110	50	1,00	13	6	3	○	
8901243	12,43	110	50	1,00	13	6	3	○	
8901244	12,44	110	50	1,00	13	6	3	○	
8901245	12,45	110	50	1,00	13	6	3	○	
8901246	12,46	110	50	1,00	13	6	3	○	
8901247	12,47	110	50	1,00	13	6	3	○	
8901248	12,48	110	50	1,00	13	6	3	○	
8901249	12,49	110	50	1,00	13	6	3	○	
8901250	12,50	110	50	1,00	13	6	3	○	
8901251	12,51	110	50	1,00	13	6	3	○	
8901252	12,52	110	50	1,00	13	6	3	○	
8901253	12,53	110	50	1,00	13	6	3	○	
8901254	12,54	110	50	1,00	13	6	3	○	
8901255	12,55	110	50	1,00	13	6	3	○	
8901256	12,56	110	50	1,00	13	6	3	○	
8901257	12,57	110	50	1,00	13	6	3	○	
8901258	12,58	110	50	1,00	13	6	3	○	
8901259	12,59	110	50	1,00	13	6	3	○	
8901260	12,60	110	50	1,00	13	6	3	○	
8901261	12,61	110	50	1,00	13	6	3	○	
8901262	12,62	110	50	1,00	13	6	3	○	
8901263	12,63	110	50	1,00	13	6	3	○	
8901264	12,64	110	50	1,00	13	6	3	○	
8901265	12,65	110	50	1,00	13	6	3	○	
8901266	12,66	110	50	1,00	13	6	3	○	
8901267	12,67	110	50	1,00	13	6	3	○	
8901268	12,68	110	50	1,00	13	6	3	○	
8901269	12,69	110	50	1,00	13	6	3	○	
8901270	12,70	110	50	1,00	13	6	3	○	
8901271	12,71	110	50	1,00	13	6	3	○	
8901272	12,72	110	50	1,00	13	6	3	○	
8901273	12,73	110	50	1,00	13	6	3	○	
8901274	12,74	110	50	1,00	13	6	3	○	
8901275	12,75	110	50	1,00	13	6	3	○	
8901276	12,76	110	50	1,00	13	6	3	○	
8901277	12,77	110	50	1,00	13	6	3	○	
8901278	12,78	110	50	1,00	13	6	3	○	
8901279	12,79	110	50	1,00	13	6	3	○	
8901280	12,80	110	50	1,00	13	6	3	○	
8901281	12,81	110	50	1,00	13	6	3	○	
8901282	12,82	110	50	1,00	13	6	3	○	
8901283	12,83	110	50	1,00	13	6	3	○	
8901284	12,84	110	50	1,00	13	6	3	○	
8901285	12,85	110	50	1,00	13	6	3	○	
8901286	12,86	110	50	1,00	13	6	3	○	
8901287	12,87	110	50	1,00	13	6	3	○	
8901288	12,88	110	50	1,00	13	6	3	○	
8901289	12,89	110	50	1,00	13	6	3	○	

● Delivery from stock
○ Available on short notice

Carbide Reamer



HIGH PERFORMANCE
- Carbide straight reamer

HIGH PERFORMANCE
- Geradgenutete Vollhartmetallreibahle

ALTA PRESTAZIONE
- Alesatore cilindrico in metallo duro

HAUTE PERFORMANCE
- Alésoir carbure taille droite

HIGH PERFORMANCE
- Hårdmetal rival med lige skær

HIGH PERFORMANCE
- HM brotsch med raka skär

ALTO RENDIMIENTO
- Escariador de ranuras rectas en metal duro

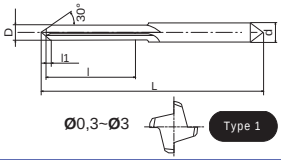
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Твердосплавная прямозубая развертка

CARBIDE

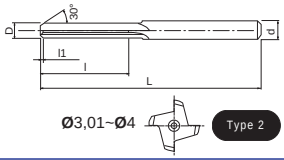
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h6

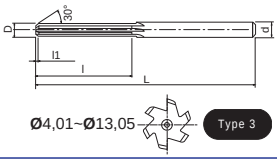
min^{-1}
D.120-121



Ø0,3~Ø3 Type 1



Ø3,01~Ø4 Type 2



Ø4,01~Ø13,05 Type 3

EDP	D	L	l	l1	d	ZΔ	Type	Stock	Price
8901290	12,90	110	50	1,00	13	6	3	○	
8901291	12,91	110	50	1,00	13	6	3	○	
8901292	12,92	110	50	1,00	13	6	3	○	
8901293	12,93	110	50	1,00	13	6	3	○	
8901294	12,94	110	50	1,00	13	6	3	○	
8901295	12,95	110	50	1,00	13	6	3	○	
8901296	12,96	110	50	1,00	13	6	3	○	
8901297	12,97	110	50	1,00	13	6	3	○	

EDP	D	L	l	l1	d	ZΔ	Type	Stock	Price
8901298	12,98	110	50	1,00	13	6	3	○	
8901299	12,99	110	50	1,00	13	6	3	○	
8901300	13,00	110	50	1,00	13	6	3	○	
8901301	13,01	110	50	1,00	14	6	3	○	
8901302	13,02	110	50	1,00	14	6	3	○	
8901303	13,03	110	50	1,00	14	6	3	○	
8901304	13,04	110	50	1,00	14	6	3	○	
8901305	13,05	110	50	1,00	14	6	3	○	

● Delivery from stock
○ Available on short notice

CRM

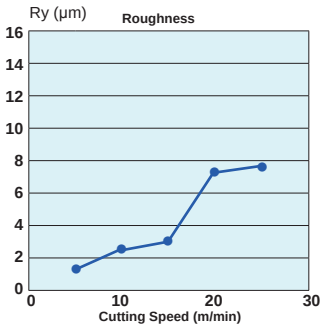
	Low Carbon Steel Mild Steels S15C ■ SS400 AIS11015		Carbon Steel S45C ■ S50C AIS11045 ■ 1050		Alloy Steels SCM ■ SNC ■ SNCM		Alluminium Alloy Castings A7075 ■ ADC DIN ALZnMgCul.5D		Hardened Steels SKT ■ SKD ~40 HRC		Hardened Steels SKT ■ SKD ~50 HRC		Cast Iron FC250		Copper C1100 DIN ECu57	
Vc	12 ~ 20 m/min		10 ~ 16 m/min		8 ~ 12 m/min		15 ~ 30 m/min		6 ~ 12 m/min		4 ~ 10 m/min		8 ~ 16 m/min		10 ~ 25 m/min	
Ø	F (mm/rev.)	Removal Amount (mm)	F (mm/rev.)	Removal Amount (mm)	F (mm/rev.)	Removal Amount (mm)	F (mm/rev.)	Removal Amount (mm)	F (mm/rev.)	Removal Amount (mm)	F (mm/rev.)	Removal Amount (mm)	F (mm/rev.)	Removal Amount (mm)	F (mm/rev.)	Removal Amount (mm)
0,3	0,002~ 0,005	0,03~ 0,08	0,002~ 0,005	0,03~ 0,08	0,002~ 0,005	0,03~ 0,08	0,002~ 0,005	0,03~ 0,08	0,001~ 0,004	0,03~ 0,08	-	-	0,002~ 0,005	0,03~ 0,08	0,002~ 0,005	0,03~ 0,08
0,5	0,004~ 0,01	0,05~ 0,10	0,004~ 0,01	0,05~ 0,10	0,004~ 0,01	0,05~ 0,10	0,004~ 0,01	0,05~ 0,10	0,003~ 0,009	0,05~ 0,10	-	-	0,004~ 0,01	0,05~ 0,10	0,004~ 0,01	0,05~ 0,10
1	0,008~ 0,015	0,05~ 0,10	0,008~ 0,015	0,05~ 0,10	0,008~ 0,015	0,05~ 0,10	0,008~ 0,015	0,05~ 0,10	0,007~ 0,014	0,05~ 0,10	-	-	0,008~ 0,015	0,05~ 0,10	0,008~ 0,015	0,05~ 0,10
2	0,018~ 0,03	0,05~ 0,15	0,018~ 0,03	0,05~ 0,15	0,018~ 0,03	0,05~ 0,15	0,018~ 0,03	0,05~ 0,15	0,015~ 0,027	0,05~ 0,15	-	-	0,018~ 0,03	0,05~ 0,15	0,018~ 0,03	0,05~ 0,15
3	0,028~ 0,045	0,10~ 0,20	0,028~ 0,045	0,10~ 0,20	0,028~ 0,045	0,10~ 0,20	0,028~ 0,045	0,10~ 0,20	0,023~ 0,04	0,10~ 0,20	0,012~ 0,03	0,03~ 0,08	0,028~ 0,045	0,10~ 0,20	0,028~ 0,045	0,10~ 0,20
4	0,04~ 0,06	0,10~ 0,20	0,04~ 0,06	0,10~ 0,20	0,04~ 0,06	0,10~ 0,20	0,04~ 0,06	0,10~ 0,20	0,032~ 0,052	0,10~ 0,20	0,015~ 0,035	0,03~ 0,08	0,04~ 0,06	0,10~ 0,20	0,04~ 0,06	0,10~ 0,20
5	0,05~ 0,09	0,10~ 0,20	0,05~ 0,09	0,10~ 0,20	0,05~ 0,09	0,10~ 0,20	0,06~ 0,09	0,10~ 0,20	0,04~ 0,08	0,10~ 0,20	0,02~ 0,05	0,03~ 0,08	0,05~ 0,09	0,10~ 0,20	0,05~ 0,09	0,10~ 0,20
6	0,06~ 0,12	0,10~ 0,20	0,06~ 0,12	0,10~ 0,20	0,06~ 0,12	0,10~ 0,20	0,07~ 0,13	0,10~ 0,20	0,05~ 0,10	0,10~ 0,20	0,025~ 0,055	0,03~ 0,08	0,06~ 0,12	0,10~ 0,20	0,06~ 0,12	0,10~ 0,20
8	0,08~ 0,15	0,10~ 0,20	0,08~ 0,15	0,10~ 0,20	0,08~ 0,15	0,10~ 0,20	0,08~ 0,18	0,10~ 0,20	0,06~ 0,13	0,10~ 0,20	0,03~ 0,075	0,03~ 0,08	0,08~ 0,15	0,10~ 0,20	0,08~ 0,15	0,10~ 0,20
10	0,10~ 0,20	0,10~ 0,20	0,10~ 0,20	0,10~ 0,20	0,10~ 0,20	0,10~ 0,20	0,10~ 0,23	0,10~ 0,30	0,08~ 0,18	0,10~ 0,20	0,04~ 0,08	0,03~ 0,08	0,10~ 0,20	0,10~ 0,20	0,10~ 0,20	0,10~ 0,20
12	0,12~ 0,22	0,10~ 0,20	0,12~ 0,22	0,10~ 0,20	0,12~ 0,22	0,10~ 0,20	0,12~ 0,28	0,10~ 0,30	0,10~ 0,20	0,10~ 0,20	0,04~ 0,09	0,03~ 0,08	0,12~ 0,23	0,10~ 0,20	0,12~ 0,23	0,10~ 0,20
13	0,13~ 0,23	0,10~ 0,20	0,13~ 0,23	0,10~ 0,20	0,13~ 0,23	0,10~ 0,20	0,13~ 0,30	0,10~ 0,30	0,10~ 0,21	0,10~ 0,20	0,04~ 0,10	0,03~ 0,08	0,13~ 0,25	0,10~ 0,20	0,13~ 0,25	0,10~ 0,20

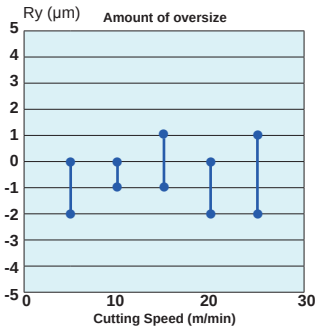
CRM

The surface roughness and amount of oversize at different cutting speeds - Die Oberflächenrauheit und das Aufmaß zu verschieden Schnittgeschwindigkeiten - Rugosità e dimensione a differente velocità di taglio - L'état de surface et quantité variable en fonction de la vitesse de coupe - Overfladeruhed og overstørrelse ved forskellige skærehastigheder - Ytjämnhet och hålstorleksläge i olika skärhastigheter -Rugosidad superficial y mayoración a diferentes velocidades de corte - Шероховатость поверхности и величина припуска при различных скоростях резания

Cutting Conditions

Work Material	S50C (JIS S50C,AISI 1050)
Reamer Size	10 mm
Feed	0,2 mm/rev
Drill Hole Size	9,8 mm
Cutting Fluid	Water-Soluble Fluid



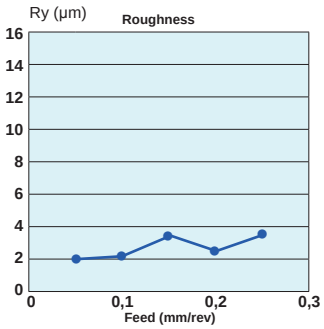


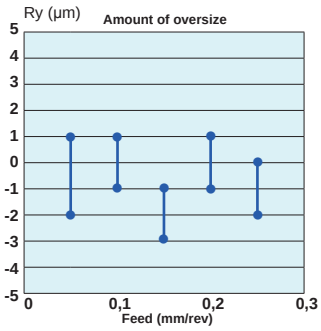
CRM

The surface roughness and amount of oversize at different feed rates per revolution - Die Oberflächenrauheit und das Aufmaß zu verschieden Vorschüben / Umdrehung - Rugosità e dimensione a differente avanzamento - L'état de surface et quantité variable en fonction de l'avance par tour - Overfladeruhed og overstørrelse ved forskellig tilspænding pr. omdr. - Ytjämnhet och hålstorleksläge i olika matningar - Rugosidad superficial y mayoración a diferentes avances - Шероховатость поверхности и величина припуска при различных подачах на оборот

Cutting Conditions

Work Material	S50C (JIS S50C,AISI 1050)
Reamer Size	10 mm
Cutting Speed	15 m/min
Drill Hole Size	9,8 mm
Cutting Fluid	Water-Soluble Fluid



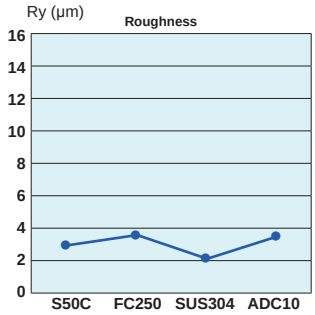


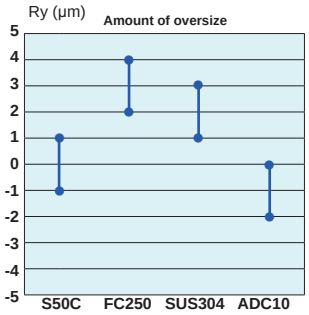
The surface roughness and amount of oversize for different work material - Die Oberflächenrauheit und das Aufmaß zu verschieden Werkstoffen - Rugosità e dimensione su differenti materiali di lavorazione - L'état de surface et quantité variable en fonction de la matière travaillée - Overfladeruhed og overstørrelse ved forskellige emnematerialer - Ytjämnhet och hålstorleksläge i olika material - Rugosidad superficial y mayoración e diferentes materiales - Шероховатость поверхности и величина припуска для различных материалов

CRM

Cutting Conditions

Reamer Size	**10 mm**
Cutting Speed	**15 m/min**
Feed	**0,2 mm/rev**
Drill Hole Size	**9,8 mm**
Cutting Fluid	**Water-Soluble Fluid**





Example of Circularity

CRM

Cutting Conditions

Work Material	**S50C (JIS S50C,AISI 1050)**
Reamer Size	**10 mm**
Cutting Speed	**15 m/min**
Feed	**0,2 mm**
Drill Hole Size	**9,8 mm**



Magnification : X 2.000

Circularity : 3,64 µm

The amount of over size was determined from the actual reamer size

CARBIDE END MILLS

WXL WXS WX FX CARBIDE



TOKO-TON SPIRIT

www.osgeurope.com

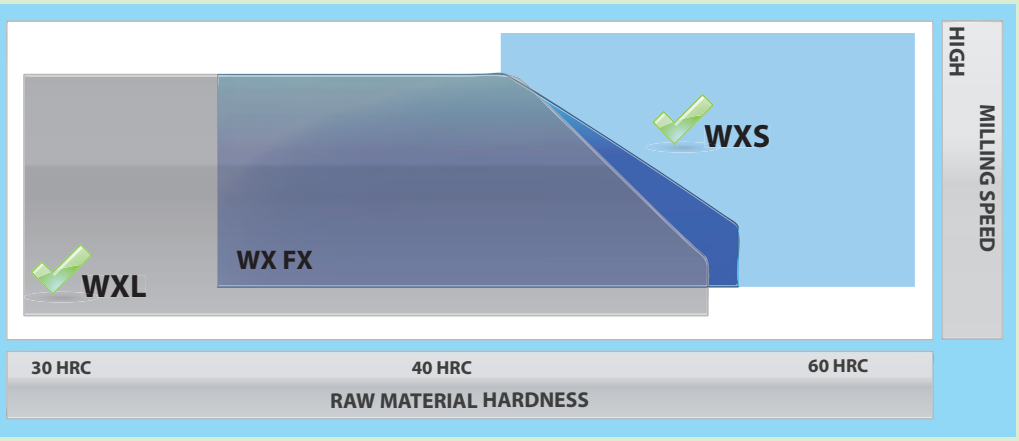
TOOL COMMUNICATION
OSG CORPORATION

TOOL COMMUNICATION
OSG EUROPE

END MILL PRODUCT MAP

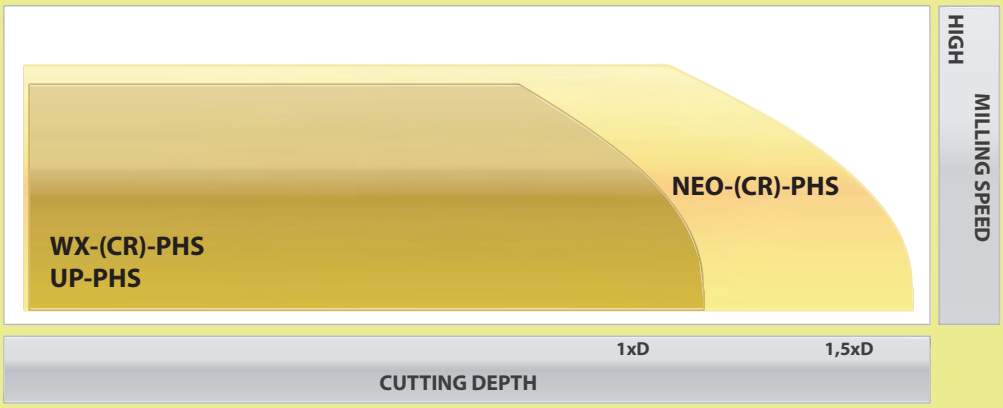
GENERAL

endmill type selection hardness/ milling speed



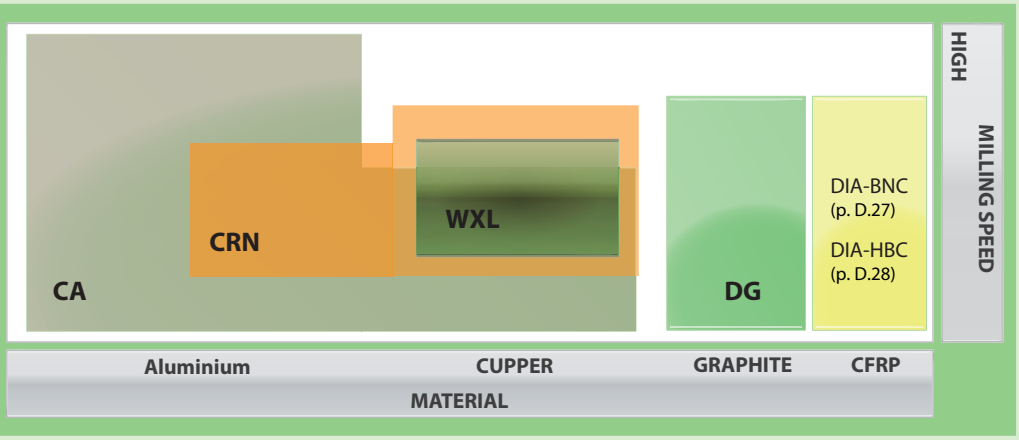
SUS & EXOTIC MATERIAL

endmill type selection cutting depth/ milling speed



Al, Cu, Graphite

endmill type selection material/ milling speed



endmill selection type/material	SQUARE	CORNER RADIUS	BALL NOSE	LONG NECK (Square, Ball, Radius)
> 50 HRC	WXS-EMS (p. D.59) FXS-EMS (p. D.121)	WX-(HS)-CRE (p. D.84-85) WXS-(HS)-CRE (p. D.57-58) FXS-PKE (p. D.130) HYP-HS-CRE (p. D.105)	WXS-(HS)-EBD (p. D.60-61)	WXS-LN-EBD (p. D.62~65) WXS-CPR (p. D.66~71)
GENERAL ≤ 50 HRC	WXL-2D-DE (p. D.34) WXL-EMS (p. D.37) WX-G-ETSS (p. D.74) HYP-HI-(W)EMS (p. D.104) HYP-HP-WRESF (p. D.101)	WX-CR-PHS (p. D.86) NEO-CR-PHS (p. D.30) NEO-CR-EMS (p. D.32) HYP-CR-HI-WEMS (p. D.102) HYP-CR-HD-WEMS(p. D.103)	WXL-EBD (p. D.42) HYP-SB-EBD (p. D.106)	WXL-LN-EBD (p. D.43~48) WXL-LN-EDS (p. D.38~41) WXL-PC-EBD (p. D.49~52)
SUS & EXOTIC MATERIALS	NEO-PHS (p. D.29) WX-PHS (p. D.77) UP-PHS (p. D.56) NEO-EMS (p. D.31)		WXS-(HS)-EBD (p. D.60-61)	WXS-LN-EBD (p. D.62~65)
Al Cu Alloy Graphite	CA-ETS (p. D.136) CA-RG-EDS (p. D.134) CRN-EMS (p. D.141)	CA-PKE (p. D.138) CA-MFE (p. D.139)	DG-EBD (p. D.53) CAP-EBD (p. D.137) CRN-EBD (p. D.142)	DG-LN-EBD (p. D.54) DG-CPR (p. D.55) CRN-LN-EDS (p. D.140)

EDS/-DE : 2 flutes
ETS(S) : 3 flutes
EMS : Multi-flutes

PHS : 4 flutes for Multi purpose
EBD : 2 flutes Ball Nose

CPR : Pencil Neck Corner Radius
CRE : Corner Radius Multi-flutes

PKE/-MFE : Corner Radius for Pockets
RESF : Roughing

OSG's 1st choice recommended

TYPE	DESCRIPTIONS
WXL	New coating WXL end mill series for milling copper up to materials 50 HRC Frese Serie WXL con nuovo rivestimento per la fresatura del rame fino a 50 HRC Ny WXL belægning, endefræsere til kobber og materialer op til 50 HRC Nuevas fresas recubiertas WXL para fresar desde cobre hasta 50 HrC
	Neue WXL - Beschichtung für Bearbeitungen von Kupfer bis zu Werkstoffen mit 50 HRC Nouvelle série de fraises avec revêtement WXL pour l'usinage du cuivre jusque des matières de 50 HRC Ny beläggning WXL, pinnfräs serie för koppar och material upp till 50HRC Концевые фрезы с новым покрытием WXL для фрезерования меди и сталей до 50 HRC
UP-PHS	Vibration - resistant, multipurpose end mill Fresa multifunzione, resistente alle vibrazioni Vibration-resistant, universal anvendelig Multiuso resistente a la vibración
	Allgemeine Anwendungen, Anti-Vibration Fraise multi-fonction, anti-vibratoire Vibrationsdämpande, allround Вибростойкая, многофункциональная концевая фреза
WXS	End mills with long neck for milling work material up to 60 HRC Frese con collo lungo per fresatura di materiali fino a 60 HRC Fræsere, long neck, ved fræsning op til 60 HRC Fresa para cuello largo, para fresado hasta 60 HRC
	HRC - Werkzeuge mitt Überlaufhals für Werkstoffe bis 60 HRC Fraises à dégagement long pour usinage matière jusqu'à 60 HRC Pinnfräsar med lång frigång till fräsning av material upp till 60 HRC Концевые фрезы с длинным хвостовиком для фрезерования материалов до 60 HRC
WX	- New series of end mills, the best ratio performance - price - New micrograin with improved TiAlN - Nuova serie di frese, il miglior rapporto tra qualità e prezzo - Nuova micrograna con un migliorato rivestimento TiAlN - Ny serie af endefræsere, det bedste forhold mellem pris og performance - Ny micrograin med forbedret TiAlN belægning - Fresas con el mejor ratio prestaciones-precio - Con nuevo metal duro micrograno y TiAlN mejorado
	- Neueste Serie, bestes Preis-Leistungs-Verhältnis - Neues Mischkorn, Hartmetall mit 189,776 verbesserter TiAlN Mehrlagenbeschichtung - Nouvelle série de fraises, le meilleur rapport performance - prix - Nouveau micrograin avec TiAlN amélioré - Ny serie av pinnfräsar, det bästa förhålandet mellan pris och prestanda - Ny HM micro grain med föbättrad TiAlN - Новая серия концевых фрез, лучшее сочетание цены и производительности - новый микрозернистый карбид с улучшенным TiAlN
FX	- High performance end mills selected for High Speed milling - Milling work material up to 55 HRC - Frese ad alto rendimento selezionate per la fresatura ad alta velocità - Fresatura di materiali fino a 55 HRC - Specielt udvalgt materiale for høje skarehastigheder - Fræsning af materiale op til 55 HRC - Mat. de altas prestaciones seleccionado para emplear a altas veloc. de corte - Fresado de materiales hasta 50 HrC
	- HSC Werkzeuge für allgemeine Anwendungen - Für Werkstoff bis 55 HRC - Fraises de haute performance selectionnées pour de très hautes vitesses de coupe - Usinage matière jusqu'à 55 HRC - High performance pinnfräsar, bra till HSM - För material upp till 55HRC - Высокопроизводительные концевые фрезы для высокоскоростного фрезерования - Для фрезерования материалов до 55 HRC
FXS	- High performance end mills selected for High Speed milling - Milling work material up to 60 HRC - Frese ad alto rendimento selezionate per la fresatura ad alta velocità - Fresatura di materiali fino a 60 HRC - Specielt udvalgt materiale for høje skarehastigheder - Fræsning af materiale op til 60 HRC - Mat. de altas prestaciones seleccionado para emplear a altas veloc. de corte - Fresado de materiales hasta 60 HrC
	- Absolute Premium HSC Werkzeuge mit einer sehr grossen Ausführungsvielfalt - Für Werkstoffe bis 60 HRC - Fraises de haute performance selectionnées pour de très hautes vitesses de coupe - Usinage matière jusqu'à 60 HRC - High performance pinnfräsar, bra till HSM - För material upp till 60HRC - Высокопроизводительные концевые фрезы для высокоскоростного фрезерования - Для фрезерования материалов до 60 HRC
CA	- For aluminium milling - Gives a excellent surface finish - Per la fresatura dell'alluminio - Offre un'ottima finitura della superf - Til fræsning af aluminium og kobber - Giver formidabel overfladefinish - Para fresado de aluminio - Obtienen excelente acabado superficial
	- Für Aluminium - Für gute Oberflächen und optimalen Spänentransport - Pour l'usinage de l'aluminium - Donnent un excellent état de surface - High performance pinnfräsar, bra till HSM - För bästa ytfinish - для фрезерования алюминия - Обеспечивает превосходную чистоту поверхности
CRN	End mills specially developed by OSG for milling work material as aluminium and copper Frese sviluppate in modo particolare dalla OSG per la fresatura di materiali come alluminio e rame Endefræsere specielt udviklet af OSG til fræsning i materialer såsom aluminium og kobber Fresas especialmente desarrolladas por OSG para aluminio y cobre
	Spezielle Werzeuge für die Bearbeitung von Werkstoffen wie Aluminium und Kupfer Fraises développées par OSG pour l'usinage des matières tel que l'aluminium, et le cuivre Pinnfräsar utrecklade av OSG till frasning av Aluminium och kappar Концевые фрезы, специально разработанные OSG для фрезерования алюминия и меди
GF	End mills for graphite milling Frese per la fresatura della grafite Fræsere for fræsning i grafit Fresa para grafito
	HSC-Werzeuge für Graphit Bearbeitung Fraises pour l'usinage du graphite Pinnfräsar för grafit Концевые фрезы для графита
GX	- End mills with micrograin substrate, coated - Specially developed for Hypro Shrink Fit System - Frese con un substrato di micrograna, rivestite - Sviluppate in modo particolare per il sistema di Calettamento - Endefræsere i micrograin grundmateriale og belagt - Specielt udviklet til Hypro krympe System - Fresas recubiertas con sustrato micrograno - Especialmente desarrolladas para fijación térmica
	- Hartmetallfräser mit Feinkorn Substrat, beschichted - Speziell entwickelt zum Schrumpfen mit Hypro Schrink Fit Systemen - Fraises avec un substrat micrograin revêtu - Outilsdéveloppés spécialement pour le frettage - Pinnfräsar i HM, micrograin, belagda - Speciellt utvecklade för Hypro Shrink Fit System - Концевые фрезы из микрозернистого карбида с покрытие - Специально разработано для Hypro термозажимной системы

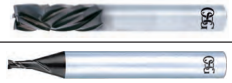
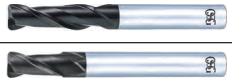
WORK MATERIAL

~ 40 HRC	Hardened steels Pre-hardened steels	Legierter Stahl Gehärteter Stahl	Acciaio temprato Acciaio pre-temprato	Aciers trempés Aciers pré-trempés	Hærdet stål	Härdat stål	Aceros endurecidos	3 акаленные стали
~ 45 HRC	Hardened steels Pre-hardened steels	Legierter Stahl Gehärteter Stahl	Acciaio temprato Acciaio pre-temprato	Aciers trempés Aciers pré-trempés	Hærdet stål	Härdat stål	Aceros endurecidos	3 акаленные стали
~ 55 HRC	Hardened steels Pre-hardened steels	Legierter Stahl Gehärteter Stahl	Acciaio temprato Acciaio pre-temprato	Aciers trempés Aciers pré-trempés	Hærdet stål	Härdat stål	Aceros endurecidos	3 акаленные стали
~ 60 HRC	Hardened steels Pre-hardened steels	Legierter Stahl Gehärteter Stahl	Acciaio temprato Acciaio pre-temprato	Aciers trempés Aciers pré-trempés	Hærdet stål	Härdat stål	Aceros endurecidos	3 акаленные стали
~ 65 HRC	Hardened steels Pre-hardened steels	Legierter Stahl Gehärteter Stahl	Acciaio temprato Acciaio pre-temprato	Aciers trempés Aciers pré-trempés	Hærdet stål	Härdat stål	Aceros endurecidos	3 акаленные стали
SUS	Stainless steels ~ 35 HRC	VA Stahl ~ 35 HRC	Acciaio inossidabili ~ 35 HRC	Inoxydable ~ 35 HRC	Rustfrit stål	Rostfritt stål	Aceros inoxidables	Нержавеющие стали ~35HRC
GG	Cast iron ~ 350 HB	Grauguss ~ 350 HB	Ghisa grigia ~ 350 HB	Fonte ~ 350 HB	Støbejern	Gjutgods ~ 350 HB	Aceros fundidos ~ 350 HB	Чугун ~ 350 HB
Cu	Copper alloys	Kupferlegierungen	Rame	Alliages de cuivre	Kobber legeringer	Koppar legeringer	Aleaciones de cobre	Медные сплавы
Ac	Aluminium alloys	Aluminium - legierungen	Leghe di Alluminio	Alliages d'aluminium	Aluminium leg.	Aluminium legeringar	Aluminio aleado	Литейные алюминиевые сплавы
Gr	Graphite	Graphit	Rame e grafite	Graphite	Grafit	Grafit	Grafito	Графит
Ti	Titanium alloys	Titaniumlegierungen	Leghe di Titanio	Alliages de Titane	Titanium	Titanlegeringar	Titanio aleado	Титановые сплавы
HRS	Heat resisting steels	Hitzebeständige legierungen	Acciai resistenti al calore	Alliages à haute résistance temp.	Varmefast stål	Värmebehandlat stål	Aceros tratados	Жаростойкие стали
Plast.	Plastics	Kunststoff	Plastiche	Plastiques	Plastik	Plast	Plasticos	Пластики
○	Good	Gut	Buono	Bon	God	Bra	Utilizable	Хороший
◎	Excellent	Sehr gut	Ottimo	Excellent	Meget god	Mycket bra	Excelente	Превосходный

CARBIDE

CARBIDE

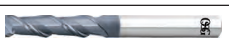
◎ Excellent - Sehr gut - Ottimo - Excellent - Meget god - Mycket bra - Excelente - Превосходный ○ Good - Gut - Buono - Bon - God - Bra - Utilizable - Хороший

Type	Appearance		coating	material	Hardened Steels					SUS	GG	Cu	Al	Graphite	Ti	HRS	Plast.	CFRP	range
					~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	~35 HRC	~350 HB								
CA-ETS		D.136		CARBIDE								◎	◎				○		3 ~ 20
CA-MFE		D.139		CARBIDE								◎	◎				○		10 ~ 22
CAP-EBD		D.137		CARBIDE								◎	◎				◎		R0,5~R10
CA-PKE		D.138		CARBIDE								◎	◎				○		3 ~ 20
CA-RG-EDL		D.135		CARBIDE								◎	◎				○		3 ~ 12
CA-RG-EDS		D.134		CARBIDE								◎	◎				○		1 ~ 20
CBN-SXB		D.133		CBN	○	◎	◎	◎	◎										R0,5~R1,5
CRN-EBD		D.142	CrN	CARBIDE								◎	○				○		R3~R6
CRN-EMS		D.141	CrN	CARBIDE								◎	○				○		3 ~ 12
CRN-LN-EBD		D.143	CrN	CARBIDE								◎	○				◎		R0,5~R2,5
CRN-LN-EDS		D.140	CrN	CARBIDE								◎	○				◎		0,5 ~ 12
DG-CPR		D.55	DG	CARBIDE										◎					0,5 ~ 12
DG-EBD		D.53	DG	CARBIDE										◎					R2~R6
DG-LN-EBD New Sizes		D.54	DG	CARBIDE															R0,2~R2
DIA-BNC NEW		D.27	DIA	CARBIDE														◎	6 ~ 12
DIA-HBC NEW		D.28	DIA	CARBIDE														◎	6 ~ 12
FX-CR-EDS-6		D.115	FX	CARBIDE	◎	◎	◎	○		○	◎	○	○		○	○			0,6 ~ 2,5
FX-CR-MG-EDL Limited Supply		D.117	FX	CARBIDE	◎	◎	○			○	◎	○	○		○	○			6 ~ 12
FX-CR-MG-EDS		D.116	FX	CARBIDE	◎	◎	○	○		○	◎	○	○		○	○			3 ~ 12
FX-CR-MG-EHS Limited Supply		D.118	FX	CARBIDE	◎	◎	○	○		◎	◎	○	○		◎	◎			6 ~ 12
FX-CR-MG-EML Limited Supply		D.120	FX	CARBIDE	◎	◎	○			○	◎	○	○		○	○			6 ~ 12
FX-CR-MG-EMS		D.119	FX	CARBIDE	◎	◎	◎	○		○	◎	○	○		○	○			4 ~ 12
FX-EBD-6		D.112	FX	CARBIDE	◎	◎	◎	○		◎	◎	○	○		○	○			R0,1~R3
FX-EDS-6		D.92	FX	CARBIDE	◎	◎	◎	○		○	◎	○	○		○	○			0,2 ~ 2,5
FX-HS-EBDS		D.108	FX	CARBIDE	◎	◎	◎	◎	○	◎	◎	○	○		○	○			R1,5~R6
FX-LN-EBD-6		D.113	FX	CARBIDE	◎	◎	◎	○		◎	◎	○	○		○	○			R0,25~R3
FX-LN-EDS-6		D.93	FX	CARBIDE	◎	◎	◎	○		○	◎	○	○		○	○			0,5 ~ 2,5
FX-LN-EMS-6		D.98	FX	CARBIDE	◎	◎	◎	○		○	◎	○	○		○	○			1 ~ 6
FX-LS-MG-EBD Limited Supply		D.110	FX	CARBIDE	◎	◎	◎	○		◎	◎	○	○		○	○			R0,5~R6
FX-MG-EBD Limited Supply		D.109	FX	CARBIDE	◎	◎	◎	○		◎	◎	○	○		○	○			R0,5~R15
FX-MG-EBD-3		D.107	FX	CARBIDE	◎	◎	◎	○		◎	◎	○	○		○	○			R0,4~R3
FX-MG-EDL Limited Supply		D.89	FX	CARBIDE	◎	◎	○			○	◎	○	○		○	○			1 ~ 12
FX-MG-EDS Limited Supply		D.87-88	FX	CARBIDE	◎	◎	○	○		○	◎	○	○		○	○			0,2 ~ 12
FX-MG-EHL		D.100	FX	CARBIDE	◎	◎	○			◎	◎	○	○		◎	◎			6 ~ 12
FX-MG-EHS		D.99	FX	CARBIDE	◎	◎	○	○		◎	◎	○	○		◎	◎			3 ~ 20
FX-MG-EML Limited Supply		D.95	FX	CARBIDE	◎	◎	○			○	◎	○	○		○	○			3 ~ 12
FX-MG-EMS Limited Supply		D.94	FX	CARBIDE	◎	◎	○	○		○	◎	○	○		○	○			2 ~ 12
FX-MG-EXDL Limited Supply		D.90	FX	CARBIDE	◎	◎	◎	○		○	◎	○	○		○				3 ~ 12

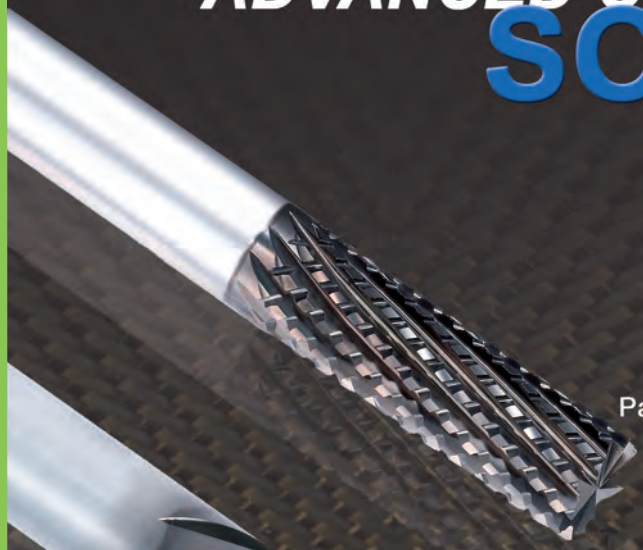
◎ Excellent - Sehr gut - Ottimo - Excellent - Meget god - Mycket bra - Excelente - Превосходный ○ Good - Gut - Buono - Bon - God - Bra - Utilizable - Хороший

Type	Appearance		coating	material	Hardened Steels					SUS	GG	Cu	Al	Graphite	Ti	HRS	Plast.	CFRP	range
					~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	~35 HRC	~350 HB								
FX-MG-EXML Limited Supply		D.96	FX	CARBIDE	◎	◎				○	◎	○	○		○				3 ~ 12
FX-PC-MG-EBD		D.114	FX	CARBIDE	◎	◎	◎	○		◎	◎	○	○		○	○			R0,5~R6
FXS-CR-EMS Limited Supply		D.132	FX	CARBIDE	◎	◎	◎	◎	○	○	◎				○	○			6 ~ 16
FXS-EBM		D.128	FX	CARBIDE	◎	◎	◎	◎	◎										R3~R10
FXS-EBT		D.126	FX	CARBIDE	◎	◎	◎	◎	○										R3~R10
FXS-EML		D.123	FX	CARBIDE	◎	◎	◎	◎		○	◎				○	○			6 ~ 25
FXS-EMS		D.121	FX	CARBIDE	◎	◎	◎	◎	○	○	◎				○	○			1 ~ 30
FXS-EQD		D.125	FX	CARBIDE	◎	◎	◎	○		◎	◎				○	○			R0,5~R5
FXS-HPE		D.124	FX	CARBIDE	◎	◎	◎	○		○	◎				○	○			10 ~ 22
FXS-HS-EBM		D.127	FX	CARBIDE	◎	◎	◎	◎	◎										R3 ~ R10
FXS-HS-PKE		D.129	FX	CARBIDE	◎	◎	◎	○		◎	◎				◎	◎			6 ~ 20
FXS-LS-EMS		D.122	FX	CARBIDE	◎	◎	◎	◎	○	○	◎				○	○			3 ~ 30
FXS-MFE		D.131	FX	CARBIDE	◎	◎	◎	○		○	◎				○	○			10 ~ 22
FXS-PKE		D.130	FX	CARBIDE	◎	◎	◎	○		◎	◎				◎	◎			3 ~ 12
FX-SS-EBD		D.111	FX	CARBIDE	◎	◎	◎	○		◎	◎	○	○		○	○			R3~R6
FX-SS-EDS		D.91	FX	CARBIDE	◎	◎	○	○		○	◎	○	○		○	○			6 ~ 12
FX-SS-EMS		D.97	FX	CARBIDE	◎	◎	○	○		○	◎	○	○		○	○			6 ~ 12
HC-BD2-TiAlN Limited Supply		D.153	TiAlN	CARBIDE	○	○				○	○		○						1,5 ~ 10
HYP-CR-HI-WEMS		D.102	TiAlN	CARBIDE	◎	◎	○			◎	◎				◎	◎			4 ~ 20
HYP-CR-HD-WEMS NEW		D.103	TiAlN	CARBIDE	◎	◎	○			◎	◎				◎	◎			6 ~ 20
HYP-CR-EMS		D.150	TiAlN	CARBIDE	○	○				○	○		○						0,5 ~ 5
HYP-EBD		D.152		CARBIDE	○	○				○	○		○						1 ~ 25
HYP-EBD-TiAlN		D.151	TiAlN	CARBIDE	○	○				○	○		○						1 ~ 25
HYP-EDS		D.145		CARBIDE	○	○				○	○		○						1 ~ 25
HYP-EDS-TiAlN		D.144	TiAlN	CARBIDE	○	○				○	○		○						1 ~ 25
HYP-EMS		D.149		CARBIDE	○	○				○	○		○						1 ~ 25
HYP-EMS-TiAlN		D.148	TiAlN	CARBIDE	○	○				○	○		○						1 ~ 25
HYP-ETS		D.147		CARBIDE	○	○				○	○		○						1 ~ 25
HYP-ETS-TiAlN		D.146	TiAlN	CARBIDE	○	○				○	○		○						1 ~ 25
HYP-HI-EMS		D.104	TiAlN	CARBIDE	◎	◎	○			◎	◎				◎	◎			4 ~ 20
HYP-HI-WEMS		D.104	TiAlN	CARBIDE	◎	◎	○			◎	◎				◎	◎			4 ~ 20
HYP-HP-WRESF New Name		D.101	TiAlN	CARBIDE	◎	◎				○	○								6 ~ 25
HYP-HS-CRE NEW		D.105	TiAlN	CARBIDE	◎	◎	◎	◎	○		◎								6 ~ 12
HYP-SB-EBD NEW		D.106	TiAlN	CARBIDE	◎	◎	◎			○	◎	○	○						3 ~ 12
MG-EDL		D.155		CARBIDE	○	○					○	○	○						3 ~ 12
MG-EDS		D.154		CARBIDE	○	○					○	○	○						1 ~ 20
MG-EML		D.157		CARBIDE	○	○					○	○	○						3 ~ 12
MG-EMS		D.156		CARBIDE	○	○					○	○	○						2 ~ 16

◎ Excellent - Sehr gut - Ottimo - Excellent - Meget god - Mycket bra - Excelente - Превосходный ○ Good - Gut - Buono - Bon - God - Bra - Utilizable - Хороший

Type	Appearance		coating	material	Hardened Steels ~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG ~350 HB	Cu	Al	Graphite	Ti	HRS	Plast.	CFRP	range
MG-ETL		D.159		CARBIDE	○	○					○	○	○						3 ~ 12
MG-ETS		D.158		CARBIDE	○	○					○	○	○						2 ~ 16
NEO-CR-EMS		D.32	FX	CARBIDE	◎	◎	◎	○		◎	◎				◎	◎			6 ~ 25
NEO-CR-PHS		D.30	FX	CARBIDE	◎	◎	○			◎	◎	○	○		◎	◎			3 ~ 25
NEO-EMS		D.31	FX	CARBIDE	◎	◎	◎	○		◎	◎				◎	◎			6 ~ 25
NEO-PHS		D.29	FX	CARBIDE	◎	◎	○			◎	◎				◎	◎			3 ~ 25
UP-PHS Limited Supply		D.56	FX	CARBIDE	◎	◎	○			◎	◎	○	○		◎	○			3 ~ 12
WX-CRE Limited Supply		D.85	WX	CARBIDE	◎	◎	◎	◎	○		◎								2 ~ 13
WX-CR-PHS		D.86	WX	CARBIDE	◎	◎	○	○		◎	◎	○	○		◎	◎			3 ~ 20
WX-EBD Limited Supply		D.81	WX	CARBIDE	◎	◎	◎	○		◎	◎	○	○		○	○			R0,2 ~ R6
WX-EDS Limited Supply		D.73	WX	CARBIDE	◎	◎	○	○		○	◎	○	○		○	○			0,2 ~ 12
WX-EMS Limited Supply		D.76	WX	CARBIDE	◎	◎	○	○		○	◎	○	○		○	○			2 ~ 12
WX-G-EDSS Limited Supply		D.72	WX	CARBIDE	◎	◎	○	○		○	◎	○	○		○	○			1 ~ 12
WX-G-EMSS		D.75	WX	CARBIDE	◎	◎	○	○		○	◎	○	○		○	○			3 ~ 12
WX-G-ETSS		D.74	WX	CARBIDE	◎	◎	○			◎				○					3 ~ 16
WX-HS-CRE		D.84	WX	CARBIDE	◎	◎	◎	◎	○		◎								6 ~ 12
WXL-1,5D-DE		D.33	WXL	CARBIDE	◎	◎	◎			◎	◎	◎	○		○	○			0,1 ~ 6
WXL-2D-DE		D.34	WXL	CARBIDE	◎	◎	◎			◎	◎	◎	○		○	○			0,1 ~ 20
WXL-3D-DE		D.35	WXL	CARBIDE	◎	◎	◎			◎	◎	◎	○		○	○			0,1 ~ 20
WXL-4D-DE		D.36	WXL	CARBIDE	◎	◎	◎			◎	◎	◎	○		○	○			0,2 ~ 12
WXL-EBD		D.42	WXL	CARBIDE	◎	◎	◎			◎	◎	◎	○		○	○			R0,05 ~ R10
WXL-EMS		D.37	WXL	CARBIDE	◎	◎	◎			◎	◎	◎	○		○	○			1 ~ 30
WXL-LN-EBD New Sizes		D.43~48	WXL	CARBIDE	◎	◎	◎			◎	◎	◎	○		○	○			R0,05 ~ R3
WXL-LN-EDS		D.38~41	WXL	CARBIDE	◎	◎	○	○		○	◎	◎	○		○	○			0,2 ~ 5
WX-LN-EBD Limited Supply		D.82-83	WX	CARBIDE	◎	◎	○	○		◎	◎	○	○		○	○			R0,1 ~ R3
WX-LN-EDS Limited Supply		D.78~80	WX	CARBIDE	◎	◎	○	○		○	◎	○	○		○	○			0,2 ~ 5
WXL-PC-EBD NEW		D.49~52	WXL	CARBIDE	◎	◎	◎			◎	◎	◎	○		○	○			R0,1 ~ R3
WX-PHS Limited Supply		D.77	WX	CARBIDE	◎	◎	○	○		◎	◎	○	○		◎	◎			3 ~ 20
WXS-CPR		D.66~71	WXS	CARBIDE	◎	◎	◎	◎		◎									0,2 ~ 4
WXS-CRE		D.58	WXS	CARBIDE	◎	◎	◎	◎	◎		◎								2 ~ 12
WXS-EBD		D.61	WXS	CARBIDE	◎	◎	◎	◎	○	◎	◎				○	○			R0,5 ~ R6
WXS-EMS		D.59	WXS	CARBIDE	◎	◎	◎	◎	○	○	◎				○	○			1 ~ 12
WXS-HS-CRE		D.57	WXS	CARBIDE	◎	◎	◎	◎	◎		◎								6 ~ 12
WXS-HS-EBD		D.60	WXS	CARBIDE	◎	◎	◎	◎	○	◎	◎				○	○			R0,5 ~ R6
WXS-LN-EBD		D.62~65	WXS	CARBIDE	○	○	◎	◎	○	○	○	○	○		○	○			R0,05 ~ R3

ADVANCED COMPOSITE SOLUTIONS



Page **D.27**



Page **D.28**

Stacked materials CFRP/Ti & CFRP/Al NO PROBLEM

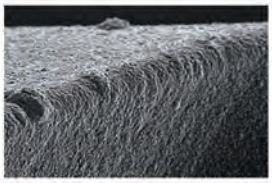


Page **C.42**

Page **D.27**



OSG's range of tooling for composites incorporates many new design firsts to help eliminate the problems associated with machining these challenging materials, including our patented smooth diamond coating.



Conventional diamond coating

OSG tools are already used in the production of commercial and military aircraft and we are confident that the challenges asked of tooling manufactures for this market can be met by our range of composite tooling

ICONS								
Material - Material - Materiale - Matière outil - Material - Material - Materiale - Обрабатываемый материал								
CARBIDE	Carbide	Vollhartmetall	Carburo	Carbure	Hårdmetal	Hårdmetall	Metal duro	Карбид
Coating - Beschichtung - Rivestimento - Revêtement - Belægning - Beläggning - Recubrimiento - Покрытие								
WXL	WXL coating	WXL Beschichtung	WXL rivestimento	WXL revêtement	WXL belægning	WXL beläggning	WXL recubrimiento	WXL Покрытие
WXS	WXS super coating	WXS Superbeschichtung	WXS super rivestimento	WXS super revêtement	WXS super belægning	WXS super beläggning	WXS super recubrimiento	WXS Супер покрытие
WX	Multi layered composite TiAlN	Mehrlagenbeschichtung TiAlN	Rivestimento multistrato composito TiAlN	Revêtement multicouches composite TiAlN	Flérlags komposit belægning TiALN	Multi layered CompositeTiAlN	Recubrimiento TiAlN multicapa	многослойное покрытие TiAlN
FX	Multi layered composite TiAlN	Mehrlagenbeschichtung TiAlN	Rivestimento multistrato composito TiAlN	Revêtement multicouches composite TiAlN	Flérlags komposit belægning TiALN	Multi layered CompositeTiAlN	Recubrimiento TiAlN multicapa	многослойное покрытие TiAlN
TiAlN	Multi layered coating TiAlN	Mehrlagenbeschichtung TiAlN	Rivestimento multistrato composito TiAlN	Revêtement multicouches composite TiAlN	Flérlags komposit belægning TiALN	Multilayer TiAlN beläggning	Recubrimiento TiAlN multicapa	многослойное покрытие TiAlN
TIN	Coating Tin	Beschichtung TiN	Rivestimento TiN	Revêtement TiN	TiN: Belægning	TiN: Beläggning TiN	Recubrimiento TiN	Покрытие TiN
GX	Multi layered composite TiAlN for Hypro Shrink Fit	Mehrlagen TiAlN Beschichtung für Schrumpfwerkzeuge	GX (multistrato TiAlN) speciale per calettamento	Revêtement GX (multicouches TiAlN) spécial frettage	Flérlags komposit belægning TiALN for Hypro-Shrink Fit	Multi layered CompositeTiAlN för Hypro-Shrink Fit	Recubrimiento TiAlN multicapa para fijación termica.	Супер покрытие
CrN	Chromium nitride	Chromnitrit	Nitruro di cromo	Nitrure de chrome	Crom nitrid	Krom nitrid	Recubrimiento Nitruro de Cromo	Хром нитрид
DIA	Diamond	Diamand Beschichtung	Rivestimento diamante	Revêtement diamanté	Diamant	Diamant	Diamante	Алмазное покрытие
DG	Coating DG	Beschichtung DG	Rivestimento DG	Revêtement DG	DG Belægning	Beläggning DG	Recubrimiento DG	Алмазное покрытие DG
Milling operation - Fräsmethode - Fresatura - Usinage - Fræsning bearbejdning - Fräsning bearbetning - Fresado operaciones - фрезерования обработки								
HIGH SPEED	High speed milling	HSC	Alta velocità	Usinage haute vitesse	High speed fræsning	High Speed Milling	Fresado a alta velocidad	Высокоскоростное фрезерование
ULTRA HIGH SPEED	Ultra High speed milling	Ultra HSC	Super alta velocità	Usinage ultra haute vitesse	Ultra High speed fræsning	Ultra High speed fräsning	Ultra alta velocidad de fresado	Сверх высокоскоростное фрезерование
R	Roughing	Schruppen	Sgrossatura	Ebauche	Skrubfræsning	Skrubbfräsning	Desbaste	Черновая обработка
RF	Roughing and finishing	Schruppen und Schlichten	Sgrossatura e finitura	Ebauche et finition	Skrub- og sletfræsning	Skrubb- och finfräsning	Desbaste y acabado	Черновая и финишная обработка
PR	Pocket roughing	Taschenfräsen	Sgrossatura in cavità	Ebauche poches	Lomme skrubfræsning	Skrubbfräsning i kavitet	Desbaste de cajeras	Фрезерование карманов
SC	Slotting and contouring	Nuten - und Konturfräsen	Sgrossatura e contornatura	Rainurage et contournage	Spor- og konturfræsning	Spår- och konturfräsning	Ranurado y contorneado	Пазовое и контурное фрезерования
SF	Miror finishing	Super Schlichten	Super finitura	Finition miroir	Spejlblank finish	Fin yta	Acabado espejo	Зеркальная чистота поверхности
	Deep wall milling	Taschenfräsen	Per fresature di pareti profonde	Fraisage cavité profonde	Dyb sidefræsning	Djup valsfräsning	Fresado de paredes profundas	Обработка глубоких стенок
	Deep sloting	Rippenfräsen	Per scanalature profonde	Rainurage profond	Dyb sporfræsning	Djup spårfräsning	Ranurado profundo	Фрезерование глубоких пазов
Tolerance - Toleranz - Tolleranza - Tolérance - Tolerance - Tolerans - Tolerancia - Точность								
	Milling diameter tolerance	Durchmessertoleranz	Tolleranza del diametro di fresatura	Tolérance dia. de fraisage	Tolerance	Tolerans	Tolerancia	Точность
Radius Tolerance - Radius Toleranz - Tolleranza del taggio - Tolérance rayon - Radius tolerance - Radie tolerans - Tolerancia del radio - Точность радиуса								
± 0.01	Radius tolerance	Radiusgenauigheit	Tolleranza del raggio delle frese	Tolérance du rayon	Radius tolerance	Radie tolerans	Tolerancia del radio	Точность радиуса

ICONS								
Helix Angle - Helix-Drall Winkel - Angolo d'elica - Angle d'hélice - Helix vinkel - Spiral vinkel - Angulo de helice - Угол спирали								
30°	Helix Angle	Helix-Drall Winkel	Angolo d'elica	Angle d'hélice	Helix vinkel	Spiral vinkel	Angulo de helice	Угол спирали
Series - Series - Series - Séries - Serie - Utförande - Serie - Серия								
	Internal oil hole	Innere Kühlmittel-zufuhr	Confori di lubrificazione interni	Trou d'huile por arrosage interne	Indvendig køling	Innvändiga kylkanaler	Refrigeración interna	внутреннее охлаждение
	Stub lenght	Kurzer Hals	Serie troncato	Série courte	Stub længde	Kort utförande	Serie corta	Короткая длина
	Long series	Langer Hals	Serie lunga	Série longue	Lang serie	Långt utförande	Serie larga	Длинная серия
	Extra long series	Extra Langer Hals	Serie extra lunga	Série extra longue	Ekstra lang serie	Extra lång utförande	Serie extra-larga	Особо длинная серия
	Extra short cutlength	Schneidenlänge extra Kurz	Lunghezza di taglio extra corta	Long. coupe extra courte	Ekstra kort skærelængde	Extra kort skärlängd	Longitud de corte extra corto	Особо короткая режущая часть
	Short cutlength	Schneidenlänge Kurz	Lunghezza di taglio corta	Long. coupe courte	Kort skærelængde	Kort skärlängd	Longitud de corte corto	Короткая режущая часть
	Long cutlength	Schneidenlänge lang	Lunghezza di taglio lunga	Long. coupe longue	Lang skærlængde	Lång skärlängd	Longitud de corte larga	Длинная режущая часть
	Extra long cutlength	Schneidenlänge extra lang	Lunghezza di taglio extra lunga	Long. coupe extra longue	Ekstra lang skærlængde	Extra lång skärlängd	Longitud de corte extra-larga	Особо длинная режущая часть
1.5 D	Cutlength 1,5 D	Schneidenlänge 1,5 D	Lunghezza di taglio 1,5 D	Longueur de coupe 1,5 D	Skærlængde 1,5 D	Skärlängd 1,5 D	Longitud de corte 1,5 D	Режущая часть 1,5 D
0.8 D	Cutlength 0,8 D	Schneidenlänge 0,8 D	Lunghezza di taglio 0,8 D	Longueur de coupe 0,8 D	Skærlængde 0,8 D	Skärlängd 0,8 D	Longitud de corte 0,8 D	Режущая часть 0,8 D
1.5 D	Cutdepth 1,5 D	Schnittiefe 1,5 D	Profondità di taglio 1,5 D	Profondeur de coupe 1,5 D	Skæredybde 1,5 D	Skärdjup 1,5 D	profundidad de pasada 1,5 D	Глубина резания 1,5 D
Center - Zentrum - Centro - Centre Borende - Borrande - Central - Режущий центр								
CC	Center cutting	Zentrumschneidend	Taglio al centro	Coupe au centre	Borende	Borrande	Corte central	Режущий центр
Corner edge - Schneidkantenausfügrung - Angolo di taglio - Arrête de coupe - Hjørneudførelse - Hörnutförande - Filo de vertice - Острая кромка								
	Sharp corner edge	Micro Abzugfase	Angolo di taglio con micro-smusso	Angle vif	Skarpt hjørne	Hörnutförande	Filo de vertice	Острая кромка
	220° cutting edge	220° Kukel	Tagliente a 220°	Sphérique sur 220°	220° skærevinkel	220° skärvinkel	Filo de corte	Режущая часть 220°
Shank - Shaft - Gambo - Queue - Skaft - Skaft - Mango - Хвостовик								
	Long Pencil Neck	Langer konischer Schaft	Riduzione conica lunga	Dégagement conique long	Long pencil neck	Lång konisk reducering	Mango larga reforzado con cuello conico	Длинная коническая шейка
	Pencil Neck	Konischer Schaft	Riduzione conica	Dégagement conique	Pencil neck	Konisk reducering	Mango reforzado con cuello conico	Коническая шейка
	Short Neck	Kurzer Schaft	Gambo corto	Queue courte	Short neck	Kort reducering	Cuello corto	Короткий хвостовик
	Long Neck	Überlaufhals	Collo lungo	Dégagement long	Long neck	Lång reducering	Cuello largo	Длинный хвостовик
	Extra Long Neck	Extra langer Überlaufhals	Collo extra lungo	Queue extra longue	Ekstra long neck	Extra lång reducering	Cuello extra-largo	Особо длинный хвостовик
	Slim shank	Schaftdurchmesser kleiner als Schneide	Diametro del gambo inferiore al dia. del taglio	Dia. Queue inf. dia coupe	Tyndt skaft	Helreducerat skaft	Cuello delgado	Утоненный хвостовик
FIT	Developed for Shrink Fit System	Speziell entwickelt zum Schrumpfen	Sviluppate specialmente per il calettamento	Développé pour le fretage	Udviklet til krympe System	Utvecklat för Shrink Fit System	Desarrollada para fijación térmica	Специально разработано для Hypro термозажимной системы
Taper Angle - Kegeltoleranz - Tolleranza della conicità - Tolérance conicité - Konusvinkel - Konisk vinkel - Conicidad (ambos lados) - Угол уклона								
	Taper Angle per side	Kegeltoleranz	Tolleranza della conicità	Tolérance de conicité	Konusvinkel	Vinkel per sida	Conicidad (ambos lados)	Угол уклона
Cutting Conditions - Schnittwerte - Velocità di taglio - Conditions de coupe - Skæredata - Skärdata - Condiciones de corte - Условия резания								
min^{-1}	Cutting Conditions	Schnittwerte	Velocità di taglio	Conditions de coupe	Skæredata	Skärdata	Condiciones de corte	Условия резания

CARBIDE

CARBIDE

NAME	SPECIFICATION		
CFRP END MILLS			
 **DIA-BNC** NEW	CARBIDE	Multiflutes for CFRP material	Vielzahnfräser für CFRP Material
	DIA	Mutitaglio per materiali compositi CFRP	Multidents pour les matériaux composites
 **DIA-HBC** NEW	CARBIDE	4,6 flutes for CFRP material	4, 6 Nuten Fräser für CFRP Material
	DIA	4, 6 eliche per materiali compositi CFRP	4 et 6 dents pour les matériaux composites
SUPER RADIUS END MILLS			
 **WX-(HS)-CRE**	CARBIDE	3, 4 flutes, stub length, long shank High feed cutter	3, 4 Nuten, kurze Schneide, langer Schaft Hochvorschubsfräser
	WX	3, 4 eliche, tagliente corto, gambo lungo Fresa Alto Avanzamento	3, 4 lèvres, série courte, queue longue Haute vitesse de coupe
 **WXS-(HS)-CRE** New Sizes	CARBIDE	5 flutes, stub length, long shank High feed cutter	5 Nuten, kurze Schneide, langer Schaft Hochvorschubsfräser
	WXS	5 eliche, tagliente corto, gambo lungo Fresa Alto Avanzamento	5 lèvres, série courte, queue longue Haute vitesse de coupe
 **HYP-HS-CRE** NEW	CARBIDE	4 flutes, stub length, long shank High feed cutter	4 Nuten, kurze Schneide, langer Schaft Hochvorschubsfräser
	TiAlN	4 eliche, tagliente corto, gambo lungo Fresa Alto Avanzamento	4 lèvres, série courte, queue longue Haute vitesse de coupe
CORNER RADIUS END MILLS			
 **WXS-CPR**	CARBIDE	2 flutes, radius end mill, long neck, pencil neck	2 Schneiden mit Eckenradius, langer Hals
	WXS	2 denti, frese toriche, collo lungo,	2 lèvres, fraises à rayons, dégagement long
 **DG-CPR**	CARBIDE	2 flutes, long neck for Graphite	2 Schneiden, langer Hals für Graphit
	DG	2 denti, serie lungo per grafite	2 lèvres, dégagement long pour graphite
 **NEO-CR-PHS**	CARBIDE	4 flutes, variable lead type	4 Schneiden, ungleiche Teilung
	FX	4 denti, elice passo variabile torsione	4 lèvres, hélice variable
 **WX-CR-PHS**	CARBIDE	4 flutes, big cutdepth	4 Schneiden, maximale Schnittiefe
	WX	4 denti, serie corta	4 lèvres, grande profondeur de coupe
 **FX-CR-EDS-6**	CARBIDE	2 flutes, stub lenght, shank diameter 6	2 Schneiden, Kurz, Schaft 6 mm
	FX	2 denti, serie corta, gambo diametro 6	2 lèvres, série courte, queue dia. 6
 **FX-CR-MG-EDS**	CARBIDE	2 flutes, long shank, short cutlenght	2 Schneiden, langer Schaft, Schneidenlänge : Kurz
	FX	2 denti, serie lunga, gambo corto	2 lèvres, queue longue, longueur de coupe courte
 **FX-CR-MG-EDL** Limited Supply	CARBIDE	2 flutes, long shank, long cutlenght	2 Schneiden, langer Schaft, Schneidenlänge : lang
	FX	2 denti, serie lungo, gambo lungo	2 lèvres, queue longue, longueur de coupe longue
 **FX-CR-MG-EHS** Limited Supply	CARBIDE	4 flutes, stub length, high helix	4 Schneiden, Schneidenlänge : kurz, Langerspirale
	FX	4 denti, serie corta, elica elevata torsione	4 lèvres, série courte, hélice haute
 **NEO-CR-EMS**	CARBIDE	6 flutes, variable lead type	6 Schneiden, ungleiche Teilung
	FX	6 denti, elica passo variabile	6 lèvres, hélice variable
 **FX-CR-MG-EMS**	CARBIDE	4 flutes, extra short cutlenght	4 Schneiden, Schneidenlänge : extra kurz
	FX	4 denti, serie extra corta	4 lèvres, longueur de coupe extra courte
 **FX-CR-MG-EML** Limited Supply	CARBIDE	4 flutes, long shank, long cutlength	4 Schneiden, Lang, langer Schaft
	FX	4 denti, gambo lungo, serie corta	4 lèvres, queue longue, longueur de coupe : longue

SPECIFICATION		RANGE	PAGE
CFRP END MILLS			
Flérskær for CFRP materiale	Flerskärsfräs för CFRP material	6 ~ 12	D.27
Multi-diente para fibras CFRP	Многозубая для углепластика		
4, 6 skær for CFRP materiale	4 och 6 skärs fräsar för CFRP material	6 ~ 12	D.28
4, 6 dientes para fibras CFRP	3-4 зуба для углепластика		
SUPER RADIUS END MILLS			
3, 4 skær, stub længde, langt skaft High Feed fræser	3 och 4 skärs fräsar, kort skärlängnd, långt skaft Högmatningsfräs	2 ~ 13	D.84 - D.85
3, 4 dientes corta para fibras CFRP Fresa de gran avance	3-4 зуба, короткая режущая часть и длинный хвостовик, Фреза с высокой подачей		
5 skær, stub længde, langt skaft High Feed fræser	5 skärs fräsar, kort skärlängnd, långt skaft Högmatningsfräs	2 ~ 12	D.57 - D.58
5 dientes corta para fibras CFRP Fresa de gran avance	5 зуба, короткая режущая часть и длинный хвостовик, Фреза с высокой подачей		
4 skær, stub længde, langt skaft High Feed fræser	4 skärs fräsar, kort skärlängnd, långt skaft Högmatningsfräs	6 ~ 12	D.105
4 dientes corta para fibras CFRP Fresa de gran avance	4 зуба, короткая режущая часть и длинный хвостовик, Фреза с высокой подачей		
CORNER RADIUS END MILLS			
2 skær, radiusfræser, Long pencil neck	2 skär, radiefräser, Lång konisk reducering	0,2 ~ 4	D.66 ~ D.71
2 labios, radio y acabado, Mango reforzado con cuello conico	2 режущих кромки, радиус на кромке длинная коническая шейка		
2,4 skær, Long neck for grafit	2, 4 skär, Lång reducering för grafit	0,5 ~ 12	D.55
2,4 labios, cuello largo para grafito	2,4 режущих кромки, длинная шейка, для графита		
4 skær, variabel helix type	4 skär, variabla-helix med differentierade skär	3 ~ 25	D.30
4 labios, Helice variable	4 режущих кромки с переменным углом наклона витков		
4 skær, stor skæredybde	4 skär, stort skäredjup	3 ~ 20	D.86
4 labios, gran profundidad	4 режущих кромки, большая глубина резания		
2 skær, stub længde, skaft diameter 6	2 skär, kort skärlängd, skaft diameter 6	0,6 ~ 2,5	D.115
2 labios, mango reforzado con cuello conico, diametro de mango 6	2 режущих кромки, короткая длина, хвостовик Ø6 мм		
2 skær, langt skaft, kort skæredybde	2 skär, långt skaft, kort skärlängd	3 ~ 12	D.116
2 labios, mango larga, longitud de corte	2 режущих кромки, короткая длина, короткая режущая часть		
2 skær, langt skaft, stor skæredybde	2 skär, långt skaft, stort skädjup	6 ~ 12	D.117
2 labios, mango larga, longitud de larga	2 режущих кромки, короткая длина, длинная режущая часть		
4 skær, stub længde, høj helix	4 skär, kort skärlängd	6 ~ 12	D.118
4 labios, mango reforzado con cuello conico, alta helice	4 режущих кромки, короткая длина, крутая спираль		
6 skær, variabel helix type	6 skär, variabla-helix med differentierade skär	6 ~ 25	D.32
6 labios, Helice variable	6 режущих кромок с переменным углом наклона витков		
4 skær, ekstra kort skæredybde	4 skär, extra kort skärlängd	4 ~ 12	D.119
4 labios, extra-corta, longitud de corte	4 режущих кромки, особо короткая режущая часть		
4 skær, lang serie, langt skaft	4 skär, lång, långt skaft	6 ~ 12	D.120
4 labios, mango larga, longitud de larga	4 режущих кромки, длинный хвостовик, длинная режущая часть		

CARBIDE

NAME	SPECIFICATION		
CORNER RADIUS END MILLS			
 **HYP-CR-HI-WEMS**	CARBIDE	4 flutes, variable lead type	4 Schneiden, ungleiche Teilung
	TiAlN	4 denti, elica passo variabile	4 lèvres, hélice variable
 **HYP-CR-HD-WEMS** NEW	CARBIDE	4 flutes, variable type for heavy duty	4 Schneiden, ungleiche Teilung
	TiAlN	4 denti, elica passo variabile torica per lavorazioni gravose	4 lèvres, type variable, pour usinage lourd
 **HYP-CR-EMS**	CARBIDE	4 flutes, regular, center cutting, corner radius	4 Schneiden, Normal, Zentrumschneidend, Radiusfräser
	TiAlN	4 denti, elica passo variabile torica per lavorazioni gravose	4 lèvres, série normale, coupe au centre, rayon
 **FXS-HS-PKE**	CARBIDE	4 flutes radius, for pocket applications	4 Schneiden, zentrumschneidend, extra langer Schaft Eckenradius
	FX	4 denti toriche, gambo lungo, per fresature di pareti profonde	4 lèvres à rayon, fraisage de cavités profonde
 **FXS-PKE**	CARBIDE	4 flutes radius, for pocket applications	4 Schneiden, zentrumschneidend, extra langer Schaft Eckenradius
	FX	4 denti toriche, gambo lungo, per fresature di pareti profonde	4 lèvres à rayon, fraisage de cavités profonde
 **FXS-MFE**	CARBIDE	4 flutes radius at both ends, deep wall applications	4 Schneiden, Eckenradius vome und hinten, extralang
	FX	4 denti, gambo extra lungo con raggio anteriore e posteriore	4 lèvres à rayon avant et arrière pour paroi profonde
 **FXS-CR-EMS** Limited Supply	CARBIDE	6 or 8 flutes, long shank	6 oder 8 Schneiden, langer Schaft
	FX	6, 8 denti, gambo lungo	6 ou 8 lèvres, queue longue
 **CA-PKE**	CARBIDE	3 flutes, for pocket applications for Al & Cu	3 Schneiden, Eckenradius
		3 denti, per applicazioni di tasche per Al & Cu	2 lèvres pour usinage de poche
 **CA-MFE**	CARBIDE	3 flutes radius at both ends, deep wall applications for Al & Cu	3 Schneiden, Eckenradius vome und hinten,
		3 deti a raggio, anteriore e posteriore, gambo extra lungo, per pareti profonde, per Al & Cu	3 lèvres à rayon avant et arrière, pour parois profonde, pour Al et Cu
BALL NOSE END MILLS			
 **WXL-LN-EBD** New Sizes	CARBIDE	2 flutes, long neck for mat. ~ 50 HRC	2 Schneiden, langer Hals für mat. ~ 50 HRC
	WXL	2 denti gambo lungo per mat. ~ 50 HRC	2 lèvres, dégagement long pour mat. ~ 50 HRC
WXL-PC-EBD NEW	CARBIDE	2 flutes, pencil neck for mat. ~ 50 HRC	2 Nuten, konische Halsausführung für Materialien ~ 50 HRC
	WXL	2 eliche, per nervature per materiali ~ 50 HRC	2 dents tronc conique pour matière jusqu'à 50HRC
 **WXS-LN-EBD**	CARBIDE	2 flutes, long neck, for hardened material	2 Schneiden, langer Hals - Überlaufhals
	WXS	2 denti, gambo lungo per materiali trattati	2 lèvres, degagement long pour matériel traité
 **WX-LN-EBD** Limited Supply	CARBIDE	2 flutes, long neck	2 Schneiden, langer Hals - Überlaufhals
	WX	2 denti, gambo lungo	2 lèvres, dégagement long
 **FX-LN-EBD-6**	CARBIDE	2 flutes, long neck, shank dia 6	2 Schneiden, langer Hals, Schaft dia 6
	FX	2 denti, serie lungo, gambo dia 6	2 lèvres, dégagement long, queue dia 6
 **DG-LN-EBD** New Sizes	CARBIDE	2 flutes, long neck for graphite	2 Schneiden, langer Hals für Graphit
	DG	2 denti, gambo lungo per grafite	2 lèvres, dégagement long pour graphite
 **WXL-EBD**	CARBIDE	2 flutes, ball nose end mill for mat. ~ 50 HRC	2 Schneiden, Kopierfräser für mat. ~ 50 HRC
	WXL	2 denti, frese sferiche per mat. ~ 50 HRC	2 lèvres, fraise hémisphérique pour mat. ~ 50 HRC

SPECIFICATION		RANGE	PAGE
CORNER RADIUS END MILLS			
4 skær, variabel helix type	4 skär, variabla-helix med differentierade skär	4 ~ 20	D.102
4 labios, Helice variable	4 режущих кромки с переменным углом наклона витков		
4 skar, variabel type skrub	4 skär, variabla-helix med differentierade skär	6 ~ 20	D.103
4 labios, Helice variable con radio en vertice Para cajeado	4 режущих кромки с переменным углом наклона витков		
4 skar, borende, hjørneradius	4 skär, Borrande, Hörnradie	0,5 ~ 5	D.150
4 labios, Helice variable con radio en vertice Para cajeado	4 режущих кромки, режущий центр, Концевые фрезы с радиусом		
4 skær radius, til lomme fræsning	4 skär radie, för djup valsfräsning	6 ~ 20	D.129
4 labios radio, para aplicaciones de cajeado	4 режущих кромки, с радиусом на кромке, для фрезерования карманов		
4 skær radius, til lomme fræsning	4 skär radie, för djup valsfräsning	3 ~ 12	D.130
4 labios radio, para aplicaciones de cajeado	4 режущих кромки, с радиусом на кромке, для фрезерования карманов		
4 skær med radius i begge ender, dyb sidebearbejdning	4 skär med radie i båda sidor av skären, djup valsbear-betning	10 ~ 22	D.131
4 labios, paredes profundas	4 кромки с радиусом на обеих концах режущей части, для глубоких стенок		
6 , 8 skær, langt skaft	6 eller 8 skär, långt skaft	6 ~ 16	D.132
6, 8 labios, mango larga	6 или 8 режущих кромок, длинный хвостовик		
3 skær, til lomme fræsning i Al & Cu	3 skär, djup valsbearbetning för Al & Cu	3 ~ 20	D.138
3 labios, para aplicaciones cajeado para Al & Cu	3 режущих кромки, для алюминия и меди		
3 skær med radius i begge ender, dyb sidebearbejdning for Al & Cu	3 skär med radie i båda sidor av skären, djup valsbear-betning för Al & Cu	10 ~ 22	D.139
3 labios, paredes profundas	3 кромки с радиусом на обеих концах режущей части, для глубоких стенок, для алюминия и меди		

SPECIFICATION		RANGE	PAGE
BALL NOSE END MILLS			
2 skær, long neck til mat. ~ 50 HRC	2 skär, lång reducering till mat. ~ 50 HRC	R0,05 ~ R3	D.43 ~ D.48
2 labios, cuello largo para mat. ~ 50 HRC	2 кромки, длинный хвостовик, для материалов до 50HRC		
2 skær, pencil neck til mat. ~ 50 HRC	2 skär, konisk reducerad till mat. ~ 50 HRC	R0,1 ~ R3	D.49 ~ D.52
2 labios cuello cónico para material hasta 50 HRC	2-зубая фреза с конической шейкой для материалов ~50 HRC		
2 skær, long neck til hærdede materialer	2 skär, konisk reducerad för härdat material	R0,05 ~ R3	D.62 ~ D.65
2 labios, cuello largo, para aceros endurecidos	2 кромки, длинная шейка, для закаленных сталей		
2 skær, long neck	2 skär, lång reducering	R0,1 ~ R3	D.82 - D.83
2 labios, cuello largo	2 режущих кромки, длинная шейка		
2 skær, long neck, skaft Ø 6	2 skrär, lång reducering, skaft D. 6	R0,25 ~ R3	D.113
2 labios, cuello largo, mango D.6	2 кромки, длинная шейка, хвостовик Ø6 мм		
2 skær, long neck til grafit	2 skrär, lång reducering för grafit	R0,2 ~ R2	D.54
2 labios, cuello largo para grafito	2 кромки, длинная шейка, для графита		
2 skær, radiusfræser til mat. ~ 50 HRC	2 skär, radiefräs till mat. > 50 HRC	R0,05~R10	D.42
2 labios, punta esférica, para mat. ~ 50 HRC	2 кромки, сферические, для материалов > 50 HRC		

CARBIDE

NAME	SPECIFICATION		
BALL NOSE END MILLS			
 **WXS-EBD**	CARBIDE	2 flutes, ball nose end mill for mat. > 50 HRC	2 Schneiden, Kopierfräser für mat. > 50 HRC
	WXS	2 denti, frese sferiche per mat. > 50 HRC	2 lèvres, fraise hémisphérique pour mat. > 50 HRC
 **WXS-HS-EBD**	CARBIDE	2 flutes, ball nose end mill for mat. > 50 HRC	2 Schneiden, Kopierfräser für mat. > 50 HRC
	WXS	2 denti, frese sferiche per mat. > 50 HRC	2 lèvres, fraise hémisphérique pour mat. > 50 HRC
 **WX-EBD** Limited Supply	CARBIDE	2 flutes, ball nose	2 Schneiden, Kopierfräser
	WX	2 denti, frese sferiche	2 lèvres, fraise hémisphérique
 **FX-HS-EBDS**	CARBIDE	2 flutes, stub length	2 Schneiden, langer Schaft
	FX	2 denti, serie corta	2 lèvres, série courte
 **FX-MG-EBD-3**	CARBIDE	2 flutes, ball nose, shank D.3	2 Schneiden, Kopierfräser, Schaftdurchmesser D 3
	FX	2 denti, frese sferiche, gambo D.3	2 lèvres, fraise hémisphérique D 3
 **FX-MG-EBD** Limited Supply	CARBIDE	2 flutes, ball nose	2 Schneiden, langer Schaf
	FX	2 denti, frese sferiche	2 Schneiden, Kopierfräser
 **FX-LS-MG-EBD** Limited Supply	CARBIDE	2 flutes, long shank	2 Schneiden, extra konischer langer Schaft
	FX	2 denti, gambo lungo	2 lèvres, queue longue
 **FX-SS-EDB**	CARBIDE	2 flutes, extra long shank, slim shank	2 Schneiden, langer langer Schaft, Schafttdurchmesser kleiner als Schneide
	FX	2 denti, gambo extra lungo, gambo snello	2 lèvres, queue extra longue, mince
 **FX-EBD-6**	CARBIDE	2 flutes, stub lenght, schank D. 6	2 Schneiden, Schneidenlänge : Kurz Schafttdurchmess-er D 6
	FX	2 denti, serie corta, gambo D.6	2 lèvres, serie courte, dia. 6
 **FX-PC-MG-EBD**	CARBIDE	2 flutes, pencil neck, long shank	2 Schneiden, konischer Schaft, langer Schaft
	FX	2 denti, riduzione conica, gambo lungo	2 lèvres, dégagement conique, queue longue
 **FXS-EQD**	CARBIDE	2 flutes, 220° cutting edge	2 Schneiden, 220° Kugel
	FX	2 denti, 220°	2 lèvres, shpérique 220 °
 **FXS-EBT**	CARBIDE	3 flutes	3 Schneiden
	FX	3 denti	3 lèvres
 **FXS-HS-EBM**	CARBIDE	4 flutes, stub length, high efficiency	4 Schneiden, Kurz
	FX	4 denti, serie corto, per lavorazioni ad alta efficienza	4 denti, serie courte, haute efficacitée
 **FXS-EBM**	CARBIDE	4 flutes, high efficiency	4 Schneiden, langer Schaft
	FX	4 denti, gambo lungo	4 lèvres, haute efficacitée
 **CBN-SXB**	CBN	2 flutes, ball nose end mill for mat. ~ 68 HRC	2 Schneiden, Kopierfräser für mat. ~ 68 HRC
	CrN	2 denti, frese sferiche per mat. ~ 68 HRC	2 lèvres, fraise hémisphérique pour mat. ~ 68 HRC
 **CAP-EBD**	CARBIDE	2 flutes, super finishing for Al & Cu	2 Schneiden, Langer Schaft, Super-finishing für Al & Cu
		2 denti, gambo lungo, per rame, alluminio e plastica	2 lèvres, queue longue, pour super finition pour Al et Cu
 **CRN-EBD**	CARBIDE	2 flutes, super finishing for Cu & Al	2 Schneiden, Langer Schaft, Super-finishing für Al & Cu
	CrN	2 denti, gambo lungo, per rame, alluminio e plastica	2 lèvres, queue longue, pour super finition pour Al et Cu

CARBIDE

SPECIFICATION		RANGE	PAGE
BALL NOSE END MILLS			
2 skær, radiusfræser til mat. ~ 50 HRC	2 skär, radiusfräser til mat. ~ 50 HRC	R0,5 ~ R6	D.60
2 labios, punta esférica, para mat. ~ 50 HRC	2 кромки, сферические, для материалов > 50 HRC		
2 skær, radiusfræser til mat. ~ 50 HRC	2 skär, radiusfräser til mat. ~ 50 HRC	R0,5 ~ R6	D.61
2 labios, punta esférica, para mat. ~ 50 HRC	2 кромки, сферические, для материалов > 50 HRC		
2 skær, stub længde	2 skär, kort skärlängd	R0,2 ~ R6	D.81
2 labios, Serie corta	2 кромки, сферические, короткая длинна		
2 skær, stub længde	2 skär, kort skärlängd	R1,5 ~ R6	D.108
2 labios, Serie corta	2 кромки, сферические, короткая длинна		
2 skær, radiusfræser, skaft Ø 3	2 skär, radiefräs, skaft D. 3	R0,4 ~ R3	D.107
2 labios, punta esférica, mango D. 3	2 кромки, сферические, хвостовик Ø3 мм		
2 skær, radiusfræser	2 skär, fullradie	R0,5 ~ R15	D.109
2 labios, punta esférica	2 режущих кромки, сферические		
2 skær, langt skaft	2 skär, långt skaft	R0,5 ~ R6	D.110
2 labios, mango larga	2 режущих кромки, утоненный шейка, длинный хвостовик		
2 skær, ekstra langt og tyndt skaft	2 skär, exstra långt skaft, helreducerat skaft	R3 ~ R6	D.111
2 labios, mango extra larga, cuello delgado	2 режущих кромки, утоненный шейка, длинный хвостовик		
2 skær, stub længde, skaft Ø 6	2 skär, kort skärlängd , skaft D:6	R0,1 ~ R3	D.112
2 labios, serie corta, mango dia. 6	2 режущих кромки, короткая длина, хвостовик Ø6 мм		
2 skær, pencil neck, langt skaft	2 skär, konisk reducerad, långt skaft	R0,5 ~ R6	D.114
2 labios, mango reforzado con cuello conico, mango lungo	2 режущих кромки, коническая шейка, длинный хвостовик		
2 skær, 220° skær	2 skär, 220° skær yta	R0,5 ~ R5	D.125
2 labios, filo de corte 220°	2 режущих кромки, сферическая режущая часть 220		
3 skær	3 skär	R3 ~ R10	D.126
3 labios	3 режущих кромки		
4 skær, stub længde, høj effektivitet	4 skär, kort skärlängd, högeffektiv	R3 ~ R10	D.127
4 labios, serie corto, altas prestaciones	4 режущих кромки, сферическая, короткая длина		
4 skær, høj effektivitet	4 skär, högeffektiv	R3 ~ R10	D.128
4 labios, alto contenido	4 режущих кромки, сферическая		
2 skær, radius fræser for mat. ~ 68 HRC	2 skär, radie fräs för mat. ~ 68 HRC	R0,5 ~ R1,5	D.133
2 labios, radio fresas para mat. ~ 68 HRC	2 кромки, сферическая, для материалов до ~ 68 HRC		
2 skær, til Al & Cu, super finish	2 skär, för Al & Cu, super finish	R0,5 ~ R10	D.137
2 labios, para Al & Cu, super acabado	2 кромки, супер финишная обработка для меди и алюминия		
2 skær, til Al & Cu, super finish	2 skär, för Al & Cu, super finish	R3 ~ R6	D.142
2 labios, para Al & Cu, super acabado	2 кромки, супер финишная обработка для меди и алюминия		

CARBIDE

NAME	SPECIFICATION		
BALL NOSE END MILLS			
 **CRN-LN-EBD**	CARBIDE	2 flutes, long neck, super finishing for Cu & Al	2 Schneiden, Überlaufhals, Super-finishing für Al & Cu
	CrN	2 denti, gambo scaricato lungo, per rame, alluminio e plastica	2 lèvres, dégagement long, super finition pour Al et Cu
 **DG-EBD**	CARBIDE	2 flutes for graphit	2 Schneiden für Graphit
	DG	2 denti per grafite	2 lèvres pour graphite
 **HYP-SB-EBD** NEW	CARBIDE	2 flutess, ball nose end mill for material ~50 HRC	2 Schneiden, Kopierfräser für mat. ~ 50 HRC
	TiAlN	2 denti, frese sferiche per mat. ~ 50 HRC	2 lèvres, fraise hémisphérique pour mat. ~ 50 HRC
 **HYP-EBD-TiAlN**	CARBIDE	2 flutes, ball nose, short series	2 Schneiden, Kopierfräser, Kurzer Hals
	TiAlN	2 denti, frese sferiche, serie corta	2 lèvres, boule, série courte
 **HYP-EBD**	CARBIDE	2 flutes, ball nose, short series	2 Schneiden, Kopierfräser, Kurzer Hals
		2 denti, frese sferiche, serie corta	2 lèvres, boule, série courte
 **HC-BD2-TiAlN** Limited Supply	CARBIDE	2 flutes, ball nose, long series	2 Schneiden, Kopierfräser, Langer Hals
	TiAlN	2 denti, frese sferiche, serie lunga	2 lèvres, boule, série longue
SLOTTING END MILLS			
 **WXL-LN-EDS**	CARBIDE	2 flutes, long neck	2 Schneiden, langer Hals
	WXL	2 denti, per scalanature profonde	2 lèvres, dégagement long
 **WX-LN-EDS** Limited Supply	CARBIDE	2 flutes, long neck	2 Schneiden, langer Hals
	WX	2 denti, per scalanature profonde	2 lèvres, dégagement long
 **FX-LN-EDS-6**	CARBIDE	2 flutes, long neck, shank D. 6	2 Schneiden, Schneidenlänge : lang, Schaftdurchmesser D 6
	FX	2 denti, per scalanature profonde, gambo, D 6	2 lèvres, dégagement long, queue D 6
 **CRN-LN-EDS**	CARBIDE	2 flutes, long neck for Cu & Al	2 Schneiden, Überlaufhals für Cu & Al
	CrN	2 denti, per scalanature profonde per Cu & Al	2 lèvres, dégagement long pour Cu & Al
SLOTTING END MILLS			
 **WXL-1,5D-DE**	CARBIDE	2 flutes, general use for 1,5 D	2 Schneiden, vielseitige Anwendungen für 1,5 D
	WXL	2 denti, applicazioni generali per 1,5 D	2 lèvres, application générale pour 1,5 D
 **WXL-2D-DE**	CARBIDE	2 flutes, general use for 2 D	2 Schneiden, vielseitige Anwendungen für 2 D
	WXL	2 denti, applicazioni generali per 2 D	2 lèvres, application générale pour 2 D
 **WXL-3D-DE**	CARBIDE	2 flutes, general use for 3 D	2 Schneiden, vielseitige Anwendungen für 3 D
	WXL	2 denti, applicazioni generali per 3 D	2 lèvres, application générale pour 3 D
 **WXL-4D-DE**	CARBIDE	2 flutes, general use for 4 D	2 Schneiden, vielseitige Anwendungen für 4 D
	WXL	2 denti, applicazioni generali per 4 D	2 lèvres, application générale pour 4 D
 **WX-G-EDSS** Limited Supply	CARBIDE	2 flutes, cutlength extra short	2 Schneiden, Schneidenlänge : extra kurz
	WX	2 denti, serie extra corta	2 lèvres, longueur de coupe extra courte
 **WX-EDS** Limited Supply	CARBIDE	2 flutes, stub length	2 Schneiden, Schneidenlänge : kurz
	WX	2 denti, serie corta	2 lèvres, série courte

SPECIFICATION		RANGE	PAGE
BALL NOSE END MILLS			
2 skær, long neck, super finish, til Al & Cu	2 skär, lång koniskt reducerad, super finish, för Al & Cu	1 ~ 5	D.143
2 labios, para Al & Cu, super acabado	2 кромки, длинный хвостовик, супер финишная обработка для меди и алюминия		
2 skær for grafit	2 skär för grafit	4 ~ 12	D.53
2 labios para grafito	2 режущих кромки, сферическая, для графита		
2 skær, radius fræser for mat. ~ 50 HRC	2 skär, radie fräs för mat. ~ 50 HRC	R3 ~ R12	D.106
2 labios, radio fresas para mat. ~ 50 HRC	2 кромки, сферическая, для материалов до ~ 50 HRC		
2 skær, radiusfræser, kort serie	2 skär, fullradie, kort utförande	1 ~ 25	D.151
2 labios, esferica, serie corta	2 режущих кромки, сферическая фреза, короткая серия		
2 skær, radiusfræser, kort serie	2 skär, fullradie, kort utförande	1 ~ 25	D.152
2 labios, esferica, serie corta	2 режущих кромки, сферическая фреза, короткая серия		
2 skær, radiusfræser, lang serie	2 skär, fullradie, långt utförande	1,5 ~ 10	D.153
2 labios, esferica, serie larga	2 режущих кромки, сферическая фреза, длинная серия		
SLOTTING END MILLS			
2 skær, long neck	2 skär, lång reducering	0,2 ~ 5	D.38 ~ D.41
2 labios, cuello largo	2 режущих кромки, длинная шейка		
2 skær, long neck	2 skär, lång reducering	0,2 ~ 5	D.78 ~ D.80
2 labios, cuello largo	2 режущих кромки, длинная шейка		
2 skær, long neck, skaft D. 6	2 skær, lång reducering, skaft:6	0,5 ~ 2,5	D.93
2 labios, cuello largo D. 6	2 режущих кромки, длинная шейка, хвостовик Ø6 мм		
2 skær, long neck, skaft til Cu & Al	2 skär, lång reducering för Al & Cu	0,5 ~ 12	D.140
2 labios, cuello largo para Cu & Al	2 режущих кромки, длинная шейка, для алюминия и меди		
SLOTTING END MILLS			
2 skær, 1,5 D, til generelt brug	2 skär, diverse applikationer för 1,5 D	0,1 ~ 6	D.33
2 labios, aplicación general para 1,5 D	2 режущих кромки, общего назначения, глубиной до 1,5 D		
2 skær, 2 D, til generelt brug	2 skär, diverse applikationer för 2 D	0,1 ~ 20	D.34
2 labios, aplicación general para2 D	2 режущих кромки, общего назначения, глубиной до 2D		
2 skær, 3 D, til generelt brug	2 skär, diverse applikationer för 3 D	0,1 ~ 20	D.35
2 labios, aplicación general para 3 D	2 режущих кромки, общего назначения, глубиной до 3D		
2 skær, 4 D, til generelt brug	2 skär, diverse applikationer för 4 D	0,2 ~ 12	D.36
2 labios, aplicación general para 4 D	2 режущих кромки, общего назначения, глубиной до 4D		
2 skær, ekstra kort skærlængde	2 skær, exstra kort skärlängd	1 ~ 12	D.72
2 labios, longitud de corte extra corto	2 режущих кромки, особо короткая режущая часть		
2 skær, stub længde	2 skär, kort	0,2 ~ 12	D.73
2 labios, serie corta	2 режущих кромки, короткая длина		

CARBIDE

NAME	SPECIFICATION		
SLOTTING END MILLS			
 **FX-MG-EDS** Limited Supply	CARBIDE / FX	2 flutes, stub length 2 denti, serie corta	2 Schneiden, Schneidenlänge : kurz 2 lèvres, série courte
 **FX-MG-EDL** Limited Supply	CARBIDE / FX	2 flutes, long cutlength 2 denti, serie lunga	2 Schneiden, Schneidenlänge : extra lang 2 lèvres, longueur de coupe extra longue
 **FX-MG-EXDL** Limited Supply	CARBIDE / FX	2 flutes, cutlength extra long 2 denti, serie extra lunga	2 Schneiden, Schneidenlänge : extra lang 2 lèvres, longueur de coupe extra longue
 **FX-SS-EDS**	CARBIDE / FX	2 flutes, slim shank 2 denti, dia del gambo inferiore al dia del taglio	2 Schneiden, Schaftdurchmesser kleiner als Schneide 2 lèvres, dia queue inférieure au dia de coupe
 **FX-EDS-6**	CARBIDE / FX	2 flutes, stub length, shank D. 6 2 denti, serie lunga gambo D. 6	2 Schneiden, Schneidenlänge : Kurz, Schaftdurchmesser D 6 2 lèvres, série longue, queue D.6
 **CA-RG-EDS**	CARBIDE	2 flutes, stub length, for Al. and Cu. Alloys 2 denti, serie lunga per Al & Cu	2 Schneiden, Schaftdurchmesser kleiner als Schneide, für Aluminium und Kupferlegierungen 2 lèvres, série courte pour Al & Cu
 **CA-RG-EDL**	CARBIDE	2 flutes, stub length, for Al. and Cu. Alloys 2 denti, serie lunga per Al & Cu	2 Schneiden, Schaftdurchmesser kleiner als Schneide, für Aluminium und Kupferlegierungen 2 lèvres, série courte pour Al & Cu
 **HYP-EDS-TiAlN**	CARBIDE / TiAlN	2 flutes, centre cutting, short series 2 denti, taglio al centro, serie corta	2 Schneiden, Zentrumschneidend, Kurzer Hals 2 lèvres, coupe au centre, série courte
 **HYP-EDS**	CARBIDE	2 flutes, centre cutting, short series 2 denti, taglio al centro, serie corta	2 Schneiden, Zentrumschneidend, Kurzer Hals 2 lèvres, coupe au centre, série courte
 **MG-EDS**	CARBIDE	2 flutes, centre cutting, short series 2 denti, taglio al centro, serie corta	2 Schneiden, Zentrumschneidend, Kurzer Hals 2 lèvres, coupe au centre, série courte
 **MG-EDL**	CARBIDE	2 flutes, centre cutting, long series 2 denti, taglio al centro, serie lunga	2 Schneiden, Zentrumschneidend, Langer Hals 2 lèvres, coupe au centre, série longue
MULTIFLUTES END MILLS			
 **WXL-EMS**	CARBIDE / WXL	4 flutes, for general use 4 denti, per applicazioni generali	4 Scheiden Schaftfräser für allgemeine Anwendungen 4 lèvres pour application générale
 **NEO-EMS**	CARBIDE / FX	6 flutes, variable lead type 6 denti, passo variabile	6 Scheiden, ungleiche Teilung 6 lèvres, hélice variable
 **NEO-PHS**	CARBIDE / FX	4 flutes, variable lead type 4 denti, passo variabile	4 Scheiden, ungleiche Teilung 4 lèvres, hélice variable
 **UP-PHS** Limited Supply	CARBIDE / FX	4 flutes, vibration resistant, multipurpose use 4 denti, resistente alle vibrazioni, multifunzione	4 Schneiden, anti-vibration, für Allgemeine Anwendungen 4 lèvres, résistante aux vibrations, multi-fonction
 **WXS-EMS**	CARBIDE / WXS	4 , 6 flutes for allied steels < 65 HRC 4 o 6 denti, per acciai temperato < 65 HRC	4 , 6 Schneiden, für legierten Stahl < 65 HRC 4 ou 6 lèvres pour aciers durs < 65 HRC

SPECIFICATION		RANGE	PAGE
SLOTTING END MILLS			
2 skær, stub længde	2 skär, kort	0,2 ~ 12	D.87 - D.88
2 labios, serie corta	2 режущих кромки, короткая длина		
2 skær, lang skærlængde	2 skär, lång skärelängd	1 ~ 12	D.89
2 labios, longitud de corte larga	2 skär, lång skärelängd		
2 skær, ekstra lang skærlængde	2 skär, exstra lång skärelängd	3 ~ 12	D.90
2 labios, longitud de corte extra-larga	2 режущих кромки, особо длинная режущая часть		
2 skær, tyndt skaft	2 skär, helreducerat skaft	6 ~ 12	D.91
2 labios, cuello delgado	2 режущих кромки, утоненный хвостовик		
2 skær, stub længde, skaft Ø 6	2 skär, kort längd, skaft D:6	0,2 ~ 2,5	D.92
2 labios, serie corta, mango Ø 6	2 режущих кромки, короткая длина, хвостовик Ø6 мм		
2 skær, stub længde til Al & Cu	2 skär, kort längd, till AL. og Cu. leg.	1 ~ 20	D.134
2 labios, serie corta para Al & Cu	2 режущих кромки, короткая, для алюминия и меди		
2 skær, stub længde til Al & Cu	2 skär, kort längd, till AL. og Cu. leg.	3 ~ 12	D.135
2 labios, serie corta para Al & Cu	2 режущих кромки, короткая, для алюминия и меди		
2 skær, borende, kort serie	2 skär, borrande, kort utförande	1 ~ 25	D.144
2 labios, corte central, serie corta	2 режущих кромки, режущий центр, короткая серия		
2 skær, borende, kort serie	2 skär, borrande, kort utförande	1 ~ 25	D.145
2 labios, corte central, serie corta	2 режущих кромки, режущий центр, короткая серия		
2 skær, borende, kort serie	2 skär, borrande, kort utförande	1 ~ 20	D.154
2 labios, corte central, serie corta	2 режущих кромки, режущий центр, короткая серия		
2 skær, borende, lang serie	2 skär, borrande, långt utförande	3 ~ 12	D.155
2 labios, corte central, serie larga	2 режущих кромки, режущий центр, длинная серия		
MULTIFLUTES END MILLS			
4 skær, generelt brug	4 skär, allround	1 ~ 30	D.37
4 labios, para aplicaciones generales	4 режущих кромки, общего назначения		
6 skær, variabel helix	6 skär, variabla-helix med differentierade skär	6 ~ 25	D.31
6 labios, Helice variable	6 режущих кромок с переменным углом наклона витков		
4 skær, variabel helix	4 skär, variabla-helix med differentierade skär	3 ~ 25	D.29
4 labios, Helice variable	4 режущих кромок с переменным углом наклона витков		
4 skær, vibration-resistant	4 skär, vibrationsdämpande	3 ~ 12	D.56
4 labios, resistente a la vibración	4 режущих кромки, вибростойкая		
4, 6 skær til stål < 65 HRC	4, 6 skär till stål upp till 65 HRC	1 ~ 12	D.59
4, 6 labios para aceros < 65 HRC	4 или 6 режущих кромок, для сталей до 65 HRC		

CARBIDE

NAME	SPECIFICATION		
MULTIFLUTES END MILLS			
 **WX-G-ETSS**	CARBIDE	3 flutes, for stainless steel, titanium and steel	3 Schneiden, für VA Stahl - Titan - und Stahl
	WX	3 denti, per la fresatura di acciai inossidabili, Titanium, acciai	3 lèvres, pour inox, titane et aciers
 **WX-G-EMSS**	CARBIDE	4 flutes, cutlength extra short	4 Schneiden, Schneidenlänge : extra kurz
	WX	4 denti, serie extra corta	4 lèvres, longueur de coupe extra courte
 **WX-PHS** Limited Supply	CARBIDE	4 flutes, for stainless steel, titanium and steel	4 Schneiden, für VA Stahl - Titan - und Stahl
	WX	4 denti, per la fresatura di acciai inossidabili, Titanio, acciai	4 lèvres, pour inox, titane et aciers
 **WX-EMS** Limited Supply	CARBIDE	4 flutes, stub length	4 Schneiden, Schaftdurchmesser kleiner als Schneide
	WX	4 denti, serie corta	4 lèvres, série courte
 **FX-MG-EMS** Limited Supply	CARBIDE	4 flutes, stub length	4 Schneiden, Schaftdurchmesser kleiner als Schneide
	FX	4 denti, serie corta	4 lèvres, série courte
 **FX-MG-EML** Limited Supply	CARBIDE	4 flutes, long length	4 Schneiden, langer Schaft
	FX	4 denti, serie corta	4 lèvres, série courte
 **FX-MG-EXML** Limited Supply	CARBIDE	4 flutes, extra long length	4 Schneiden, extra langer Schaft
	FX	4 denti, extra serie corta	4 lèvres, série extra courte
 **FX-SS-EMS**	CARBIDE	4 flutes, long shank, slim shank	4 Schneiden, langer Schaft
	FX	4 denti, gambo lunga, dia del gambo inferiore al dia del taglio	4 lèvres, queue longue, dia queue inférieure au dia de coupe
 **HYP-HI-EMS**	CARBIDE	4 flutes, variable lead type	4 Schneiden, ungleiche Teilung
	TiAlN	4 denti, passo variabile	4 lèvres, hélice variable
 **HYP-HI-WEMS**	CARBIDE	4 flutes, variable lead type, weldon shank	4 Schneiden, ungleiche Teilung, weldon
	TiAlN	4 denti, passo variabile, weldon	4 lèvres, hélice variable, weldon
 **FX-MG-EHL**	CARBIDE	3 flutes, long length, high helix	3 Schneiden, lange Schaft, High spirale
	FX	3 denti, serie corta, elica forte torsione	3 lèvres, série courte, hélice haute
 **FX-MG-EHS**	CARBIDE	3 of 4 flutes, stub length, high helix	3 oder 4 Schneiden, Schaftdurchmesser kleiner als Schneide High spirale
	FX	3, 4 denti, serie corta, elica forte torsione	3 ou 4 lèvres, serie courte, hélice haute
 **FXS-EMS**	CARBIDE	4,6 or 8 flutes, stub length	4,6 oder 8 Schneiden, Schaftdurchmesser kleiner als Schneide
	FX	4,6 o 8 flutes, serie corta	4,6 ou 8 lèvres, serie courte
 **FXS-LS-EMS**	CARBIDE	4,6 or 8 flutes, stub length, long shank	4,6 oder 8 Schneiden, langer Schaft
	FX	4,6 o 8 flutes, serie corta, gambo lungo	4,6 ou 8 lèvres, serie courte, queue courte
 **FXS-EML**	CARBIDE	6 or 8 flutes, long length	6 oder 8 Schneiden, lange Schaft
	FX	6, 8 denti, lunghezza lungo	6 ou 8 lèvres, série longue
 **FXS-HPE**	CARBIDE	4 flutes, extra long shank, for slotting	4 Schneiden, extra langer Schaft
	FX	4 denti, extra lungo, per scanalature profonde	4 lèvres, extra longue queue
 **FX-LN-EMS-6**	CARBIDE	4 flutes, long neck, schank D. 6	4 Schneiden, langer Schaft, Schaftdurchmesser D. 6
	FX	4 denti, gambo extra lungo, per scanalature	4 lèvres, queue extra-longue, pour rainurage

SPECIFICATION		RANGE	PAGE
MULTIFLUTES END MILLS			
3 skær, til stål, rustfrit stål og Titanium	3 skär, till rostfritt stål, Titanium och stål	3 ~ 16	D.74
3 labios, para aceros inoxidables, Titanium, aceros	3 режущих кромки, для всех нержавеющих сталей, титана, легированных сталей		
4skær, ekstra kort skærlængde	4 skär, exstra kort skärelängd	3 ~ 12	D.75
4 labios, longitud de corte extra corto	4 режущих кромки, особо короткая режущая часть		
4 skær til stål, rustfrit stål og Titanium	4 skär, till rostfritt stål, Titanium och stål	3 ~ 20	D.77
4 labios, para aceros inoxidables, Titanium, aceros	4 режущих кромки, для всех нержавеющих сталей, титана, легированных сталей		
4 skær, stub længde	4 skär, kort längd	2 ~ 12	D.76
4 labios, serie corta	4 режущих кромки, короткая длина		
4 skær, stub længde	4 skär, kort längd	2 ~ 12	D.94
4 labios, serie corta	4 режущих кромки, короткая длина		
4 skær, lang serie	4 skär, lång skärlängd	3 ~ 12	D.95
4 labios, serie larga	4 режущих кромки, длинная		
4 skær, extra lang serie	4 skär, exstra lång skärlängd	3 ~ 12	D.96
4 labios, serie extra larga	4 режущих кромки, особо длинная		
4 skær, langt skaft, tyndt skaft	4 skär, långt skaft, helreducerat skaft	6 ~ 12	D.97
4 labios, mango larga, cuello delgado	4 режущих кромки, утоненный хвостовик		
4 skær, variabel helix	4 skär, variabla-helix med differentierade skär	4 ~ 20	D.104
4 labios, Helice variable	4 режущих кромки, переменный шаг спиралей		
4 skær, variabel helix, Weldon skaft	4 skär, variabla-helix med differentierade skär, Weldon	4 ~ 20	D.104
4 labios, Helice variable, Weldon	4 режущих кромки, переменный шаг спиралей, для Weldon		
3 skær, lang serie, skærkt snoet	3 skär, lång skärlängd	6 ~ 12	D.100
3 labios, serie larga	3 режущих кромки, длинная серия, крутая спираль		
3, 4 skær, stub længde	3 eller 4 skär, kort längd	3 ~ 20	D.99
3, 4 labios, serie corta	3 или 4 режущих кромки, короткая длина, крутая спираль		
4, 6, 8 skær, stub længde	4, 6 eller 8 skär, kort längd	1 ~ 30	D.121
4, 6, 8 labios, serie corta	4,6 или 8 режущих кромок, короткая длина		
4, 6, 8 skær, stub længde, langt skaft	4, 6 eller 8 skär, lång skärlängd, långt skaft	3 ~ 30	D.122
4, 6, 8 labios, serie corta, mango larga	4,6 или 8 режущих кромок, короткая длина режущей, длинный хвостовик		
6, 8 skær, lang serie	6 eller 8 skär, lång skärlängd	6 ~ 25	D.123
6,8 labios, serie larga	6 или 8 режущих кромок, длинная		
4 skær, extra lang serie, til sporfræsning	4 skär, exstra långt helreducerat skaft, till spårfräsning	10 ~ 22	D.124
4 labios, serie extra larga, para ranurado	4 режущих кромки, особо длинный хвостовик, фрезерование пазов		
4 skær, long neck, skaft D 6	4 skär, lång reducering, skaft D6	1 ~ 6	D.98
4 labios, cuello largo, mango D 6	4 режущих кромки, длинная шейка, хвостовик Ø6 мм		

CARBIDE

NAME	SPECIFICATION		
MULTIFLUTES END MILLS			
 **CA-ETS**	CARBIDE	3 flutes, stub length for Al & Cu 3 denti, serie corta per Al & Cu	3 Schneiden, Schneidenlänge : kurz für Al & Cu 3 lèvres série courte pour Al & Cu
 **CRN-EMS**	CARBIDE CrN	4 flutes, stub length, finishing Al., Cu and plastic 4 denti, serie corta, per finiture su alluminio, rame e plastica	4 Schneiden, Schaftdurchmesser kleiner als Schneide, für Alu - Kupfer Legierungen, plastik 4 lèvres, série courte, finition Al, Cu et plastiques
 **HYP-ETS-TIAIN**	CARBIDE TiAlN	3 flutes, centre cutting, short series 3 denti, taglio al centro, serie corta	3 Schneiden, Zentrumschneidend, Kurzer Hals 3 lèvres, coupe au centre, série courte
 **HYP-ETS**	CARBIDE	3 flutes, centre cutting, short series 3 denti, taglio al centro, serie corta	3 Schneiden, Zentrumschneidend, Kurzer Hals 3 lèvres, coupe au centre, série courte
 **HYP-EMS-TiAlN**	CARBIDE TiAlN	4 flutes, centre cutting, short series 4 denti, taglio al centro, serie corta	4 Schneiden, Zentrumschneidend, Kurzer Hals 4 lèvres, coupe au centre, série courte
 **HYP-EMS**	CARBIDE	4 flutes, centre cutting, short series 4 denti, taglio al centro, serie corta	4 Schneiden, Zentrumschneidend, Kurzer Hals 4 lèvres, coupe au centre, série courte
 **MG-ETS**	CARBIDE	3 flutes, centre cutting, short series 3 denti, taglio al centro, serie corta	3 Schneiden, Zentrumschneidend, Kurzer Hals 3 lèvres, coupe au centre, série courte
 **MG-ETL**	CARBIDE	3 flutes, centre cutting, long series 3 denti, taglio al centro, serie lunga	3 Schneiden, Zentrumschneidend, Langer Hals 3 lèvres, coupe au centre, série longue
 **MG-EMS**	CARBIDE	4 flutes, centre cutting, short series 4 denti, taglio al centro, serie corta	4 Schneiden, Zentrumschneidend, Kurzer Hals 4 lèvres, coupe au centre, série courte
 **MG-EML**	CARBIDE	4 flutes, centre cutting, long series 4 denti, taglio al centro, serie lunga	4 Schneiden, Zentrumschneidend, Langer Hals 4 lèvres, coupe au centre, série longue
ROUGHING END MILLS			
 **HYP-HP-WRESF** NEW Name	CARBIDE TiAlN	4 flutes, for roughing, weldon shank 4 denti, frese a sgrossare, weldon	4 Schneiden, Schruppfräser, weldon 4 lèvres, fraise pour l'ébauche, weldon

SPECIFICATION		RANGE	PAGE
MULTIFLUTES END MILLS			
3 skær, stub længde, til Al & Cu legeringer	3 skär, kort längd, för Al & Cu legering	3 ~ 20	D.136
3 labios, para Al & Cu aleado	3 режущих кромки, короткая, для алюминия и меди		
4 skær, Stub længde sletfræsning Al, Cu, plastik	4 skär, kkort längd, finbearbetning. Al., Cu og plast	3 ~ 12	D.141
4 labios, Serie corta, acabado Al, Cu, plàsticos	4 кромки, короткая, чистовая обработка алюминия, меди и пластиков		
3 skær, borende, kort serie	3 skär, borrande, kort utförande	1 ~ 25	D.146
3 labios, corte central, serie corta	3 режущих кромки, режущий центр, короткая серия		
3 skær, borende, kort serie	3 skär, borrande, kort utförande	1 ~ 25	D.147
3 labios, corte central, serie corta	3 режущих кромки, режущий центр, короткая серия		
4 skær, borende, kort serie	4 skär, borrande, kort utförande	1 ~ 25	D.148
4 labios, corte central, serie corta	4 режущих кромки, режущий центр, короткая серия		
4 skær, borende, kort serie	4 skär, borrande, kort utförande	1 ~ 25	D.149
4 labios, corte central, serie corta	4 режущих кромки, режущий центр, короткая серия		
3 skær, borende, kort serie	3 skär, borrande, kort utförande	2 ~ 16	D.158
3 labios, corte central, serie corta	3 режущих кромки, режущий центр, короткая серия		
3 skær, borende, lang serie	3 skär, borrande, långt utförande	3 ~ 12	D.159
3 labios, corte central, serie larga	3 режущих кромки, режущий центр, длинная серия		
4 skær, borende, kort serie	4 skär, borrande, kort utförande	2 ~ 16	D.156
4 labios, corte central, serie corta	4 режущих кромки, режущий центр, короткая серия		
4 skær, borende, lang serie	4 skär, borrande, långt utförande	3 ~ 12	D.157
4 labios, corte central, serie larga	4 режущих кромки, режущий центр, длинная серия		
ROUGHING END MILLS			
4 skær, til skrubfræsning, weldon skaft	4 skär, till skrubbfräsning, Weldon	6 ~ 25	D.101
4 labios para desbaste, weldon	4 режущих кромки, для черновой обработки, Weldon		

CARBIDE

END MILLS SELECTION CHART

END MILLS SELECTION CHART

CARBIDE

CARBIDE

Type	Appearance		coating	Z	Hardened Steels ~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG ~350 HB	Cu	Al	Graphite	Ti	HRS	Plast.	CFRP	range
For CFRP - Für CFRP - Per CFRP - Pour CFRP For CFRP - För CFRP - Para CFRP - Для CFRP																			
DIA-BNC NEW		D.27	DIA	8/14														◎	6 ~ 12
DIA-HBC NEW		D.28	DIA	8/14														◎	6 ~ 12
For general use - Allgemeine Anwendungen - Per una vasta gamma di applicazioni - Multi fonction All-round anvendelse - För diverse applikationer - Para aplicaciones generales - Общего назначения																			
WXL-1,5D-DE		D.33	WXL	2	◎	◎	◎			◎	◎	◎	○		○	○			0,1 ~ 6
WXL-2D-DE		D.34	WXL	2	◎	◎	◎			◎	◎	◎	○		○	○			0,1 ~ 20
WXL-3D-DE		D.35	WXL	2	◎	◎	◎			◎	◎	◎	○		○	○			0,1 ~ 20
WXL-4D-DE		D.36	WXL	2	◎	◎	◎			◎	◎	◎	○		○	○			0,2 ~ 12
WXL-EMS		D.37	WXL	4	◎	◎	◎			◎	◎	◎	○		○	○			1 ~ 30
WX-EDS Limited Supply		D.73	WX	2	◎	◎	○	○		○	◎	○	○		○	○			0,2 ~ 12
WX-EMS Limited Supply		D.76	WX	4	◎	◎	○	○		○	◎	○	○		○	○			2 ~ 12
FX-MG-EDS Limited Supply		D.87-88	FX	2	◎	◎	○	○		○	◎	○	○		○	○			0,2 ~ 12
FX-MG-EDL Limited Supply		D.89	FX	2	◎	◎	○			○	◎	○	○		○	○			1 ~ 12
FX-MG-EXDL Limited Supply		D.90	FX	2	◎	◎	◎	○		○	◎	○	○		○				3 ~ 12
FX-SS-EDS		D.91	FX	2	◎	◎	○	○		○	◎	○	○		○	○			6 ~ 12
FX-EDS-6		D.92	FX	2	◎	◎	◎	○		○	◎	○	○		○	○			0,2 ~ 2,5
FX-MG-EMS Limited Supply		D.94	FX	4	◎	◎	○	○		○	◎	○	○		○	○			2 ~ 12
FX-MG-EML Limited Supply		D.95	FX	4	◎	◎	○			○	◎	○	○		○	○			3 ~ 12
FX-MG-EXML Limited Supply		D.96	FX	4	◎	◎				○	◎	○	○		○				3 ~ 12
FX-SS-EMS		D.97	FX	4	◎	◎	○	○		○	◎	○	○		○	○			6 ~ 12
HYP-HI-EMS		D.104	TiAlN	4	◎	◎	○			◎	◎				◎	◎			4 ~ 20
HYP-HI-WEMS		D.104	TiAlN	4	◎	◎	○			◎	◎				◎	◎			4 ~ 20
For mass production - Massenproduktion - Per grande produzione - Pour grande production For stor produktion - Hög produktivitet - gran producción - Для массового производства																			
NEO-PHS		D.29	FX	4	◎	◎	○			◎	◎				◎	◎			3 ~ 25
UP-PHS Limited Supply		D.56	FX	4	◎	◎	○			◎	◎	○	○		◎	○			3 ~ 12
WX-G-EDSS Limited Supply		D.72	WX	2	◎	◎	○	○		○	◎	○	○		○	○			1 ~ 12
WX-G-ETSS		D.74	WX	3	◎	◎	○			◎					◎				3 ~ 16
WX-G-EMSS		D.75	WX	4	◎	◎	○	○		○	◎	○	○		○	○			3 ~ 12
WX-PHS Limited Supply		D.77	WX	4	◎	◎	○	○		◎	◎	○	○		◎	◎			3 ~ 20
For hardened steel - Für Gehärteter Stahl - Per Aciai temprati - Pour acier trempé For hærdet stål - För härdat stål - Para aceros endurecidos - Для закаленной стали																			
WXS-EMS		D.59	WXS	4 / 6	◎	◎	◎	◎	○	○	◎				○	○			1 ~ 12
FXS-EMS		D.121	FX	4 / 6	◎	◎	◎	◎	○	○	◎				○	○			1 ~ 30
FXS-LS-EMS		D.122	FX	4/6/8	◎	◎	◎	◎	○	○	◎				○	○			3 ~ 30
FXS-EML		D.123	FX	4/6/8	◎	◎	◎	◎		○	◎				○	○			6 ~ 25
FXS-HPE		D.124	FX	6 / 8	◎	◎	◎	○		○	◎				○	○			10 ~ 22
For exotic material (heat resistant) - Für Hitzebeständige Legierungen - Per acciaio resistente alle alte temperature - Pour alliage à haute résistance thermique Eksotiske materiale - Exotiska material - Para exoticos materiales - Для экзотических материалов (жаростойких)																			
NEO-EMS		D.31	FX	6	◎	◎	◎	○		◎	◎				◎	◎			6 ~ 25
FX-MG-EHS		D.99	FX	3 / 4	◎	◎	○	○		◎	◎	○	○		◎	◎			3~ 20
FX-MG-EHL		D.100	FX	3	◎	◎	○			◎	◎	○	○		◎	◎			6 ~ 12
For roughing - Schruppen - Sgrossatura - Ebauche For skrubfræsning - För grovfräsning - Para desbaste - Для черновой обработки																			
HYP-HP-WRESF New name		D.101	TiAlN	4/6	◎	◎				○	○								6 ~ 25

END MILLS SELECTION CHART

END MILLS SELECTION CHART

Type	Appearance		coating	Z	Hardened Steels ~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG ~350 HB	Cu	Al	Graphite	Ti	HRS	Plast.	CFRP	range
For deep slotting - Rippenfräsen - Per fresatura di pareti profonde - Rainurage profond Dyb sporfræsning - Djup spårfräsning - Ranurado profundo - Для глубоких пазов																			
WXL-LN-EDS		D.38~41	WXL	2	◎	◎	○	○		○	◎	◎	○		○	○			0,2 ~ 5
WX-LN-EDS Limited Supply		D.78~80	WX	2	◎	◎	◎	○		○	◎	○	○		○	○			0,2 ~ 5
FX-LN-EDS-6		D.93	FX	2	◎	◎	◎	○		○	◎	○	○		○	○			0,5 ~ 2,5
FX-LN-EMS-6		D.98	FX	4	◎	◎	◎	○		○	◎	○	○		○	○			1 ~ 6
Ball nose ~ 50 HRC - Kopierfräser ~ 50 HRC -Frese sferiche ~ 50 HRC - Fraise hémisphérique ~ 50 HRC Radiusfræser ~ 50 HRC - Fullradie ~ 50 HRC - Esferica ~ 50 HRC - Сферическая фреза ~ 50 HRC																			
WXL-EBD		D.42	WXL	2	◎	◎	◎			◎	◎	◎	○		○	○			R0,05 ~ R10
WXL-LN-EBD New Sizes		D.43~48	WXL	2	◎	◎	◎			◎	◎	◎	○		○	○			R0,05 ~ R3
WXL-PC-EBD NEW		D.49~52	WXL	2	◎	◎	◎			◎	◎	◎	○		○	○			R0,1 ~ R3
WX-EBD Limited Supply		D.81	WX	2	◎	◎	◎	○		◎	◎	○	○		○	○			R0,2 ~ R6
WX-LN-EBD Limited Supply		D.82-83	WX	2	◎	◎	○	○		◎	◎	○	○		○	○			R0,1 ~ R3
FX-MG-EBD-3 Limited Supply		D.107	FX	2	◎	◎	◎	○		◎	◎	○	○		○	○			R0,4~ R3
FX-HS-EBDS Limited Supply		D.98	FX	2	◎	◎	◎	◎	○	◎	◎	○	○		○	○			R1,5 ~ R6
FX-MG-EBD Limited Supply		D.109	FX	2	◎	◎	◎	○		◎	◎	○	○		○	○			R0,5 ~ R15
FX-LS-MG-EBD Limited Supply		D.110	FX	2	◎	◎	◎	○		◎	◎	○	○		○	○			R0,5 ~ R6
FX-SS-EBD		D.111	FX	2	◎	◎	◎	○		◎	◎	○	○		○	○			R3 ~ R6
FX-EBD-6		D.112	FX	2	◎	◎	◎	○		◎	◎	○	○		○	○			R0,1 ~ R3
FX-LN-EBD-6		D.113	FX	2	◎	◎	◎	○		◎	◎	○	○		○	○			R0,25 ~ R3
FX-PC-MG-EBD		D.114	FX	2	◎	◎	◎	○		◎	◎	○	○		○	○			R0,5 ~ R6
HYP-SB-EBD NEW		D.106	TiAlN	2	◎	◎	◎			○	◎	○	○						R3 ~ R12
Ball nose hardened steel > 50 HRC - Kopierfräser > 50 HRC - Frese sferiche > 50 HRC - Fraise hémisphérique > 50 HRC - Radiusfræser hærdet stål > 50 HRC - Fullradie härdat stål > 50 HRC - Esferica aceros endurecidos > 50 HRC - Сферические концевые фрезы для закаленных сплавов																			
WXS-HS-EBD		D.60	WXS	2	◎	◎	◎	◎	○	◎	◎				○	○			R0,5 ~ R6
WXS-EBD		D.61	WXS	2	◎	◎	◎	◎	○	◎	◎				○	○			R0,5 ~ R6
WXS-LN-EBD		D.62~65	WXS	2	○	○	◎	◎	○	○	○	○	○		○	○			R0,05 ~ R3
FXS-EQD		D.125	FX	2	◎	◎	◎	○		◎	◎				○	○			R0,5 ~ R5
FXS-EBT		D.126	FX	3	◎	◎	◎	◎	○										R3 ~ R10
FXS-HS-EBM		D.127	FX	4	◎	◎	◎	◎	◎										R3 ~ R10
FXS-EBM		D.128	FX	4	◎	◎	◎	◎	◎										R3 ~ R10
Ball nose mirror finish ~ 68 HRC - Kopierfräser für Superfinishing ~ 68 HRC - Frese sferiche er super finitura ~ 68 HRC - Fraise hémisphérique finition miroir ~ 68 HRC adiusfræser spejlblank finish ~ 68 HRC - Radiefräsar för fin finish ~ 68 HRC - Punta esférica acabado espejo ~ 68 HRC - Сферические концевые фрезы для зеркальной чистоты поверхности ~ 68 HRC																			
CBN-SXB		D.133	CrN	2	○	◎	◎	◎	◎										R0,5 ~ R1,5
Corner radius - Mehrschneider mit Eckenradius - Frese toriche - Fraise à rayon Hjørneradius - Hörnradie - Vertice radio - Концевые фрезы с радиусом																			
WXS-CPR		D.66~71	WXS	2	◎	◎	◎	◎		◎									0,2 ~ 4
WX-HS-CRE		D.84	WX	3/4	◎	◎	◎	◎	○		◎								6 ~ 12
WX-CRE		D.85	WX	4	◎	◎	◎	◎	○		◎								2 ~ 13
WXS-HS-CRE		D.57	WXS	5	◎	◎	◎	◎	◎		◎								6 ~ 12
WXS-CRE		D.58	WXS	5	◎	◎	◎	◎	◎		◎								2 ~ 12
HYP-HS-CRE NEW		D.105	TiAlN	4	◎	◎	◎	◎	○		◎								6 ~ 12
NEO-CR-PHS		D.30	FX	4	◎	◎	○			◎	◎				◎	◎			3 ~ 25
WX-CR-PHS		D.86	WX	4	◎	◎	○	○		◎	◎	○	○		◎	◎			3 ~ 20
FX-CR-EDS-6		D.115	FX	2	◎	◎	◎	○		○	◎	○	○		○	○			0,6 ~ 2,5

CARBIDE

CARBIDE

END MILLS SELECTION CHART

Type	Appearance		coating	Z	Hardened Steels ~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG ~350 HB	Cu	Al	Graphite	Ti	HRS	Plast.	CFRP	range
FX-CR-MG-EDS		D.116	FX	2	◎	◎	○	○		○	◎	○	○		○	○			3 ~ 12
FX-CR-MG-EDL Limited Supply		D.117	FX	2	◎	◎	○			○	◎	○	○		○	○			6 ~ 12
FX-CR-MG-EHS Limited Supply		D.118	FX	4	◎	◎	○	○		◎	◎	○	○		◎	◎			6 ~ 12
NEO-CR-EMS		D.32	FX	4	◎	◎	◎	○		◎	◎				◎	◎			6 ~ 25
FX-CR-MG-EMS		D.119	FX	4	◎	◎	◎	○		○	◎	○	○		○	○			4 ~ 12
FX-CR-MG-EML Limited Supply		D.120	FX	4	◎	◎	○			○	◎	○	○		○	○			6 ~ 12
HYP-CR-HI-WEMS		D.102	TiAlN	4	◎	◎	○			◎	◎				◎	◎			4 ~ 20
HYP-CR-HD-WEMS NEW		D.103	TiAlN	4	◎	◎	○			◎	◎				◎	◎			6 ~ 20
HYP-CR-EMS		D.150	TiAlN	4	○	○				○	○		○						0,5 ~ 5
FXS-HS-PKE		D.129	FX	4	◎	◎	◎	○		◎	◎				◎	◎			6 ~ 20
FXS-PKE		D.130	FX	4	◎	◎	◎	○		◎	◎				◎	◎			3 ~ 12
FXS-MFE		D.131	FX	4	◎	◎	◎	○		○	◎				○	○			10 ~ 22
FXS-CR-EMS Limited Supply		D.132	FX	6 / 8	◎	◎	◎	◎	○	○	◎				○	○			6 ~ 16
For aluminium - Für Aluminium - Per aluminium - Pour aluminium Til aluminium - Till aluminium - Para aluminio - Для алюминия																			
CA-RG-EDS		D.134		2								◎	◎				○		1 ~ 20
CA-RG-EDL		D.135		2								◎	◎				○		3 ~ 12
CA-ETS		D.136		3								◎	◎						3 ~ 20
CAP-EBD		D.137		2								◎	◎						R0,5 ~ R10
CA-PKE		D.138		3								◎	◎						3 ~ 20
CA-MFE		D.139		3								◎	◎						10 ~ 22
For copper - Für Kupferlegierungen - Per rame - Pour cuivre For Kobber - För Koppar - Para cobre - Для меди																			
CRN-LN-EDS		D.140	CrN	2								◎	○						0,5 ~ 12
CRN-EMS		D.141	CrN	4								◎	○						3 ~ 12
CRN-EBD		D.142	CrN	2								◎	○						R3 ~ R6
CRN-LN-EBD		D.143	CrN	2								◎	○						R0,5 ~ R2,5
For graphite - Für Graphit - Per grafite- Pour Graphite for grafit - för grafit - Para grafito - для графита																			
DG-EBD		D.53	DG	2										◎					R2 ~ R6
DG-LN-EBD New Sizes		D.54	DG	2										◎					R0,2 ~ R2
DG-CPR		D.55	DG	2/4										◎					0,5 ~ 12

CARBIDE

CARBIDE



HIGH PERFORMANCE
- For CFRP material
- Multiflutes
- Trimming & Plunging operation
- For thin material

HIGH PERFORMANCE
- Für CFRP Werkstoffe
- Vielzahnfräser
- Umsäum und Tauchbearbeitungen
- Für Dünnwandige Werkstücke

ALTA PRESTAZIONE
- Per materiali compositi CFRP
- Multitaglio
- Rifilatura operazioni in spinta
- Per materiali sottili

HAUTE PERFORMANCE
- Pour matériaux composites
- Multidents
- Opération de contournage, rainurage et plongée
- Pour les matières de faible épaisseur

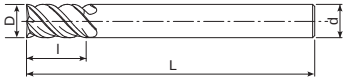
HIGH PERFORMANCE
- For CFRP materiale
- Flerskærs
- Til sidetrimning og udfræsning
- For tynde materialer

HIGH PERFORMANCE
- För CFRP material
- Flerskärig
- Trimning och plunging operationer
- För tunt material

ALTO RENDIMIENTO
- Para fibras CFRP
- Multi-diente
- Operaciones de corte y penetrado
- Para plancha delgada

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Для углепластика
- Многозубая
- Обрезка и плунжерное фрезерование
- Для тонких материалов

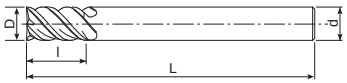
CARBIDE DIA



FOR TRIMMING OPERATION

EDP	D	L	l	d	ZΔ	Stock	Price
48108001	6	68	18	6	8	○	
48108002	8	74	24	8	10	○	
48108003	10	80	30	10	12	○	
48108004	12	86	36	12	14	○	
20601116	1/8	1 1/2	3/4	1/8	8	○	
20601316	1/4	2 1/2	1	1/4	12	○	
20601516	3/8	2 1/2	1 1/4	3/8	12	○	
20601716	1/2	3	1 1/2	1/2	12	○	

CARBIDE DIA



FOR TRIMMING & PLUNGING OPERATION

EDP	D	L	l	d	ZΔ	Stock	Price
48108011	6	68	18	6	8	●	
48108012	8	74	24	8	10	●	
48108013	10	80	30	10	12	●	
48108014	12	86	36	12	14	●	
20600116	1/8	1 1/2	3/4	1/8	8	●	
20600316	1/4	2 1/2	1	1/4	12	●	
20600516	3/8	2 1/2	1 1/4	3/8	12	●	
20600716	1/2	3	1 1/2	1/2	12	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
Cu	**Al**	**Graphite**	**Ti**	**HRS**	**Plast.**	**CFRP**
						◎

DIA-HBC



HIGH PERFORMANCE
- For CFRP material
- 4,6 flutes
- For thick material

HIGH PERFORMANCE
- Für CFRP Werkstoffe
- 4,6 Nuten
- Für stabile Werkstücke (Dickwandig)

ALTA PRESTAZIONE
- Für CFRP Werkstoffe
- 4,6 Nuten
- Für stabile Werkstücke (Dickwandig)

HAUTE PERFORMANCE
- Pour les matériaux composites
- 4,6 dents
- Pour les matères épaisses

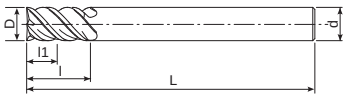
HIGH PERFORMANCE
- For CFRP materiale
- 4, 6 skær
- For tykke materialer

HIGH PERFORMANCE
- För CFRP material
- 4 och 6 skäriga
- För tjockt material

ALTO RENDIMIENTO
- Para fibras CFRP
- 4,6 dietes
- Para plancha gruesa

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Для углепластика
- 4-6 зубов
- Для толстых материалов

CARBIDE DIA



FOR MILLING OPERATION

EDP	D	L	l	l1	d	ZΔ	Stock	Price
48109001	6	65	15	7,5	6	4	○	
48109002	8	70	20	10	8	4	○	
48109003	10	75	25	12,5	10	4	○	
48109004	12	100	30	15	12	4	○	
20650116	1/8	1 1/2	1/2	0,135	1/8	4	○	
20650316	1/4	2 1/2	3/4	0,225	1/4	6	○	
20650516	3/8	2 /12	1	0,338	3/8	6	○	
20650716	1/2	3	1 1/8	0,450	1/2	6	○	

Recommanded Cutting Conditions

ø	Speed m/min.	RPM	Feed mm/rev.
6	100 ~ 200	5.300 ~ 10.600	0,12 ~ 0,5
8	100 ~ 200	4.000 ~ 8.000	0,18 ~ 0,6
10	100 ~ 200	3.200 ~ 6.400	0,2 ~ 0,6
12	100 ~ 200	2.600 ~ 5.200	0,25 ~ 1
1/8	100 ~ 200	10.000 ~ 20.000	0,06 ~ 0,3
1/4	100 ~ 200	5.000 ~ 10.000	0,12 ~ 0,5
3/8	100 ~ 200	3.400 ~ 6.700	0,2 ~ 0,6
1/2	100 ~ 200	2.500 ~ 5.000	0,25 ~ 1

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB

Cu	Al	Graphite	Ti	HRS	Plast.	CFRP
						◎

● Delivery from stock
○ Available on short notice

NEO-PHS



HIGH PERFORMANCE

- Introducing highly evolved “variable-lead” shape.
- Suppresses chattering, allowing for outstanding milling performances.

HIGH PERFORMANCE

- Einführung neuer und Hoch entwickelter Schneidengeometrie mit "ungleicher Teilung"
- Reduziert Vibrationen und sorgt für hervorragende Fräs Ergebnisse

ALTA PRESTAZIONE

- Introduzione innovattivo sviluppo della geometria a "Passo Variabile"
- Elimina vibrazioni permettendo eccellenti prestazioni di fresatura

HAUTE PERFORMANCE

- Hélice à géométrie variable
- Empêche les vibrations et permet des performances extraordinaire

HIGH PERFORMANCE

- Variabel helix
- Modvirker vibrationer og giver en enestående fræse performance

HIGH PERFORMANCE

- Variabel helix
- Motverkar vibrationer hög avverkning

ALTO RENDIMIENTO

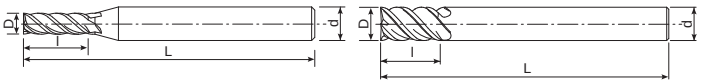
- Introduce la helice veriable
- Suprime la vibración permitiendo excelentes prestaciones

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- Представляем фрезу с переменным углом наклона витков
- Подавление вибраций обеспечивает выдающуюся производительность

CARBIDE | FX | 36°~39° | FIT

D > 12 0 ~ -0.03 | D ≤ 12 0 ~ -0.02 | min⁻¹ D.160



Type 1 Type 2

EDP	D	L	l	d	Type	Stock	Price
8529230	3	50	6	6	1	●	
8529240	4	50	8	6	1	●	
8529250	5	50	10	6	1	●	
8529260	6	50	12	6	2	●	
8529280	8	60	16	8	2	●	
8529300	10	70	20	10	2	●	
8529320	12	75	24	12	2	●	
8529360	16	100	32	16	2	●	
8529400	20	105	40	20	2	●	
8529450	25	120	50	25	2	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	○			◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
			◎	◎		

NEO-CR-PHS



HIGH PERFORMANCE

- Introducing highly evolved “variable-lead” shape.
- Suppresses chattering, allowing for outstanding milling performances.

HIGH PERFORMANCE

- Einführung neuer und Hoch entwickelter Schneidengeometrie mit "ungleicher Teilung"
- Reduziert Vibrationen und sorgt für hervorragende Fräs Ergebnisse

ALTA PRESTAZIONE

- Introduzione innovattivo sviluppo della geometria a "Passo Variabile"
- Elimina vibrazioni permettendo eccellenti prestazioni di fresatura

HAUTE PERFORMANCE

- Hélice à géométrie variable
- Empêche les vibrations et permet des performances extraordinaire

HIGH PERFORMANCE

- Variabel helix
- Modvirker vibrationer og giver en enestående fræse performance

HIGH PERFORMANCE

- Variabel helix
- Motverkar vibrationer hög avverkning

ALTO RENDIMIENTO

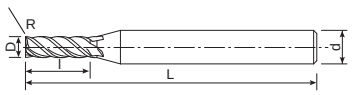
- Introduce la helice veriable
- Suprime la vibración permitiendo excelentes prestaciones

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

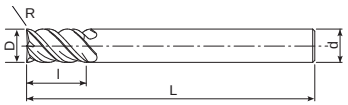
- Представляем фрезу с переменным углом наклона витков
- Подавление вибраций обеспечивает выдающуюся производительность

CARBIDE | FX | 36°~39° | FIT

D > 12 0 ~ -0.03 | D ≤ 12 0 ~ -0.02 | min⁻¹ D.160



Type 1



Type 2

EDP	D	R	L	l	d	Type	Stock	Price
8529531	3	0,2	50	6	6	1	●	
8529533	3	0,5	50	6	6	1	●	
8529541	4	0,2	50	8	6	1	●	
8529543	4	0,5	50	8	6	1	●	
8529545	4	1,0	50	8	6	1	●	
8529551	5	0,2	50	10	6	1	●	
8529553	5	0,5	50	10	6	1	●	
8529555	5	1,0	50	10	6	1	●	
8529562	6	0,3	50	12	6	2	●	
8529563	6	0,5	50	12	6	2	●	
8529565	6	1,0	50	12	6	2	●	
8529582	8	0,3	60	16	8	2	●	
8529583	8	0,5	60	16	8	2	●	
8529585	8	1,0	60	16	8	2	●	
8529587	8	1,5	60	16	8	2	●	
8529589	8	2,0	60	16	8	2	●	
8529602	10	0,3	70	20	10	2	●	
8529603	10	0,5	70	20	10	2	●	
8529605	10	1,0	70	20	10	2	●	
8529607	10	1,5	70	20	10	2	●	
8529609	10	2,0	70	20	10	2	●	
8529613	10	3,0	70	20	10	2	●	
8529633	12	0,5	75	24	12	2	●	
8529635	12	1,0	75	24	12	2	●	
8529637	12	1,5	75	24	12	2	●	
8529639	12	2,0	75	24	12	2	●	
8529643	12	3,0	75	24	12	2	●	
8529662	16	1,0	100	32	16	2	●	
8529663	16	1,5	100	32	16	2	●	
8529664	16	2,0	100	32	16	2	●	
8529665	16	3,0	100	32	16	2	●	
8529682	20	1,0	105	40	20	2	●	
8529684	20	2,0	105	40	20	2	●	
8529685	20	3,0	105	40	20	2	●	
8529686	20	4,0	105	40	20	2	●	
8529687	20	5,0	105	40	20	2	●	
8529702	25	1,0	120	50	25	2	●	
8529704	25	2,0	120	50	25	2	●	
8529705	25	3,0	120	50	25	2	●	
8529706	25	4,0	120	50	25	2	●	
8529707	25	5,0	120	50	25	2	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	○			◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		◎	◎		

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

NEO-EMS



HIGH PERFORMANCE

- Introducing highly evolved “variable-lead” shape.
- Suppresses chattering, allowing for outstanding milling performances.

HIGH PERFORMANCE

- Einführung neuer und Hoch entwickelter Schneidengeometrie mit "ungleicher Teilung"
- Reduziert Vibrationen und sorgt für hervorragende Fräs Ergebnisse

ALTA PRESTAZIONE

- Introduzione innovattivo sviluppo della geometria a "Passo Variabile"
- Elimina vibrazioni permettendo eccellenti prestazioni di fresatura

HAUTE PERFORMANCE

- Hélice à géométrie variable
- Empêche les vibrations et permet des performances extraordinaire

HIGH PERFORMANCE

- Variabel helix
- Modvirker vibrationer og giver en enestående fræse performance

HIGH PERFORMANCE

- Variabel helix
- Motverkar vibrationer hög avverkning

ALTO RENDIMIENTO

- Introduce la helice veriable
- Suprime la vibración permitiendo excelentes prestaciones

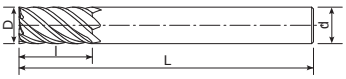
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- Представляем фрезу с переменным углом наклона витков
- Подавление вибраций обеспечивает выдающуюся производительность



CARBIDE | FX | 37°~39° | FIT

D > 12 0 ~ -0.03 | D ≤ 12 0 ~ -0.02 | min⁻¹ D.161



EDP	D	L	l	d	Stock	Price
8519360	6	50	12	6	●	
8519380	8	60	16	8	●	
8519400	10	70	20	10	●	
8519420	12	75	24	12	●	
8519460	16	100	32	16	●	
8519500	20	105	40	20	●	
8519550	25	120	50	25	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	○		◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
			◎	◎		

NEO-CR-EMS



HIGH PERFORMANCE

- Introducing highly evolved “variable-lead” shape.
- Suppresses chattering, allowing for outstanding milling performances.

HIGH PERFORMANCE

- Einführung neuer und Hoch entwickelter Schneidengeometrie mit "ungleicher Teilung"
- Reduziert Vibrationen und sorgt für hervorragende Fräs Ergebnisse

ALTA PRESTAZIONE

- Introduzione innovattivo sviluppo della geometria a "Passo Variabile"
- Elimina vibrazioni permettendo eccellenti prestazioni di fresatura

HAUTE PERFORMANCE

- Hélice à géométrie variable
- Empêche les vibrations et permet des performances extraordinaire

HIGH PERFORMANCE

- Variabel helix
- Modvirker vibrationer og giver en enestående fræse performance

HIGH PERFORMANCE

- Variabel helix
- Motverkar vibrationer hög avverkning

ALTO RENDIMIENTO

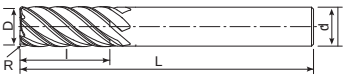
- Introduce la helice veriable
- Suprime la vibración permitiendo excelentes prestaciones

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- Представляем фрезу с переменным углом наклона витков
- Подавление вибраций обеспечивает выдающуюся производительность

CARBIDE | FX | 36°~39° | FIT

D > 12 0 ~ -0.03 | D ≤ 12 0 ~ -0.02 | min⁻¹ D.161



EDP	D	R	L	l	d	Stock	Price
8519662	6	0,3	50	12	6	●	
8519663	6	0,5	50	12	6	●	
8519665	6	1,0	50	12	6	●	
8519682	8	0,3	60	16	8	●	
8519683	8	0,5	60	16	8	●	
8519685	8	1,0	60	16	8	●	
8519687	8	1,5	60	16	8	●	
8519689	8	2,0	60	16	8	●	
8519702	10	0,3	70	20	10	●	
8519703	10	0,5	70	20	10	●	
8519705	10	1,0	70	20	10	●	
8519707	10	1,5	70	20	10	●	
8519709	10	2,0	70	20	10	●	
8519713	10	3,0	70	20	10	●	
8519733	12	0,5	75	24	12	●	
8519735	12	1,0	75	24	12	●	
8519737	12	1,5	75	24	12	●	
8519739	12	2,0	75	24	12	●	
8519743	12	3,0	75	24	12	●	
8519762	16	1,0	100	32	16	●	
8519763	16	1,5	100	32	16	●	
8519764	16	2,0	100	32	16	●	
8519765	16	3,0	100	32	16	●	
8519782	20	1,0	105	40	20	●	
8519784	20	2,0	105	40	20	●	
8519785	20	3,0	105	40	20	●	
8519786	20	4,0	105	40	20	●	
8519787	20	5,0	105	40	20	●	
8519802	25	1,0	120	50	25	●	
8519804	25	2,0	120	50	25	●	
8519805	25	3,0	120	50	25	●	
8519806	25	4,0	120	50	25	●	
8519807	25	5,0	120	50	25	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	○		◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
			◎	◎		

● Delivery from stock
○ Available on short notice

WXL-1,5D-DE



HIGH PERFORMANCE

- New WXL coating with high hardness and better lubrification.
- Recommended with lubrification or dry milling.

HIGH PERFORMANCE

- Neue WXL Beschichtung mit einer hohen Härte und geringem Reibungskoeffizient
- Empfohlen bei schlechter Schmierung sowie zur Trockenbearbeitung geeignet

ALTA PRESTAZIONE

- Nuovo rivestimento WXL con elevata durezza e migliore lubrificazione
- Consigliato con emulsione o a secco
  Permette lavorazioni su ampio campo di applicazioni

HAUTE PERFORMANCE

- Nouveau revêtement plus dur et plus glissant
- Recommandé pour usinage avec ou sans lubrification
  Nombreuses applications de fraisage

HIGH PERFORMANCE

- Ny WXL belægning med høj hårdhed og forbedrerede smøreegenskaber
- Anbefales med køling eller tør bearbejdning

HIGH PERFORMANCE

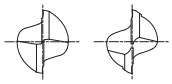
- Ny WXL beläggning med extra hårdhet och mindre friktions koefficient
- Rekommenderad med eller utan smörjmedel
  Kan användas i många olika material

ALTO RENDIMIENTO

- Nuevo recubrimiento WXL de elevada dureza y lubricidad mejorada
- Recomendado con lubricación o en seco

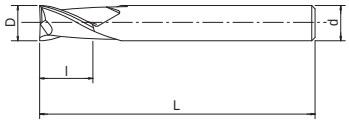
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- Новое WXL покрытие с высокой твердостью и низким коэффициентом трения.
- Рекомендована для работы с СОЖ и «сухого» фрезерования
  Позволяет обрабатывать широкий диапазон материалов



CARBIDE | WXL | 30° | FIT

0 ~ -0.02 | min⁻¹ D.162



EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
3181801	0,1	45	0,15	4	●		3181831	3,1	45	4,70	6	●	
3181802	0,2	45	0,30	4	●		3181832	3,2	45	4,80	6	●	
3181803	0,3	45	0,45	4	●		3181833	3,3	45	5,00	6	●	
3181804	0,4	45	0,60	4	●		3181834	3,4	45	5,10	6	●	
3181805	0,5	45	0,75	4	●		3181835	3,5	45	5,30	6	●	
3181806	0,6	45	0,90	4	●		3181836	3,6	45	5,40	6	●	
3181807	0,7	45	1,10	4	●		3181837	3,7	45	5,60	6	●	
3181808	0,8	45	1,20	4	●		3181838	3,8	45	5,70	6	●	
3181809	0,9	45	1,40	4	●		3181839	3,9	45	5,90	6	●	
3181810	1,0	45	1,50	4	●		3181840	4,0	45	6,00	6	●	
3181811	1,1	45	1,70	4	●		3181841	4,1	50	6,20	6	●	
3181812	1,2	45	1,80	4	●		3181842	4,2	50	6,30	6	●	
3181813	1,3	45	2,00	4	●		3181843	4,3	50	6,50	6	●	
3181814	1,4	45	2,10	4	●		3181844	4,4	50	6,60	6	●	
3181815	1,5	45	2,30	4	●		3181845	4,5	50	6,80	6	●	
3181816	1,6	45	2,40	4	●		3181846	4,6	50	6,90	6	●	
3181817	1,7	45	2,60	4	●		3181847	4,7	50	7,10	6	●	
3181818	1,8	45	2,70	4	●		3181848	4,8	50	7,20	6	●	
3181819	1,9	45	2,90	4	●		3181849	4,9	50	7,40	6	●	
3181820	2,0	45	3,00	4	●		3181850	5,0	50	7,50	6	●	
3181821	2,1	45	3,20	4	●		3181851	5,1	50	7,70	6	●	
3181822	2,2	45	3,30	4	●		3181852	5,2	50	7,80	6	●	
3181823	2,3	45	3,50	4	●		3181853	5,3	50	8,00	6	●	
3181824	2,4	45	3,60	4	●		3181854	5,4	50	8,10	6	●	
3181825	2,5	45	3,80	4	●		3181855	5,5	50	8,30	6	●	
3181826	2,6	45	3,90	4	●		3181856	5,6	50	8,40	6	●	
3181827	2,7	45	4,10	4	●		3181857	5,7	50	8,60	6	●	
3181828	2,8	45	4,20	4	●		3181858	5,8	50	8,70	6	●	
3181829	2,9	45	4,40	4	●		3181859	5,9	50	8,90	6	●	
3181830	3,0	45	4,50	6	●		3181860	6,0	50	9,00	6	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎			◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
◎	○		○	○		

WXL-2D-DE



WXL

GO TO LIVE STOCK CHECK

HIGH PERFORMANCE

- New WXL coating with high hardness and better lubrification.
- Recommended with lubrification or dry milling.

HIGH PERFORMANCE

- Neue WXL Beschichtung mit einer hohen Härte und geringem Reibungskoeffizient
- Empfohlen bei schlechter Schmierung sowie zur Trockenbearbeitung geeignet

ALTA PRESTAZIONE

- Nuovo rivestimento WXL con elevata durezza e migliore lubrificazione
- Consigliato con emulsione o a secco
  Permette lavorazioni su ampio campo di applicazioni

HAUTE PERFORMANCE

- Nouveau revêtement plus dur et plus glissant
- Recommandé pour usinage avec ou sans lubrification
  Nombreuses applications de fraisage

HIGH PERFORMANCE

- Ny WXL belægning med høj hårdhed og forbedrerede smøreegenskaber
- Anbefales med køling eller tør bearbejdning

HIGH PERFORMANCE

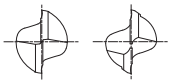
- Ny WXL beläggning med extra hårdhet och mindre friktions koefficient
- Rekommenderad med eller utan smörjmedel
  Kan användas i många olika material

ALTO RENDIMIENTO

- Nuevo recubrimiento WXL de elevada dureza y lubricidad mejorada
- Recomendado con lubricación o en seco

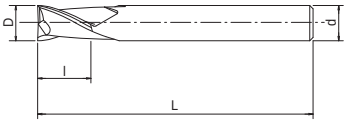
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- Новое WXL покрытие с высокой твердостью и низким коэффициентом трения.
- Рекомендована для работы с СОЖ и «сухого» фрезерования
  Позволяет обрабатывать широкий диапазон материалов



CARBIDE | WXL | 30° | FIT

D > 12 0 ~ -0.03 | D ≤ 12 0 ~ -0.02 | min⁻¹ D.163



EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
3182001	0,1	45	0,2	4	●		3182038	3,8	45	7,6	6	●	
3182002	0,2	45	0,4	4	●		3182039	3,9	45	7,8	6	●	
3182003	0,3	45	0,6	4	●		3182040	4,0	45	8,0	6	●	
3182004	0,4	45	0,8	4	●		3182041	4,1	50	8,2	6	●	
3182005	0,5	45	1,0	4	●		3182042	4,2	50	8,4	6	●	
3182006	0,6	45	1,2	4	●		3182043	4,3	50	8,6	6	●	
3182007	0,7	45	1,4	4	●		3182044	4,4	50	8,8	6	●	
3182008	0,8	45	1,6	4	●		3182045	4,5	50	9,0	6	●	
3182009	0,9	45	1,8	4	●		3182046	4,6	50	9,2	6	●	
3182010	1,0	45	2,0	4	●		3182047	4,7	50	9,4	6	●	
3182011	1,1	45	2,2	4	●		3182048	4,8	50	9,6	6	●	
3182012	1,2	45	2,4	4	●		3182049	4,9	50	9,8	6	●	
3182013	1,3	45	2,6	4	●		3182050	5,0	50	10,0	6	●	
3182014	1,4	45	2,8	4	●		3182051	5,1	50	10,2	6	●	
3182015	1,5	45	3,0	4	●		3182052	5,2	50	10,4	6	●	
3182016	1,6	45	3,2	4	●		3182053	5,3	50	10,6	6	●	
3182017	1,7	45	3,4	4	●		3182054	5,4	50	10,8	6	●	
3182018	1,8	45	3,6	4	●		3182055	5,5	50	11,0	6	●	
3182019	1,9	45	3,8	4	●		3182056	5,6	50	11,2	6	●	
3182020	2,0	45	4,0	4	●		3182057	5,7	50	11,4	6	●	
3182021	2,1	45	4,2	4	●		3182058	5,8	50	11,6	6	●	
3182022	2,2	45	4,4	4	●		3182059	5,9	50	11,8	6	●	
3182023	2,3	45	4,6	4	●		3182060	6,0	50	12,0	6	●	
3182024	2,4	45	4,8	4	●		3182065	6,5	60	13,0	8	●	
3182025	2,5	45	5,0	4	●		3182070	7,0	60	14,0	8	●	
3182026	2,6	45	5,2	4	●		3182075	7,5	60	15,0	8	●	
3182027	2,7	45	5,4	4	●		3182080	8,0	60	16,0	8	●	
3182028	2,8	45	5,6	4	●		3182085	8,5	70	17,0	10	●	
3182029	2,9	45	5,8	4	●		3182090	9,0	70	18,0	10	●	
3182030	3,0	45	6,0	6	●		3182095	9,5	70	19,0	10	●	
3182031	3,1	45	6,2	6	●		3182100	10,0	70	20,0	10	●	
3182032	3,2	45	6,4	6	●		3182110	11,0	75	22,0	12	●	
3182033	3,3	45	6,6	6	●		3182120	12,0	75	24,0	12	●	
3182034	3,4	45	6,8	6	●		3182160	16,0	90	32,0	16	●	
3182035	3,5	45	7,0	6	●		3182180	18,0	90	36,0	16	●	
3182036	3,6	45	7,2	6	●		3182200	20,0	100	40,0	20	●	
3182037	3,7	45	7,4	6	●								

CARBIDE

CARBIDE

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎			◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
◎	○		○	○		

● Delivery from stock
○ Available on short notice

WXL-3D-DE



HIGH PERFORMANCE

- New WXL coating with high hardness and better lubrification.
- Recommended with lubrification or dry milling.

HIGH PERFORMANCE

- Neue WXL Beschichtung mit einer hohen Härte und geringem Reibungskoeffizient
- Empfohlen bei schlechter Schmierung sowie zur Trockenbearbeitung geeignet

ALTA PRESTAZIONE

- Nuovo rivestimento WXL con elevata durezza e migliore lubrificazione
- Consigliato con emulsione o a secco
  Permette lavorazioni su ampio campo di applicazioni

HAUTE PERFORMANCE

- Nouveau revêtement plus dur et plus glissant
- Recommandé pour usinage avec ou sans lubrification
  Nombreuses applications de fraisage

HIGH PERFORMANCE

- Ny WXL belægning med høj hårdhed og forbedrerede smøreegenskaber
- Anbefales med køling eller tør bearbejdning

HIGH PERFORMANCE

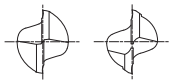
- Ny WXL beläggning med extra hårdhet och mindre friktions koefficient
- Rekommenderad med eller utan smörjmedel
  Kan användas i många olika material

ALTO RENDIMIENTO

- Nuevo recubrimiento WXL de elevada dureza y lubricidad mejorada
- Recomendado con lubricación o en seco

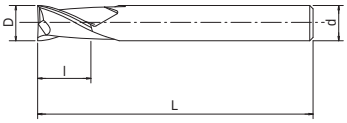
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- Новое WXL покрытие с высокой твердостью и низким коэффициентом трения.
- Рекомендована для работы с СОЖ и «сухого» фрезерования
  Позволяет обрабатывать широкий диапазон материалов



CARBIDE | WXL | 35° | FIT

D > 12 0 ~ -0.03 | D ≤ 12 0 ~ -0.02 | min⁻¹ D.164



EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
3182401	0,1	45	0,3	4	●		3182438	3,8	45	11,4	6	●	
3182402	0,2	45	0,6	4	●		3182439	3,9	45	11,7	6	●	
3182403	0,3	45	0,9	4	●		3182440	4,0	50	12,0	6	●	
3182404	0,4	45	1,2	4	●		3182441	4,1	50	12,3	6	●	
3182405	0,5	45	1,5	4	●		3182442	4,2	50	12,6	6	●	
3182406	0,6	45	1,8	4	●		3182443	4,3	50	12,9	6	●	
3182407	0,7	45	2,1	4	●		3182444	4,4	50	13,2	6	●	
3182408	0,8	45	2,4	4	●		3182445	4,5	50	13,5	6	●	
3182409	0,9	45	2,7	4	●		3182446	4,6	55	13,8	6	●	
3182410	1,0	45	3,0	4	●		3182447	4,7	55	14,1	6	●	
3182411	1,1	45	3,3	4	●		3182448	4,8	55	14,4	6	●	
3182412	1,2	45	3,6	4	●		3182449	4,9	55	14,7	6	●	
3182413	1,3	45	3,9	4	●		3182450	5,0	55	15,0	6	●	
3182414	1,4	45	4,2	4	●		3182451	5,1	55	15,3	6	●	
3182415	1,5	45	4,5	4	●		3182452	5,2	55	15,6	6	●	
3182416	1,6	45	4,8	4	●		3182453	5,3	55	15,9	6	●	
3182417	1,7	45	5,1	4	●		3182454	5,4	55	16,2	6	●	
3182418	1,8	45	5,4	4	●		3182455	5,5	60	16,5	6	●	
3182419	1,9	45	5,7	4	●		3182456	5,6	60	16,8	6	●	
3182420	2,0	45	6,0	4	●		3182457	5,7	60	17,1	6	●	
3182421	2,1	45	6,3	4	●		3182458	5,8	60	17,4	6	●	
3182422	2,2	45	6,6	4	●		3182459	5,9	60	17,7	6	●	
3182423	2,3	45	6,9	4	●		3182460	6,0	60	18,0	6	●	
3182424	2,4	45	7,2	4	●		3182465	6,5	65	19,5	8	●	
3182425	2,5	45	7,5	4	●		3182470	7,0	65	21,0	8	●	
3182426	2,6	45	7,8	4	●		3182475	7,5	70	22,5	8	●	
3182427	2,7	45	8,1	4	●		3182480	8,0	70	24,0	8	●	
3182428	2,8	45	8,4	4	●		3182485	8,5	70	25,5	10	●	
3182429	2,9	45	8,7	4	●		3182490	9,0	75	27,0	10	●	
3182430	3,0	45	9,0	6	●		3182495	9,5	75	28,5	10	●	
3182431	3,1	45	9,3	6	●		3182500	10,0	80	30,0	10	●	
3182432	3,2	45	9,6	6	●		3182510	11,0	80	33,0	12	●	
3182433	3,3	45	9,9	6	●		3182520	12,0	90	36,0	12	●	
3182434	3,4	45	10,2	6	●		3182560	16,0	110	48,0	16	●	
3182435	3,5	45	10,5	6	●		3182580	18,0	130	54,0	16	●	
3182436	3,6	45	10,8	6	●		3182600	20,0	130	60,0	20	●	
3182437	3,7	45	11,1	6	●								

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎			◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
◎	○		○	○		

WXL-4D-DE



WXL

GO TO LIVE STOCK CHECK

HIGH PERFORMANCE

- New WXL coating with high hardness and better lubrification.
- Recommended with lubrification or dry milling.

HIGH PERFORMANCE

- Neue WXL Beschichtung mit einer hohen Härte und geringem Reibungskoeffizient
- Empfohlen bei schlechter Schmierung sowie zur Trockenbearbeitung geeignet

ALTA PRESTAZIONE

- Nuovo rivestimento WXL con elevata durezza e migliore lubrificazione
- Consigliato con emulsione o a secco
  Permette lavorazioni su ampio campo di applicazioni

HAUTE PERFORMANCE

- Nouveau revêtement plus dur et plus glissant
- Recommandé pour usinage avec ou sans lubrification
  Nombreuses applications de fraisage

HIGH PERFORMANCE

- Ny WXL belægning med høj hårdhed og forbedrerede smøreegenskaber
- Anbefales med køling eller tør bearbejdning

HIGH PERFORMANCE

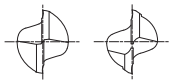
- Ny WXL beläggning med extra hårdhet och mindre friktions koefficient
- Rekommenderad med eller utan smörjmedel
  Kan användas i många olika material

ALTO RENDIMIENTO

- Nuevo recubrimiento WXL de elevada dureza y lubricidad mejorada
- Recomendado con lubricación o en seco

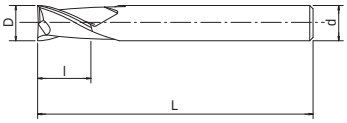
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- Новое WXL покрытие с высокой твердостью и низким коэффициентом трения.
- Рекомендована для работы с СОЖ и «сухого» фрезерования
  Позволяет обрабатывать широкий диапазон материалов



CARBIDE | WXL | 40° | FIT

D > 12 0 ~ -0.03 | D ≤ 12 0 ~ -0.02 | min⁻¹ D.165



CARBIDE

EDP	D	L	l	d	Stock	Price
3182602	0,2	45	0,8	4	●	
3182603	0,3	45	1,2	4	●	
3182604	0,4	45	1,6	4	●	
3182605	0,5	45	2,0	4	●	
3182606	0,6	45	2,4	4	●	
3182607	0,7	45	2,8	4	●	
3182608	0,8	45	3,2	4	●	
3182609	0,9	45	3,6	4	●	
3182610	1,0	45	4,0	4	●	
3182611	1,1	45	4,4	4	●	
3182612	1,2	45	4,8	4	●	
3182613	1,3	45	5,2	4	●	
3182614	1,4	45	5,6	4	●	
3182615	1,5	45	6,0	4	●	
3182616	1,6	45	6,4	4	●	
3182617	1,7	45	6,8	4	●	
3182618	1,8	45	7,2	4	●	
3182619	1,9	45	7,6	4	●	
3182620	2,0	45	8,0	4	●	
3182621	2,1	45	8,4	4	●	
3182622	2,2	45	8,8	4	●	
3182623	2,3	45	9,2	4	●	
3182624	2,4	45	9,6	4	●	
3182625	2,5	45	10,0	4	●	
3182626	2,6	50	10,4	4	●	
3182627	2,7	50	10,8	4	●	
3182628	2,8	50	11,2	4	●	
3182629	2,9	50	11,6	4	●	
3182630	3,0	50	12,0	6	●	
3182631	3,1	50	12,4	6	●	
3182632	3,2	50	12,8	6	●	

EDP	D	L	l	d	Stock	Price
3182633	3,3	50	13,2	6	●	
3182634	3,4	50	13,6	6	●	
3182635	3,5	50	14,0	6	●	
3182636	3,6	50	14,4	6	●	
3182637	3,7	50	14,8	6	●	
3182638	3,8	50	15,2	6	●	
3182639	3,9	50	15,6	6	●	
3182640	4,0	55	16,0	6	●	
3182641	4,1	55	16,4	6	●	
3182642	4,2	55	16,8	6	●	
3182643	4,3	55	17,2	6	●	
3182644	4,4	55	17,6	6	●	
3182645	4,5	55	18,0	6	●	
3182646	4,6	55	18,4	6	●	
3182647	4,7	55	18,8	6	●	
3182648	4,8	55	19,2	6	●	
3182649	4,9	55	19,6	6	●	
3182650	5,0	60	20,0	6	●	
3182651	5,1	60	20,4	6	●	
3182652	5,2	60	20,8	6	●	
3182653	5,3	60	21,2	6	●	
3182654	5,4	60	21,6	6	●	
3182655	5,5	65	22,0	6	●	
3182656	5,6	65	22,4	6	●	
3182657	5,7	65	22,8	6	●	
3182658	5,8	65	23,2	6	●	
3182659	5,9	65	23,6	6	●	
3182660	6,0	65	24,0	6	●	
3182680	8,0	80	32,0	8	●	
3182700	10,0	90	40,0	10	●	
3182720	12,0	100	48,0	12	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎			◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
◎	○		○	○		

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

WXL-EMS



HIGH PERFORMANCE

- New WXL coating with high hardness and better lubrification.
- Recommended with lubrification or dry milling.

HIGH PERFORMANCE

- Neue WXL Beschichtung mit höherem Härtegrad und besserer Schmierung
- Empfohlen mit Schmierung oder Trocken

ALTA PRESTAZIONE

- Nuovo rivestimento WXL con elevata durezza e migliore lubrificazione
- Consigliato con emulsione o a secco

HAUTE PERFORMANCE

- Nouveau revêtement WXL avec dureté élevée et une meilleur lubrification
- Recommandé avec lubrification ou usinage à sec

HIGH PERFORMANCE

- Ny WXL belægning med høj hårdhed og forbedrerede smøreegenskaber
- Anbefales med køling eller tør bearbejdning

HIGH PERFORMANCE

- Ny WXL beläggning med extra hårdhet och mindre friktions koefficient
- Rekommenderad med eller utan smörjmedel

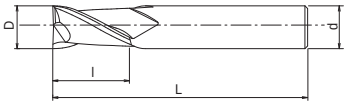
ALTO RENDIMIENTO

- Nuevo recubrimiento WXL de gran dureza y mejor lubricidad
- Recomendable con lubricación o en seco

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- Новое WXL покрытие с высокой твердостью и низким коэффициентом трения.
- Рекомендована для работы с СОЖ и «сухого» фрезерования

CARBIDE | WXL | 30° | 2≤12 | D > 12 0 ~ -0.03 | D ≤ 12 0 ~ -0.02 | min⁻¹ D.166



EDP	D	L	l	d	Stock	Price
3130510	1,0	40	2,5	4	●	
3130515	1,5	40	4,0	4	●	
3130520	2,0	40	6,0	4	●	
3130525	2,5	40	8,0	4	●	
3130530	3,0	45	8,0	6	●	
3130535	3,5	45	10,0	6	●	
3130540	4,0	45	11,0	6	●	
3130545	4,5	45	11,0	6	●	
3130550	5,0	50	13,0	6	●	
3130560	6,0	50	13,0	6	●	
3130570	7,0	60	16,0	8	●	
3130580	8,0	60	19,0	8	●	
3130590	9,0	70	19,0	10	●	
3130600	10,0	70	22,0	10	●	
3130620	12,0	75	26,0	12	●	
3130640	14,0	85	26,0	12	●	
3130650	15,0	90	26,0	16	●	
3130660	16,0	100	32,0	16	●	
3130680	18,0	100	32,0	16	●	
3130700	20,0	105	38,0	20	●	
3130750	25,0	120	45,0	25	●	
3130800	30,0	125	45,0	32	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎			◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
◎	○			○	○	

● Delivery from stock
○ Available on short notice

WXL-LN-EDS



HIGH PERFORMANCE
- 2 flutes
- Long neck

HIGH PERFORMANCE
- 2 Schneiden
- Überlaufhals

ALTA PRESTAZIONE
- 2 denti
- Scaricato lungo

HAUTE PERFORMANCE
- 2 lèvres
- Dégagement long

HIGH PERFORMANCE
- 2 skær
- Long neck

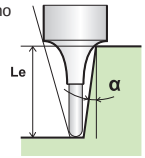
HIGH PERFORMANCE
- 2 skär
- Lång reducering

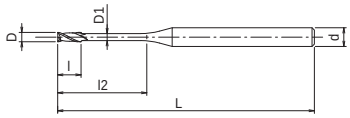
ALTO RENDIMIENTO
- 2 labios
- Cuello largo

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Длинная шейка

CARBIDE | WXL | 30° | 0 ~ -0.0015 | min⁻¹ D.167-168

No numerical value means no interference with workpiece





EDP	D	l2	L	l	d	D1	Le (α) 0,5°	1°	1,5°	2°	2,5°	3°	Stock	Price
3131201	0,2	0,5	45	0,30	4	0,18	0,55	0,60	0,66	0,73	0,81	0,96	●	
3131202	0,2	1,0	45	0,30	4	0,18	1,09	1,19	1,30	1,41	1,53	1,66	●	
3131203	0,2	1,5	45	0,30	4	0,18	1,64	1,78	1,92	2,07	2,22	2,37	●	
3131204	0,2	2,0	45	0,30	4	0,18	2,18	2,35	2,53	2,70	2,88	3,05	●	
3131205	0,2	2,5	45	0,30	4	0,18	2,72	2,93	3,13	3,33	3,52	3,71	●	
3131206	0,2	3,0	45	0,30	4	0,18	3,26	3,49	3,72	3,94	4,15	4,36	●	
3131207	0,2	3,5	45	0,30	4	0,18	3,79	4,06	4,31	4,54	4,77	4,99	●	
3131208	0,2	4,0	45	0,30	4	0,18	4,33	4,62	4,89	5,14	5,38	5,61	●	
3131302	0,3	1,0	45	0,45	4	0,28	1,09	1,19	1,30	1,41	1,53	1,66	●	
3131303	0,3	1,5	45	0,45	4	0,28	1,64	1,78	1,92	2,07	2,22	2,37	●	
3131304	0,3	2,0	45	0,45	4	0,28	2,12	2,35	2,53	2,70	2,88	3,05	●	
3131305	0,3	2,5	45	0,45	4	0,28	2,72	2,93	3,13	3,33	3,52	3,71	●	
3131306	0,3	3,0	45	0,45	4	0,28	3,26	3,50	3,72	3,94	4,15	4,36	●	
3131308	0,3	4,0	45	0,45	4	0,28	4,33	4,62	4,89	5,14	5,38	5,61	●	
3131310	0,3	5,0	45	0,45	4	0,28	5,40	5,74	6,04	6,32	6,59	6,86	●	
3131312	0,3	6,0	45	0,45	4	0,28	6,46	6,84	7,18	7,49	7,79	8,10	●	
3131318	0,3	9,0	45	0,45	4	0,28	9,64	10,13	10,55	10,94	11,37	11,83	●	
3131403	0,4	1,5	45	0,60	4	0,37	1,63	1,76	1,90	2,04	2,19	2,34	●	
3131404	0,4	2,0	45	0,60	4	0,37	2,17	2,34	2,51	2,68	2,85	3,02	●	
3131406	0,4	3,0	45	0,60	4	0,37	3,24	3,48	3,70	3,91	4,12	4,32	●	
3131408	0,4	4,0	45	0,60	4	0,37	4,32	4,60	4,86	5,11	5,35	5,58	●	
3131410	0,4	5,0	45	0,60	4	0,37	5,38	5,71	6,01	6,29	6,55	6,82	●	
3131412	0,4	6,0	45	0,60	4	0,37	6,45	6,82	7,15	7,46	7,75	8,06	●	
3131414	0,4	7,0	45	0,60	4	0,37	7,51	7,92	8,28	8,61	8,94	9,31	●	
3131416	0,4	8,0	45	0,60	4	0,37	8,56	9,01	9,40	9,76	10,14	10,55	●	
3131418	0,4	9,0	45	0,60	4	0,37	9,62	10,10	10,51	10,91	11,33	11,79	●	
3131420	0,4	10,0	45	0,60	4	0,37	10,68	11,19	11,62	12,06	12,53	13,04	●	
3131424	0,4	12,0	45	0,60	4	0,37	12,78	13,35	13,84	14,36	14,92	15,52	●	
3131501	0,5	1,5	45	0,70	4	0,45	1,62	1,74	1,87	2,00	2,14	2,28	●	
3131502	0,5	2,0	45	0,70	4	0,45	2,16	2,31	2,47	2,63	2,79	2,96	●	
3131503	0,5	3,0	45	0,70	4	0,45	3,23	3,44	3,65	3,86	4,06	4,25	●	
3131504	0,5	4,0	45	0,70	4	0,45	4,29	4,56	4,81	5,06	5,29	5,51	●	
3131505	0,5	5,0	45	0,70	4	0,45	5,36	5,67	5,96	6,23	6,49	6,75	●	
3131506	0,5	6,0	45	0,70	4	0,45	6,42	6,77	7,10	7,39	7,68	7,99	●	
3131507	0,5	7,0	45	0,70	4	0,45	7,48	7,87	8,22	8,54	8,88	9,24	●	
3131508	0,5	8,0	45	0,70	4	0,45	8,53	8,96	9,34	9,69	10,07	10,48	●	
3131509	0,5	9,0	45	0,70	4	0,45	9,59	10,05	10,45	10,84	11,27	11,72	●	
3131510	0,5	10,0	45	0,70	4	0,45	10,64	11,13	11,56	11,99	12,46	12,97	●	
3131512	0,5	12,0	45	0,70	4	0,45	12,74	13,29	13,78	14,29	14,85	15,45	●	
3131515	0,5	15,0	50	0,70	4	0,45	15,88	16,51	17,10	17,74	18,43	19,18	●	
3131602	0,6	2,0	45	0,90	4	0,55	2,16	2,31	2,47	2,63	2,79	2,96	●	
3131603	0,6	3,0	45	0,90	4	0,55	3,23	3,44	3,65	3,86	4,06	4,25	●	
3131604	0,6	4,0	45	0,90	4	0,55	4,29	4,56	4,81	5,06	5,29	5,51	●	
3131605	0,6	5,0	45	0,90	4	0,55	5,36	5,67	5,96	6,23	6,49	6,75	●	
3131606	0,6	6,0	45	0,90	4	0,55	6,42	6,77	7,10	7,39	7,68	7,99	●	
3131607	0,6	7,0	45	0,90	4	0,55	7,48	7,87	8,22	8,54	8,88	9,24	●	
3131608	0,6	8,0	45	0,90	4	0,55	8,53	8,96	9,34	9,69	10,07	10,48	●	
3131610	0,6	10,0	45	0,90	4	0,55	10,64	11,13	11,56	11,99	12,46	12,97	●	
3131612	0,6	12,0	45	0,90	4	0,55	12,74	13,29	13,78	14,29	14,85	15,45	●	
3131615	0,6	15,0	50	0,90	4	0,55	15,88	16,51	17,10	17,74	18,43	19,18	●	
3131618	0,6	18,0	50	0,90	4	0,55	19,01	19,71	20,43	21,19	22,02	22,91	●	
3131702	0,7	2,0	45	1,00	4	0,65	2,16	2,31	2,47	2,63	2,79	2,96	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	○	○		○	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
◎	○		○	○		

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

WXL-LN-EDS



HIGH PERFORMANCE
- 2 flutes
- Long neck

HIGH PERFORMANCE
- 2 Schneiden
- Überlaufhals

ALTA PRESTAZIONE
- 2 denti
- Scaricato lungo

HAUTE PERFORMANCE
- 2 lèvres
- Dégagement long

HIGH PERFORMANCE
- 2 skær
- Long neck

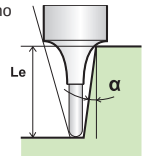
HIGH PERFORMANCE
- 2 skär
- Lång reducering

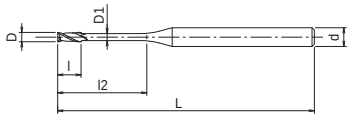
ALTO RENDIMIENTO
- 2 labios
- Cuello largo

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Длинная шейка

CARBIDE | WXL | 30° | 0 ~ -0.0015 | min⁻¹ D.167-168

No numerical value means no interference with workpiece





EDP	D	l2	L	l	d	D1	Le (α) 0,5°	1°	1,5°	2°	2,5°	3°	Stock	Price
3131704	0,7	4	45	1,00	4	0,65	4,29	4,56	4,81	5,06	5,29	5,51	●	
3131706	0,7	6	45	1,00	4	0,65	6,42	6,77	7,10	7,39	7,68	7,99	●	
3131708	0,7	8	45	1,00	4	0,65	8,53	8,96	9,34	9,69	10,07	10,48	●	
3131710	0,7	10	45	1,00	4	0,65	10,64	11,13	11,56	11,99	12,46	12,97	●	
3131804	0,8	4	45	1,20	4	0,75	4,29	4,56	4,81	5,06	5,29	5,51	●	
3131806	0,8	6	45	1,20	4	0,75	6,42	6,77	7,10	7,39	7,68	7,99	●	
3131808	0,8	8	45	1,20	4	0,75	8,53	8,96	9,34	9,69	10,07	10,48	●	
3131810	0,8	10	45	1,20	4	0,75	10,64	11,13	11,56	11,99	12,46	12,97	●	
3131812	0,8	12	45	1,20	4	0,75	12,74	13,29	13,78	14,29	14,85	15,45	●	
3131814	0,8	14	50	1,20	4	0,75	14,83	15,44	15,99	16,59	17,24	17,94	●	
3131816	0,8	16	50	1,20	4	0,75	16,92	17,58	18,21	18,89	19,63	20,43	●	
3131820	0,8	20	55	1,20	4	0,75	21,09	21,85	22,64	23,49	24,41	25,40	●	
3131824	0,8	24	60	1,20	4	0,75	25,24	26,13	27,08	28,09	29,19	30,37	●	
3131904	0,9	4	45	1,35	4	0,85	4,29	4,56	4,81	5,05	5,28	5,51	●	
3131906	0,9	6	45	1,35	4	0,85	6,42	6,77	7,10	7,39	7,68	7,99	●	
3131908	0,9	8	45	1,35	4	0,85	8,53	8,96	9,34	9,69	10,07	10,48	●	
3131910	0,9	10	45	1,35	4	0,85	10,64	11,13	11,56	11,99	12,46	12,97	●	
3131915	0,9	15	50	1,35	4	0,85	15,88	16,51	17,1	17,74	18,43	19,18	●	
3132003	1,0	3	45	1,50	4	0,95	3,23	3,44	3,65	3,86	4,06	4,25	●	
3132004	1,0	4	45	1,50	4	0,95	4,29	4,56	4,81	5,05	5,28	5,51	●	
3132005	1,0	5	45	1,50	4	0,95	5,36	5,67	5,96	6,23	6,49	6,75	●	
3132006	1,0	6	45	1,50	4	0,95	6,42	6,77	7,10	7,39	7,68	7,99	●	
3132007	1,0	7	45	1,50	4	0,95	7,48	7,87	8,22	8,54	8,88	9,24	●	
3132008	1,0	8	45	1,50	4	0,95	8,53	8,96	9,34	9,69	10,07	10,48	●	
3132009	1,0	9	45	1,50	4	0,95	9,59	10,05	10,45	10,84	11,27	11,72	●	
3132010	1,0	10	45	1,50	4	0,95	10,64	11,13	11,56	11,99	12,46	12,97	●	
3132012	1,0	12	45	1,50	4	0,95	12,74	13,29	13,78	14,29	14,85	15,45	●	
3132014	1,0	14	50	1,50	4	0,95	14,83	15,44	15,99	16,59	17,24	17,94	●	
3132016	1,0	16	50	1,50	4	0,95	16,92	17,58	18,21	18,89	19,63	20,43	●	
3132018	1,0	18	55	1,50	4	0,95	19,01	19,71	20,43	21,19	22,02	22,91	●	
3132020	1,0	20	55	1,50	4	0,95	21,09	21,85	22,64	23,49	24,41	25,40	●	
3132022	1,0	22	60	1,50	4	0,95	23,17	23,99	24,86	25,79	26,80	27,88	●	
3132025	1,0	25	60	1,50	4	0,95	26,28	27,20	28,19	29,24	30,38	-	●	
3132030	1,0	30	70	1,50	4	0,95	31,46	32,55	33,73	34,99	-	-	●	
3132204	1,2	4	45	1,80	4	1,15	4,29	4,56	4,81	5,05	5,28	5,51	●	
3132206	1,2	6	45	1,80	4	1,15	6,42	6,77	7,10	7,39	7,68	7,99	●	
3132208	1,2	8	45	1,80	4	1,15	8,53	8,96	9,34	9,69	10,07	10,48	●	
3132210	1,2	10	45	1,80	4	1,15	10,64	11,13	11,56	11,99	12,46	12,97	●	
3132212	1,2	12	45	1,80	4	1,15	12,74	13,29	13,78	14,29	14,85	15,45	●	
3132214	1,2	14	50	1,80	4	1,15	14,83	15,44	15,99	16,59	17,24	17,94	●	
3132216	1,2	16	50	1,80	4	1,15	16,92	17,58	18,21	18,89	19,63	20,43	●	
3132220	1,2	20	55	1,80	4	1,15	21,09	21,85	22,64	23,49	24,41	25,40	●	
3132406	1,4	6	45	2,10	4	1,35	6,42	6,77	7,10	7,39	7,68	7,99	●	
3132408	1,4	8	45	2,10	4	1,35	8,53	8,96	9,34	9,69	10,07	10,48	●	
3132410	1,4	10	45	2,10	4	1,35	10,64	11,13	11,56	11,99	12,46	12,97	●	
3132412	1,4	12	45	2,10	4	1,35	12,74	13,29	13,78	14,29	14,85	15,45	●	
3132414	1,4	14	50	2,10	4	1,35	14,83	15,44	15,99	16,59	17,24	17,94	●	
3132416	1,4	16	50	2,10	4	1,35	16,92	17,58	18,21	18,89	19,63	20,43	●	
3132422	1,4	22	60	2,10	4	1,35	23,17	23,99	24,86	25,79	26,80	-	●	
3132504	1,5	4	45	2,30	4	1,45	4,29	4,56	4,81	5,05	5,28	5,51	●	
3132506	1,5	6	45	2,30	4	1,45	6,42	6,77	7,10	7,39	7,68	7,99	●	
3132508	1,5	8	45	2,30	4	1,45	8,53	8,96	9,34	9,69	10,07	10,48	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	○	○		○	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
◎	○		○	○		

WXL-LN-EDS



HIGH PERFORMANCE
- 2 flutes
- Long neck

HIGH PERFORMANCE
- 2 Schneiden
- Überlaufhals

ALTA PRESTAZIONE
- 2 denti
- Scaricato lungo

HAUTE PERFORMANCE
- 2 lèvres
- Dégagement long

HIGH PERFORMANCE
- 2 skær
- Long neck

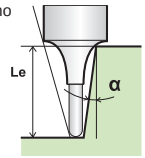
HIGH PERFORMANCE
- 2 skär
- Lång reducering

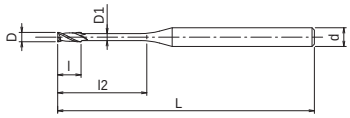
ALTO RENDIMIENTO
- 2 labios
- Cuello largo

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Длинная шейка

CARBIDE | WXL | 30° | 0 ~ -0.0015 | min⁻¹ D.167-168

No numerical value means no interference with workpiece





EDP	D	l2	L	l	d	D1	Le (α) 0,5°	1°	1,5°	2°	2,5°	3°	Stock	Price
3132510	1,5	10	45	2,3	4	1,45	10,64	11,13	11,56	11,99	12,46	12,97	●	
3132512	1,5	12	45	2,3	4	1,45	12,74	13,29	13,78	14,29	14,85	15,45	●	
3132514	1,5	14	50	2,3	4	1,45	14,83	15,44	15,99	16,59	17,24	17,94	●	
3132516	1,5	16	50	2,3	4	1,45	16,92	17,58	18,21	18,89	19,63	20,43	●	
3132518	1,5	18	55	2,3	4	1,45	19,01	19,71	20,43	21,19	22,02	22,91	●	
3132520	1,5	20	55	2,3	4	1,45	21,09	21,85	22,64	23,49	24,41	-	●	
3132525	1,5	25	60	2,3	4	1,45	26,28	27,20	28,19	29,24	-	-	●	
3132530	1,5	30	70	2,3	4	1,45	31,46	32,55	33,73	34,99	-	-	●	
3132538	1,5	38	80	2,3	4	1,45	39,72	41,11	42,59	-	-	-	●	
3132540	1,5	40	80	2,3	4	1,45	41,79	43,25	44,81	-	-	-	●	
3132545	1,5	45	80	2,3	4	1,45	46,96	48,60	-	-	-	-	●	
3132606	1,6	6	45	2,4	4	1,55	6,42	6,77	7,10	7,39	7,68	7,99	●	
3132608	1,6	8	45	2,4	4	1,55	8,53	8,96	9,34	9,69	10,07	10,48	●	
3132610	1,6	10	45	2,4	4	1,55	10,64	11,13	11,56	11,99	12,46	12,97	●	
3132612	1,6	12	45	2,4	4	1,55	12,74	13,29	13,78	14,29	14,85	15,45	●	
3132614	1,6	14	50	2,4	4	1,55	14,83	15,44	15,99	16,59	17,24	17,94	●	
3132616	1,6	16	50	2,4	4	1,55	16,92	17,58	17,58	18,89	19,63	20,43	●	
3132618	1,6	18	55	2,4	4	1,55	19,01	19,71	19,71	21,19	22,02	22,91	●	
3132620	1,6	20	55	2,4	4	1,55	21,09	21,85	21,85	23,49	24,41	-	●	
3132806	1,8	6	45	2,7	4	1,75	6,42	6,77	6,77	7,39	7,68	7,99	●	
3132808	1,8	8	45	2,7	4	1,75	8,53	8,96	8,96	9,69	10,07	10,48	●	
3132810	1,8	10	45	2,7	4	1,75	10,64	11,13	11,13	11,99	12,46	12,97	●	
3132812	1,8	12	45	2,7	4	1,75	12,74	13,29	13,29	14,29	14,85	15,45	●	
3132814	1,8	14	50	2,7	4	1,75	14,83	15,44	15,44	16,59	17,24	17,94	●	
3132816	1,8	16	50	2,7	4	1,75	16,92	17,58	17,58	18,89	19,63	20,43	●	
3132818	1,8	18	55	2,7	4	1,75	19,01	19,71	19,71	21,19	22,02	22,91	●	
3132820	1,8	20	55	2,7	4	1,75	21,09	21,85	21,85	23,49	24,41	-	●	
3132825	1,8	25	60	2,7	4	1,75	26,28	27,2	27,2	29,24	-	-	●	
3133006	2,0	6	45	3,0	4	1,95	6,42	6,77	6,77	7,39	7,68	7,99	●	
3133008	2,0	8	45	3,0	4	1,95	8,53	8,96	8,96	9,69	10,07	10,48	●	
3133010	2,0	10	45	3,0	4	1,95	10,64	11,13	11,13	11,99	12,46	12,97	●	
3133012	2,0	12	45	3,0	4	1,95	12,74	13,29	13,29	14,29	14,85	15,45	●	
3133014	2,0	14	50	3,0	4	1,95	14,83	15,44	15,44	16,59	17,24	17,94	●	
3133016	2,0	16	50	3,0	4	1,95	16,92	17,58	17,58	18,89	19,63	20,43	●	
3133018	2,0	18	55	3,0	4	1,95	19,01	19,71	19,71	21,19	22,02	22,91	●	
3133020	2,0	20	55	3,0	4	1,95	21,09	21,85	21,85	23,49	-	-	●	
3133025	2,0	25	60	3,0	4	1,95	26,28	27,20	27,20	-	-	-	●	
3133030	2,0	30	70	3,0	4	1,95	31,46	32,55	32,55	-	-	-	●	
3133035	2,0	35	80	3,0	4	1,95	36,62	37,90	37,90	-	-	-	●	
3133040	2,0	40	90	3,0	4	1,95	41,79	43,25	43,25	-	-	-	●	
3133050	2,0	50	100	3,0	4	1,95	52,13	53,94	53,94	-	-	-	●	
3133060	2,0	60	110	3,0	4	1,95	62,47	-	-	-	-	-	●	
3133508	2,5	8	45	3,7	4	2,40	8,47	8,87	8,87	9,57	9,94	10,34	●	
3133510	2,5	10	45	3,7	4	2,40	10,57	11,03	11,03	11,87	12,33	12,83	●	
3133512	2,5	12	45	3,7	4	2,40	12,66	13,18	13,18	14,17	14,72	-	●	
3133514	2,5	14	50	3,7	4	2,40	14,75	15,32	15,32	16,47	17,11	-	●	
3133516	2,5	16	55	3,7	4	2,40	16,83	17,46	17,46	18,77	-	-	●	
3133518	2,5	18	55	3,7	4	2,40	18,91	19,60	19,60	21,07	-	-	●	
3133520	2,5	20	60	3,7	4	2,40	20,99	21,74	21,74	-	-	-	●	
3133525	2,5	25	70	3,7	4	2,40	26,17	27,09	27,09	-	-	-	●	
3133530	2,5	30	80	3,7	4	2,40	31,34	32,43	32,43	-	-	-	●	
3133540	2,5	40	90	3,7	4	2,40	41,68	-	-	-	-	-	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	○	○		○	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
◎	○		○	○		

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

WXL-LN-EDS



HIGH PERFORMANCE
- 2 flutes
- Long neck

HIGH PERFORMANCE
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- Überlaufhals

ALTA PRESTAZIONE
- 2 denti
- Scaricato lungo

HAUTE PERFORMANCE
- 2 lèvres
- Dégagement long

HIGH PERFORMANCE
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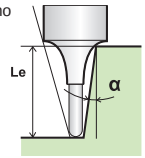
HIGH PERFORMANCE
- 2 skär
- Lång reducering

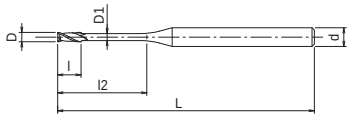
ALTO RENDIMIENTO
- 2 labios
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ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
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CARBIDE | WXL | 30° | 0 ~ -0.0015 | min⁻¹ D.167-168

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EDP	D	l2	L	l	d	D1	Le (α) 0,5°	1°	1,5°	2°	2,5°	3°	Stock	Price
3133550	2,5	50	100	3,7	4	2,40	52,02	-	-	-	-	-	●	
3134008	3,0	8	45	4,5	6	2,85	8,42	8,79	8,79	9,47	9,84	10,24	●	
3134010	3,0	10	45	4,5	6	2,85	10,51	10,95	10,95	11,77	12,23	12,73	●	
3134012	3,0	12	45	4,5	6	2,85	12,60	13,09	13,09	14,07	14,62	15,21	●	
3134014	3,0	14	50	4,5	6	2,85	14,68	15,23	15,23	16,37	17,01	17,70	●	
3134016	3,0	16	55	4,5	6	2,85	16,76	17,37	17,37	18,67	19,40	20,19	●	
3134018	3,0	18	55	4,5	6	2,85	18,84	19,51	19,51	20,97	21,79	22,67	●	
3134020	3,0	20	60	4,5	6	2,85	20,91	21,65	21,65	23,27	24,18	25,16	●	
3134025	3,0	25	65	4,5	6	2,85	26,09	27,00	27,00	29,02	30,15	-	●	
3134030	3,0	30	80	4,5	6	2,85	31,26	32,35	32,35	34,77	-	-	●	
3134035	3,0	35	90	4,5	6	2,85	36,43	37,69	37,69	40,52	-	-	●	
3134040	3,0	40	90	4,5	6	2,85	41,59	43,04	43,04	-	-	-	●	
3134050	3,0	50	100	4,5	6	2,85	51,93	53,74	53,74	-	-	-	●	
3135012	4,0	12	50	6,0	6	3,85	12,60	13,09	13,09	14,07	14,62	15,21	●	
3135016	4,0	16	60	6,0	6	3,85	16,76	17,37	17,37	18,67	19,40	-	●	
3135020	4,0	20	60	6,0	6	3,85	20,91	21,65	21,65	23,27	-	-	●	
3135025	4,0	25	70	6,0	6	3,85	26,09	27,00	27,00	-	-	-	●	
3135030	4,0	30	80	6,0	6	3,85	31,26	32,35	32,35	-	-	-	●	
3135035	4,0	35	90	6,0	6	3,85	36,43	37,69	37,69	-	-	-	●	
3135040	4,0	40	90	6,0	6	3,85	41,59	43,04	43,04	-	-	-	●	
3135045	4,0	45	100	6,0	6	3,85	46,76	48,39	48,39	-	-	-	●	
3135050	4,0	50	100	6,0	6	3,85	51,93	53,74	53,74	-	-	-	●	
3135060	4,0	60	110	6,0	6	3,85	62,27	-	-	-	-	-	●	
3136016	5,0	16	60	7,5	6	4,85	16,76	17,37	17,37	18,00	-	-	●	
3136020	5,0	20	70	7,5	6	4,85	20,91	21,65	-	-	-	-	●	
3136025	5,0	25	70	7,5	6	4,85	29,09	27,00	-	-	-	-	●	
3136030	5,0	30	90	7,5	6	4,85	31,26	-	-	-	-	-	●	
3136035	5,0	35	90	7,5	6	4,85	36,43	-	-	-	-	-	●	
3136040	5,0	40	100	7,5	6	4,85	41,59	-	-	-	-	-	●	
3136050	5,0	50	110	7,5	6	4,85	51,93	-	-	-	-	-	●	
3136060	5,0	60	120	7,5	6	4,85	-	-	-	-	-	-	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	○	○		○	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
◎	○		○	○		

WXL-EBD



HIGH PERFORMANCE

- New WXL coating with high hardness and better lubrification.
- Recommended with lubrification or dry milling.

HIGH PERFORMANCE

- Neue WXL Beschichtung mit einer hohen Härte und geringem Reibungskoeffizient
- Empfohlen bei schlechter Schmierung sowie zur Trockenbearbeitung geeignet

ALTA PRESTAZIONE

- Nuovo rivestimento WXL con elevata durezza e migliore lubrificazione
- Consigliato con emulsione o a secco
  Permette lavorazioni su ampio campo di applicazioni

HAUTE PERFORMANCE

- Nouveau revêtement plus dur et plus glissant
- Recommandé pour usinage avec ou sans lubrification
  Nombreuses applications de fraisage

HIGH PERFORMANCE

- Ny WXL belægning med høj hårdhed og forbedrerede smøreegenskaber
- Anbefales med køling eller tør bearbejdning

HIGH PERFORMANCE

- Ny WXL beläggning med extra hårdhet och mindre friktions koefficient
- Rekommenderad med eller utan smörjmedel
  Kan användas i många olika material

ALTO RENDIMIENTO

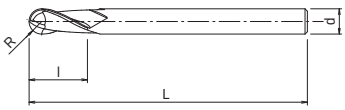
- Nuevo recubrimiento WXL de elevada dureza y lubricidad mejorada
- Recomendado con lubricación o en seco

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- Новое WXL покрытие с высокой твердостью и низким коэффициентом трения.
- Рекомендована для работы с СОЖ и «сухого» фрезерования
  Позволяет обрабатывать широкий диапазон материалов

CARBIDE | WXL | 30° | FIT

R ± 0.005 3 > R | R 0.003 ~ ± 0.007 3≤R≤6 | R ± 0.01 6 < R | min⁻¹ D.169-170



EDP	D	R	L	l	d	Stock	Price
3105010	0,1	0,05	40	0,2	4	●	
3105020	0,2	0,10	40	0,4	4	●	
3105030	0,3	0,15	40	0,6	4	●	
3106030	0,3	0,15	50	0,6	6	●	
3105040	0,4	0,20	40	0,8	4	●	
3106040	0,4	0,20	50	0,8	6	●	
3105050	0,5	0,25	40	1,1	4	●	
3106050	0,5	0,25	50	1,1	6	●	
3105060	0,6	0,30	40	1,1	4	●	
3106060	0,6	0,30	50	1,1	6	●	
3105080	0,8	0,40	40	2,0	4	●	
3106080	0,8	0,40	50	2,0	6	●	
3105100	1,0	0,50	50	1,5	4	●	
3105101	1,0	0,50	50	2,5	4	●	
3106100	1,0	0,50	60	2,5	6	●	
3105120	1,2	0,60	50	3,0	4	●	
3105140	1,4	0,70	50	3,5	4	●	
3105150	1,5	0,75	50	2,0	4	●	
3105151	1,5	0,75	50	4,0	4	●	
3106150	1,5	0,75	50	4,0	6	●	
3105160	1,6	0,80	50	4,0	4	●	
3105200	2,0	1,00	50	3,0	4	●	
3105201	2,0	1,00	50	6,0	4	●	
3106200	2,0	1,00	50	5,0	6	●	
3105250	2,5	1,25	50	3,0	4	●	
3105251	2,5	1,25	50	6,0	4	●	
3106250	2,5	1,25	60	6,0	6	●	
3105300	3,0	1,50	60	4,5	4	●	
3106300	3,0	1,50	60	4,5	6	●	
3106301	3,0	1,50	60	8,0	6	●	
3106350	3,5	1,75	70	8,0	6	●	
3106400	4,0	2,00	70	6,0	6	●	
3105400	4,0	2,00	60	8,0	4	●	
3106401	4,0	2,00	70	8,0	6	●	
3106500	5,0	2,50	80	8,0	6	●	
3106501	5,0	2,50	80	10,0	6	●	
3106502	5,0	2,50	80	12,0	6	●	
3106600	6,0	3,00	90	10,0	6	●	
3106601	6,0	3,00	90	12,0	6	●	
3106610	7,0	3,50	90	14,0	6	●	
3106620	8,0	4,00	100	12,0	8	●	
3106621	8,0	4,00	100	14,0	8	●	
3106630	9,0	4,50	100	18,0	8	●	
3106640	10,0	5,00	100	15,0	10	●	
3106641	10,0	5,00	100	18,0	10	●	
3106650	11,0	5,50	100	22,0	10	●	
3106660	12,0	6,00	110	18,0	12	●	
3106661	12,0	6,00	110	22,0	12	●	
3106670	14,0	7,00	110	26,0	12	●	
3106680	16,0	8,00	140	30,0	16	●	
3106690	18,0	9,00	140	34,0	16	●	
3106700	20,0	10,00	160	38,0	20	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎			◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
◎	○		○	○		

● Delivery from stock
○ Available on short notice

WXL-LN-EBD



HIGH PERFORMANCE

- New WXL coating with high hardness and better lubrification.
- Recommended with lubrification or dry milling.

HIGH PERFORMANCE

- Neue WXL Beschichtung mit höherem Härtegrad und besserer Schmierung
- Empfohlen mit Schmierung oder Trocken

ALTA PRESTAZIONE

- Nuovo rivestimento WXL con elevata durezza e migliore lubrificazione
- Consigliato con emulsione o a secco

HAUTE PERFORMANCE

- Nouveau revêtement WXL avec dureté élevée et une meilleur lubrification
- Recommandé avec lubrification ou usinage à sec

HIGH PERFORMANCE

- Ny WXL belægning med høj hårdhed og forbedrerede smøreegenskaber
- Anbefales med køling eller tør bearbejdning

HIGH PERFORMANCE

- Ny WXL beläggning med extra hårdhet och mindre friktions koefficient
- Rekommenderad med eller utan smörjmedel

ALTO RENDIMIENTO

- Nuevo recubrimiento WXL de gran dureza y mejor lubricidad
- Recomendable con lubricación o en seco

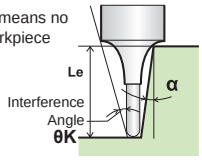
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

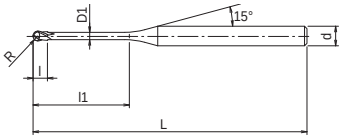
- Новое WXL покрытие с высокой твердостью и низким коэффициентом трения.
- Рекомендована для работы с СОЖ и «сухого» фрезерования

CARBIDE | WXL | 30° | FIT

R ± 0.005 | min⁻¹ D.171-175

No numerical value means no interference with workpiece





EDP	D	R	l1	L	l	d	d1	θk	Le (α) 0,5°	1°	1,5°	2°	2,5°	3°	Stock	Price
3110103	0,1	0,05	0,30	45	0,08	4	0,085	13,27	0,32	0,35	0,39	0,43	0,48	0,54	●	
3110105	0,1	0,05	0,50	45	0,08	4	0,085	13,59	0,54	0,59	0,65	0,72	0,79	0,88	●	
3110203	0,2	0,10	0,30	45	0,16	4	0,180	13,93	0,32	0,34	0,37	0,40	0,44	0,49	●	
3110205	0,2	0,10	0,50	45	0,16	4	0,180	13,59	0,54	0,58	0,63	0,69	0,76	0,83	●	
3120205	0,2	0,10	0,50	50	0,16	6	0,180	14,04	0,54	0,58	0,63	0,69	0,76	0,83	●	
3110207	0,2	0,10	0,75	45	0,16	4	0,180	13,20	0,81	0,88	0,96	1,04	1,13	1,23	●	
3110210	0,2	0,10	1,00	45	0,16	4	0,180	12,83	1,08	1,18	1,27	1,38	1,49	1,61	●	
3120210	0,2	0,10	1,00	50	0,16	6	0,180	13,49	1,08	1,18	1,27	1,38	1,49	1,61	●	
3110212	0,2	0,10	1,25	45	0,16	4	0,180	12,48	1,36	1,47	1,59	1,71	1,84	1,98	●	
3110215	0,2	0,10	1,50	45	0,16	4	0,180	12,14	1,63	1,76	1,90	2,04	2,18	2,33	●	
3120215	0,2	0,10	1,50	50	0,16	6	0,180	12,98	1,63	1,76	1,90	2,04	2,18	2,33	●	
3110217	0,2	0,10	1,75	45	0,16	4	0,180	11,83	1,90	2,05	2,20	2,36	2,52	2,68	●	
3110220	0,2	0,10	2,00	45	0,16	4	0,180	11,53	2,17	2,34	2,51	2,68	2,85	3,02	●	
3120220	0,2	0,10	2,00	50	0,16	6	0,180	12,51	2,17	2,34	2,51	2,68	2,85	3,02	●	
3110225	0,2	0,10	2,50	45	0,16	4	0,180	10,97	2,71	2,91	3,11	3,30	3,49	3,68	●	
3110230	0,2	0,10	3,00	45	0,16	4	0,180	10,46	3,25	3,48	3,70	3,92	4,13	4,33	●	
3110305	0,3	0,15	0,50	45	0,24	4	0,280	13,90	0,53	0,57	0,62	0,67	0,73	0,80	●	
3110306	0,3	0,15	0,60	45	0,24	4	0,280	13,74	0,64	0,69	0,75	0,81	0,89	0,97	●	
3110307	0,3	0,15	0,75	45	0,24	4	0,280	13,49	0,81	0,87	0,94	1,02	1,11	1,21	●	
3110310	0,3	0,15	1,00	45	0,24	4	0,280	13,10	1,08	1,17	1,26	1,36	1,47	1,59	●	
3120310	0,3	0,15	1,00	50	0,24	6	0,280	13,69	1,08	1,17	1,26	1,36	1,47	1,59	●	
3110312	0,3	0,15	1,25	45	0,24	4	0,280	12,74	1,35	1,46	1,58	1,70	1,82	1,96	●	
3110315	0,3	0,15	1,50	45	0,24	4	0,280	12,39	1,62	1,75	1,89	2,02	2,17	2,31	●	
3120315	0,3	0,15	1,50	50	0,24	6	0,280	13,17	1,62	1,75	1,89	2,02	2,17	2,31	●	
3110317	0,3	0,15	1,75	45	0,24	4	0,280	12,06	1,89	2,04	2,19	2,35	2,50	2,66	●	
3110320	0,3	0,15	2,00	45	0,24	4	0,280	11,75	2,16	2,33	2,50	2,66	2,83	3,00	●	
3120320	0,3	0,15	2,00	50	0,24	6	0,280	12,68	2,16	2,33	2,50	2,66	2,83	3,00	●	
3110322	0,3	0,15	2,25	45	0,24	4	0,280	11,45	2,44	2,62	2,80	2,98	3,16	3,33	●	
3110325	0,3	0,15	2,50	45	0,24	4	0,280	11,17	2,70	2,90	3,10	3,29	3,48	3,66	●	
3120325	0,3	0,15	2,50	50	0,24	6	0,280	12,23	2,70	2,90	3,10	3,29	3,48	3,66	●	
3110327	0,3	0,15	2,75	45	0,24	4	0,280	10,90	2,97	3,19	3,40	3,60	3,80	3,99	●	
3110330	0,3	0,15	3,00	45	0,24	4	0,280	10,64	3,24	3,47	3,69	3,91	4,11	4,31	●	
3120330	0,3	0,15	3,00	50	0,24	6	0,280	11,81	3,24	3,47	3,69	3,91	4,11	4,31	●	
3110335	0,3	0,15	3,50	45	0,24	4	0,280	10,17	3,78	4,04	4,28	4,51	4,74	4,95	●	
3110340	0,3	0,15	4,00	45	0,24	4	0,280	9,73	4,32	4,60	4,87	5,11	5,35	5,58	●	
3110345	0,3	0,15	4,50	45	0,24	4	0,280	9,33	4,85	5,16	5,44	5,71	5,96	6,20	●	
3110350	0,3	0,15	5,00	45	0,24	4	0,280	8,95	5,39	5,72	6,02	6,30	6,56	6,81	●	
3110405	0,4	0,20	0,50	45	0,30	4	0,370	14,28	0,53	0,56	0,60	0,64	0,69	0,75	●	
3110407	0,4	0,20	0,75	45	0,30	4	0,370	13,85	0,80	0,86	0,92	0,99	1,07	1,16	●	
3110410	0,4	0,20	1,00	45	0,30	4	0,370	13,44	1,07	1,15	1,24	1,33	1,43	1,54	●	
3120410	0,4	0,20	1,00	50	0,30	6	0,370	13,93	1,07	1,15	1,24	1,33	1,43	1,54	●	
3110415	0,4	0,20	1,50	45	0,30	4	0,370	12,69	1,61	1,73	1,86	1,99	2,12	2,26	●	
3120415	0,4	0,20	1,50	50	0,30	6	0,370	13,39	1,61	1,73	1,86	1,99	2,12	2,26	●	
3110420	0,4	0,20	2,00	45	0,30	4	0,370	12,02	2,15	2,31	2,47	2,63	2,79	2,95	●	
3120420	0,4	0,20	2,00	50	0,30	6	0,370	12,89	2,15	2,31	2,47	2,63	2,79	2,95	●	
3110425	0,4	0,20	2,50	45	0,30	4	0,370	11,41	2,69	2,88	3,07	3,25	3,43	3,61	●	
3120425	0,4	0,20	2,50	50	0,30	6	0,370	12,42	2,69	2,88	3,07	3,25	3,43	3,61	●	
New Sizes 3110430	0,4	0,20	3,00	45	0,30	4	0,370	10,87	3,23	3,45	3,66	3,87	4,07	4,26	●	
3120430	0,4	0,20	3,00	50	0,30	6	0,370	11,99	3,29	3,40	3,51	3,64	3,77	3,92	●	
3110435	0,4	0,20	3,50	45	0,30	4	0,370	10,37	3,77	4,01	4,25	4,47	4,69	4,90	●	
3110440	0,4	0,20	4,00	45	0,30	4	0,370	9,91	4,30	4,58	4,83	5,07	5,31	5,53	●	
3120440	0,4	0,20	4,00	50	0,30	6	0,370	11,21	4,30	4,58	4,83	5,07	5,31	5,53	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎			◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
◎	○		○	○		

WXL-LN-EBD



HIGH PERFORMANCE

- New WXL coating with high hardness and better lubrification.
- Recommended with lubrification or dry milling.

HIGH PERFORMANCE

- Neue WXL Beschichtung mit höherem Härtegrad und besserer Schmierung
- Empfohlen mit Schmierung oder Trocken

ALTA PRESTAZIONE

- Nuovo rivestimento WXL con elevata durezza e migliore lubrificazione
- Consigliato con emulsione o a secco

HAUTE PERFORMANCE

- Nouveau revêtement WXL avec dureté élevée et une meilleur lubrification
- Recommandé avec lubrification ou usinage à sec

HIGH PERFORMANCE

- Ny WXL belægning med høj hårdhed og forbedrerede smøreegenskaber
- Anbefales med køling eller tør bearbejdning

HIGH PERFORMANCE

- Ny WXL beläggning med extra hårdhet och mindre friktions koefficient
- Rekommenderad med eller utan smörjmedel

ALTO RENDIMIENTO

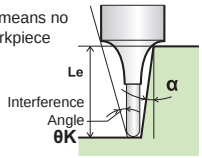
- Nuevo recubrimiento WXL de gran dureza y mejor lubricidad
- Recomendable con lubricación o en seco

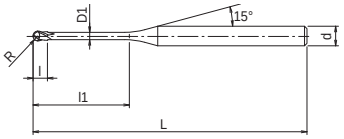
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- Новое WXL покрытие с высокой твердостью и низким коэффициентом трения.
- Рекомендована для работы с СОЖ и «сухого» фрезерования

CARBIDE | WXL | 30° | FIT | R ± 0.005 | min⁻¹ D.171-175

No numerical value means no interference with workpiece





EDP	D	R	l1	L	l	d	d1	θk	Le (α) 0,5°	1°	1,5°	2°	2,5°	3°	Stock	Price
3110445	0,4	0,20	4,5	45	0,30	4	0,37	9,50	4,84	5,13	5,41	5,67	5,91	6,15	●	
3110450	0,4	0,20	5,0	45	0,30	4	0,37	9,11	5,37	5,69	5,98	6,26	6,52	6,76	●	
3120450	0,4	0,20	5,0	50	0,30	6	0,37	10,52	5,37	5,69	5,98	6,26	6,52	6,76	●	
3110455	0,4	0,20	5,5	45	0,30	4	0,37	8,76	5,90	6,25	6,56	6,84	7,11	7,37	●	
3110460	0,4	0,20	6,0	45	0,30	4	0,37	8,43	6,43	6,80	7,12	7,42	7,71	7,97	●	
3120460	0,4	0,20	6,0	50	0,30	6	0,37	9,91	6,43	6,80	7,12	7,42	7,71	7,97	●	
3110510	0,5	0,25	1,0	45	0,40	4	0,45	13,84	1,36	1,13	1,20	1,28	1,37	1,47	●	
3110515	0,5	0,25	1,5	45	0,40	4	0,45	13,84	1,60	1,71	1,82	1,94	2,06	2,19	●	
3120515	0,5	0,25	1,5	50	0,4	6	0,45	13,65	1,60	1,71	1,82	1,94	2,06	2,19	●	
3110520	0,5	0,25	2,0	45	0,4	4	0,45	12,34	2,14	2,28	2,42	2,57	2,72	2,87	●	
3120520	0,5	0,25	2,0	50	0,4	6	0,45	13,13	2,14	2,28	2,42	2,57	2,72	2,87	●	
3110525	0,5	0,25	2,5	45	0,4	4	0,45	11,70	2,67	2,85	3,02	3,19	3,37	3,54	●	
3120525	0,5	0,25	2,5	50	0,4	6	0,45	12,64	2,67	2,85	3,02	3,19	3,37	3,54	●	
3110530	0,5	0,25	3,0	45	0,4	4	0,45	11,12	3,21	3,41	3,61	3,81	4,00	4,19	●	
3120530	0,5	0,25	3,0	50	0,4	6	0,45	12,20	3,21	3,41	3,61	3,81	4,00	4,19	●	
3110535	0,5	0,25	3,5	45	0,4	4	0,45	10,60	3,74	3,97	4,20	4,41	4,62	4,82	●	
3110540	0,5	0,25	4,0	45	0,4	4	0,45	10,13	4,28	4,53	4,78	5,01	5,23	5,45	●	
3120540	0,5	0,25	4,0	50	0,4	6	0,45	11,39	4,28	4,53	4,78	5,01	5,23	5,45	●	
3110545	0,5	0,25	4,5	45	0,4	4	0,45	9,69	4,81	5,09	5,35	5,60	5,84	6,07	●	
3110550	0,5	0,25	5,0	45	0,4	4	0,45	9,29	5,34	5,65	5,93	6,19	6,44	6,68	●	
3120550	0,5	0,25	5,0	50	0,4	6	0,45	10,68	5,34	5,65	5,93	6,19	6,44	6,68	●	
3110555	0,5	0,25	5,5	45	0,4	4	0,45	8,93	5,87	6,20	6,50	6,77	7,04	7,29	●	
3110560	0,5	0,25	6,0	45	0,4	4	0,45	8,59	6,40	6,75	7,06	7,35	7,63	7,89	●	
3120560	0,5	0,25	6,0	50	0,4	6	0,45	10,05	6,40	6,75	7,06	7,35	7,63	7,89	●	
3110570	0,5	0,25	7,0	45	0,4	4	0,45	7,98	7,46	7,85	8,19	8,51	8,80	9,08	●	
3110580	0,5	0,25	8,0	45	0,4	4	0,45	7,45	8,52	8,94	9,31	9,65	9,96	10,42	●	
3120580	0,5	0,25	8,0	50	0,4	6	0,45	8,99	8,52	8,94	9,31	9,65	9,96	10,42	●	
3110590	0,5	0,25	9,0	45	0,4	4	0,45	6,99	9,57	10,03	10,42	10,78	11,11	11,66	●	
3110600	0,5	0,25	10,0	45	0,4	4	0,45	6,58	10,62	11,11	11,53	11,91	12,41	12,91	●	
3110610	0,6	0,30	1,0	45	0,5	4	0,55	14,16	1,06	1,12	1,19	1,27	1,35	1,45	●	
3110615	0,6	0,30	1,5	45	0,5	4	0,55	13,33	1,60	1,70	1,81	1,92	2,04	2,17	●	
3120615	0,6	0,30	1,5	50	0,5	6	0,55	13,85	1,60	1,70	1,81	1,92	2,04	2,17	●	
3110620	0,6	0,30	2,0	45	0,5	4	0,55	12,59	2,13	2,27	2,41	2,56	2,71	2,86	●	
3120620	0,6	0,30	2,0	50	0,5	6	0,55	13,32	2,13	2,27	2,41	2,56	2,71	2,86	●	
3110625	0,6	0,30	2,5	45	0,5	4	0,55	11,93	2,67	2,84	3,01	3,18	3,35	3,52	●	
3120625	0,6	0,30	2,5	50	0,5	6	0,55	12,82	2,67	2,84	3,01	3,18	3,35	3,52	●	
3110630	0,6	0,30	3,0	45	0,5	4	0,55	11,33	3,21	3,41	3,60	3,79	3,98	4,17	●	
3120630	0,6	0,30	3,0	50	0,5	6	0,55	12,36	3,21	3,41	3,60	3,79	3,98	4,17	●	
3110635	0,6	0,30	3,5	45	0,5	4	0,55	10,79	3,74	3,97	4,19	4,40	4,61	4,81	●	
3110640	0,6	0,30	4,0	45	0,5	4	0,55	10,30	4,27	4,53	4,77	5,00	5,22	5,44	●	
3120640	0,6	0,30	4,0	50	0,5	6	0,55	11,53	4,27	4,53	4,77	5,00	5,22	5,44	●	
3110645	0,6	0,30	4,5	45	0,5	4	0,55	9,85	4,81	5,08	5,35	5,59	5,83	6,06	●	
3110650	0,6	0,30	5,0	45	0,5	4	0,55	9,44	5,34	5,64	5,92	6,18	6,43	6,67	●	
3120650	0,6	0,30	5,0	50	0,5	6	0,55	10,8	5,34	5,64	5,92	6,18	6,43	6,67	●	
3110655	0,6	0,30	5,5	45	0,5	4	0,55	9,06	5,87	6,19	6,49	6,77	7,03	7,28	●	
3110660	0,6	0,30	6,0	45	0,5	4	0,55	8,71	6,40	6,74	7,06	7,35	7,62	7,88	●	
3120660	0,6	0,30	6,0	50	0,5	6	0,55	10,16	6,40	6,74	6,74	7,35	7,62	7,88	●	
3110665	0,6	0,30	6,5	45	0,5	4	0,55	8,39	6,93	7,29	7,29	7,92	8,21	8,48	●	
3110670	0,6	0,30	7,0	45	0,5	4	0,55	8,08	7,46	7,84	7,84	8,5	8,79	9,07	●	
3110675	0,6	0,30	7,5	45	0,5	4	0,55	7,80	7,99	8,39	8,39	9,07	9,38	9,66	●	
3110680	0,6	0,30	8,0	45	0,5	4	0,55	7,54	8,51	8,94	8,94	9,64	9,95	10,25	●	
3120680	0,6	0,30	8,0	50	0,5	6	0,55	9,08	8,51	8,94	8,94	9,64	9,95	10,25	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎			◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
◎	○		○	○		

● Delivery from stock
○ Available on short notice

WXL-LN-EBD



HIGH PERFORMANCE

- New WXL coating with high hardness and better lubrification.
- Recommended with lubrification or dry milling.

HIGH PERFORMANCE

- Neue WXL Beschichtung mit höherem Härtegrad und besserer Schmierung
- Empfohlen mit Schmierung oder Trocken

ALTA PRESTAZIONE

- Nuovo rivestimento WXL con elevata durezza e migliore lubrificazione
- Consigliato con emulsione o a secco

HAUTE PERFORMANCE

- Nouveau revêtement WXL avec dureté élevée et une meilleur lubrification
- Recommandé avec lubrification ou usinage à sec

HIGH PERFORMANCE

- Ny WXL belægning med høj hårdhed og forbedrerede smøreegenskaber
- Anbefales med køling eller tør bearbejdning

HIGH PERFORMANCE

- Ny WXL beläggning med extra hårdhet och mindre friktions koefficient
- Rekommenderad med eller utan smörjmedel

ALTO RENDIMIENTO

- Nuevo recubrimiento WXL de gran dureza y mejor lubricidad
- Recomendable con lubricación o en seco

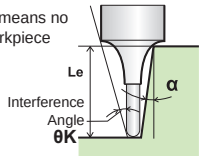
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

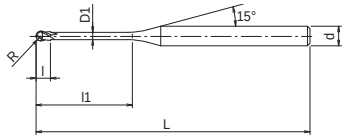
- Новое WXL покрытие с высокой твердостью и низким коэффициентом трения.
- Рекомендована для работы с СОЖ и «сухого» фрезерования

CARBIDE | WXL | 30° | FIT

R ± 0.005 | min⁻¹ D.171-175

No numerical value means no interference with workpiece





EDP	D	R	l1	L	l	d	d1	θk	Le (α) 0,5°	1°	1,5°	2°	2,5°	3°	Stock	Price
3110685	0,6	0,30	8,5	45	0,5	4	0,55	7,30	9,04	9,48	9,48	10,21	10,53	10,83	●	
3110690	0,6	0,30	9,0	45	0,5	4	0,55	7,07	9,57	10,02	10,02	10,78	11,11	11,65	●	
3110695	0,6	0,30	9,5	45	0,5	4	0,55	6,85	10,1	10,57	10,57	11,34	11,68	12,27	●	
3110700	0,6	0,30	10,0	45	0,5	4	0,55	6,65	10,62	11,11	11,53	11,90	12,25	12,90	●	
3120700	0,6	0,30	10,0	50	0,5	6	0,55	8,20	10,62	11,11	11,53	11,90	12,25	12,90	●	
3110711	0,6	0,30	11,0	45	0,5	4	0,55	6,28	11,67	12,19	12,63	13,02	13,60	14,14	●	
3110712	0,6	0,30	12,0	45	0,5	4	0,55	5,94	12,72	13,27	13,73	14,14	14,79	15,38	●	
3110820	0,8	0,40	2,0	45	0,6	4	0,75	13,13	2,13	2,26	2,39	2,53	2,68	2,82	●	
3120820	0,8	0,40	2,0	50	0,6	6	0,75	13,71	2,13	2,26	2,39	2,53	2,68	2,82	●	
3110830	0,8	0,40	3,0	45	0,5	4	0,75	11,77	3,20	3,39	3,58	3,77	3,96	4,14	●	
3120830	0,8	0,40	3,0	50	0,6	6	0,75	12,70	3,20	3,39	3,58	3,77	3,96	4,14	●	
3110840	0,8	0,40	4,0	45	0,6	4	0,75	10,66	4,27	4,52	4,75	4,98	5,20	5,41	●	
3120840	0,8	0,40	4,0	50	0,6	6	0,75	11,83	4,27	4,52	4,75	4,98	5,20	5,41	●	
3110850	0,8	0,40	5,0	45	0,6	4	0,75	9,74	5,33	5,63	5,90	6,16	6,41	6,65	●	
3120850	0,8	0,40	5,0	50	0,6	6	0,75	11,06	5,33	5,63	5,90	6,16	6,41	6,65	●	
3110860	0,8	0,40	6,0	45	0,6	4	0,75	8,97	6,39	6,73	7,04	7,33	7,60	7,86	●	
3120860	0,8	0,40	6,0	50	0,6	6	0,75	10,39	6,39	6,73	7,04	7,33	7,60	7,86	●	
3110870	0,8	0,40	7,0	45	0,6	4	0,75	8,31	7,45	7,83	8,17	8,49	8,78	9,05	●	
3110880	0,8	0,40	8,0	45	0,6	4	0,75	7,74	8,51	8,93	9,29	9,63	9,94	10,23	●	
3120880	0,8	0,40	8,0	50	0,6	6	0,75	9,26	8,51	8,93	9,29	9,63	9,94	10,23	●	
3110890	0,8	0,40	9,0	45	0,6	4	0,75	7,24	9,56	10,02	10,41	10,76	11,09	11,40	●	
3110900	0,8	0,40	10,0	45	0,6	4	0,75	6,80	10,62	11,10	11,52	11,89	12,24	12,56	●	
3120900	0,8	0,40	10,0	50	0,6	6	0,75	8,35	10,62	11,10	11,52	11,89	12,24	12,56	●	
3110912	0,8	0,40	12,0	45	0,6	4	0,75	6,06	12,72	13,26	13,72	14,13	14,50	15,36	●	
3111025	1,0	0,50	2,5	45	0,8	4	0,95	12,94	2,66	2,81	2,97	3,13	3,30	3,46	●	
3111030	1,0	0,50	3,0	45	0,8	4	0,95	12,25	3,19	3,38	3,57	3,75	3,93	4,11	●	
3121030	1,0	0,50	3,0	50	0,8	6	0,95	13,06	3,19	3,38	3,57	3,75	3,93	4,11	●	
3111040	1,0	0,50	4,0	45	0,8	4	0,95	11,05	4,26	4,50	4,74	4,96	5,18	5,39	●	
3121040	1,0	0,50	4,0	50	0,8	6	0,95	12,14	4,26	4,50	4,74	4,96	5,18	5,39	●	
3111050	1,0	0,50	5,0	45	0,8	4	0,95	10,07	5,33	5,62	5,89	6,15	6,39	6,63	●	
3121050	1,0	0,50	5,0	50	0,8	6	0,95	11,34	5,33	5,62	5,89	6,15	6,39	6,63	●	
3111060	1,0	0,50	6,0	45	0,8	4	0,95	9,24	6,39	6,72	7,03	7,32	7,58	7,84	●	
3121060	1,0	0,50	6,0	50	0,8	6	0,95	10,63	6,39	6,72	7,03	7,32	7,58	7,84	●	
3111070	1,0	0,50	7,0	45	0,8	4	0,95	8,54	7,45	7,82	8,16	8,47	8,76	9,03	●	
3121070	1,0	0,50	7,0	50	0,8	6	0,95	10,01	7,45	7,82	8,16	8,47	8,76	9,03	●	
3111080	1,0	0,50	8,0	45	0,8	4	0,95	7,94	8,50	8,92	9,28	9,62	9,92	10,21	●	
3121080	1,0	0,50	8,0	50	0,8	6	0,95	9,45	8,50	8,92	9,28	9,62	9,92	10,21	●	
3111090	1,0	0,50	9,0	45	0,8	4	0,95	7,42	9,56	10,01	10,40	10,75	11,08	11,38	●	
3111100	1,0	0,50	10,0	45	0,8	4	0,95	6,96	10,61	11,09	11,51	11,88	12,22	12,54	●	
3121100	1,0	0,50	10,0	50	0,8	6	0,95	8,51	10,61	11,09	11,51	11,88	12,22	12,54	●	
3111112	1,0	0,50	12,0	45	0,8	4	0,95	6,19	12,71	13,25	13,71	14,12	14,49	14,83	●	
3121112	1,0	0,50	12,0	50	0,8	6	0,95	7,74	12,71	13,25	13,71	14,12	14,49	14,83	●	
3111114	1,0	0,50	14,0	50	0,8	4	0,95	5,57	14,81	15,40	15,90	16,34	16,73	17,82	●	
3121114	1,0	0,50	14,0	60	0,8	6	0,95	7,09	14,81	15,40	15,90	16,34	16,73	17,82	●	
3111116	1,0	0,50	16,0	50	0,8	4	0,95	5,07	16,90	17,54	18,07	18,54	19,53	20,31	●	
3121116	1,0	0,50	16,0	60	0,8	6	0,95	6,54	16,90	17,54	18,07	18,54	19,53	20,31	●	
3111118	1,0	0,50	18,0	55	0,8	4	0,95	4,65	18,99	19,67	20,23	20,73	21,92	22,79	●	
3111120	1,0	0,50	20,0	55	0,8	4	0,95	4,29	21,07	21,80	22,39	23,42	24,31	25,28	●	
3121120	1,0	0,50	20,0	60	0,8	6	0,95	5,67	21,07	21,80	22,39	23,42	24,31	25,28	●	
3121122	1,0	0,50	22,0	60	0,8	6	0,95	5,31	23,15	23,91	24,54	25,72	26,70	27,77	●	
3111240	1,2	0,60	4,0	45	1,0	4	1,15	11,47	4,25	4,49	4,72	4,94	5,16	5,36	●	
3111260	1,2	0,60	6,0	45	1,0	4	1,15	9,53	6,38	6,71	7,02	7,30	7,57	7,82	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎			◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
◎	○		○	○		

WXL-LN-EBD



WXL

GO TO LIVE STOCK CHECK

CARBIDE

HIGH PERFORMANCE

- New WXL coating with high hardness and better lubrification.
- Recommended with lubrification or dry milling.

HIGH PERFORMANCE

- Neue WXL Beschichtung mit höherem Härtegrad und besserer Schmierung
- Empfohlen mit Schmierung oder Trocken

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- Nuovo rivestimento WXL con elevata durezza e migliore lubrificazione
- Consigliato con emulsione o a secco

HAUTE PERFORMANCE

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HIGH PERFORMANCE

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- Recomendable con lubricación o en seco

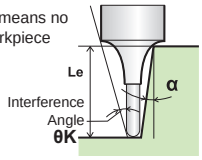
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

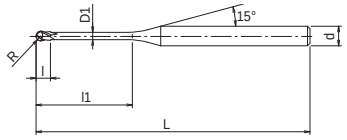
- Новое WXL покрытие с высокой твердостью и низким коэффициентом трения.
- Рекомендована для работы с СОЖ и «сухого» фрезерования

CARBIDE | WXL | 30° | FIT

R ± 0.005 | min^{-1} D.171-175

No numerical value means no interference with workpiece





EDP	D	R	l1	L	l	d	d1	θk	Le (α) 0,5°	1°	1,5°	2°	2,5°	3°	Stock	Price
3121260	1,2	0,60	6,0	50	1,0	6	1,15	10,88	6,38	6,71	7,02	7,30	7,57	7,82	●	
3111280	1,2	0,60	8,0	45	1,0	4	1,15	8,15	8,50	8,91	9,27	9,60	9,91	10,20	●	
3121280	1,2	0,60	8,0	50	1,0	6	1,15	9,65	8,50	8,91	9,27	9,60	9,91	10,20	●	
3111300	1,2	0,60	10,0	45	1,0	4	1,15	7,12	10,61	11,08	11,50	11,87	12,21	12,53	●	
3121300	1,2	0,60	10,0	50	1,0	6	1,15	8,67	10,61	11,08	11,50	11,87	12,21	12,53	●	
3111312	1,2	0,60	12,0	45	1,0	4	1,15	6,32	12,71	13,24	13,70	14,11	14,48	14,82	●	
3121312	1,2	0,60	12,0	50	1,0	6	1,15	7,87	12,71	13,24	13,70	14,11	14,48	14,82	●	
3111314	1,2	0,60	14,0	50	1,0	4	1,15	5,68	14,80	15,39	15,89	16,32	16,72	17,09	●	
3111316	1,2	0,60	16,0	50	1,0	4	1,15	5,16	16,89	17,53	18,06	18,53	18,95	20,28	●	
3121316	1,2	0,60	16,0	60	1,0	6	1,15	6,64	16,89	17,53	18,06	18,53	18,95	20,28	●	
3111318	1,2	0,60	18,0	55	1,0	4	1,15	4,72	18,98	19,66	20,23	20,72	21,90	22,77	●	
3111320	1,2	0,60	20,0	60	1,0	4	1,15	4,35	21,06	21,79	22,38	22,90	24,29	25,26	●	
3111324	1,2	0,60	24,0	60	1,0	4	1,15	3,77	25,22	26,02	26,67	28,00	29,07	30,23	●	
3111480	1,4	0,70	8,0	45	1,1	4	1,35	8,38	8,49	8,90	9,26	9,59	9,89	10,18	●	
3111512	1,4	0,70	12,0	45	1,1	4	1,35	6,46	12,7	13,24	13,69	14,09	14,46	14,81	●	
3111516	1,4	0,70	16,0	50	1,1	4	1,35	5,25	16,89	17,53	18,05	18,52	18,94	19,32	●	
3111530	1,5	0,75	3,0	45	1,2	4	1,45	13,61	3,17	3,35	3,52	3,70	3,87	4,04	●	
3111540	1,5	0,75	4,0	45	1,2	4	1,45	12,16	4,24	4,47	4,70	4,91	5,12	5,33	●	
3111560	1,5	0,75	6,0	45	1,2	4	1,45	10,01	6,37	6,70	7,00	7,28	7,54	7,79	●	
3121560	1,5	0,75	6,0	50	1,2	6	1,45	11,29	6,37	6,70	7,00	7,28	7,54	7,79	●	
3111580	1,5	0,75	8,0	45	1,2	4	1,45	8,50	8,49	8,89	9,25	9,58	9,89	10,17	●	
3121580	1,5	0,75	8,0	50	1,2	6	1,45	9,97	8,49	8,89	9,25	9,58	9,89	10,17	●	
3111600	1,5	0,75	10,0	45	1,2	4	1,45	7,38	10,60	11,07	11,48	11,85	12,19	12,5	●	
3121600	1,5	0,75	10,0	50	1,2	6	1,45	8,93	10,60	11,07	11,48	11,85	12,19	12,50	●	
3111612	1,5	0,75	12,0	45	1,2	4	1,45	6,53	12,70	13,23	13,69	14,09	14,46	14,80	●	
3121612	1,5	0,75	12,0	50	1,2	6	1,45	8,08	12,70	13,23	13,69	14,09	14,46	14,80	●	
3111614	1,5	0,75	14,0	50	1,2	4	1,45	5,85	14,80	15,38	15,87	16,31	16,70	17,07	●	
3111616	1,5	0,75	16,0	55	1,2	4	1,45	5,29	16,89	17,52	18,05	18,51	18,93	19,31	●	
3121616	1,5	0,75	16,0	60	1,2	6	1,45	6,79	16,89	17,52	18,05	18,51	18,93	19,31	●	
3111618	1,5	0,75	18,0	55	1,2	4	1,45	4,84	18,97	19,66	20,22	20,70	21,14	22,73	●	
3111620	1,5	0,75	20,0	55	1,2	4	1,45	4,45	21,06	21,78	22,37	22,88	23,34	25,22	●	
3121620	1,5	0,75	20,0	60	1,2	6	1,45	5,85	21,06	21,78	22,37	22,88	23,34	25,22	●	
3111622	1,5	0,75	22,0	55	1,2	4	1,45	4,12	23,14	23,90	24,52	25,05	26,65	27,71	●	
3111630	1,5	0,75	30,0	65	1,2	4	1,45	3,18	31,43	32,33	33,04	34,88	36,21	37,65	●	
3111640	1,6	0,80	4,0	45	1,3	4	1,55	12,41	4,24	4,47	4,69	4,90	5,11	5,31	●	
3111680	1,6	0,80	8,0	45	1,3	4	1,55	8,62	8,49	8,89	9,25	9,57	9,88	10,16	●	
3111712	1,6	0,80	12,0	45	1,3	4	1,55	6,60	12,7	13,23	13,68	14,08	14,45	14,79	●	
3111716	1,6	0,80	16,0	50	1,3	4	1,55	5,34	16,89	17,52	18,05	18,51	18,93	19,31	●	
3111720	1,6	0,80	20,0	55	1,3	4	1,55	4,48	21,06	21,78	22,37	22,88	23,33	25,61	●	
3111880	1,8	0,90	8,0	45	1,4	4	1,75	8,87	8,48	8,88	9,24	9,56	9,86	10,15	●	
3111912	1,8	0,90	12,0	45	1,4	4	1,75	6,74	12,69	13,22	13,67	14,07	14,44	14,78	●	
3111916	1,8	0,90	16,0	50	1,4	4	1,75	5,44	16,88	17,51	18,04	18,50	18,91	19,30	●	
3111920	1,8	0,90	20,0	55	1,4	4	1,75	4,55	21,05	21,77	22,36	22,87	23,33	23,74	●	
3112030	2,0	1,00	3,0	45	1,6	4	1,95	15,32	3,16	3,31	3,47	3,64	3,80	3,96	●	
3112040	2,0	1,00	4,0	45	1,6	4	1,95	13,51	4,23	4,44	4,66	4,86	5,06	5,26	●	
3122040	2,0	1,00	4,0	50	1,6	6	1,95	13,98	4,23	4,44	4,66	4,86	5,06	5,26	●	
3112060	2,0	1,00	6,0	45	1,6	4	1,95	10,91	6,36	6,67	6,96	7,23	7,49	7,74	●	
3122060	2,0	1,00	6,0	50	1,6	6	1,95	12,02	6,36	6,67	6,96	7,23	7,49	7,74	●	
3112080	2,0	1,00	8,0	45	1,6	4	1,95	9,14	8,48	8,87	9,22	9,55	9,85	10,13	●	
3122080	2,0	1,00	8,0	50	1,6	6	1,95	10,54	8,48	8,87	9,22	9,55	9,85	10,13	●	
3112100	2,0	1,00	10,0	45	1,6	4	1,95	7,87	10,59	11,05	11,45	11,82	12,15	12,47	●	
3122100	2,0	1,00	10,0	50	1,6	6	1,95	9,38	10,59	11,05	11,45	11,82	12,15	12,47	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎			◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
◎	○		○	○		

● Delivery from stock
○ Available on short notice

WXL-LN-EBD



HIGH PERFORMANCE

- New WXL coating with high hardness and better lubrification.
- Recommended with lubrification or dry milling.

HIGH PERFORMANCE

- Neue WXL Beschichtung mit höherem Härtegrad und besserer Schmierung
- Empfohlen mit Schmierung oder Trocken

ALTA PRESTAZIONE

- Nuovo rivestimento WXL con elevata durezza e migliore lubrificazione
- Consigliato con emulsione o a secco

HAUTE PERFORMANCE

- Nouveau revêtement WXL avec dureté élevée et une meilleur lubrification
- Recommandé avec lubrification ou usinage à sec

HIGH PERFORMANCE

- Ny WXL belægning med høj hårdhed og forbedrerede smøreegenskaber
- Anbefales med køling eller tør bearbejdning

HIGH PERFORMANCE

- Ny WXL beläggning med extra hårdhet och mindre friktions koefficient
- Rekommenderad med eller utan smörjmedel

ALTO RENDIMIENTO

- Nuevo recubrimiento WXL de gran dureza y mejor lubricidad
- Recomendable con lubricación o en seco

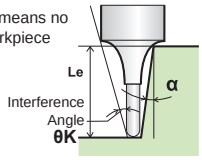
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

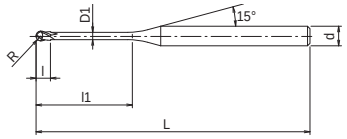
- Новое WXL покрытие с высокой твердостью и низким коэффициентом трения.
- Рекомендована для работы с СОЖ и «сухого» фрезерования

CARBIDE | WXL | 30° | FIT

R ± 0.005 | min⁻¹ D.171-175

No numerical value means no interference with workpiece





EDP	D	R	l1	L	l	d	d1	θk	Le (α) 0,5°	1°	1,5°	2°	2,5°	3°	Stock	Price
3112112	2,0	1,00	12	45	1,6	4	1,95	6,90	12,69	13,21	13,66	14,06	14,43	14,76	●	
3122112	2,0	1,00	12	50	1,6	6	1,95	8,45	12,69	13,21	13,66	14,06	14,43	14,76	●	
3112114	2,0	1,00	14	50	1,6	4	1,95	6,14	14,79	15,36	15,85	16,28	16,67	17,04	●	
3112116	2,0	1,00	16	50	1,6	4	1,95	5,54	16,88	17,51	18,03	18,49	18,90	19,28	●	
3122116	2,0	1,00	16	60	1,6	6	1,95	7,05	16,88	17,51	18,03	18,49	18,90	19,28	●	
3112118	2,0	1,00	18	55	1,6	4	1,95	5,04	18,96	19,64	20,20	20,68	21,12	21,51	●	
3112120	2,0	1,00	20	55	1,6	4	1,95	4,62	21,05	21,77	22,35	22,86	23,32	23,73	●	
3122120	2,0	1,00	20	65	1,6	6	1,95	6,05	21,05	21,77	22,35	22,86	23,32	23,73	●	
3112122	2,0	1,00	22	60	1,6	4	1,95	4,27	23,13	23,89	24,50	25,03	25,50	25,93	●	
3112125	2,0	1,00	25	65	1,6	4	1,95	3,83	26,24	27,06	27,71	28,27	28,77	31,38	●	
3122125	2,0	1,00	25	70	1,6	6	1,95	5,13	26,24	27,06	27,71	28,27	28,77	31,38	●	
3112130	2,0	1,00	30	70	1,6	4	1,95	3,27	31,42	32,32	33,03	33,63	36,16	37,59	●	
3122130	2,0	1,00	30	75	1,6	6	1,95	4,46	31,42	32,32	33,03	33,63	36,16	37,59	●	
3112135	2,0	1,00	35	75	1,6	4	1,95	2,85	36,59	37,56	38,32	40,59	42,14	-	●	
3122135	2,0	1,00	35	80	1,6	6	1,95	3,94	36,59	37,56	38,32	40,59	42,14	43,81	●	
3112140	2,0	1,00	40	80	1,6	4	1,95	2,53	41,74	42,78	43,59	46,34	48,11	-	●	
3112560	2,5	1,25	6	45	2,0	4	2,35	12,23	6,26	6,52	6,76	6,99	7,21	7,43	●	
3112600	2,5	1,25	10	50	2,0	4	2,35	8,54	10,46	10,85	11,21	11,54	11,85	12,14	●	
3112615	2,5	1,25	15	55	2,0	4	2,35	6,19	15,67	16,21	16,68	17,09	17,47	17,83	●	
3112620	2,5	1,25	20	60	2,0	4	2,35	4,85	20,87	21,52	22,07	22,55	22,99	23,39	●	
3112625	2,5	1,25	25	65	2,0	4	2,35	3,99	26,05	26,80	27,42	27,95	28,53	28,87	●	
3112630	2,5	1,25	30	70	2,0	4	2,35	3,38	31,21	32,05	32,73	33,31	33,83	37,30	●	
3112635	2,5	1,25	35	70	2,0	4	2,35	2,94	36,37	37,28	38,01	38,64	41,86	-	●	
3123059	2,5	1,50	6	45	2,4	3	2,85	13,17	6,25	6,49	6,72	6,95	7,17	7,38	●	
3113060	2,5	1,50	6	45	2,4	4	2,85	13,6	6,25	6,49	6,72	6,95	7,17	7,38	●	
3123060	2,5	1,50	6	50	2,4	6	2,85	14,04	6,25	6,49	6,72	6,95	7,17	7,38	●	
3123080	2,5	1,50	8	50	2,4	6	2,85	12,07	8,35	8,67	8,97	9,25	9,51	9,77	●	
3123100	2,5	1,50	10	50	2,4	6	2,85	10,58	10,45	10,83	11,19	11,51	11,81	12,10	●	
3123112	2,5	1,50	12	55	2,4	6	2,85	9,41	12,54	12,99	13,38	13,75	14,08	14,40	●	
3123114	2,5	1,50	14	55	2,4	6	2,85	8,48	14,62	15,13	15,57	15,96	16,33	16,67	●	
3123115	2,5	1,50	15	55	2,4	6	2,85	8,08	15,66	16,19	16,65	17,07	17,44	17,80	●	
3123116	2,5	1,50	16	55	2,4	6	2,85	7,71	16,70	17,26	17,74	18,17	18,56	18,92	●	
3123120	3,0	1,50	20	60	2,4	6	2,85	6,53	20,86	21,51	22,05	22,53	22,96	23,36	●	
3123125	3,0	1,50	25	65	2,4	6	2,85	5,47	26,04	26,78	27,40	27,94	28,41	28,85	●	
3123130	3,0	1,50	30	70	2,4	6	2,85	4,71	31,20	32,04	32,71	33,30	33,81	34,27	●	
3123135	3,0	1,50	35	80	2,4	6	2,85	4,14	36,36	37,27	38,00	38,62	39,16	43,45	●	
3123140	3,0	1,50	40	85	2,4	6	2,85	3,69	41,51	42,49	43,26	43,92	47,79	49,67	●	
3123600	3,0	1,75	10	60	2,8	6	3,35	11,23	10,44	10,82	11,16	11,48	11,78	12,06	●	
3123615	3,5	1,75	15	60	2,8	6	3,35	8,45	15,65	16,18	16,63	17,04	17,42	17,76	●	
3123620	3,5	1,75	20	65	2,8	6	3,35	6,77	20,85	21,49	22,03	22,51	22,94	23,34	●	
3123625	3,5	1,75	25	65	2,8	6	3,35	5,64	26,03	26,77	27,38	27,92	28,39	28,82	●	
3123630	3,5	1,75	30	70	2,8	6	3,35	4,84	31,20	32,03	32,70	33,28	33,79	34,25	●	
3123635	3,5	1,75	35	80	2,8	6	3,35	4,23	36,35	37,26	37,99	38,61	39,15	39,63	●	
3123640	3,5	1,75	40	90	2,8	6	3,35	3,76	41,50	42,48	43,25	43,91	44,47	49,61	●	
3123645	3,5	1,75	45	90	2,8	6	3,35	3,39	46,64	47,68	48,50	49,18	53,71	55,82	●	
3114080	4,0	2,00	8	55	3,2	4	3,85	13,38	8,33	8,63	8,91	9,18	9,43	9,68	●	
3124080	4,0	2,00	8	60	3,2	6	3,85	13,89	8,33	8,63	8,91	9,18	9,43	9,68	●	
3124100	4,0	2,00	10	60	3,2	6	3,85	11,96	10,42	10,8	11,13	11,475	11,74	12,02	●	
3124112	4,0	2,00	12	60	3,2	6	3,85	10,49	12,51	12,95	13,34	13,69	14,02	14,33	●	
3124114	4,0	2,00	14	60	3,2	6	3,85	9,35	14,60	15,09	15,52	15,91	16,27	16,61	●	
3124115	4,0	2,00	15	60	3,2	6	3,85	8,86	15,64	16,16	16,61	17,02	17,39	17,73	●	
3124116	4,0	2,00	16	60	3,2	6	3,85	8,42	16,68	17,23	17,70	18,12	18,50	18,86	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎			◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
◎	○		○	○		

WXL-LN-EBD



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- New WXL coating with high hardness and better lubrification.
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- Empfohlen mit Schmierung oder Trocken

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- Nouveau revêtement WXL avec dureté élevée et une meilleur lubrification
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HIGH PERFORMANCE

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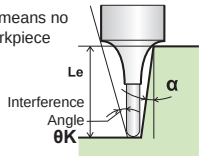
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

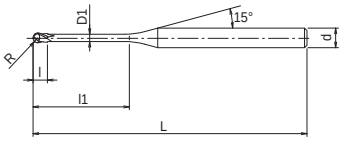
- Новое WXL покрытие с высокой твердостью и низким коэффициентом трения.
- Рекомендована для работы с СОЖ и «сухого» фрезерования

CARBIDE | WXL | 30° | FIT

R ± 0.005 | min⁻¹ D.171-175

No numerical value means no interference with workpiece





EDP	D	R	l1	L	l	d	d1	θk	Le (α) 0,5°	1°	1,5°	2°	2,5°	3°	Stock	Price
3124120	4,0	2,00	20	65	3,2	6	3,85	7,03	20,84	21,48	22,01	22,49	22,92	23,31	●	
3124125	4,0	2,00	25	70	3,2	6	3,85	5,82	26,02	26,76	27,37	27,90	28,37	28,80	●	
3124130	4,0	2,00	30	80	3,2	6	3,85	4,97	31,19	32,01	32,68	33,26	33,77	34,23	●	
3124135	4,0	2,00	35	80	3,2	6	3,85	4,33	36,34	37,25	37,97	38,59	39,13	39,62	●	
3124140	4,0	2,00	40	90	3,2	6	3,85	3,84	41,49	42,47	43,24	43,89	44,46	44,96	●	
3124145	4,0	2,00	45	90	3,2	6	3,85	3,45	46,63	47,67	48,49	49,17	49,76	55,77	●	
3124150	4,0	2,00	50	100	3,2	6	3,85	3,13	51,76	52,86	53,72	54,43	59,64	61,98	●	
3125100	5,0	2,50	10	65	5,0	6	4,85	13,74	10,40	10,76	11,08	11,38	11,67	11,94	●	
3125115	5,0	2,50	15	70	5,0	6	4,85	9,81	15,62	16,13	16,57	16,97	17,33	17,67	●	
3125120	5,0	2,50	20	70	5,0	6	4,85	7,62	20,82	21,45	21,98	22,45	22,87	23,26	●	
3125125	5,0	2,50	25	70	5,0	6	4,85	6,22	26,00	26,73	27,33	27,86	28,33	28,76	●	
3125130	5,0	2,50	30	80	5,0	6	4,85	5,26	31,17	31,99	32,65	33,23	33,73	34,19	●	
3125135	5,0	2,50	35	80	5,0	6	4,85	4,55	36,33	37,23	37,95	38,56	39,10	39,58	●	
3125140	5,0	2,50	40	90	5,0	6	4,85	4,01	41,48	42,44	43,21	43,86	44,43	44,93	●	
3125145	5,0	2,50	45	100	5,0	6	4,85	3,59	46,62	47,65	48,46	49,14	49,73	50,25	●	
3125150	5,0	2,50	50	100	5,0	6	4,85	3,24	51,75	52,84	53,69	54,40	55,01	55,54	●	
3126100	6,0	3,00	10	60	6,0	6	5,85	16,14	10,38	10,71	11,03	11,32	11,60	11,86	●	
3126120	6,0	3,00	20	70	6,0	6	5,85	8,31	20,80	21,42	21,94	22,40	22,82	23,21	●	
3126125	6,0	3,00	25	70	6,0	6	5,85	6,68	25,99	26,70	27,30	27,82	28,29	28,71	●	
3126130	6,0	3,00	30	80	6,0	6	5,85	5,58	31,16	31,96	32,62	33,19	33,70	34,15	●	
3126135	6,0	3,00	35	80	6,0	6	5,85	4,79	36,31	37,20	37,92	38,53	39,06	39,54	●	
3126140	6,0	3,00	40	90	6,0	6	5,85	4,20	41,46	42,42	43,19	43,83	44,40	44,90	●	
3126145	6,0	3,00	45	100	6,0	6	5,85	3,73	46,60	47,63	48,44	49,12	49,70	50,22	●	
3126150	6,0	3,00	50	120	6,0	6	5,85	3,36	51,74	52,82	53,67	54,38	54,98	55,51	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎			◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
◎	○		○	○		

● Delivery from stock
○ Available on short notice

WXL-PC-EBD



WXL

GO TO LIVE STOCK CHECK

HIGH PERFORMANCE
- New WXL coating with high hardness and better lubrification.
- Recommended with lubrification or dry milling.
- Pencil neck

HIGH PERFORMANCE
- Neue WXL Beschichtung mit höherem Härtegrad und besserer Schmierung
- Empfohlen mit Schmierung oder Trocken
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ALTA PRESTAZIONE
- Nuovo rivestimento WXL con elevata durezza e migliore lubrificazione
- Consigliato con emulsione o a secco
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HAUTE PERFORMANCE
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- Ny WXL belægning med høj hårdhed og forbedrerede smøreegenskaber
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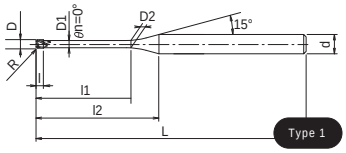
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- Rekommenderad med eller utan smörjmedel
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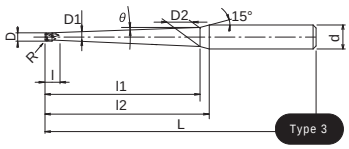
ALTO RENDIMIENTO
- Nuevo recubrimiento WXL de gran dureza y mejor lubricidad
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ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
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CARBIDE | WXL | 30° | FIT | ± 0.005 | min⁻¹ D.176-181





EDP	D	R	θ	l1	L	l	D1	D2	l2	d	Type	Stock	Price
3170011	0,2	0,1	0,5°	1	45	0,16	0,18	0,19	8,1	4	1	○	
3170012	0,2	0,1	0,5°	1,5	45	0,16	0,18	0,20	8,6	4	1	○	
3170013	0,2	0,1	0,5°	2	45	016	0,18	0,21	9	4	1	○	
3170014	0,2	0,1	0,5°	2,5	45	0,16	0,18	0,22	9,5	4	1	○	
3170015	0,2	0,1	0,5°	3	45	0,16	0,18	0,23	10	4	1	○	
3170021	0,2	0,1	1°	2	45	0,16	0,18	0,23	9	4	1	○	
3170022	0,2	0,1	1°	2,5	45	0,16	0,18	0,25	9,5	4	1	○	
3170023	0,2	0,1	1°	3	45	0,16	0,18	0,27	9,9	4	1	○	
3170031	0,3	0,15	0,5°	2	45	0,24	0,28	0,31	8,9	4	1	○	
3170032	0,3	0,15	0,5°	3	45	0,24	0,28	0,32	9,8	4	1	○	
3170041	0,3	0,15	1°	3	45	0,24	0,28	0,36	9,8	4	1	○	
3170042	0,3	0,15	1°	4	45	0,24	0,28	0,40	10,7	4	1	○	
3170051	0,4	0,2	0,5°	2	45	0,30	0,38	0,41	8,7	4	1	○	
3170052	0,4	0,2	0,5°	3	45	0,30	0,38	0,42	9,6	4	1	○	
3170053	0,4	0,2	0,5°	4	45	0,30	0,38	0,44	10,6	4	1	○	
3170054	0,4	0,2	0,5°	5	45	0,30	0,38	0,46	11,6	4	1	○	
3170055	0,4	0,2	0,5°	6	45	0,30	0,38	0,48	12,5	4	1	○	
3170061	0,4	0,2	1°	4	45	0,30	0,38	0,50	10,5	4	1	○	
3170062	0,4	0,2	1°	5	45	0,30	0,38	0,54	11,4	4	1	○	
3170063	0,4	0,2	1°	6	45	0,30	0,38	0,57	12,4	4	1	○	
3170071	0,5	0,25	0,5°	4	45	0,40	0,48	0,54	10,4	4	1	○	
3170072	0,5	0,25	0,5°	6	45	0,40	0,48	0,57	12,4	4	1	○	
3170073	0,5	0,25	0,5°	8	45	0,40	0,48	0,61	14,3	4	1	○	
3170074	0,5	0,25	0,5°	10	45	0,40	0,48	0,64	16,2	4	1	○	
3170081	0,5	0,25	1°	4	45	0,40	0,48	0,60	10,3	4	1	○	
3170082	0,5	0,25	1°	6	45	0,40	0,48	0,67	12,2	4	1	○	
3170083	0,5	0,25	1°	8	45	0,40	0,48	0,74	14,1	4	1	○	
3170084	0,5	0,25	1°	10	45	0,40	0,48	0,81	15,9	4	1	○	
3170085	0,5	0,25	1°	12	50	0,40	0,48	0,88	17,8	4	1	○	
3170091	0,6	0,3	0,5°	2	45	0,50	0,58	0,60	8,3	4	1	○	
3170092	0,6	0,3	0,5°	4	45	0,50	0,58	0,64	10,2	4	1	○	
3170093	0,6	0,3	0,5°	6	45	0,50	0,58	0,67	12,2	4	1	○	
3170094	0,6	0,3	0,5°	8	45	0,50	0,58	0,71	14,1	4	1	○	
3170095	0,6	0,3	0,5°	10	45	0,50	0,58	0,74	16	4	1	○	
3170096	0,6	0,3	0,5°	12	45	0,50	0,58	0,78	18	4	1	○	
3170097	0,6	0,3	0,5°	16	50	0,50	0,58	0,85	21,9	4	1	○	
3170101	0,6	0,3	1°	4	45	0,50	0,58	0,70	10,1	4	1	○	
3170102	0,6	0,3	1°	6	45	0,50	0,58	0,77	12	4	1	○	
3170103	0,6	0,3	1°	8	45	0,50	0,58	0,83	13,9	4	1	○	
3170104	0,6	0,3	1°	10	45	0,50	0,58	0,90	15,7	4	1	○	
3170105	0,6	0,3	1°	12	45	0,50	0,58	0,97	17,6	4	1	○	
3170106	0,6	0,3	1°	16	50	0,50	0,58	1,11	21,4	4	1	○	
3170111	0,8	0,4	0,5°	4	45	0,60	0,78	0,84	9,9	4	1	○	
3170112	0,8	0,4	0,5°	6	45	0,60	0,78	0,87	11,8	4	1	○	
3170113	0,8	0,4	0,5°	8	45	0,60	0,78	0,91	13,7	4	1	○	
3170114	0,8	0,4	0,5°	12	45	0,60	0,78	0,98	17,6	4	1	○	
3170121	0,8	0,4	1°	8	45	0,60	0,78	1,03	13,5	4	1	○	
3170122	0,8	0,4	1°	12	45	0,60	0,78	1,17	17,2	4	1	○	
3170123	0,8	0,4	1°	16	50	0,60	0,78	1,31	21	4	1	○	
3170131	1,0	0,5	0,5°	6	45	0,63	1,42	0,98	11,5	4	3	○	
3170132	1,0	0,5	0,5°	8	45	0,63	1,42	1,02	13,4	4	3	○	
3170133	1,0	0,5	0,5°	10	45	0,63	1,42	1,05	15,4	4	3	●	

CARBIDE

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎			◎	◎

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◎	○		○	○		

WXL-PC-EBD



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ALTO RENDIMIENTO

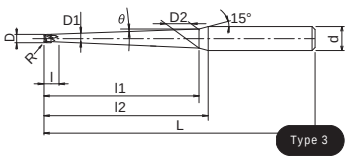
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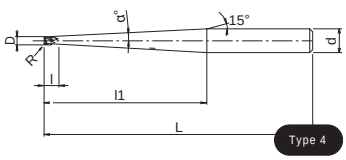
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

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CARBIDE | WXL | 30° | FIT

R ± 0.005 | min⁻¹ D.176-181





EDP	D	R	θ	l1	L	l	D1	D2	l2	d	Type	Stock	Price
3170134	1,0	0,5	0,5°	12	45	0,63	0,95	1,09	17,3	4	3	●	
3170135	1,0	0,5	0,5°	16	50	0,63	0,95	1,16	21,2	4	3	●	
3170136	1,0	0,5	0,5°	18	55	0,63	0,95	1,19	23,1	4	3	○	
3170137	1,0	0,5	0,5°	20	55	0,63	0,95	1,23	25,1	4	3	●	
3170138	1,0	0,5	0,5°	25	60	0,63	0,95	1,31	29,9	4	3	●	
3170139	1,0	0,5	0,5°	30	65	0,63	0,95	1,40	34,7	4	3	●	
3170140	1,0	0,5	0,5°	35	70	0,63	0,95	1,49	39,6	4	3	○	
3170141	1,0	0,5	1°	10	45	0,63	0,95	1,20	15,1	4	3	●	
3170142	1,0	0,5	1°	16	50	0,63	0,95	1,41	20,7	4	3	●	
3170143	1,0	0,5	1°	20	55	0,63	0,95	1,55	24,4	4	3	●	
3170144	1,0	0,5	1°	25	60	0,63	0,95	1,73	29,1	4	3	●	
3170145	1,0	0,5	1°	30	65	0,63	0,95	1,90	33,8	4	3	●	
3170146	1,0	0,5	1°	35	70	0,63	0,95	2,07	38,5	4	3	○	
3170147	1,0	0,5	1°	40	80	0,63	0,95	2,25	43,1	4	3	○	
3170148	1,0	0,5	1°	50	90	0,63	0,95	2,60	52,5	4	3	○	
3170149	1,0	0,5	1°	60	100	0,63	0,95	2,95	61,8	4	3	○	
3170150	1,0	0,5	1°	70	110	0,63	0,95	3,30	71,2	4	3	○	
3170151	1,0	0,5	1,5°	8	45	0,63	0,95	1,25	13	4	3	○	
3170152	1,0	0,5	1,5°	10	45	0,63	0,95	1,35	14,8	4	3	○	
3170153	1,0	0,5	1,5°	12	45	0,63	0,95	1,46	16,6	4	3	○	
3170154	1,0	0,5	1,5°	16	50	0,63	0,95	1,67	20,2	4	3	○	
3170155	1,0	0,5	1,5°	20	55	0,63	0,95	1,88	23,8	4	3	○	
3170156	1,0	0,5	1,5°	25	60	0,63	0,95	2,14	28,4	4	3	○	
3170157	1,0	0,5	1,5°	30	65	0,63	0,95	2,40	32,9	4	3	○	
3170158	1,0	0,5	1,5°	35	70	0,63	0,95	2,66	37,4	4	3	○	
3170161	1,0	0,5	2°	45	80	0,63	1,95	4,00	-	4	4	○	
3170171	1,2	0,6	0,5°	12	45	0,76	1,15	1,28	16,9	4	3	○	
3170172	1,2	0,6	0,5°	25	60	0,76	1,15	1,51	29,5	4	3	○	
3170181	1,2	0,6	1°	12	45	0,76	1,15	1,47	16,6	4	3	○	
3170182	1,2	0,6	1°	25	60	0,76	1,15	1,92	28,8	4	3	○	
3170191	1,2	0,6	1,5°	12	45	0,76	1,15	1,65	16,3	4	3	○	
3170192	1,2	0,6	1,5°	25	60	0,76	1,15	2,33	28	4	3	○	
3170211	1,5	0,75	0,5°	8	45	0,95	1,42	1,48	12,6	4	3	○	
3170212	1,5	0,75	0,5°	10	45	0,95	1,42	1,51	14,5	4	3	○	
3170213	1,5	0,75	0,5°	12	45	0,95	1,42	1,55	16,4	4	3	●	
3170214	1,5	0,75	0,5°	16	55	0,95	1,42	1,62	20,3	4	3	●	
3170215	1,5	0,75	0,5°	20	55	0,95	1,42	1,69	24,2	4	3	●	
3170216	1,5	0,75	0,5°	25	60	0,95	1,42	1,78	29	4	3	●	
3170217	1,5	0,75	0,5°	30	65	0,95	1,42	1,86	33,9	4	3	○	
3170218	1,5	0,75	0,5°	35	70	0,95	1,42	1,95	38,7	4	3	○	
3170221	1,5	0,75	1°	10	45	0,95	1,42	1,66	14,2	4	3	○	
3170222	1,5	0,75	1°	12	45	0,95	1,42	1,73	16,1	4	3	●	
3170223	1,5	0,75	1°	16	55	0,95	1,42	1,87	19,9	4	3	●	
3170224	1,5	0,75	1°	20	55	0,95	1,42	2,01	23,6	4	3	●	
3170225	1,5	0,75	1°	25	60	0,95	1,42	2,18	28,3	4	3	●	
3170226	1,5	0,75	1°	30	65	0,95	1,42	2,36	32,9	4	3	○	
3170227	1,5	0,75	1°	35	70	0,95	1,42	2,53	37,6	4	3	○	
3170230	1,5	0,75	1,5°	10	45	0,95	1,42	1,80	14	4	3	○	
3170231	1,5	0,75	1,5°	12	45	0,95	1,42	1,91	15,8	4	3	○	
3170232	1,5	0,75	1,5°	16	55	0,95	1,42	2,12	19,4	4	3	○	
3170233	1,5	0,75	1,5°	20	55	0,95	1,42	2,33	23	4	3	○	
3170234	1,5	0,75	1,5°	25	60	0,95	1,42	2,59	27,5	4	3	○	

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◎	◎	◎			◎	◎

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◎	○		○	○		

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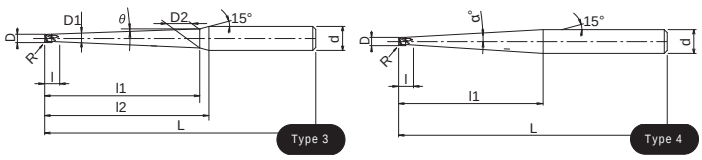
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CARBIDE | WXL | 30° | FIT

R ± 0.005 | min⁻¹ D.176-181



EDP	D	R	θ	l1	L	l	D1	D2	l2	d	Type	Stock	Price
3170235	1,5	0,75	1,5°	30	65	0,95	1,42	2,85	32	4	3	○	
3170236	1,5	0,75	1,5°	35	70	0,95	1,42	3,11	36,5	4	3	○	
3170241	1,5	0,75	2°	38,6	70	0,95	1,42	4,00	-	4	4	○	
3170271	2,0	1	0,5°	8	45	1,26	1,93	1,98	11,6	4	3	○	
3170272	2,0	1	0,5°	10	45	1,26	1,93	2,02	13,6	4	3	○	
3170273	2,0	1	0,5°	12	45	1,26	1,93	2,05	15,5	4	3	○	
3170274	2,0	1	0,5°	16	50	1,26	1,93	2,12	19,4	4	3	●	
3170275	2,0	1	0,5°	20	55	1,26	1,93	2,19	23,2	4	3	●	
3170276	2,0	1	0,5°	25	65	1,26	1,93	2,28	28,1	4	3	●	
3170277	2,0	1	0,5°	30	70	1,26	1,93	2,37	32,9	4	3	●	
3170278	2,0	1	0,5°	35	75	1,26	1,93	2,46	37,8	4	3	●	
3170279	2,0	1	0,5°	40	80	1,26	1,93	2,54	42,6	4	3	○	
3170281	2,0	1	1°	16	50	1,26	1,93	2,37	18,9	4	3	●	
3170282	2,0	1	1°	20	55	1,26	1,93	2,51	22,7	4	3	●	
3170283	2,0	1	1°	25	65	1,26	1,93	2,68	27,3	4	3	●	
3170284	2,0	1	1°	30	70	1,26	1,93	2,86	32	4	3	●	
3170285	2,0	1	1°	35	75	1,26	1,93	3,03	36,7	4	3	●	
3170286	2,0	1	1°	40	80	1,26	1,93	3,21	41,4	4	3	○	
3170287	2,0	1	1°	50	90	1,26	1,93	3,56	54,4	6	3	○	
3170288	2,0	1	1°	60	100	1,26	1,93	3,90	63,8	6	3	○	
3170289	2,0	1	1°	70	110	1,26	1,93	4,25	73,1	6	3	○	
3170291	2,0	1	1,5°	16	50	1,26	1,93	2,61	18,5	4	3	○	
3170292	2,0	1	1,5°	20	55	1,26	1,93	2,82	22,1	4	3	○	
3170293	2,0	1	1,5°	25	65	1,26	1,93	3,08	26,6	4	3	○	
3170294	2,0	1	1,5°	30	70	1,26	1,93	3,35	31,1	4	3	○	
3170295	2,0	1	1,5°	35	75	1,26	1,93	3,61	36	4	3	○	
3170296	2,0	1	1,5°	41,4	80	1,26	1,93	4,00	-	4	4	○	
3170301	2,0	1	2°	31,5	70	1,26	1,93	4,00	-	4	4	○	
3170321	3,0	1,5	0,5°	8	50	2,40	2,95	2,99	14,1	6	1	○	
3170322	3,0	1,5	0,5°	10	50	2,40	2,95	3,03	16	6	1	○	
3170323	3,0	1,5	0,5°	12	55	2,40	2,95	3,06	17,9	6	1	○	
3170324	3,0	1,5	0,5°	16	55	2,40	2,95	3,13	21,8	6	1	○	
3170325	3,0	1,5	0,5°	20	60	2,40	2,95	3,20	25,7	6	1	●	
3170326	3,0	1,5	0,5°	25	65	2,40	2,95	3,29	30,5	6	1	●	
3170327	3,0	1,5	0,5°	30	70	2,40	2,95	3,38	35,4	6	1	●	
3170328	3,0	1,5	0,5°	35	80	2,40	2,95	3,47	40,2	6	1	●	
3170329	3,0	1,5	0,5°	40	85	2,40	2,95	3,55	45	6	1	○	
3170330	3,0	1,5	0,5°	50	90	2,40	2,95	3,73	54,7	6	1	○	
3170331	3,0	1,5	1°	20	60	2,40	2,95	3,51	25,1	6	1	●	
3170332	3,0	1,5	1°	25	65	2,40	2,95	3,68	29,8	6	1	●	
3170333	3,0	1,5	1°	30	70	2,40	2,95	3,86	34,5	6	1	●	
3170334	3,0	1,5	1°	35	80	2,40	2,95	4,03	39,1	6	1	●	
3170335	3,0	1,5	1°	40	85	2,40	2,95	4,21	43,8	6	1	○	
3170336	3,0	1,5	1°	50	90	2,40	2,95	4,55	53,2	6	1	○	
3170337	3,0	1,5	1°	60	100	2,40	2,95	4,90	62,5	6	1	○	
3170338	3,0	1,5	1°	70	110	2,40	2,95	5,25	71,9	6	1	○	
3170341	3,0	1,5	1,5°	20	60	2,40	2,95	3,81	24,6	6	1	○	
3170342	3,0	1,5	1,5°	25	65	2,40	2,95	4,07	29,1	6	1	○	
3170343	3,0	1,5	1,5°	30	70	2,40	2,95	4,33	33,6	6	1	○	
3170344	3,0	1,5	1,5°	35	80	2,40	2,95	4,60	38,1	6	1	○	
3170345	3,0	1,5	1,5°	40	85	2,40	2,95	4,86	42,6	6	1	○	
3170346	3,0	1,5	1,5°	50	90	2,40	2,95	5,38	51,6	6	1	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎			◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
◎	○		○	○		

WXL-PC-EBD



HIGH PERFORMANCE

- New WXL coating with high hardness and better lubrification.
- Recommended with lubrification or dry milling.
- Pencil neck

HIGH PERFORMANCE

- Neue WXL Beschichtung mit höherem Härtegrad und besserer Schmierung
- Empfohlen mit Schmierung oder Trocken
- Konischer Schaft

ALTA PRESTAZIONE

- Nuovo rivestimento WXL con elevata durezza e migliore lubrificazione
- Consigliato con emulsione o a secco
- Riduzione conica

HAUTE PERFORMANCE

- Nouveau revêtement WXL avec dureté élevée et une meilleur lubrification
- Recommandé avec lubrification ou usinage à sec
- Dégagement conique

HIGH PERFORMANCE

- Ny WXL belægning med høj hårdhed og forbedrerede smøreegenskaber
- Anbefales med køling eller tør bearbejdning
- Pencil neck

HIGH PERFORMANCE

- Ny WXL beläggning med extra hårdhet och mindre friktions koefficient
- Rekommenderad med eller utan smörjmedel
- Konisk reducerad

ALTO RENDIMIENTO

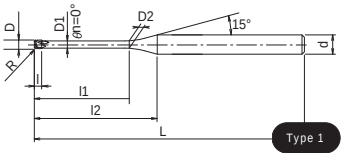
- Nuevo recubrimiento WXL de gran dureza y mejor lubricidad
- Recomendable con lubricación o en seco
- Mango reforzado con cuello conico

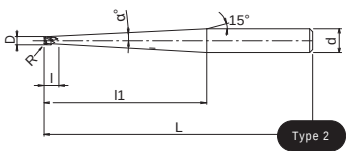
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- Новое WXL покрытие с высокой твердостью и низким коэффициентом трения.
- Рекомендована для работы с СОЖ и «сухого» фрезерования
- Коническая шейка

CARBIDE | WXL | 30° | FIT

R ± 0.005 | min⁻¹ D.176-181





EDP	D	R	θ	l1	L	l	D1	D2	l2	d	Type	Stock	Price
3170347	3,0	1,5	1,5°	62,5	100	2,4	6	6	-	6	2	○	
3170351	3,0	1,5	2°	47,5	100	2,4	6	6	-	6	2	○	
3170371	4,0	2	1°	20	65	3,2	4,5	4,5	23,4	6	1	○	
3170372	4,0	2	1°	30	80	3,2	4,84	4,84	32,7	6	1	●	
3170373	4,0	2	1°	40	90	3,2	5,19	5,19	42,1	6	1	○	
3170374	4,0	2	1°	50	100	3,2	5,54	5,54	55,1	8	1	○	
3170375	4,0	2	1°	60	110	3,2	5,89	5,89	64,5	8	1	○	
3170381	4,0	2	1,5°	44,2	80	3,2	6	6	44,7	6	2	○	
3170391	4,0	2	2°	34	80	3,2	6	6	34,5	6	2	○	
3170401	5,0	2,5	1°	30	100	5	5,8	5,8	34,7	8	1	○	
3170402	5,0	2,5	1°	40	100	5	6,15	6,15	44	8	1	○	
3170403	5,0	2,5	1°	60	130	5	6,85	6,85	62,7	8	1	○	
3170411	5,0	2,5	1,5°	26,9	100	5	6	6	-	6	2	○	
3170412	5,0	2,5	1,5°	65,1	130	5	8	8	-	8	2	○	
3170421	5,0	2,5	2°	50,1	130	5	8	8	-	8	2	○	
3170431	6,0	3	1°	30	100	6	6,77	6,77	32,9	8	1	○	
3170432	6,0	3	1°	40	100	6	7,12	7,12	42,2	8	1	○	
3170433	6,0	3	1°	50	100	6	7,47	7,47	51,6	8	1	○	
3170434	6,0	3	1°	60	110	6	7,81	7,81	64,6	10	1	○	
3170435	6,0	3	1°	70	120	6	8,16	8,16	74	10	1	○	
3170436	6,0	3	1°	80	130	6	8,51	8,51	87,1	12	1	○	
3170441	6,0	3	1,5°	49	100	6	8	8	-	8	2	○	
3170451	6,0	3	2°	36	100	6	8	8	-	8	2	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎			◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
◎	○		○	○		

● Delivery from stock
○ Available on short notice

WXL

GO TO LIVE STOCK CHECK



HIGH PERFORMANCE
- Diamand coated end mills for graphite milling

HIGH PERFORMANCE
- GD Diamant beschichteter Kugelfräser für Graphitbearbeitung

ALTA PRESTAZIONE
- DG Revestimento al diamante per Grafite

HAUTE PERFORMANCE
- Revêtement diamant pour usinage graphite

HIGH PERFORMANCE
- Diamant belagte fræsere til fræsning i grafit

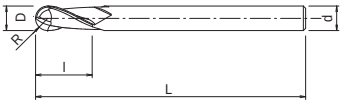
HIGH PERFORMANCE
- Diamant belagda fräsar för grafit

ALTO RENDIMIENTO
- Recubrimiento de Diamante para fresado de grafito

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Фрезы с алмазным покрытием для графита



CARBIDE | DG | 30° | FIT | R ± 0.01 | min⁻¹ D.182



EDP	D	R	L	l	d	Stock	Price
8553541	4	2	80	8	4	●	
8553561	6	3	80	12	6	●	
8553581	8	4	100	16	8	●	
8553601	10	5	100	20	10	●	
8553621	12	6	130	36	12	●	

CARBIDE

CARBIDE

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
Cu	Al	Graphite	Ti	HRS	Plast.	
		◎				

DG-LN-EBD



HIGH PERFORMANCE
- Diamand coated end mills for graphite milling

HIGH PERFORMANCE
- GD Diamant beschichteter Kugelfräser für Graphitbearbeitung

ALTA PRESTAZIONE
- DG Revestimento al diamante per Grafite

HAUTE PERFORMANCE
- Revêtement diamant pour usinage graphite

HIGH PERFORMANCE
- Diamant belagte fræsere til fræsning i grafit

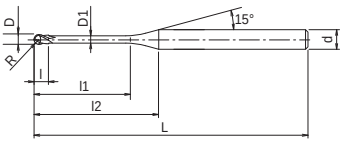
HIGH PERFORMANCE
- Diamant belagda fräsar för grafit

ALTO RENDIMIENTO
- Recubrimiento de Diamante para fresado de grafito

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Фрезы с алмазным покрытием для графита

CARBIDE | DG | 30° | FIT

R ± 0,01 0,5 ≤ R | R ± 0,008 0,5 > R | min⁻¹ D.183



EDP	D	R	l1	l	D1	l2	d	L	Stock	Price
8553701	0,4	0,20	4	0,60	0,36	11,17	4	50	●	
8553702	0,4	0,20	8	0,60	0,36	15,17	4	50	●	
8553711	0,6	0,30	6	0,90	0,56	12,80	4	50	●	
8553712	0,6	0,30	10	0,90	0,56	16,80	4	50	●	
48104001	0,8	0,40	15	1,20	0,76	21,40	4	60	●	
New Sizes 8553721	1,0	0,50	4	1,50	0,96	10,05	4	50	●	
8553722	1,0	0,50	6	1,50	0,96	12,05	4	50	●	
New Sizes 8553723	1,0	0,50	10	1,50	0,96	16,05	4	50	●	
8553724	1,0	0,50	16	1,50	0,96	22,05	4	60	●	
8553725	1,0	0,50	20	1,50	0,96	26,05	4	60	●	
8553726	1,0	0,50	30	1,50	0,96	36,05	4	80	●	
8553731	1,5	0,75	6	2,30	1,44	11,07	4	50	●	
8553732	1,5	0,75	10	2,30	1,44	15,07	4	50	●	
8553733	1,5	0,75	16	2,30	1,44	21,07	4	60	●	
New Sizes 8553742	2,0	1,00	10	3,00	1,90	14,35	4	50	●	
8553743	2,0	1,00	16	3,00	1,90	20,35	4	60	●	
New Sizes 8553744	2,0	1,00	20	3,00	1,90	24,35	4	60	●	
8553745	2,0	1,00	30	3,00	1,90	34,35	4	80	●	
8553761	3,0	1,50	20	4,50	2,90	22,48	4	60	●	
8553762	3,0	1,50	40	4,50	2,90	42,48	4	80	●	
8553781	4,0	2,00	20	6,00	3,90	–	4	60	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
Cu	Al	Graphite	Ti	HRS	Plast.	
		◎				

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

DG-CPR



HIGH PERFORMANCE
- Diamand coated end mills for graphite milling

HIGH PERFORMANCE
- GD Diamant beschichteter Kugelfräser für Graphitbearbeitung

ALTA PRESTAZIONE
- DG Revestimento al diamante per Grafite

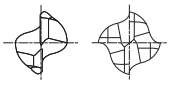
HAUTE PERFORMANCE
- Revêtement diamant pour usinage graphite

HIGH PERFORMANCE
- Diamant belagte fræsere til fræsning i grafit

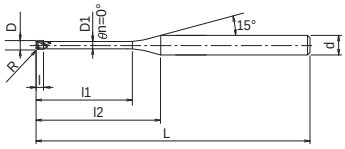
HIGH PERFORMANCE
- Diamant belagda fräsar för grafit

ALTO RENDIMIENTO
- Recubrimiento de Diamante para fresado de grafito

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Фрезы с алмазным покрытием для графита



CARBIDE | DG | 30° | FIT | ± 0.01 | D < 1 0 ~ -0.02 | D ≥ 1 0 ~ -0.027 | min⁻¹ D.184



EDP	D	R	θ	l1	l	D1	l2	ZΔ	d	L	Stock	Price
8554511	0,5	0,1	0°	4	0,9	0,46	10,98	2	4	50	●	
8554512	0,5	0,1	0°	6	0,9	0,46	12,98	2	4	50	●	
48103001	1,0	0,1	0°	10	1,5	0,96	16,05	2	4	50	●	
8554542	2,0	0,2	0°	10	3,0	1,90	14,35	2	4	60	●	
8554544	2,0	0,2	0°	20	3,0	1,90	24,35	2	4	70	●	
48103002	4,0	0,3	0°	40	6,0	3,90	–	4	6	100	●	
48103004	4,0	0,5	0°	25	6,0	3,90	–	4	6	70	●	
48103003	4,0	0,5	0°	40	6,0	3,90	–	4	6	100	●	
48103005	4,0	1,0	0°	40	6,0	3,90	–	4	6	100	●	
48103006	6,0	0,3	0°	30	6,0	5,70	–	4	6	100	●	
8554621	6,0	0,5	0°	30	6,0	5,70	–	4	6	100	●	
8554622	6,0	1,0	0°	30	6,0	5,70	–	4	6	100	●	
48103007	8,0	0,3	0°	100	8,0	7,60	–	4	8	150	●	
8554661	8,0	0,5	0°	30	8,0	7,60	–	4	8	100	●	
48103008	8,0	0,5	0°	100	8,0	7,60	–	4	8	150	●	
48103009	8,0	1,0	0°	100	8,0	7,60	–	4	8	150	●	
8554701	10,0	0,5	0°	40	10,0	9,50	–	4	10	125	●	
8554702	10,0	1,0	0°	40	10,0	9,50	–	4	10	125	●	
8554722	12,0	1,0	0°	48	12,0	11,40	–	4	12	150	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB

Cu	Al	Graphite	Ti	HRS	Plast.	
		◎				



HIGH PERFORMANCE
- Multipurpose
- Vibration-resistant

HIGH PERFORMANCE
- Allgemeine Anwendungen
- Anti-vibration

ALTA PRESTAZIONE
- Multifunzione
- Resistente alle vibrazioni

HAUTE PERFORMANCE
- Multi-fonction
- Résistante aux vibrations

HIGH PERFORMANCE
- Universal anvendelig
- Vibration-resistant

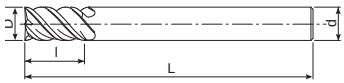
UTMÄRT UTFÖRANDE
- Allround
- Vibrationsdämpande

ALTO RENDIMIENTO
- Fresa multiuso
- Resistente a la vibración

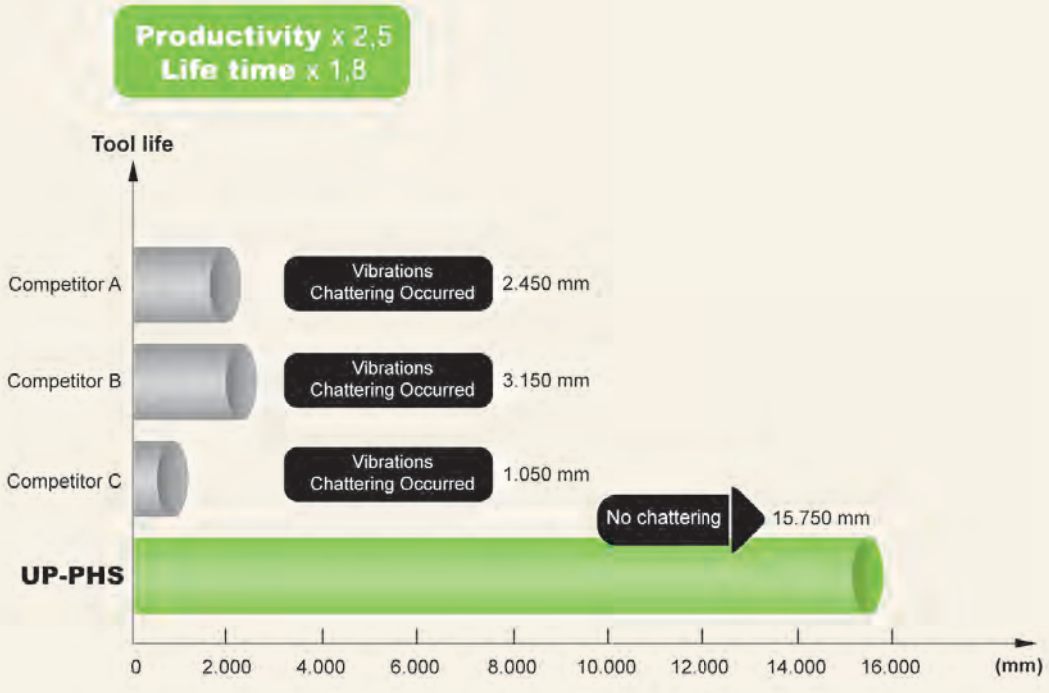
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Универсальная
- Вибростойкая

CARBIDE | FX | 38° | FIT | HIGH SPEED

RF | SC | CC | 0 ~ -0.02 | min⁻¹ D.185



EDP	D	L	l	d	Stock	Price
8529030	3	60	8	6	●	
8529040	4	60	11	6	●	
8529050	5	60	13	6	●	
8529060	6	60	13	6	●	
8529080	8	80	19	8	●	
8529100	10	80	22	10	●	
8529120	12	100	26	12	●	



Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение						
~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	○			◎	◎
Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		◎	○		

WXS

GO TO LIVE STOCK CHECK





HIGH PERFORMANCE
- Super Radius End Mills
- For materials up to and over 65 HRC

HIGH PERFORMANCE
- Mehrschneider mit Eckenradius
- Für Materialien bis und über 65 HRC

ALTA PRESTAZIONE
- Frese toriche
- Per materiali fino e oltre 65 HRC

HAUTE PERFORMANCE
- Fraises toriques
- Pour matériaux jusqu'à et supérieur à 65 HRC

HIGH PERFORMANCE
- Super Radius Endefræsere
- Til materialer op til og over 65 HRC

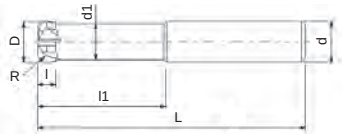
HIGH PERFORMANCE
- Pinnfräsar med extra stora hörnradier
- För material upp till och över 65 HRC

ALTO RENDIMIENTO
- Fresa con super-radio
- Para materiales hasta 65 HrC

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Концевые фрезы Супер радиус
- Для материалов > 65HRC

CARBIDE | WXS | FIT | HIGH SPEED

CC | 0 ~ -0.03 | min⁻¹ D.186



EDP	D	R	L	l1	l	d1	d	ZΔ	Stock	Price
48107467	6	1,5	50	24	2,5	5,4	6	5	●	
48107489	8	2,0	60	32	3,5	7,2	8	5	●	
48107509	10	2,0	70	40	4,0	9,0	10	5	●	
48107533	12	3,0	80	48	5,0	11,0	12	5	●	

CARBIDE

CARBIDE

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение						
~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	◎	◎		◎
Cu	Al	Graphite	Ti	HRS	Plast.	

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE
- Super Radius End Mills
- For materials up to and over 65 HRC

HIGH PERFORMANCE
- Mehrschneider mit Eckenradius
- Für Materialien bis und über 65 HRC

ALTA PRESTAZIONE
- Frese toriche
- Per materiali fino e oltre 65 HRC

HAUTE PERFORMANCE
- Fraises toriques
- Pour matériaux jusqu'à et supérieur à 65 HRC

HIGH PERFORMANCE
- Super Radius Endefræsere
- Til materialer op til og over 65 HRC

HIGH PERFORMANCE
- Pinnfräsar med extra stora hörnradier
- För material upp till och över 65 HRC

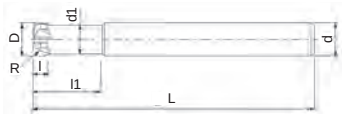
ALTO RENDIMIENTO
- Fresa con super-radio
- Para materiales hasta 65 HrC

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Концевые фрезы Супер радиус
- Для материалов > 65HRC



CARBIDE | WXS | FIT | HIGH SPEED

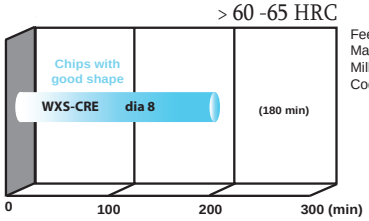
CC | 0 ~ -0.03 | min⁻¹ D.186



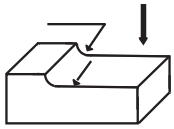
EDP	D	R	L	l1	l	d1	d	ZΔ	Stock	Price
48106421	2	0,5	50	8	0,8	2,0	6	4	●	
48106433	3	0,75	55	12	1,2	2,7	6	5	●	
48106445	4	1,0	55	12	1,6	3,6	6	5	●	
48106467	6	1,5	90	12	2,5	5,4	6	5	●	
48106489	8	2,0	100	16	3,5	7,2	8	5	●	
48106509	10	2,0	100	20	4,0	9,0	10	5	●	
48106533	12	3,0	110	24	5,0	11,0	12	5	●	

Processing Examples

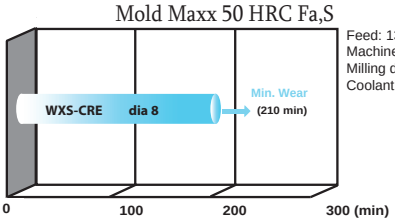
> 60 -65 HRC



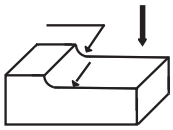
Feed: 63m/min (3 500 mm/min)
Machine : Vertical machining center
Milling depth : ap = 3 mm - ae = 0,1 mm
Coolant : Air



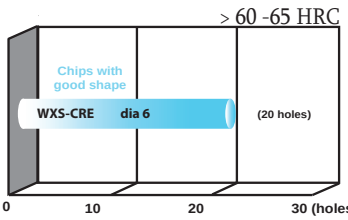
Mold Maxx 50 HRC Fa,S



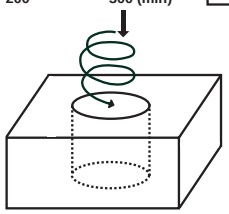
Feed: 130m/min (10 000 mm/min)
Machine : Vertical machining center
Milling depth : ap = 3 - 4 mm - ae = 0,1 mm
Coolant : Air



> 60 -65 HRC



Machine : Vertical machining center
Holedepth : 20 mm
Coolant : Air



ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение						
~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	◎	◎		◎
Cu	Al	Graphite	Ti	HRS	Plast.	

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE

- 4 flutes
- High speed machining for general steel to hardened steel

HIGH PERFORMANCE

- 4 Schneiden
- HSC Schlichtfräsen für Stahl und gehärtetem Stahl

ALTA PRESTAZIONE

- 4 denti
- Fresatura alta velocità per acciai o acciai temperato

HAUTE PERFORMANCE

- 4 lèvres
- Usinage haute vitesse, pour aciers et aciers trempés

HIGH PERFORMANCE

- 4 Skar
- High speed fræsning i stål og hærdet stål

HIGH PERFORMANCE

- 4 Skär
- High Speed Milling för stål och härdat stål

ALTO RENDIMIENTO

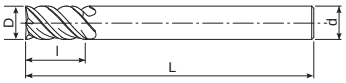
- 4 labio
- Fresado a alta velocidad HSM para aceros y aceros endurecidos

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- 4 режущих кромки
- Высокоскоростное фрезерование сталей и закаленных сталей







EDP	D	L	l	d	ZΔ	Stock	Price
3041010	1,0	60	2,5	6	4	●	
3041015	1,5	60	4,0	6	4	●	
3041020	2,0	60	6,0	6	4	●	
3041025	2,5	60	8,0	6	4	●	
3041030	3,0	60	8,0	6	4	●	
3041035	3,5	60	10,0	6	4	●	
3041040	4,0	60	11,0	6	4	●	
3041045	4,5	60	11,0	6	4	●	
3041050	5,0	60	13,0	6	4	●	
3041055	5,5	60	13,0	6	4	●	
3041060	6,0	60	13,0	6	6	●	
3041080	8,0	70	19,0	8	6	●	
3041100	10,0	80	22,0	10	6	●	
3041120	12,0	90	26,0	12	6	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	◎	○	○	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
			○	○		

WXS-HS-EBD



HIGH PERFORMANCE
- 2 flutes ball nose
- Materials > 50 HRC
- Short length

HIGH PERFORMANCE
- 2 Schneiden Kopierfräser
- Für Materialien bis und über 50 HRC
- Schneidenlänge : Kurz

ALTA PRESTAZIONE
- 2 denti
- Per materiali fino e oltre 50 HRC
- serie corta

HAUTE PERFORMANCE
- 2 lèvres
- Pour matériaux jusqu'à et supérieur à 50 HRC
- Série courte

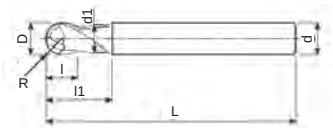
HIGH PERFORMANCE
- 2 skær, Radius fræser
- Til materialer op til og over 50 HRC
- Kort

HIGH PERFORMANCE
- 2 skär
- För material upp till och över 50 HRC
- Korta

ALTO RENDIMIENTO
- Fresa con super-radio
- Para materiales por encima de 50 HrC
- Mango corto

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Сферические концевые фрезы
- Для материалов > 50HRC
- Короткий хвостовик





EDP	D	R	l1	L	l	d1	d	Stock	Price
3041710	1	0,5	2	40	1	0,95	4	●	
3041720	2	1,0	4	40	2	1,95	6	●	
3041730	3	1,5	6	50	3	2,85	6	●	
3041740	4	2,0	8	50	4	3,85	6	●	
3041750	5	2,5	10	50	5	4,85	6	●	
3041760	6	3,0	-	50	9	-	6	●	
3041780	8	4,0	-	60	12	-	8	●	
3041800	10	5,0	-	70	15	-	10	●	
3041820	12	6,0	-	80	18	-	12	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	◎	○	◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
			○	○		

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

WXS-EBD



HIGH PERFORMANCE
- 2 flutes ball nose
- Materials > 50 HRC

HIGH PERFORMANCE
- 2 Schneiden Kopierfräser
- Für Materialien bis und über 50 HRC

ALTA PRESTAZIONE
- 2 denti
- Per materiali fino e oltre 50 HRC

HAUTE PERFORMANCE
- 2 lèvres
- Pour matériaux jusqu'à et supérieur à 50 HRC

HIGH PERFORMANCE
- 2 skær, Radius fræser
- Til materialer op til og over 50 HRC

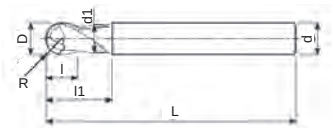
HIGH PERFORMANCE
- 2 skär
- För material upp till och över 50 HRC

ALTO RENDIMIENTO
- Fresa con super-radio
- Para materiales por encima de 50 HrC

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Сферические концевые фрезы
- Для материалов > 50HRC

CARBIDE | WXS | 30° | FIT

R ± 0.005 1 ≥ R | R ± 0.007 1<R≤6 | R ± 0.01 6 < R | min^{-1} D.188-189



EDP	D	R	l1	L	l	d1	d	Stock	Price
3041410	1,0	0,50	2	50	1,0	0,95	4	●	
3041415	1,5	0,75	3	50	1,5	1,45	4	●	
3041420	2,0	1,00	4	50	2,0	1,95	6	●	
3041430	3,0	1,50	6	60	3,0	2,85	6	●	
3041440	4,0	2,00	8	70	4,0	3,85	6	●	
3041441	4,0	2,00	8	60	4,0	3,85	4	●	
3041450	5,0	2,50	10	80	5,0	4,85	6	●	
3041460	6,0	3,00	-	90	9,0	-	6	●	
3041480	8,0	4,00	-	100	12,0	-	8	●	
3041500	10,0	5,00	-	100	15,0	-	10	●	
3041520	12,0	6,00	-	110	18,0	-	12	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	◎	○	◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
			○	○		

WXS-LN-EBD



HIGH PERFORMANCE
- 2 flutes
- Long neck
- for hardened material

HIGH PERFORMANCE
- 2 Schneiden
- Überlaufhals
- Legierte Werkstoffe

ALTA PRESTAZIONE
- 2 denti
- Scaricato lungo
- Per materiali temprati

HAUTE PERFORMANCE
- 2 lèvres
- Dégagement long
- Pour matériel trempé

HIGH PERFORMANCE
- 2 skær
- Long neck
- Hærdede materialer

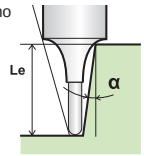
HIGH PERFORMANCE
- 2 skär
- Lång reducering
- Härdat material

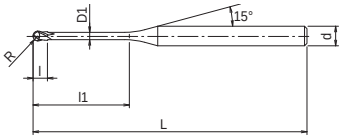
ALTO RENDIMIENTO
- 2 labio
- Cuello largo
- Aceros endurecidos

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Длинная шейка
- Для закаленных сталей

CARBIDE | WXS | 30° | FIT | R ± 0.005 | min⁻¹ D.191-194

No numerical value means no interference with workpiece





EDP	D	R	l1	L	l	d	d1	Le (α) 0,5°	1°	1,5°	2°	2,5°	3°	Stock	Price
3050100	0,1	0,05	0,30	45	0,08	4	0,09	0,33	0,37	0,41	0,46	0,52	0,59	●	
3050101	0,1	0,05	0,50	45	0,08	4	0,09	0,55	0,61	0,67	0,75	0,83	0,92	●	
3050201	0,2	0,10	0,50	45	0,16	4	0,18	0,55	0,60	0,66	0,73	0,81	0,90	●	
3049921	0,2	0,10	0,75	45	0,16	4	0,18	0,82	0,90	0,98	1,08	1,18	1,29	●	
3050202	0,2	0,10	1,00	45	0,16	4	0,18	1,09	1,19	1,30	1,41	1,53	1,66	●	
3049922	0,2	0,10	1,25	45	0,16	4	0,18	1,36	1,48	1,61	1,74	1,88	2,02	●	
3050203	0,2	0,10	1,50	45	0,16	4	0,18	1,64	1,78	1,92	2,07	2,22	2,37	●	
3049923	0,2	0,10	1,75	45	0,16	4	0,18	1,91	2,07	2,23	2,39	2,55	2,71	●	
3050204	0,2	0,10	2,00	46	0,16	4	0,18	2,18	2,35	2,53	2,70	2,88	3,05	●	
3050205	0,2	0,10	2,50	45	0,16	4	0,18	2,72	2,93	3,13	3,33	3,52	3,71	●	
3050206	0,2	0,10	3,00	45	0,16	4	0,18	3,26	3,49	3,72	3,94	4,15	4,36	●	
3050301	0,3	0,15	0,60	45	0,16	4	0,16	0,66	0,72	0,79	0,87	0,96	1,05	●	
3050302	0,3	0,15	1,00	45	0,24	4	0,28	1,09	1,19	1,30	1,41	1,53	1,66	●	
3049932	0,3	0,15	1,25	45	0,24	4	0,28	1,36	1,48	1,61	1,74	1,88	2,02	●	
3050303	0,3	0,15	1,50	45	0,24	4	0,28	1,64	1,78	1,92	2,07	2,22	2,37	●	
3049933	0,3	0,15	1,75	45	0,24	4	0,28	1,91	2,07	2,23	2,39	2,55	2,71	●	
3050304	0,3	0,15	2,00	45	0,24	4	0,28	2,18	2,35	2,53	2,70	2,88	3,05	●	
3049934	0,3	0,15	2,25	45	0,24	4	0,28	2,45	2,64	2,83	3,02	3,20	3,38	●	
3050305	0,3	0,15	2,50	45	0,24	4	0,28	2,72	2,93	3,13	3,33	3,52	3,71	●	
3050306	0,3	0,15	3,00	45	0,24	4	0,28	3,26	3,49	3,72	3,94	4,15	4,36	●	
3050307	0,3	0,15	3,50	45	0,24	4	0,28	3,79	4,06	4,31	4,54	4,77	4,99	●	
3050308	0,3	0,15	4,00	45	0,24	4	0,28	4,33	4,62	4,89	5,14	5,38	5,61	●	
3050309	0,3	0,15	4,50	45	0,24	4	0,28	4,86	5,18	5,47	5,74	5,99	6,24	●	
3050310	0,3	0,15	5,00	45	0,24	4	0,28	5,40	5,74	6,04	6,32	6,59	6,86	●	
3050401	0,4	0,20	0,80	45	0,30	4	0,37	0,87	0,95	1,03	1,13	1,23	1,34	●	
3050402	0,4	0,20	1,00	45	0,30	4	0,37	1,09	1,18	1,29	1,39	1,51	1,63	●	
3050403	0,4	0,20	1,50	45	0,30	4	0,37	1,63	1,76	1,90	2,04	2,19	2,34	●	
3050404	0,4	0,20	2,00	45	0,30	4	0,37	2,17	2,34	2,51	2,68	2,85	3,01	●	
3050405	0,4	0,20	2,50	45	0,30	4	0,37	2,71	2,91	3,11	3,30	3,49	3,67	●	
3050406	0,4	0,20	3,00	45	0,30	4	0,37	3,24	3,48	3,70	3,91	4,12	4,32	●	
3050407	0,4	0,20	3,50	45	0,30	4	0,37	3,78	4,04	4,28	4,51	4,74	4,95	●	
3050408	0,4	0,20	4,00	45	0,30	4	0,37	4,32	4,60	4,86	5,11	5,35	5,58	●	
3050409	0,4	0,20	4,50	45	0,30	4	0,37	4,85	5,16	5,44	5,70	5,95	6,20	●	
3050410	0,4	0,20	5,00	45	0,30	4	0,37	5,38	5,71	6,01	6,29	6,55	6,82	●	
3050411	0,4	0,20	5,50	45	0,30	4	0,37	5,91	6,27	6,58	6,87	7,15	7,44	●	
3050412	0,4	0,20	6,00	45	0,30	4	0,37	6,45	6,82	7,15	7,46	7,75	8,06	●	
3050500	0,5	0,25	1,00	45	0,40	4	0,45	1,08	1,17	1,26	1,36	1,47	1,58	●	
3050501	0,5	0,25	1,50	45	0,40	4	0,45	1,62	1,74	1,87	2,00	2,14	2,28	●	
3050502	0,5	0,25	2,00	45	0,40	4	0,45	2,16	2,31	2,47	2,63	2,79	2,96	●	
3049952	0,5	0,25	2,50	45	0,40	4	0,45	2,69	2,88	3,07	3,25	3,43	3,61	●	
3050503	0,5	0,25	3,00	45	0,40	4	0,45	3,23	3,44	3,65	3,86	4,06	4,25	●	
3049953	0,5	0,25	3,50	45	0,40	4	0,45	3,76	4,00	4,24	4,46	4,67	4,88	●	
3050504	0,5	0,25	4,00	45	0,40	4	0,45	4,29	4,56	4,81	5,05	5,28	5,51	●	
3049954	0,5	0,25	4,50	45	0,40	4	0,45	4,83	5,12	5,39	5,65	5,89	6,13	●	
3050505	0,5	0,25	5,00	45	0,40	4	0,45	5,36	5,67	5,96	6,23	6,49	6,75	●	
3049955	0,5	0,25	5,50	45	0,40	4	0,45	5,89	6,22	6,53	6,81	7,09	7,37	●	
3050506	0,5	0,25	6,00	45	0,40	4	0,45	6,42	6,77	7,10	7,39	7,68	7,99	●	
3050507	0,5	0,25	7,00	45	0,40	4	0,45	7,48	7,87	8,22	8,54	8,88	9,24	●	
3050508	0,5	0,25	8,00	45	0,40	4	0,45	8,53	8,96	9,34	9,69	10,07	10,48	●	
3050509	0,5	0,25	9,00	45	0,40	4	0,45	9,59	10,05	10,45	10,84	11,27	11,72	●	
3050510	0,5	0,25	10,00	45	0,40	4	0,45	10,64	11,13	11,56	11,99	12,46	12,97	●	
3050601	0,6	0,30	1,20	45	0,50	4	0,55	1,30	1,40	1,51	1,62	1,74	1,86	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
○	○	◎	◎	○	○	○

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○	○		

● Delivery from stock
○ Available on short notice

WXS-LN-EBD



HIGH PERFORMANCE
- 2 flutes
- Long neck
- for hardened material

HIGH PERFORMANCE
- 2 Schneiden
- Überlaufhals
- Legierte Werkstoffe

ALTA PRESTAZIONE
- 2 denti
- Scaricato lungo
- Per materiali temprati

HAUTE PERFORMANCE
- 2 lèvres
- Dégagement long
- Pour matériel trempé

HIGH PERFORMANCE
- 2 skær
- Long neck
- Hærdede materialer

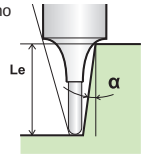
HIGH PERFORMANCE
- 2 skär
- Lång reducering
- Härdat material

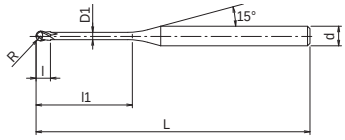
ALTO RENDIMIENTO
- 2 labio
- Cuello largo
- Aceros endurecidos

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Длинная шейка
- Для закаленных сталей

CARBIDE | WXS | 30° | FIT | R ± 0.005 | min⁻¹ D.191-194

No numerical value means no interference with workpiece





EDP	D	R	l1	L	l	d	d1	Le (α) 0,5°	1°	1,5°	2°	2,5°	3°	Stock	Price
3050602	0,6	0,30	2,0	45	0,50	4	0,55	2,16	2,31	2,47	2,63	2,79	2,96	●	
3049962	0,6	0,30	2,5	45	0,50	4	0,55	2,69	2,88	3,07	3,25	3,43	3,61	●	
3050603	0,6	0,30	3,0	45	0,50	4	0,55	3,23	3,44	3,65	3,86	4,06	4,25	●	
3049963	0,6	0,30	3,5	45	0,50	4	0,55	3,76	4,00	4,24	4,46	4,67	4,88	●	
3050604	0,6	0,30	4,0	45	0,50	4	0,55	4,29	4,56	4,81	5,06	5,28	5,51	●	
3049964	0,6	0,30	4,5	45	0,50	4	0,55	4,83	5,12	5,39	5,65	5,89	6,13	●	
3050605	0,6	0,30	5,0	45	0,50	4	0,55	5,36	5,67	5,96	6,23	6,49	6,75	●	
3049965	0,6	0,30	5,5	45	0,50	4	0,55	5,89	6,22	6,53	6,81	7,09	7,37	●	
3050606	0,6	0,30	6,0	45	0,5	4	0,55	6,42	6,77	7,10	7,39	7,68	7,99	●	
3049966	0,6	0,30	6,5	45	0,5	4	0,55	6,95	7,32	7,66	7,97	8,28	8,62	●	
3050607	0,6	0,30	7,0	45	0,5	4	0,55	7,48	7,87	8,22	8,54	8,88	9,24	●	
3049967	0,6	0,30	7,5	45	0,5	4	0,55	8,00	8,42	8,78	9,12	9,47	9,86	●	
3050608	0,6	0,30	8,0	45	0,5	4	0,55	5,53	8,96	9,34	9,69	10,07	10,48	●	
3049968	0,6	0,30	8,5	45	0,5	4	0,55	9,06	9,51	9,90	10,27	10,67	11,10	●	
3050609	0,6	0,30	9,0	45	0,5	4	0,55	9,59	10,05	10,45	10,84	11,27	11,72	●	
3049969	0,6	0,30	9,5	45	0,5	4	0,55	10,11	10,59	11,01	11,42	11,86	12,35	●	
3050610	0,6	0,30	10,0	45	0,5	4	0,55	10,64	11,13	11,56	11,99	12,46	12,97	●	
3050611	0,6	0,30	11,0	50	0,5	4	0,55	11,69	12,21	12,67	13,14	13,66	14,21	●	
3050612	0,6	0,30	12,0	50	0,5	4	0,55	12,74	13,29	13,78	14,29	14,85	15,45	●	
3050802	0,8	0,40	2,0	45	0,6	4	0,75	2,16	2,31	2,47	2,63	2,79	2,96	●	
3050803	0,8	0,40	3,0	45	0,6	4	0,75	3,23	3,44	3,65	3,86	4,06	4,25	●	
3050804	0,8	0,40	4,0	45	0,6	4	0,75	4,29	4,56	4,81	5,06	5,28	5,51	●	
3050805	0,8	0,40	5,0	45	0,6	4	0,75	5,36	5,67	5,96	6,23	6,49	6,75	●	
3050806	0,8	0,40	6,0	45	0,6	4	0,75	6,42	6,77	7,10	7,39	7,68	7,99	●	
3050807	0,8	0,40	7,0	45	0,6	4	0,75	7,48	7,87	8,22	8,54	8,88	9,24	●	
3050808	0,8	0,40	8,0	45	0,6	4	0,75	8,53	8,96	9,34	9,69	10,07	10,48	●	
3050810	0,8	0,40	10,0	45	0,6	4	0,75	10,64	11,13	11,56	11,99	12,46	12,97	●	
3050812	0,8	0,40	12,0	50	0,6	4	0,75	12,74	13,29	13,78	14,29	14,85	15,45	●	
3051002	1,0	0,50	2,0	45	0,8	4	0,95	2,16	2,31	2,47	2,63	2,79	2,96	●	
3051003	1,0	0,50	3,0	45	0,8	4	0,95	3,23	3,44	3,65	3,86	4,06	4,25	●	
3051004	1,0	0,50	4,0	45	0,8	4	0,95	4,29	4,56	4,81	5,06	5,28	5,51	●	
3051005	1,0	0,50	5,0	45	0,8	4	0,95	5,36	5,67	5,96	6,23	6,49	6,75	●	
3051006	1,0	0,50	6,0	45	0,8	4	0,95	6,42	6,77	7,10	7,39	7,68	7,99	●	
3051007	1,0	0,50	7,0	45	0,8	4	0,95	7,48	7,87	8,22	8,54	8,88	9,24	●	
3051008	1,0	0,50	8,0	45	0,8	4	0,95	8,53	8,96	9,34	9,69	10,07	10,48	●	
3051009	1,0	0,50	9,0	45	0,8	4	0,95	9,59	10,05	10,45	10,84	11,27	11,72	●	
3051010	1,0	0,50	10,0	45	0,8	4	0,95	10,64	11,13	11,56	11,99	12,46	12,97	●	
3051012	1,0	0,50	12,0	45	0,8	4	0,95	12,74	13,29	13,78	14,29	14,85	15,45	●	
3051014	1,0	0,50	14,0	50	0,8	4	0,95	14,83	15,44	15,99	16,59	17,24	17,94	●	
3051016	1,0	0,50	16,0	50	0,8	4	0,95	16,92	17,58	18,21	18,89	19,63	20,43	●	
3051018	1,0	0,50	18,0	55	0,8	4	0,95	19,01	19,71	20,43	21,19	22,02	22,91	●	
3051020	1,0	0,50	20,0	55	0,8	4	0,95	21,09	21,85	22,64	23,49	24,41	-	●	
3051022	1,0	0,50	22,0	60	0,8	4	0,95	23,17	23,99	24,86	25,79	26,8	27,88	●	
3051202	1,2	0,60	2,4	45	1,0	4	1,15	2,58	2,77	2,95	3,13	3,30	3,48	●	
3051204	1,2	0,60	4,0	45	1,0	4	1,15	4,29	4,56	4,81	5,05	5,28	5,51	●	
3051206	1,2	0,60	6,0	45	1,0	4	1,15	6,42	6,77	7,10	7,39	7,68	7,99	●	
3051208	1,2	0,60	8,0	45	1,0	4	1,15	8,53	8,96	9,34	9,69	10,07	10,48	●	
3051210	1,2	0,60	10,0	45	1,0	4	1,15	10,64	11,13	11,56	11,99	12,46	12,97	●	
3051212	1,2	0,60	12,0	45	1,0	4	1,15	12,74	13,29	13,78	14,29	14,85	15,45	●	
3051214	1,2	0,60	14,0	50	1,0	4	1,15	14,83	15,44	15,99	16,59	17,24	17,94	●	
3051216	1,2	0,60	16,0	50	1,0	4	1,15	16,92	17,58	18,21	18,89	19,63	20,43	●	
3051218	1,2	0,60	18,0	55	1,0	4	1,15	19,01	19,71	20,43	21,19	22,02	22,91	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
○	○	◎	◎	○	○	○

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○	○		

WXS-LN-EBD



HIGH PERFORMANCE
- 2 flutes
- Long neck
- for hardened material

HIGH PERFORMANCE
- 2 Schneiden
- Überlaufhals
- Legierte Werkstoffe

ALTA PRESTAZIONE
- 2 denti
- Scaricato lungo
- Per materiali temprati

HAUTE PERFORMANCE
- 2 lèvres
- Dégagement long
- Pour matériel trempé

HIGH PERFORMANCE
- 2 skær
- Long neck
- Hærdede materialer

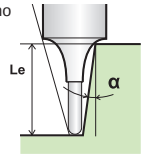
HIGH PERFORMANCE
- 2 skär
- Lång reducering
- Härdat material

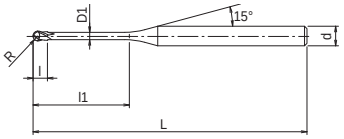
ALTO RENDIMIENTO
- 2 labio
- Cuello largo
- Aceros endurecidos

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Длинная шейка
- Для закаленных сталей

CARBIDE | WXS | 30° | FIT | R ± 0.005 | min⁻¹ D.191-194

No numerical value means no interference with workpiece





EDP	D	R	l1	L	l	d	d1	Le (α) 0,5°	1°	1,5°	2°	2,5°	3°	Stock	Price
3051220	1,2	0,60	20,0	55	1,0	4	1,15	21,09	21,85	22,64	23,49	24,41	25,40	●	
3051503	1,5	0,75	3,0	45	1,2	4	1,45	3,23	3,44	3,65	3,86	4,06	4,25	●	
3051504	1,5	0,75	4,0	45	1,2	4	1,45	4,29	4,56	4,81	5,05	5,28	5,51	●	
3051506	1,5	0,75	6,0	45	1,2	4	1,45	6,42	6,77	7,10	7,39	7,68	7,99	●	
3051508	1,5	0,75	8,0	45	1,2	4	1,45	8,53	8,96	9,34	9,69	10,07	10,48	●	
3051510	1,5	0,75	10,0	45	1,2	4	1,45	10,64	11,13	11,56	11,99	12,46	12,97	●	
3051512	1,5	0,75	12,0	45	1,2	4	1,45	12,74	13,29	13,78	14,29	14,85	15,45	●	
3051514	1,5	0,75	14,0	50	1,2	4	1,45	14,83	15,44	15,99	16,59	17,24	17,94	●	
3051516	1,5	0,75	16,0	45	1,2	4	1,45	16,92	17,58	18,21	18,89	19,63	20,43	●	
3051518	1,5	0,75	18,0	55	1,2	4	1,45	19,01	19,71	20,43	21,19	22,02	22,91	●	
3051520	1,5	0,75	20,0	50	1,2	4	1,45	21,09	21,85	22,64	23,49	24,41	-	●	
3051522	1,5	0,75	22,0	60	1,2	4	1,45	23,17	23,99	24,86	25,79	26,80	-	●	
3051530	1,5	0,75	30,0	70	1,2	4	1,45	31,46	32,55	33,73	33,73	-	-	●	
3051608	1,6	0,80	8,0	45	1,3	4	1,55	8,53	8,96	9,34	9,34	10,07	10,48	●	
3051612	1,6	0,80	12,0	45	1,3	4	1,55	12,74	13,29	13,78	13,78	14,85	15,45	●	
3051616	1,6	0,80	16,0	50	1,3	4	1,55	16,92	17,58	18,21	18,21	19,63	20,43	●	
3051620	1,6	0,80	20,0	55	1,3	4	1,55	21,09	21,85	22,64	23,49	24,41	-	●	
3052004	2,0	1,00	4,0	45	1,6	4	1,95	4,29	4,56	4,81	5,06	5,28	5,51	●	
3052006	2,0	1,00	6,0	45	1,6	4	1,95	6,42	6,77	7,10	7,39	7,68	7,99	●	
3052008	2,0	1,00	8,0	45	1,6	4	1,95	8,53	8,96	9,34	9,69	10,07	10,48	●	
3052010	2,0	1,00	10,0	45	1,6	4	1,95	10,64	11,13	11,56	11,99	12,46	12,97	●	
3052012	2,0	1,00	12,0	45	1,6	4	1,95	12,74	13,29	13,78	14,29	14,85	15,45	●	
3052014	2,0	1,00	14,0	50	1,6	4	1,95	14,83	15,44	15,99	16,59	17,24	17,94	●	
3052016	2,0	1,00	16,0	50	1,6	4	1,95	16,92	17,58	18,21	18,89	19,63	20,43	●	
3052018	2,0	1,00	18,0	55	1,6	4	1,95	19,01	19,71	20,43	21,19	22,02	22,91	●	
3052020	2,0	1,00	20,0	55	1,6	4	1,95	21,09	21,85	22,64	23,49	-	-	●	
3052022	2,0	1,00	22,0	60	1,6	4	1,95	23,17	23,99	24,86	25,79	-	-	●	
3052025	2,0	1,00	25,0	65	1,6	4	1,95	26,28	27,20	28,19	-	-	-	●	
3052030	2,0	1,00	30,0	70	1,6	4	1,95	31,46	32,55	33,73	-	-	-	●	
3052035	2,0	1,00	35,0	70	1,6	4	1,95	36,62	37,90	-	-	-	-	●	
3052040	2,0	1,00	40,0	80	1,6	4	1,95	41,79	43,25	-	-	-	-	●	
3052510	2,5	1,25	10,0	45	2,0	4	2,35	10,51	10,95	11,35	11,77	12,23	12,73	●	
3052515	2,5	1,25	15,0	50	2,0	4	2,35	15,72	16,30	16,89	17,52	-	-	●	
3052520	2,5	1,25	20,0	55	2,0	4	2,35	20,91	21,65	22,43	-	-	-	●	
3052525	2,5	1,25	25,0	65	2,0	4	2,35	26,09	27,00	27,97	-	-	-	●	
3052530	2,5	1,25	30,0	70	2,0	4	2,35	31,26	32,35	-	-	-	-	●	
3052535	2,5	1,25	35,0	70	2,0	4	2,35	36,43	37,69	-	-	-	-	●	
3053006	3,0	1,50	6,0	50	2,4	6	2,85	6,33	6,63	6,91	7,17	7,45	7,76	●	
3053008	3,0	1,50	8,0	50	2,4	6	2,85	8,42	8,79	9,13	9,74	9,84	10,24	●	
3053010	3,0	1,50	10,0	50	2,4	6	2,85	10,51	10,95	11,35	11,77	12,23	12,73	●	
3053012	3,0	1,50	12,0	55	2,4	6	2,85	12,60	13,09	13,56	14,07	14,62	15,21	●	
3053014	3,0	1,50	14,0	55	2,4	6	2,85	14,68	15,23	15,78	16,37	17,01	17,70	●	
3053015	3,0	1,50	15,0	55	2,4	6	2,85	15,72	16,30	16,89	17,52	18,21	18,94	●	
3053016	3,0	1,50	16,0	55	2,4	6	2,85	16,76	17,37	18,00	18,67	19,40	20,19	●	
3053020	3,0	1,50	20,0	60	2,4	6	2,85	20,91	21,65	22,43	23,27	24,18	25,16	●	
3053025	3,0	1,50	25,0	65	2,4	6	2,85	26,09	27,00	27,97	29,02	30,15	-	●	
3053030	3,0	1,50	30,0	70	2,4	6	2,85	31,26	32,35	33,51	34,77	-	-	●	
3053035	3,0	1,50	35,0	80	2,4	6	2,85	36,43	37,69	39,06	40,52	-	-	●	
3053040	3,0	1,50	40,0	90	2,4	6	2,85	41,59	43,04	44,60	-	-	-	●	
3053515	3,5	1,75	15,0	55	2,8	6	3,35	15,72	16,30	16,89	17,52	18,21	18,94	●	
3053520	3,5	1,75	20,0	60	2,8	6	3,35	20,91	21,65	22,43	23,27	24,18	-	●	
3053525	3,5	1,75	25,0	65	2,8	6	3,35	26,09	27,00	27,97	29,02	-	-	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
○	○	◎	◎	○	○	○

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○	○		

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

WXS-LN-EBD



HIGH PERFORMANCE
- 2 flutes
- Long neck
- for hardened material

HIGH PERFORMANCE
- 2 Schneiden
- Überlaufhals
- Legierte Werkstoffe

ALTA PRESTAZIONE
- 2 denti
- Scaricato lungo
- Per materiali temprati

HAUTE PERFORMANCE
- 2 lèvres
- Dégagement long
- Pour matériel trempé

HIGH PERFORMANCE
- 2 skær
- Long neck
- Hærdede materialer

HIGH PERFORMANCE
- 2 skär
- Lång reducering
- Härdat material

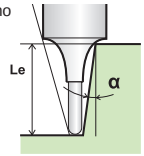
ALTO RENDIMIENTO
- 2 labio
- Cuello largo
- Aceros endurecidos

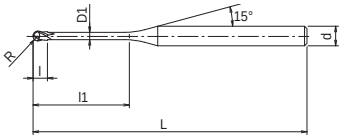
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Длинная шейка
- Для закаленных сталей



CARBIDE | WXS | 30° | FIT | R ± 0.005 | min⁻¹ D.191-194

No numerical value means no interference with workpiece





EDP	D	R	l1	L	l	d	d1	Le (α) 0,5°	1°	1,5°	2°	2,5°	3°	Stock	Price
3053530	3,5	1,75	30	70	2,8	6	3,35	31,26	32,35	33,51	34,77	-	-	●	
3053535	3,5	1,75	35	80	2,8	6	3,35	36,43	37,69	39,06	-	-	-	●	
3053540	3,5	1,75	40	90	2,8	6	3,35	41,59	43,04	44,60	-	-	-	●	
3053545	3,5	1,75	45	90	2,8	6	3,35	46,76	48,39	-	-	-	-	●	
3054008	4,0	2,00	8	55	3,2	6	3,85	12,60	13,09	13,56	14,07	14,62	15,21	●	
3054010	4,0	2,00	10	60	3,2	6	3,85	10,51	10,95	11,35	11,77	12,23	12,73	●	
3054012	4,0	2,00	12	60	3,2	6	3,85	12,60	13,09	13,56	14,07	14,62	15,21	●	
3054015	4,0	2,00	15	60	3,2	6	3,85	15,72	16,30	16,89	17,52	18,21	18,94	●	
3054016	4,0	2,00	16	60	3,2	6	3,85	16,76	17,37	18,00	18,67	19,40	-	●	
3054020	4,0	2,00	2	65	3,2	6	3,85	20,91	21,65	22,43	23,27	-	-	●	
3054025	4,0	2,00	25	70	3,2	6	3,85	26,09	27,00	27,97	-	-	-	●	
3054030	4,0	2,00	30	80	3,2	6	3,85	31,26	32,35	33,51	-	-	-	●	
3054035	4,0	2,00	35	80	3,2	6	3,85	36,43	37,69	-	-	-	-	●	
3054040	4,0	2,00	40	90	3,2	6	3,85	41,59	43,04	-	-	-	-	●	
3054045	4,0	2,00	45	90	3,2	6	3,85	46,76	48,39	-	-	-	-	●	
3054050	4,0	2,00	50	100	3,2	6	3,85	51,93	53,74	-	-	-	-	●	
3055010	5,0	2,50	10	60	4,0	6	4,85	10,51	10,95	11,35	11,77	-	-	●	
3055015	5,0	2,50	15	60	4,0	6	4,85	15,72	16,30	16,89	-	-	-	●	
3055020	5,0	2,50	20	70	4,0	6	4,85	20,91	21,65	-	-	-	-	●	
3055025	5,0	2,50	25	70	4,0	6	4,85	26,09	27,00	-	-	-	-	●	
3055030	5,0	2,50	30	80	4,0	6	4,85	31,26	-	-	-	-	-	●	
3055035	5,0	2,50	35	80	4,0	6	4,85	36,43	-	-	-	-	-	●	
3055040	5,0	2,50	40	90	4,0	6	4,85	41,59	-	-	-	-	-	●	
3055045	5,0	2,50	45	100	4,0	6	4,85	46,76	-	-	-	-	-	●	
3055050	5,0	2,50	50	100	4,0	6	4,85	51,93	-	-	-	-	-	●	
3056012	6,0	3,00	12	60	4,8	6	5,85	-	-	-	-	-	-	●	
3056020	6,0	3,00	20	70	4,8	6	5,85	-	-	-	-	-	-	●	
3056025	6,0	3,00	25	70	4,8	6	5,85	-	-	-	-	-	-	●	
3056030	6,0	3,00	30	80	4,8	6	5,85	-	-	-	-	-	-	●	
3056035	6,0	3,00	35	80	4,8	6	5,85	-	-	-	-	-	-	●	
3056040	6,0	3,00	40	90	4,8	6	5,85	-	-	-	-	-	-	●	
3056045	6,0	3,00	45	100	4,8	6	5,85	-	-	-	-	-	-	●	
3056050	6,0	3,00	50	120	4,8	6	5,85	-	-	-	-	-	-	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
○	○	◎	◎	○	○	○

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○	○		

WXS-CPR



HIGH PERFORMANCE
- 2 flutes
- Long neck, pencil neck
- For mold milling

HIGH PERFORMANCE
- 2 Schneiden
- Überlaufhals, konischer Schaft
- Für den Werkzeug -und Formenbau

ALTA PRESTAZIONE
- 2 denti
- Scaricato lungo, riduzione conica
- Fresatura stampi

HAUTE PERFORMANCE
- 2 lèvres
- Dégagement long, conique
- Pour l'usinage de moule

HIGH PERFORMANCE
- 2 skær
- Long neck, pencil neck
- Til værktøjsfremstilling

HIGH PERFORMANCE
- 2 skär
- Lång reducering Konisk reducering
- För formverktyg

ALTO RENDIMIENTO
- 2 labio
- Cuello largo,mango reforzado con cuello conico
- De moldes y matrices

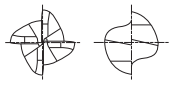
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Длинная шейка или длинная коническая шейка
- для инструментального производства

GO TO LIVE STOCK CHECK

WXS

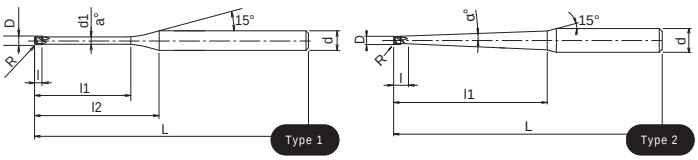
WXS

Type 1 Type 2



CARBIDE WXS 30° FIT

R ± 0.005 | D < 0.5 0 ~ -0.01 | D ≥ 0.5 0 ~ -0.015 | min^{-1} D.195-198



EDP	D	R	α	l1	d1	d2	l	l2	d	L	ZΔ	Type	Stock	Price
3100201	0,2	0,05	0°	0,5	0,18	-	0,15	7,63	4	50	2	1	●	
3100202	0,2	0,05	0°	1,0	0,18	-	0,15	8,13	4	50	2	1	●	
3100203	0,2	0,05	1°	1,0	0,18	0,23	0,15	8,04	4	50	2	2	●	
3100204	0,2	0,05	1°	2,0	0,18	0,26	0,15	8,97	4	50	2	2	●	
3100205	0,2	0,05	3°	1,0	0,18	0,27	0,15	7,96	4	50	2	2	●	
3100206	0,2	0,05	3°	2,0	0,18	0,39	0,15	8,73	4	50	2	2	●	
3100207	0,2	0,05	5°	1,0	0,18	0,35	0,15	7,81	4	50	2	1	●	
3100208	0,2	0,05	5°	2,0	0,18	0,52	0,15	8,49	4	50	2	1	●	
3100301	0,3	0,05	0°	1,0	0,28	-	0,25	7,94	4	50	2	1	●	
3100302	0,3	0,05	0°	2,0	0,28	-	0,25	8,94	4	50	2	1	●	
3100303	0,3	0,05	1°	2,0	0,28	0,36	0,25	8,79	4	50	2	2	●	
3100304	0,3	0,05	1°	3,0	0,28	0,40	0,25	9,73	4	50	2	2	●	
3100305	0,3	0,05	3°	2,0	0,28	0,48	0,25	8,56	4	50	2	2	●	
3100306	0,3	0,05	3°	3,0	0,28	0,59	0,25	9,37	4	50	2	2	●	
3100307	0,3	0,05	5°	2,0	0,28	0,61	0,25	8,33	4	50	2	2	●	
3100308	0,3	0,05	5°	3,0	0,28	0,78	0,25	9,01	4	50	2	2	●	
3100401	0,4	0,05	0°	1,0	0,37	-	0,3	7,77	4	50	2	1	●	
3100402	0,4	0,05	0°	1,5	0,37	-	0,3	8,27	4	50	2	1	●	
3100403	0,4	0,05	0°	2,0	0,37	-	0,3	8,77	2	50	2	1	●	
3100404	0,4	0,05	0°	3,0	0,37	-	0,3	9,77	4	50	2	1	●	
3100405	0,4	0,05	0°	4,0	0,37	-	0,3	10,77	4	50	2	1	●	
3100409	0,4	0,05	1°	3,0	0,37	0,49	0,3	9,54	4	50	2	2	●	
3100410	0,4	0,05	1°	4,0	0,37	0,53	0,3	10,47	4	50	2	2	●	
3100411	0,4	0,05	3°	3,0	0,37	0,68	0,3	9,18	4	50	2	2	●	
3100412	0,4	0,05	3°	4,0	0,37	0,79	0,3	9,99	4	50	2	2	●	
3100413	0,4	0,05	5°	3,0	0,37	0,87	0,3	8,83	4	50	2	2	●	
3100414	0,4	0,05	5°	4,0	0,37	1,05	0,3	9,50	4	50	2	2	●	
3100406	0,4	0,10	0°	2,0	0,37	-	0,3	8,77	4	50	2	1	●	
3100407	0,4	0,10	0°	3,0	0,37	-	0,3	9,77	4	50	2	1	●	
3100408	0,4	0,10	0°	4,0	0,37	-	0,3	10,77	4	50	2	1	●	
3100415	0,4	0,10	1°	3,0	0,37	0,49	0,3	9,54	4	50	2	2	●	
3100416	0,4	0,10	1°	4,0	0,37	0,53	0,3	10,47	4	50	2	2	●	
3100417	0,4	0,10	3°	3,0	0,37	0,68	0,3	9,18	4	50	2	2	●	
3100418	0,4	0,10	3°	4,0	0,37	0,79	0,3	9,99	4	50	2	2	●	
3100419	0,4	0,10	5°	3,0	0,37	0,87	0,3	8,83	4	50	2	2	●	
3100420	0,4	0,10	5°	4,0	0,37	1,05	0,3	9,50	4	50	2	2	●	
3100501	0,5	0,05	0°	1,0	0,46	-	0,4	7,60	4	50	2	1	●	
3100502	0,5	0,05	0°	2,0	0,46	-	0,4	8,60	4	50	2	1	●	
3100503	0,5	0,05	0°	3,0	0,46	-	0,4	9,60	4	50	2	1	●	
3100504	0,5	0,05	0°	4,0	0,46	-	0,4	10,60	4	50	2	1	●	
3100505	0,5	0,05	0°	5,0	0,46	-	0,4	11,60	4	50	2	1	●	
3100506	0,5	0,05	0°	6,0	0,46	-	0,4	12,60	4	50	2	1	●	
3100513	0,5	0,05	1°	3,0	0,46	0,59	0,4	9,36	4	50	2	2	●	
3100514	0,5	0,05	1°	5,0	0,46	0,66	0,4	11,23	4	50	2	2	●	
3100515	0,5	0,05	1°	8,0	0,46	0,77	0,4	14,03	4	50	2	2	●	
3100516	0,5	0,05	1°	10,0	0,46	0,84	0,4	15,90	4	50	2	2	●	
3100517	0,5	0,05	1°	12,0	0,46	0,91	0,4	17,77	4	50	2	2	●	
3100518	0,5	0,05	3°	3,0	0,46	0,77	0,4	9,02	4	50	2	2	●	
3100519	0,5	0,05	3°	5,0	0,46	0,98	0,4	10,63	4	50	2	2	●	
3100520	0,5	0,05	3°	8,0	0,46	1,30	0,4	13,04	4	50	2	2	●	
3100521	0,5	0,05	3°	10,0	0,46	1,51	0,4	14,65	4	50	2	2	●	
3100522	0,5	0,05	3°	12,0	0,46	1,72	0,4	16,26	4	50	2	2	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	◎		◎	
Cu	Al	Graphite	Ti	HRS	Plast.	

● Delivery from stock
○ Available on short notice

WXS-CPR



HIGH PERFORMANCE
- 2 flutes
- Long neck, pencil neck
- For mold milling

HIGH PERFORMANCE
- 2 Schneiden
- Überlaufhals, konischer Schaft
- Für den Werkzeug -und Formenbau

ALTA PRESTAZIONE
- 2 denti
- Scaricato lungo, riduzione conica
- Fresatura stampi

HAUTE PERFORMANCE
- 2 lèvres
- Dégagement long, conique
- Pour l'usinage de moule

HIGH PERFORMANCE
- 2 skær
- Long neck, pencil neck
- Til værktøjsfremstilling

HIGH PERFORMANCE
- 2 skär
- Lång reducering Konisk reducering
- För formverktyg

ALTO RENDIMIENTO
- 2 labio
- Cuello largo,mango reforzado con cuello conico
- De moldes y matrices

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Длинная шейка или длинная коническая шейка
- для инструментального производства

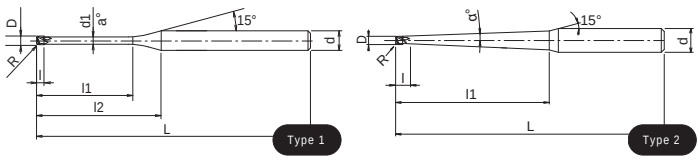
WXS

GO TO LIVE STOCK CHECK

Type 1 Type 2

CARBIDE WXS 30° FIT

R ± 0.005 | D < 0.5 0 ~ -0.01 | D ≥ 0.5 0 ~ -0.015 | min^{-1} D.195-198



EDP	D	R	α	l1	d1	d2	l	l2	d	L	ZΔ	Type	Stock	Price
3100523	0,5	0,05	5°	3,0	0,46	0,96	0,40	8,68	4	50	2	2	●	
3100524	0,5	0,05	5°	5,0	0,46	1,31	0,40	10,02	4	50	2	2	●	
3100525	0,5	0,05	5°	8,0	0,46	1,83	0,40	12,04	4	50	2	2	●	
3100526	0,5	0,05	5°	10,0	0,46	2,18	0,40	13,39	4	50	2	2	●	
3100507	0,5	0,10	0°	1,0	0,46	-	0,40	7,60	4	50	2	1	●	
3100508	0,5	0,10	0°	2,0	0,46	-	0,40	8,60	4	50	2	1	●	
3100509	0,5	0,10	0°	3,0	0,46	-	0,40	9,60	4	50	2	1	●	
3100510	0,5	0,10	0°	4,0	0,46	-	0,40	10,60	4	50	2	1	●	
3100511	0,5	0,10	0°	5,0	0,46	-	0,40	11,60	4	50	2	1	●	
3100512	0,5	0,10	0°	6,0	0,46	-	0,40	12,60	4	50	2	1	●	
3100527	0,5	0,10	1°	3,0	0,46	0,59	0,40	9,36	4	50	2	2	●	
3100528	0,5	0,10	1°	5,0	0,46	0,66	0,40	11,23	4	50	2	2	●	
3100529	0,5	0,10	1°	8,0	0,46	0,77	0,40	14,03	4	50	2	2	●	
3100530	0,5	0,10	1°	10,0	0,46	0,84	0,40	15,90	4	50	2	2	●	
3100531	0,5	0,10	1°	12,0	0,46	0,91	0,40	17,77	4	50	2	2	●	
3100532	0,5	0,10	3°	3,0	0,46	0,77	0,40	9,02	4	50	2	2	●	
3100533	0,5	0,10	3°	5,0	0,46	0,98	0,40	10,63	4	50	2	2	●	
3100534	0,5	0,10	3°	8,0	0,46	1,30	0,40	13,04	4	50	2	2	●	
3100535	0,5	0,10	3°	10,0	0,46	1,51	0,40	14,65	4	50	2	2	●	
3100536	0,5	0,10	3°	12,0	0,46	1,72	0,40	16,26	4	50	2	2	●	
3100537	0,5	0,10	5°	3,0	0,46	0,96	0,40	8,68	4	50	2	2	●	
3100538	0,5	0,10	5°	5,0	0,46	1,31	0,40	10,02	4	50	2	2	●	
3100539	0,5	0,10	5°	8,0	0,46	1,83	0,40	12,04	4	50	2	2	●	
3100540	0,5	0,10	5°	10	0,46	2,18	0,40	13,39	4	50	2	2	●	
3100601	0,6	0,10	0°	2,0	0,56	-	0,48	8,41	4	50	2	1	●	
3100602	0,6	0,10	0°	4,0	0,56	-	0,48	10,41	4	50	2	1	●	
3100603	0,6	0,10	0°	6,0	0,56	-	0,48	12,41	4	50	2	1	●	
3100806	0,8	0,05	1°	5,0	0,76	0,95	0,65	10,68	4	50	2	2	●	
3100807	0,8	0,05	1°	8,0	0,76	1,06	0,65	13,49	4	50	2	2	●	
3100808	0,8	0,05	3°	5,0	0,76	1,26	0,65	10,12	4	50	2	2	●	
3100809	0,8	0,05	3°	8,0	0,76	1,57	0,65	12,53	4	50	2	2	●	
3100801	0,8	0,10	0°	4,0	0,76	-	0,65	10,04	4	50	2	1	●	
3100802	0,8	0,10	0°	6,0	0,76	-	0,65	12,04	4	50	2	1	●	
3100810	0,8	0,10	1°	5,0	0,76	0,95	0,65	10,68	4	50	2	2	●	
3100811	0,8	0,10	1°	8,0	0,76	1,06	0,65	13,49	4	50	2	2	●	
3100812	0,8	0,10	3°	5,0	0,76	1,26	0,65	10,12	4	50	2	2	●	
3100813	0,8	0,10	3°	8,0	0,76	1,57	0,65	12,53	4	50	2	2	●	
3100803	0,8	0,20	0°	4,0	0,76	-	0,65	10,04	4	50	2	1	●	
3100804	0,8	0,20	0°	6,0	0,76	-	0,65	12,04	4	50	2	1	●	
3100805	0,8	0,20	0°	8,0	0,76	-	0,65	14,04	4	50	2	1	●	
3100814	0,8	0,20	1°	5,0	0,76	0,95	0,65	10,68	4	50	2	2	●	
3100815	0,8	0,20	1°	8,0	0,76	1,06	0,65	13,49	4	50	2	2	●	
3100816	0,8	0,20	3°	5,0	0,76	1,26	0,65	10,12	4	50	2	2	●	
3100817	0,8	0,20	3°	8,0	0,76	1,57	0,65	12,53	4	50	2	2	●	
3101001	1,0	0,05	0°	4,0	0,95	-	0,80	9,69	4	50	2	1	●	
3101002	1,0	0,05	0°	6,0	0,95	-	0,80	11,69	4	50	2	1	●	
3101003	1,0	0,05	0°	8,0	0,95	-	0,80	13,69	4	50	2	1	●	
3101004	1,0	0,05	0°	10,0	0,95	-	0,80	15,69	4	50	2	1	●	
3101005	1,0	0,05	0°	12,0	0,95	-	0,80	17,69	4	50	2	1	●	
3101023	1,0	0,05	1°	6,0	0,95	1,18	0,80	11,25	4	50	2	2	●	
3101024	1,0	0,05	1°	10,0	0,95	1,32	0,80	14,99	4	60	2	2	●	
3101025	1,0	0,05	1°	15,0	0,95	1,50	0,80	19,67	4	60	2	2	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	◎		◎	
Cu	Al	Graphite	Ti	HRS	Plast.	

WXS-CPR



HIGH PERFORMANCE
- 2 flutes
- Long neck, pencil neck
- For mold milling

HIGH PERFORMANCE
- 2 Schneiden
- Überlaufhals, konischer Schaft
- Für den Werkzeug -und Formenbau

ALTA PRESTAZIONE
- 2 denti
- Scaricato lungo, riduzione conica
- Fresatura stampi

HAUTE PERFORMANCE
- 2 lèvres
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- Pour l'usinage de moule

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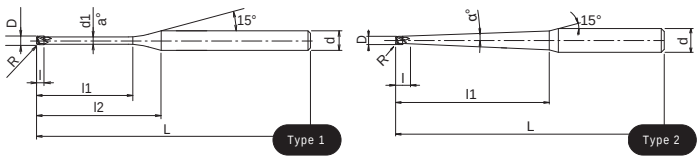
ALTO RENDIMIENTO
- 2 labio
- Cuello largo,mango reforzado con cuello conico
- De moldes y matrices

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
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Type 1 Type 2

CARBIDE | WXS | 30° | FIT

R ± 0.005 | D < 0.5 0 ~ -0.01 | D ≥ 0.5 0 ~ -0.015 | min-1 D.195-198



EDP	D	R	α	l1	d1	d2	l	l2	d	L	ZΔ	Type	Stock	Price
3101026	1,0	0,05	1°	20,0	0,95	1,67	0,80	24,34	4	60	2	2	●	
3101027	1,0	0,05	1°	25,0	0,95	1,84	0,80	29,02	4	70	2	2	●	
3101028	1,0	0,05	1°	30,0	0,95	2,02	0,80	33,69	4	80	2	2	●	
3101029	1,0	0,05	1°	35,0	0,95	2,19	0,80	38,37	4	80	2	2	●	
3101030	1,0	0,05	3°	6,0	0,95	1,55	0,80	10,58	4	50	2	2	●	
3101031	1,0	0,05	3°	10,0	0,95	1,96	0,80	13,79	4	60	2	2	●	
3101006	1,0	0,10	0°	4,0	0,95	-	0,80	9,69	4	50	2	1	●	
3101007	1,0	0,10	0°	6,0	0,95	-	0,80	11,69	4	50	2	1	●	
3101008	1,0	0,10	0°	8,0	0,95	-	0,80	13,69	4	50	2	1	●	
3101009	1,0	0,10	0°	10,0	0,95	-	0,80	15,69	4	50	2	1	●	
3101010	1,0	0,10	0°	12,0	0,95	-	0,80	17,69	4	50	2	1	●	
3101032	1,0	0,10	1°	6,0	0,95	1,18	0,80	11,25	4	50	2	1	●	
3101033	1,0	0,10	1°	10,0	0,95	1,32	0,80	14,99	4	60	2	2	●	
3101034	1,0	0,10	1°	15,0	0,95	1,50	0,80	19,67	4	60	2	2	●	
3101035	1,0	0,10	1°	20,0	0,95	1,67	0,80	24,34	4	60	2	2	●	
3101036	1,0	0,10	1°	25,0	0,95	1,84	0,80	29,02	4	70	2	2	●	
3101037	1,0	0,10	1°	30,0	0,95	2,02	0,80	33,69	4	80	2	2	●	
3101038	1,0	0,10	1°	35,0	0,95	2,19	0,80	38,37	4	80	2	2	●	
3101039	1,0	0,10	3°	6,0	0,95	1,55	0,80	10,58	4	50	2	2	●	
3101040	1,0	0,10	3°	10,0	0,95	1,96	0,80	13,79	4	60	2	2	●	
3101011	1,0	0,20	0°	4,0	0,95	-	0,80	9,69	4	50	2	2	●	
3101012	1,0	0,20	0°	6,0	0,95	-	0,80	11,69	4	50	2	2	●	
3101013	1,0	0,20	0°	8,0	0,95	-	0,80	13,69	4	50	2	2	●	
3101014	1,0	0,20	0°	10,0	0,95	-	0,80	15,69	4	50	2	2	●	
3101015	1,0	0,20	0°	12,0	0,95	-	0,80	17,69	4	50	2	2	●	
3101016	1,0	0,20	0°	16,0	0,95	-	0,80	21,69	4	60	2	2	●	
3101017	1,0	0,20	0°	20,0	0,95	-	0,80	25,69	4	60	2	2	●	
3101041	1,0	0,20	1°	6,0	0,95	1,18	0,80	11,25	4	50	2	2	●	
3101042	1,0	0,20	1°	10,0	0,95	1,32	0,80	14,99	4	60	2	2	●	
3101043	1,0	0,20	1°	15,0	0,95	1,50	0,80	19,67	4	60	2	2	●	
3101044	1,0	0,20	1°	20,0	0,95	1,67	0,80	24,34	4	60	2	2	●	
3101045	1,0	0,20	1°	25,0	0,95	1,84	0,80	29,02	4	70	2	2	●	
3101046	1,0	0,20	1°	30,0	0,95	2,02	0,80	33,69	4	80	2	2	●	
3101047	1,0	0,20	1°	35,0	0,95	2,19	0,80	38,37	4	80	2	2	●	
3101048	1,0	0,20	3°	6,0	0,95	1,55	0,80	10,58	4	50	2	2	●	
3101049	1,0	0,20	3°	10,0	0,95	1,96	0,80	13,79	4	60	2	2	●	
3101018	1,0	0,30	0°	4,0	0,95	-	0,80	9,69	4	50	2	2	●	
3101019	1,0	0,30	0°	6,0	0,95	-	0,80	11,69	4	50	2	2	●	
3101020	1,0	0,30	0°	8,0	0,95	-	0,80	13,69	4	50	2	2	●	
3101021	1,0	0,30	0°	10,0	0,95	-	0,80	15,69	4	50	2	2	●	
3101022	1,0	0,30	0°	12,0	0,95	-	0,80	17,69	4	50	2	2	●	
3101050	1,0	0,30	1°	6,0	0,95	1,18	0,80	11,25	4	50	2	2	●	
3101051	1,0	0,30	1°	10,0	0,95	1,32	0,80	14,99	4	60	2	2	●	
3101052	1,0	0,30	1°	15,0	0,95	1,50	0,80	19,67	4	60	2	2	●	
3101053	1,0	0,30	1°	20,0	0,95	1,67	0,80	24,34	4	60	2	2	●	
3101054	1,0	0,30	1°	25,0	0,95	1,84	0,80	29,02	4	70	2	2	●	
3101055	1,0	0,30	1°	30,0	0,95	2,02	0,80	33,69	4	80	2	2	●	
3101056	1,0	0,30	1°	35,0	0,95	2,19	0,80	38,37	4	80	2	2	●	
3101057	1,0	0,30	3°	6,0	0,95	1,55	0,80	10,58	4	50	2	2	●	
3101058	1,0	0,30	3°	10,0	0,95	1,96	0,80	13,79	4	60	2	2	●	
3101201	1,2	0,20	0°	6,0	1,15	-	1,00	11,31	4	50	2	2	●	
3101202	1,2	0,20	0°	8,0	1,15	-	1,00	13,31	4	50	2	2	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	◎		◎	
Cu	Al	Graphite	Ti	HRS	Plast.	

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

WXS-CPR



HIGH PERFORMANCE
- 2 flutes
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- Fresatura stampi

HAUTE PERFORMANCE
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- Dégagement long, conique
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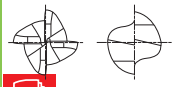
HIGH PERFORMANCE
- 2 skær
- Long neck, pencil neck
- Til værktøjsfremstilling

HIGH PERFORMANCE
- 2 skär
- Lång reducering Konisk reducering
- För formverktyg

ALTO RENDIMIENTO
- 2 labio
- Cuello largo,mango reforzado con cuello conico
- De moldes y matrices

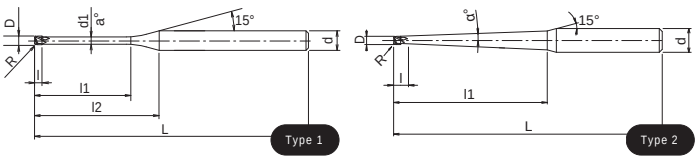
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Длинная шейка или длинная коническая шейка
- для инструментального производства

Type 1 Type 2



CARBIDE | WXS | 30° | FIT

R ± 0.005 | D < 0.5 0 ~ -0.01 | D ≥ 0.5 0 ~ -0.015 | min^{-1} D.195-198



EDP	D	R	α	l1	d1	d2	l	l2	d	L	ZΔ	Type	Stock	Price
3101203	1,20	0,20	0°	10,0	1,15	-	1,00	15,31	4	50	2	2	●	
3101204	1,20	0,30	0°	6,0	1,15	-	1,00	11,31	4	50	2	2	●	
3101205	1,20	0,30	0°	8,0	1,15	-	1,00	13,31	4	50	2	2	●	
3101206	1,20	0,30	0°	10,0	1,15	-	1,00	15,31	4	50	2	2	●	
3101511	1,50	0,10	1°	10,0	1,45	1,81	1,20	14,09	4	60	2	2	●	
3101512	1,50	0,10	1°	15,0	1,45	1,98	1,20	18,76	4	60	2	2	●	
3101513	1,50	0,10	1°	20,0	1,45	2,16	1,20	23,44	4	60	2	2	●	
3101514	1,50	0,10	1°	25,0	1,45	2,33	1,20	28,11	4	70	2	2	●	
3101515	1,50	0,10	1°	30,0	1,45	2,51	1,20	32,78	4	80	2	2	●	
3101516	1,50	0,10	3°	10,0	1,45	2,42	1,20	12,94	4	60	2	2	●	
3101517	1,50	0,10	3°	15,0	1,45	2,95	1,20	16,96	4	60	2	2	●	
3101501	1,50	0,20	0°	6,0	1,45	-	1,20	10,75	4	50	2	2	●	
3101502	1,50	0,20	0°	8,0	1,45	-	1,20	12,75	4	50	2	2	●	
3101503	1,50	0,20	0°	10,0	1,45	-	1,20	14,75	4	50	2	2	●	
3101504	1,50	0,20	0°	12,0	1,45	-	1,20	16,75	4	50	2	2	●	
3101505	1,50	0,20	0°	16,0	1,45	-	1,20	20,75	4	50	2	2	●	
3101518	1,50	0,20	1°	10,0	1,45	1,81	1,20	14,09	4	60	2	2	●	
3101519	1,50	0,20	1°	15,0	1,45	1,98	1,20	18,76	4	60	2	2	●	
3101520	1,50	0,20	1°	20,0	1,45	2,16	1,20	23,44	4	60	2	2	●	
3101521	1,50	0,20	1°	25,0	1,45	2,33	1,20	28,11	4	70	2	2	●	
3101522	1,50	0,20	1°	30,0	1,45	2,51	1,20	32,78	4	80	2	2	●	
3101523	1,50	0,20	3°	10,0	1,45	2,42	1,20	12,94	4	60	2	2	●	
3101524	1,50	0,20	3°	15,0	1,45	2,95	1,20	16,96	4	60	2	2	●	
3101506	1,50	0,30	0°	6,0	1,45	-	1,20	10,75	4	50	2	1	●	
3101507	1,50	0,30	0°	8,0	1,45	-	1,20	12,75	4	50	2	1	●	
3101508	1,50	0,30	0°	10,0	1,45	-	1,20	14,75	4	50	2	1	●	
3101509	1,50	0,30	0°	12,0	1,45	-	1,20	16,75	4	50	2	1	●	
3101510	1,50	0,30	0°	16,0	1,45	-	1,20	20,75	4	50	2	1	●	
3101525	1,50	0,30	1°	10,0	1,45	1,81	1,20	14,09	4	60	2	2	●	
3101526	1,50	0,30	1°	15,0	1,45	1,98	1,20	18,76	4	60	2	2	●	
3101527	1,50	0,30	1°	20,0	1,45	2,16	1,20	23,44	4	60	2	2	●	
3101528	1,50	0,30	1°	25,0	1,45	2,33	1,20	28,11	4	70	2	2	●	
3101529	1,50	0,30	1°	30,0	1,45	2,51	1,20	32,78	4	80	2	2	●	
3101530	1,50	0,30	3°	10,0	1,45	2,42	1,20	12,94	4	60	2	2	●	
3101531	1,50	0,30	3°	15,0	1,45	2,95	1,20	16,96	4	60	2	2	●	
3102001	2,00	0,10	0°	8,0	1,95	-	1,60	11,82	4	50	2	1	●	
3102002	2,00	0,10	0°	10,0	1,95	-	1,60	13,82	4	50	2	1	●	
3102003	2,00	0,10	0°	12,0	1,95	-	1,60	15,82	4	50	2	1	●	
3102004	2,00	0,10	0°	16,0	1,95	-	1,60	19,82	4	60	2	1	●	
3102005	2,00	0,10	0°	20,0	1,95	-	1,60	23,82	4	60	2	1	●	
3102006	2,00	0,10	0°	25,0	1,95	-	1,60	28,82	4	70	2	1	●	
3102025	2,00	0,10	1°	15,0	1,95	2,47	1,60	17,85	4	60	2	2	●	
3102026	2,00	0,10	1°	20,0	1,95	2,64	1,60	22,53	4	60	2	2	●	
3102027	2,00	0,10	1°	25,0	1,95	2,82	1,60	27,20	4	70	2	2	●	
3102028	2,00	0,10	1°	30,0	1,95	2,99	1,60	31,88	4	80	2	2	●	
3102029	2,00	0,10	1°	40,0	1,95	3,34	1,60	41,23	4	80	2	2	●	
3102030	2,00	0,10	1°	50,0	1,95	3,69	1,60	50,57	4	100	2	2	●	
3102031	2,00	0,10	3°	15,0	1,95	3,40	1,60	16,11	4	60	2	2	●	
3102032	2,00	0,10	3°	20,0	1,95	3,93	1,60	20,13	4	60	2	2	●	
3102007	2,00	0,20	0°	8,0	1,95	-	1,60	11,82	4	50	2	1	●	
3102008	2,00	0,20	0°	10,0	1,95	-	1,60	13,82	4	50	2	1	●	
3102009	2,00	0,20	0°	12,0	1,95	-	1,60	15,82	4	50	2	1	●	

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- Lång reducering Konisk reducering
- För formverktyg

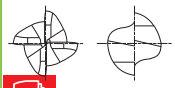
ALTO RENDIMIENTO
- 2 labio
- Cuello largo,mango reforzado con cuello conico
- De moldes y matrices

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Длинная шейка или длинная коническая шейка
- для инструментального производства

WXS

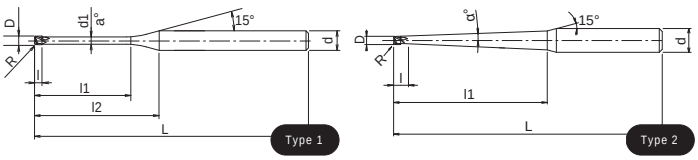
GO TO LIVE STOCK CHECK

Type 1 Type 2



CARBIDE WXS 30° FIT

R ± 0.005 | D < 0.5 0 ~ -0.01 | D ≥ 0.5 0 ~ -0.015 | min^{-1} D.195–198



EDP	D	R	α	l1	d1	d2	l	l2	d	L	ZΔ	Type	Stock	Price
3102010	2,00	0,20	0°	16,0	1,95	-	1,60	19,82	4	60	2	1	●	
3102011	2,00	0,20	0°	20,0	1,95	-	1,60	23,82	4	60	2	1	●	
3102012	2,00	0,20	0°	25,0	1,95	-	1,60	28,82	4	70	2	1	●	
3102033	2,00	0,20	1°	15,0	1,95	2,47	1,60	17,85	4	60	2	2	●	
3102034	2,00	0,20	1°	20,0	1,95	2,64	1,60	22,53	4	60	2	2	●	
3102035	2,00	0,20	1°	25,0	1,95	2,82	1,60	27,20	4	70	2	2	●	
3102036	2,00	0,20	1°	30,0	1,95	2,99	1,60	31,88	4	80	2	2	●	
3102037	2,00	0,20	1°	40,0	1,95	3,34	1,60	41,23	4	80	2	2	●	
3102038	2,00	0,20	1°	50,0	1,95	3,69	1,60	50,57	4	100	2	2	●	
3102039	2,00	0,20	3°	15,0	1,95	3,40	1,60	16,11	4	60	2	2	●	
3102040	2,00	0,20	3°	20,0	1,95	3,93	1,60	20,13	4	60	2	2	●	
3102013	2,00	0,30	0°	8,0	1,95	-	1,60	11,82	4	50	2	1	●	
3102014	2,00	0,30	0°	10,0	1,95	-	1,60	13,82	4	50	2	1	●	
3102015	2,00	0,30	0°	12,0	1,95	-	1,60	15,82	4	50	2	1	●	
3102016	2,00	0,30	0°	16,0	1,95	-	1,60	19,82	4	60	2	1	●	
3102017	2,00	0,30	0°	20,0	1,95	-	1,60	23,82	4	60	2	1	●	
3102018	2,00	0,30	0°	25,0	1,95	-	1,60	28,82	4	70	2	1	●	
3102041	2,00	0,30	1°	15,0	1,95	2,47	1,60	17,85	4	60	2	2	●	
3102042	2,00	0,30	1°	20,0	1,95	2,64	1,60	22,53	4	60	2	2	●	
3102043	2,00	0,30	1°	25,0	1,95	2,82	1,60	27,20	4	70	2	2	●	
3102044	2,00	0,30	1°	30,0	1,95	2,99	1,60	31,88	4	80	2	2	●	
3102045	2,00	0,30	1°	40,0	1,95	3,34	1,60	41,23	4	80	2	2	●	
3102046	2,00	0,30	1°	50,0	1,95	3,69	1,60	50,57	4	100	2	2	●	
3102047	2,00	0,30	3°	15,0	1,95	3,40	1,60	16,11	4	60	2	2	●	
3102048	2,00	0,30	3°	20,0	1,95	3,93	1,60	20,13	4	60	2	2	●	
3102019	2,00	0,50	0°	8,0	1,95	-	1,60	11,82	4	50	2	1	●	
3102020	2,00	0,50	0°	10,0	1,95	-	1,60	13,82	4	50	2	1	●	
3102021	2,00	0,50	0°	12,0	1,95	-	1,60	15,82	4	50	2	1	●	
3102022	2,00	0,50	0°	16,0	1,95	-	1,60	19,82	4	60	2	1	●	
3102023	2,00	0,50	0°	20,0	1,95	-	1,60	23,82	4	60	2	1	●	
3102024	2,00	0,50	0°	25,0	1,95	-	1,60	28,82	4	70	2	1	●	
3102049	2,00	0,50	1°	15,0	1,95	2,47	1,60	17,85	4	60	2	2	●	
3102050	2,00	0,50	1°	20,0	1,95	2,64	1,60	22,53	4	60	2	2	●	
3102051	2,00	0,50	1°	25,0	1,95	2,82	1,60	27,20	4	70	2	2	●	
3102052	2,00	0,50	1°	30,0	1,95	2,99	1,60	31,88	4	80	2	2	●	
3102053	2,00	0,50	1°	40,0	1,95	3,34	1,60	41,23	4	80	2	2	●	
3102054	2,00	0,50	1°	50,0	1,95	3,69	1,60	50,57	4	100	2	2	●	
3102055	2,00	0,50	3°	15,0	1,95	3,40	1,60	16,11	4	60	2	2	●	
3102056	2,00	0,50	3°	20,0	1,95	3,93	1,60	20,13	4	60	2	2	●	
3102501	2,50	0,20	0°	10,0	2,40	-	2,20	12,98	4	50	2	1	●	
3102502	2,50	0,20	0°	20,0	2,40	-	2,20	22,98	4	60	2	1	●	
3102503	2,50	0,20	0°	30,0	2,40	-	2,20	32,98	4	70	2	1	●	
3102504	2,50	0,50	0°	10,0	2,40	-	2,20	12,98	4	50	2	1	●	
3102505	2,50	0,50	0°	20,0	2,40	-	2,20	22,98	4	60	2	1	●	
3102506	2,50	0,50	0°	30,0	2,40	-	2,20	32,98	4	70	2	1	●	
3103001	3,00	0,20	0°	8,0	2,85	-	2,50	13,87	6	60	2	1	●	
3103002	3,00	0,20	0°	12,0	2,85	-	2,50	17,87	6	60	2	1	●	
3103003	3,00	0,20	0°	16,0	2,85	-	2,50	21,87	6	60	2	1	●	
3103004	3,00	0,20	0°	20,0	2,85	-	2,50	25,87	6	70	2	1	●	
3103005	3,00	0,20	0°	25,0	2,85	-	2,50	30,87	6	70	2	1	●	
3103006	3,00	0,20	0°	30,0	2,85	-	2,50	35,87	6	70	2	1	●	
3103007	3,00	0,20	0°	35,0	2,85	-	2,50	40,87	6	80	2	1	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	◎		◎	

Cu	Al	Graphite	Ti	HRS	Plast.	

● Delivery from stock
○ Available on short notice

WXS-CPR



HIGH PERFORMANCE
- 2 flutes
- Long neck, pencil neck
- For mold milling

HIGH PERFORMANCE
- 2 Schneiden
- Überlaufhals, konischer Schaft
- Für den Werkzeug -und Formenbau

ALTA PRESTAZIONE
- 2 denti
- Scaricato lungo, riduzione conica
- Fresatura stampi

HAUTE PERFORMANCE
- 2 lèvres
- Dégagement long, conique
- Pour l'usinage de moule

HIGH PERFORMANCE
- 2 skær
- Long neck, pencil neck
- Til værktøjsfremstilling

HIGH PERFORMANCE
- 2 skär
- Lång reducering Konisk reducering
- För formverktyg

ALTO RENDIMIENTO
- 2 labio
- Cuello largo,mango reforzado con cuello conico
- De moldes y matrices

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Длинная шейка или длинная коническая шейка
- для инструментального производства

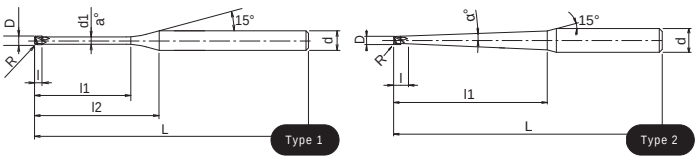
WXS

GO TO LIVE STOCK CHECK

Type 1 Type 2

CARBIDE WXS 30° FIT

± 0.005 | D < 0.5 0 ~ -0.01 | D ≥ 0.5 0 ~ -0.015 | min⁻¹ D.195-198



EDP	D	R	α	l1	d1	d2	l	l2	d	L	ZΔ	Type	Stock	Price
3103020	3,00	0,20	1°	15,0	2,85	3,44	2,50	19,78	6	60	2	2	●	
3103021	3,00	0,20	1°	20,0	2,85	3,61	2,50	24,45	6	60	2	2	●	
3103022	3,00	0,20	1°	30,0	2,85	3,96	2,50	33,80	6	80	2	2	●	
3103023	3,00	0,20	1°	40,0	2,85	4,31	2,50	43,15	6	80	2	2	●	
3103024	3,00	0,20	1°	50,0	2,85	4,66	2,50	52,50	6	100	2	2	●	
3103025	3,00	0,20	1°	60,0	2,85	5,01	2,50	61,85	6	110	2	2	●	
3103008	3,00	0,30	0°	12,0	2,85	-	2,50	17,87	6	60	2	1	●	
3103009	3,00	0,30	0°	16,0	2,85	-	2,50	21,87	6	60	2	1	●	
3103010	3,00	0,30	0°	20,0	2,85	-	2,50	25,87	6	70	2	1	●	
3103011	3,00	0,30	0°	25,0	2,85	-	2,50	30,87	6	70	2	1	●	
3103012	3,00	0,30	0°	30,0	2,85	-	2,50	35,87	6	70	2	1	●	
3103013	3,00	0,30	0°	35,0	2,85	-	2,50	40,87	6	80	2	1	●	
3103014	3,00	0,50	0°	12,0	2,85	-	2,50	17,87	6	60	2	1	●	
3103015	3,00	0,50	0°	16,0	2,85	-	2,50	21,87	6	60	2	1	●	
3103016	3,00	0,50	0°	20,0	2,85	-	2,50	25,87	6	70	2	1	●	
3103017	3,00	0,50	0°	25,0	2,85	-	2,50	30,87	6	70	2	1	●	
3103018	3,00	0,50	0°	30,0	2,85	-	2,50	35,87	6	70	2	1	●	
3103019	3,00	0,50	0°	35,0	2,85	-	2,50	40,87	6	80	2	1	●	
3103026	3,00	0,50	1°	15,0	2,85	3,44	2,50	19,78	6	60	2	2	●	
3103027	3,00	0,50	1°	20,0	2,85	3,61	2,50	24,45	6	60	2	2	●	
3103028	3,00	0,50	1°	30,0	2,85	3,96	2,50	33,80	6	80	2	2	●	
3103029	3,00	0,50	1°	40,0	2,85	4,31	2,50	43,15	6	80	2	2	●	
3103030	3,00	0,50	1°	50,0	2,85	4,66	2,50	52,50	6	100	2	2	●	
3103031	3,00	0,50	1°	60,0	2,85	5,01	2,50	61,85	6	110	2	2	●	
3104001	4,00	0,20	0°	16,0	3,85	-	4,00	20,01	6	60	4	1	●	
3104002	4,00	0,20	0°	20,0	3,85	-	4,00	24,01	6	60	4	1	●	
3104003	4,00	0,20	0°	25,0	3,85	-	4,00	29,01	6	70	4	1	●	
3104004	4,00	0,20	0°	30,0	3,85	-	4,00	34,01	6	70	4	1	●	
3104005	4,00	0,20	0°	40,0	3,85	-	4,00	44,01	6	90	4	1	●	
3104006	4,00	0,20	0°	50,0	3,85	-	4,00	54,01	6	100	4	1	●	
3104007	4,00	0,30	0°	16,0	3,85	-	4,00	20,01	6	60	4	1	●	
3104008	4,00	0,30	0°	20,0	3,85	-	4,00	24,01	6	60	4	1	●	
3104009	4,00	0,30	0°	25,0	3,85	-	4,00	29,01	6	70	4	1	●	
3104010	4,00	0,30	0°	30,0	3,85	-	4,00	34,01	6	70	4	1	●	
3104011	4,00	0,30	0°	40,0	3,85	-	4,00	44,01	6	90	4	1	●	
3104012	4,00	0,30	0°	50,0	3,85	-	4,00	54,01	6	100	4	1	●	
3104013	4,00	0,50	0°	16,0	3,85	-	4,00	20,01	6	60	4	1	●	
3104014	4,00	0,50	0°	20,0	3,85	-	4,00	24,01	6	60	4	1	●	
3104015	4,00	0,50	0°	25,0	3,85	-	4,00	29,01	6	70	4	1	●	
3104016	4,00	0,50	0°	30,0	3,85	-	4,00	34,01	6	70	4	1	●	
3104017	4,00	0,50	0°	40,0	3,85	-	4,00	44,01	6	90	4	1	●	
3104018	4,00	0,50	0°	50,0	3,85	-	4,00	54,01	6	100	4	1	●	
3104019	4,00	1,00	0°	16,0	3,85	-	4,00	20,01	6	60	4	1	●	
3104020	4,00	1,00	0°	20,0	3,85	-	4,00	24,01	6	60	4	1	●	
3104021	4,00	1,00	0°	25,0	3,85	-	4,00	29,01	6	70	4	1	●	
3104022	4,00	1,00	0°	30,0	3,85	-	4,00	34,01	6	70	4	1	●	
3104023	4,00	1,00	0°	40,0	3,85	-	4,00	44,01	6	90	4	1	●	
3104024	4,00	1,00	0°	50,0	3,85	-	4,00	54,01	6	100	4	1	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	◎		◎	

Cu	Al	Graphite	Ti	HRS	Plast.	

WX-G-EDSS



HIGH PERFORMANCE
- Protected corner
- 2 flutes extra short

HIGH PERFORMANCE
- Kantenschutzfase
- 2 scneiden extra kurz

ALTA PRESTAZIONE
- Angolo rinforzato con micro smusso
- 2 denti, extra corta

HAUTE PERFORMANCE
- Angle renforcé avec micro-chanfrein
- 2 lèvres extra courte

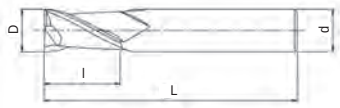
HIGH PERFORMANCE
- Beskyttet hjørne
- 2 skær ekstra kort

HIGH PERFORMANCE
- Starkare hörna
- 2 skär extra kort

ALTO RENDIMIENTO
- Vertice protegido
- 2 labios extra corto

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Защищенная кромка торца
- 2 режущих кромки, короткая

WXL-1,5D-DE (page D.33) is OSG's new offering for this tool



EDP	D	L	l	d	Stock	Price
3019010	1,0	40	1,5	4	●	
3019012	1,2	40	1,8	4	●	
3019015	1,5	40	2,3	4	●	
3019018	1,8	40	2,7	4	●	
3019020	2,0	40	3,0	4	●	
3019025	2,5	40	3,7	4	●	
3019028	2,8	40	4,2	4	●	
3019030	3,0	50	4,5	6	●	
3019035	3,5	50	5,2	6	●	
3019040	4,0	50	6,0	6	●	
3019045	4,5	50	6,8	6	●	
3019050	5,0	50	7,5	6	●	
3019055	5,5	50	8,2	6	●	
3019060	6,0	50	9,0	6	●	
3019070	7,0	60	11,0	8	●	
3019080	8,0	60	12,0	8	●	
3019090	9,0	70	14,0	10	●	
3019100	10,0	70	15,0	10	●	
3019120	12,0	75	18,0	12	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	○	○		○	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○	○		

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE
- Sharp corner edge

HIGH PERFORMANCE
- Scharfe Schneide

ALTA PRESTAZIONE
- Affilato angolo del tagliente

HAUTE PERFORMANCE
- Angle vif

HIGH PERFORMANCE
- Skarpt hjørne

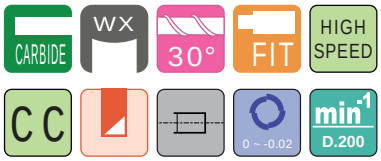
HIGH PERFORMANCE
- Starkare hörna

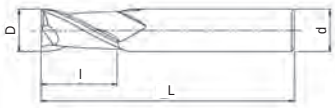
ALTO RENDIMIENTO
- Vertice afilado

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Острая кромка

WXL-2D-DE (page D.34) is OSG's new offering for this tool







EDP	D	L	l	d	Stock	Price
3010502	0,2	40	0,4	4	●	
3010505	0,5	40	1,0	4	●	
3010510	1,0	40	2,5	4	●	
3010515	1,5	40	4,0	4	●	
3010520	2,0	40	6,0	4	●	
3010525	2,5	40	8,0	4	●	
3010530	3,0	45	8,0	6	●	
3010540	4,0	45	11,0	6	●	
3010550	5,0	50	13,0	6	●	
3010555	5,5	50	13,0	6	●	
3010560	6,0	50	13,0	6	●	
3010580	8,0	60	19,0	8	●	
3010590	9,0	70	19,0	10	●	
3010600	10,0	70	22,0	10	●	
3010620	12,0	75	26,0	12	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	○	○		○	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○	○		

WX-G-ETSS



HIGH PERFORMANCE
- 3 flutes

HIGH PERFORMANCE
- 3 Schneiden

ALTA PRESTAZIONE
- 3 denti

HAUTE PERFORMANCE
- 3 lèvres

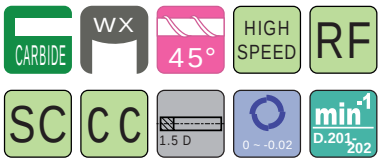
HIGH PERFORMANCE
- 3 skær

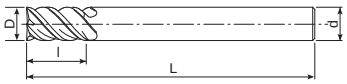
HIGH PERFORMANCE
- 3 skär

ALTO RENDIMIENTO
- 3 labios

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 3 режущих кромки







EDP	D	L	l	d	Stock	Price
48120030	3	50	4,5	6	●	
48120040	4	50	6,0	6	●	
48120050	5	50	7,5	6	●	
48120060	6	50	9,0	6	●	
48120080	8	60	12	8	●	
48120100	10	70	15	10	●	
48120120	12	75	18	12	●	
48120160	16	100	24	16	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	○			◎	
Cu	**Al**	**Graphite**	**Ti**	**HRS**	**Plast.**	
			◎			

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

WX-G-EMSS



HIGH PERFORMANCE
- End mills for big production
- Corner protection

HIGH PERFORMANCE
- Massenproduktion
- Kantenschutzfase

ALTA PRESTAZIONE
- Frese per grande produzione
- Angolo rinforzato con micro smusso

HAUTE PERFORMANCE
- Fraise pour grande production
- Angle renforcé avec micro-chanfrein

HIGH PERFORMANCE
- Fræsere til masse produktion
- Hjørne beskyttelse

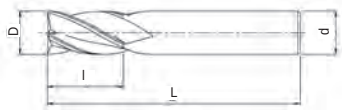
HIGH PERFORMANCE
- Hög produktivitet
- Starkare hörna

ALTO RENDIMIENTO
- Fresas para fabricación en serie
- Protección de vertice

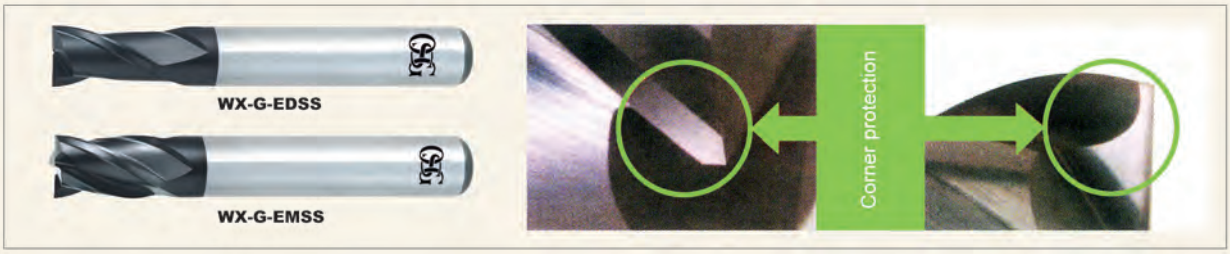
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Для массового производства
- Защищенная кромка торца

CARBIDE | WX | 35° | FIT | HIGH SPEED

CC | 1.5 D | 0 ~ -0.02 | min⁻¹ D.202



EDP	D	L	l	d	Stock	Price
3019330	3	50	4,5	6	●	
3019340	4	50	6,0	6	●	
3019350	5	50	7,5	6	●	
3019360	6	50	9,0	6	●	
3019380	8	60	12,0	8	●	
3019400	10	70	15,0	10	●	
3019420	12	75	18,0	12	●	



Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение						
~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	○	○		○	◎
Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○	○		



HIGH PERFORMANCE
- 4 flutes
- Stub length

HIGH PERFORMANCE
- 4 Schneiden
- Kurzer Schaft

ALTA PRESTAZIONE
- Affilato angolo del tagliente
- Serie corta

HAUTE PERFORMANCE
- Angle vif
- Série courte

HIGH PERFORMANCE
- Skarpt hjørne
- Stub længde

HIGH PERFORMANCE
- Skarp hörna
- Kort skärlängd

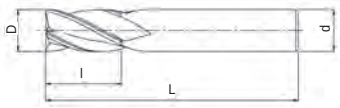
ALTO RENDIMIENTO
- 4 labios
- Serie corta

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Острая кромка
- Короткая длина

WXL-EMS (page D.37) is OSG's new offering for this tool

CARBIDE | WX | 30° | FIT | HIGH SPEED | CC

D > 12 0 ~ -0.03 | D ≤ 12 0 ~ -0.02 | min⁻¹ D.203



EDP	D	L	l	d	Stock	Price
3013020	2,0	40	6	4	●	
3013025	2,5	40	8	4	●	
3013030	3,0	45	8	6	●	
3013040	4,0	45	11	6	●	
3013050	5,0	50	13	6	●	
3013060	6,0	50	13	6	●	
3013070	7,0	60	16	8	●	
3013080	8,0	60	19	8	●	
3013090	9,0	70	19	10	●	
3013100	10,0	70	22	10	●	
3013120	12,0	75	26	12	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	○	○		○	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○	○		

● Delivery from stock
○ Available on short notice

WX-PHS



HIGH PERFORMANCE
- Big cutdepth
- Protected corner

HIGH PERFORMANCE
- Maximale Schnittiefe
- Kantenschutzfase

ALTA PRESTAZIONE
- Elevato profondita' di taglio
- Angolo rinforzato con micro smusso

HAUTE PERFORMANCE
- Grande profondeur de coupe
- Angle renforcé avec micro-chanfrein

HIGH PERFORMANCE
- Stor skæredybde
- Beskyttet hjørne

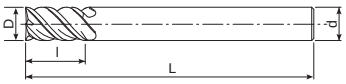
HIGH PERFORMANCE
- Stora skärdjup
- Starkare hörna

ALTO RENDIMIENTO
- Gran profundidad de pasada
- Vertice protegido

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- большая глубина резания
- Защищенная кромка торца

NEO-PHS (page D.29) is OSG's new offering for this tool





EDP	D	L	l	d	Stock	Price
3016030	3	60	8	6	●	
3016040	4	60	11	6	●	
3016050	5	60	13	6	●	
3016060	6	60	13	6	●	
3016080	8	80	19	8	●	
3016100	10	80	22	10	●	
3016120	12	100	26	12	●	
3016160	16	115	32	16	●	
3016200	20	125	38	20	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	○	○		◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		◎	◎		



HIGH PERFORMANCE
- 2 flutes
- Long neck

HIGH PERFORMANCE
- 2 Schneiden
- Überlaufhals

ALTA PRESTAZIONE
- 2 denti
- Scaricato lungo

HAUTE PERFORMANCE
- 2 lèvres
- Dégagement long

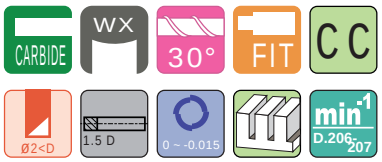
HIGH PERFORMANCE
- 2 skær
- Long neck

HIGH PERFORMANCE
- 2 skär
- Lång reducering

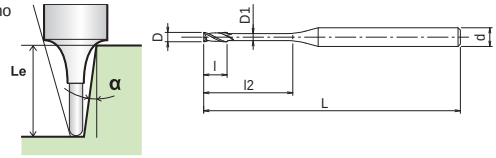
ALTO RENDIMIENTO
- 2 labios
- Cuello largo

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Длинная шейка

WXL-LN-EDS (page D.38~D.41) is OSG's new offering for this tool



No numerical value means no interference with workpiece



EDP	D	l1	L	l	d1	d	Le (α) 0,5°	1°	1,5°	2°	2,5°	3°	Stock	Price
3020201	0,2	0,5	45	0,30	0,18	4	0,55	0,60	0,66	0,73	0,81	0,96	●	
3020202	0,2	1,0	45	0,30	0,18	4	1,09	1,19	1,30	1,41	1,53	1,66	○	
3020203	0,2	1,5	45	0,30	0,18	4	1,64	1,78	1,92	2,07	2,22	2,37	●	
3020302	0,3	1,0	45	0,45	0,28	4	1,09	1,19	1,30	1,41	1,53	1,66	●	
3020304	0,3	2,0	45	0,45	0,28	4	2,12	2,35	2,53	2,70	2,88	3,05	○	
3020306	0,3	3,0	45	0,45	0,28	4	3,26	3,50	3,72	3,94	4,15	4,36	○	
3020404	0,4	2,0	45	0,60	0,37	4	2,17	2,34	2,51	2,68	2,85	3,02	●	
3020406	0,4	3,0	45	0,60	0,37	4	3,24	3,48	3,70	3,91	4,12	4,32	●	
3020408	0,4	4,0	45	0,60	0,37	4	4,32	4,60	4,86	5,11	5,35	5,58	●	
3020502	0,5	2,0	45	0,70	0,45	4	2,16	2,31	2,47	2,63	2,79	2,96	●	
3020504	0,5	4,0	45	0,70	0,45	4	4,29	4,56	4,81	5,06	5,29	5,51	●	
3020506	0,5	6,0	45	0,70	0,45	4	6,42	6,77	7,10	7,39	7,68	7,99	●	
3020508	0,5	8,0	45	0,70	0,45	4	8,53	8,96	9,34	9,69	10,07	10,48	●	
3020602	0,6	2,0	45	0,90	0,55	4	2,16	2,31	2,47	2,63	2,79	2,96	●	
3020604	0,6	4,0	45	0,90	0,55	4	4,29	4,56	4,81	5,06	5,29	5,51	●	
3020606	0,6	6,0	45	0,90	0,55	4	6,42	6,77	7,10	7,39	7,68	7,99	●	
3020608	0,6	8,0	45	0,90	0,55	4	8,53	8,96	9,34	9,69	10,07	10,48	●	
3020610	0,6	10,0	45	0,90	0,55	4	10,64	11,13	11,56	11,99	12,46	12,97	●	
3020702	0,7	2,0	45	1,00	0,65	4	2,16	2,31	2,47	2,63	2,79	2,96	○	
3020704	0,7	4,0	45	1,00	0,65	4	4,29	4,56	4,81	5,06	5,29	5,51	○	
3020706	0,7	6,0	45	1,00	0,65	4	6,42	6,77	7,10	7,39	7,68	7,99	○	
3020708	0,7	8,0	45	1,00	0,65	4	8,53	8,96	9,34	9,69	10,07	10,48	○	
3020710	0,7	10,0	45	1,00	0,65	4	10,64	11,13	11,56	11,99	12,46	12,97	○	
3020804	0,8	4,0	45	1,20	0,75	4	4,29	4,56	4,81	5,06	5,29	5,51	●	
3020806	0,8	6,0	45	1,20	0,75	4	6,42	6,77	7,10	7,39	7,68	7,99	●	
3020808	0,8	8,0	45	1,20	0,75	4	8,53	8,96	9,34	9,69	10,07	10,48	●	
3020810	0,8	10,0	45	1,20	0,75	4	10,64	11,13	11,56	11,99	12,46	12,97	●	
3020812	0,8	12,0	45	1,20	0,75	4	12,74	13,29	13,78	14,29	14,85	15,45	●	
3020906	0,9	6,0	45	1,35	0,85	4	6,42	6,77	7,10	7,39	7,68	7,99	●	
3020908	0,9	8,0	45	1,35	0,85	4	8,53	8,96	9,34	9,69	10,07	10,48	●	
3020910	0,9	10,0	45	1,35	0,85	4	10,64	11,13	11,56	11,99	12,46	12,97	○	
3020915	0,9	15,0	50	1,35	0,85	4	15,88	16,51	17,10	17,74	18,43	19,18	○	
3021006	1,0	6,0	45	1,50	0,95	4	6,42	6,77	7,10	7,39	7,68	7,99	●	
3021008	1,0	8,0	45	1,50	0,95	4	8,53	8,96	9,34	9,69	10,07	10,48	●	
3021010	1,0	10,0	45	1,50	0,95	4	10,64	11,13	11,56	11,99	12,46	12,97	●	
3021012	1,0	12,0	45	1,50	0,95	4	12,74	13,29	13,78	14,29	14,85	15,45	●	
3021014	1,0	14,0	50	1,50	0,95	4	14,83	15,44	15,99	16,59	17,24	17,94	●	
3021016	1,0	16,0	50	1,50	0,95	4	16,92	17,58	18,21	18,89	19,63	20,43	●	
3021206	1,2	6,0	45	1,80	1,15	4	6,42	6,77	7,10	7,39	7,68	7,99	●	
3021208	1,2	8,0	45	1,80	1,15	4	8,53	8,96	9,34	9,69	10,07	10,48	○	
3021210	1,2	10,0	45	1,80	1,15	4	10,64	11,13	11,56	11,99	12,46	12,97	○	
3021212	1,2	12,0	45	1,80	1,15	4	12,74	13,29	13,78	14,29	14,85	15,45	○	
3021406	1,4	6,0	45	2,10	1,35	4	6,42	6,77	7,10	7,39	7,68	7,99	○	
3021408	1,4	8,0	45	2,10	1,35	4	8,53	8,96	9,34	9,69	10,07	10,48	○	
3021410	1,4	10,0	45	2,10	1,35	4	10,64	11,13	11,56	11,99	12,46	12,97	○	
3021412	1,4	12,0	45	2,10	1,35	4	12,74	13,29	13,78	14,29	14,85	15,45	○	
3021414	1,4	14,0	50	2,10	1,35	4	14,83	15,44	15,99	16,59	17,24	17,94	○	
3021416	1,4	16,0	50	2,10	1,35	4	16,92	17,58	18,21	18,89	19,63	20,43	○	
3021506	1,5	6,0	45	2,3	1,45	4	6,42	6,77	7,10	7,39	7,68	7,99	●	
3021508	1,5	8,0	45	2,3	1,45	4	8,53	8,96	9,34	9,69	10,07	10,48	●	
3021510	1,5	10,0	45	2,3	1,45	4	10,64	11,13	11,56	11,99	12,46	12,97	●	
3021512	1,5	12,0	45	2,3	1,45	4	12,74	13,29	13,78	14,29	14,85	15,45	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	○		○	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○	○		

● Delivery from stock
○ Available on short notice

WX-LN-EDS



HIGH PERFORMANCE
- 2 flutes
- Long neck

HIGH PERFORMANCE
- 2 Schneiden
- Überlaufhals

ALTA PRESTAZIONE
- 2 denti
- Scaricato lungo

HAUTE PERFORMANCE
- 2 lèvres
- Dégagement long

HIGH PERFORMANCE
- 2 skær
- Long neck

HIGH PERFORMANCE
- 2 skär
- Lång reducering

ALTO RENDIMIENTO
- 2 labios
- Cuello largo

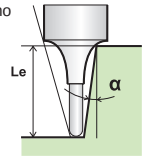
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Длинная шейка

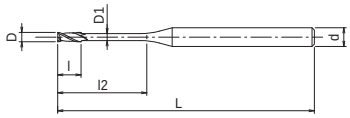
WXL-LN-EDS (page D.38~D.41) is OSG's new offering for this tool

CARBIDE | WX | 30° | FIT | CC

Ø2<D | 1.5 D | 0 ~ -0.015 | min⁻¹ D.206_207

No numerical value means no interference with workpiece





EDP	D	l1	L	l	d1	d	Le (α) 0,5°	1°	1,5°	2°	2,5°	3°	Stock	Price
3021514	1,5	14	50	2,3	1,45	4	14,83	15,44	15,99	16,59	17,24	17,94	●	
3021516	1,5	16	50	2,3	1,45	4	16,92	17,58	18,21	18,89	19,63	20,43	●	
3021518	1,5	18	55	2,3	1,45	4	19,01	19,71	20,43	21,19	22,02	22,91	●	
3021520	1,5	20	55	2,3	1,45	4	21,09	21,85	22,64	23,49	24,41	-	●	
3021606	1,6	6	45	2,4	1,55	4	6,42	6,77	7,10	7,39	7,68	7,99	○	
3021608	1,6	8	45	2,4	1,55	4	8,53	8,96	9,34	9,69	10,07	10,48	●	
3021610	1,6	10	45	2,4	1,55	4	10,64	11,13	11,56	11,99	12,46	12,97	○	
3021612	1,6	12	45	2,4	1,55	4	12,74	13,29	13,78	14,29	14,85	15,45	○	
3021614	1,6	14	50	2,4	1,55	4	14,83	15,44	15,99	16,59	17,24	17,94	○	
3021616	1,6	16	50	2,4	1,55	4	16,92	17,58	18,21	18,89	19,63	20,43	●	
3021618	1,6	18	55	2,4	1,55	4	19,01	19,71	20,43	21,19	22,02	22,91	○	
3021620	1,6	20	55	2,4	1,55	4	21,09	21,85	22,64	23,49	24,41	-	○	
3021806	1,8	6	45	2,7	1,75	4	6,42	6,77	7,10	7,39	7,68	7,99	○	
3021808	1,8	8	45	2,7	1,75	4	8,53	8,96	9,34	9,69	10,07	10,48	●	
3021810	1,8	10	45	2,7	1,75	4	10,64	11,13	11,56	11,99	12,46	12,97	●	
3021812	1,8	12	45	2,7	1,75	4	12,74	13,29	13,78	14,29	14,85	15,45	○	
3021814	1,8	14	50	2,7	1,75	4	14,83	15,44	15,99	16,59	17,24	17,94	○	
3021816	1,8	16	50	2,7	1,75	4	16,92	17,58	18,21	18,89	19,63	20,43	○	
3021818	1,8	18	55	2,7	1,75	4	19,01	19,71	20,43	21,19	22,02	22,91	○	
3021820	1,8	20	55	2,7	1,75	4	21,09	21,85	22,64	23,49	24,41	-	●	
3022006	2,0	6	45	3,0	1,95	4	6,42	6,77	7,10	7,39	7,68	7,99	●	
3022008	2,0	8	45	3,0	1,95	4	8,53	8,96	9,34	9,69	10,07	10,48	●	
3022010	2,0	10	45	3,0	1,95	4	10,64	11,13	11,56	11,99	12,46	12,97	●	
3022012	2,0	12	45	3,0	1,95	4	12,74	13,29	13,78	14,29	14,85	15,45	●	
3022014	2,0	14	50	3,0	1,95	4	14,83	15,44	15,99	16,59	17,24	17,94	●	
3022016	2,0	16	50	3,0	1,95	4	16,92	17,58	18,21	18,89	19,63	20,43	●	
3022018	2,0	18	55	3,0	1,95	4	19,01	19,71	20,43	21,19	22,02	22,91	●	
3022020	2,0	20	55	3,0	1,95	4	21,09	21,85	22,64	23,49	24,41	-	●	
3022025	2,0	25	60	3,0	1,95	4	26,285	27,20	28,19	-	-	-	●	
3022030	2,0	30	70	3,0	1,95	4	31,46	32,55	33,73	-	-	-	●	
3022508	2,5	8	45	3,7	2,40	4	8,47	8,87	9,22	9,57	9,94	10,34	●	
3022510	2,5	10	45	3,7	2,40	4	10,57	11,03	11,44	11,87	12,33	12,83	●	
3022512	2,5	12	45	3,7	2,40	4	12,66	13,18	13,66	14,17	14,72	-	●	
3022514	2,5	14	50	3,7	2,40	4	14,75	15,32	15,87	16,47	17,11	-	●	
3022516	2,5	16	55	3,7	2,40	4	16,83	17,46	18,09	18,77	-	-	●	
3022518	2,5	18	55	3,7	2,40	4	18,91	19,60	20,31	21,07	-	-	●	
3022520	2,5	20	60	3,7	2,40	4	20,99	21,74	22,52	-	-	-	●	
3022525	2,5	25	70	3,7	2,40	4	26,17	27,09	28,06	-	-	-	●	
3022530	2,5	30	80	3,7	2,40	4	31,34	32,43	-	-	-	-	●	
3023008	3,0	8	45	4,5	2,85	6	8,42	8,79	9,13	9,47	9,84	10,24	●	
3023010	3,0	10	45	4,5	2,85	6	10,51	10,95	11,35	11,77	12,23	12,73	○	
3023012	3,0	12	45	4,5	2,85	6	12,60	13,09	13,56	14,07	14,62	15,21	●	
3023014	3,0	14	50	4,5	2,85	6	14,68	15,23	15,78	16,37	17,01	17,70	●	
3023016	3,0	16	55	4,5	2,85	6	16,76	17,37	18,00	18,67	19,41	20,19	●	
3023018	3,0	18	55	4,5	2,85	6	18,84	19,51	20,10	20,97	21,79	22,67	●	
3023020	3,0	20	60	4,5	2,85	6	20,91	21,65	22,43	23,27	24,18	25,16	●	
3023025	3,0	25	65	4,5	2,85	6	26,09	27,00	27,97	29,02	30,15	-	●	
3023030	3,0	30	80	4,5	2,85	6	31,26	32,35	33,51	34,77	-	-	●	
3023035	3,0	35	90	4,5	2,85	6	36,43	37,69	39,06	40,52	-	-	○	
3023040	3,0	40	90	4,5	2,85	6	41,59	43,04	44,60	-	-	-	●	
3024012	4,0	12	50	6,0	3,85	6	12,60	13,09	13,56	14,07	14,62	15,21	●	
3024016	4,0	16	60	6,0	3,85	6	16,76	17,37	18,00	18,67	19,40	-	●	
3024020	4,0	20	60	6,0	3,85	6	20,91	21,65	22,43	23,27	-	-	●	
3024025	4,0	25	70	6,0	3,85	6	26,09	27,00	27,97	-	-	-	●	
3024030	4,0	30	80	6,0	3,85	6	31,26	32,35	33,51	-	-	-	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	○		○	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○	○		



HIGH PERFORMANCE
- 2 flutes
- Long neck

HIGH PERFORMANCE
- 2 Schneiden
- Überlaufhals

ALTA PRESTAZIONE
- 2 denti
- Scaricato lungo

HAUTE PERFORMANCE
- 2 lèvres
- Dégagement long

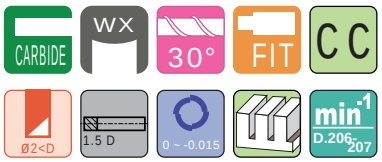
HIGH PERFORMANCE
- 2 skær
- Long neck

HIGH PERFORMANCE
- 2 skär
- Lång reducering

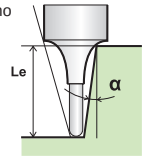
ALTO RENDIMIENTO
- 2 labios
- Cuello largo

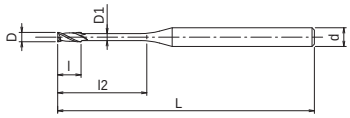
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Длинная шейка

WXL-LN-EDS (page D.38~D.41) is OSG's new offering for this tool



No numerical value means no interference with workpiece





EDP	D	l1	L	l	d1	d	Le (α) 0,5°	1°	1,5°	2°	2,5°	3°	Stock	Price
3024035	4,0	35	90	6,0	3,85	6	36,43	37,69	-	-	-	-	○	
3024040	4,0	40	90	6,0	3,85	6	41,59	43,04	-	-	-	-	○	
3024045	4,0	45	100	6,0	3,85	6	46,76	48,39	-	-	-	-	○	
3024050	4,0	50	100	6,0	3,85	6	51,93	53,74	-	-	-	-	○	
3025016	5,0	16	60	7,5	4,85	6	16,76	17,37	18,00	-	-	-	○	
3025025	5,0	25	70	7,5	4,85	6	29,09	27,00	-	-	-	-	○	
3025035	5,0	35	90	7,5	4,85	6	36,43	-	-	-	-	-	●	
3025050	5,0	50	110	7,5	4,85	6	51,93	-	-	-	-	-	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	○		○	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○	○		

● Delivery from stock
○ Available on short notice

WX-EBD



HIGH PERFORMANCE
- 2 flutes
- Ball nose for general purpose

HIGH PERFORMANCE
- 2 Schneiden
- Kopierfräser für allgemeine Anwendungen

ALTA PRESTAZIONE
- 2 denti
- Frese sferiche, per applicazioni generali

HAUTE PERFORMANCE
- 2 lèvres
- Fraises hémisphériques pour application universelle

HIGH PERFORMANCE
- 2 skær
- Radius fræsere, til generelt brug

HIGH PERFORMANCE
- 2 skär
- Fullradie, allround

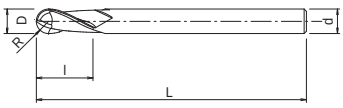
ALTO RENDIMIENTO
- 2 labios
- Punta esférica, emplo general

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Сферические концевые фрезы, Общего назначения

WXL-EBD (page D.42) is OSG's new offering for this tool







EDP	D	R	L	l	d	Stock	Price
3015004	0,4	0,20	40	0,8	4	●	
3015005	0,5	0,25	40	1,1	4	●	
3015006	0,6	0,30	40	1,1	4	●	
3015008	0,8	0,40	40	2,0	4	●	
3015010	1,0	0,50	50	2,5	4	●	
3015012	1,2	0,60	50	3,0	4	●	
3015014	1,4	0,70	50	3,5	4	●	
3015015	1,5	0,75	50	4,0	4	●	
3015016	1,6	0,80	50	4,0	4	●	
3015020	2,0	1,00	50	5,0	6	●	
3015025	2,5	1,25	60	6,0	6	●	
3015030	3,0	1,50	60	8,0	6	●	
3015035	3,5	1,75	70	8,0	6	●	
3015040	4,0	2,00	70	8,0	6	●	
3015041	4,0	2,00	60	8,0	4	●	
3015050	5,0	2,50	80	10,0	6	●	
3015060	6,0	3,00	90	12,0	6	●	
3015070	7,0	3,50	90	14,0	6	●	
3015080	8,0	4,00	100	14,0	8	●	
3015090	9,0	4,50	100	18,0	8	●	
3015100	10,0	5,00	100	18,0	10	●	
3015110	11,0	5,50	100	22,0	10	●	
3015120	12,0	6,00	110	22,0	12	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	○		◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○	○		

WX-LN-EBD



HIGH PERFORMANCE
- 2 flutes
- Long neck

HIGH PERFORMANCE
- 2 Schneiden
- Überlaufhals

ALTA PRESTAZIONE
- 2 denti
- Scaricato lungo

HAUTE PERFORMANCE
- 2 lèvres
- Dégagement long

HIGH PERFORMANCE
- 2 skær
- Long neck

HIGH PERFORMANCE
- 2 skär
- Lång reducering

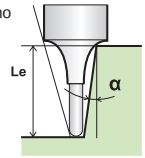
ALTO RENDIMIENTO
- 2 labios
- Cuello largo

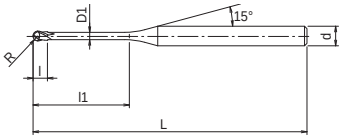
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Длинная шейка

WXL-LN-EBD (page D.7~D.41) is OSG's new offering for this tool

CARBIDE | WX | 30° | FIT | 0.8 D | R ± 0.01 | min⁻¹ D.209-212

No numerical value means no interference with workpiece





EDP	D	R	l1	L	l	d1	d	Le (α) 0,5°	1°	1,5°	2°	2,5°	3°	Stock	Price
3030201	0,2	0,10	0,5	45	0,16	0,18	4	0,55	0,60	0,66	0,73	0,81	0,90	●	
3030202	0,2	0,10	1,0	45	0,16	0,18	4	1,09	1,19	1,30	1,41	1,53	1,66	●	
3030203	0,2	0,10	1,5	45	0,16	0,18	4	1,64	1,78	1,92	2,07	2,22	2,37	●	
3030302	0,3	0,15	1,0	45	0,24	0,28	4	1,09	1,19	1,30	1,41	1,53	1,66	○	
3030303	0,3	0,15	1,5	45	0,24	0,28	4	1,64	1,78	1,92	2,07	2,22	2,37	○	
3030304	0,3	0,15	2,0	45	0,24	0,28	4	2,12	2,35	2,53	2,70	2,89	3,05	○	
3030402	0,4	0,20	1,0	45	0,30	0,37	4	1,09	1,18	1,29	1,39	1,51	1,63	○	
3030403	0,4	0,20	1,5	45	0,30	0,37	4	1,63	1,76	1,90	2,04	2,19	2,34	●	
3030404	0,4	0,20	2,0	45	0,30	0,37	4	2,17	2,34	2,51	2,68	2,85	3,02	●	
3030405	0,4	0,20	2,5	45	0,30	0,37	4	2,71	2,91	3,11	3,30	3,49	3,67	●	
3030406	0,4	0,20	3,0	45	0,30	0,37	4	3,24	3,48	3,70	3,91	4,12	4,32	○	
3030502	0,5	0,25	2,0	45	0,40	0,45	4	2,16	2,31	2,47	2,63	2,79	2,96	○	
3030503	0,5	0,25	3,0	45	0,40	0,45	4	3,23	3,44	3,65	3,86	4,06	4,25	○	
3030504	0,5	0,25	4,0	45	0,40	0,45	4	4,29	4,56	4,81	5,05	5,29	5,51	●	
3030505	0,5	0,25	5,0	45	0,40	0,45	4	5,36	5,67	5,96	6,23	6,49	6,75	○	
3030506	0,5	0,25	6,0	45	0,40	0,45	4	6,42	6,77	7,10	7,39	7,68	7,99	●	
3030508	0,5	0,25	8,0	45	0,40	0,45	4	8,53	8,96	9,34	9,69	10,07	10,48	○	
3030602	0,6	0,30	2,0	45	0,50	0,55	4	2,16	2,31	2,47	2,63	2,79	2,96	●	
3030603	0,6	0,30	3,0	45	0,50	0,55	4	3,23	3,44	3,65	3,86	4,06	4,25	○	
3030604	0,6	0,30	4,0	45	0,50	0,55	4	4,29	4,56	4,81	5,05	5,28	5,51	○	
3030605	0,6	0,30	5,0	45	0,50	0,55	4	5,36	5,67	5,96	6,23	6,49	6,75	○	
3030606	0,6	0,30	6,0	45	0,50	0,55	4	6,42	6,77	7,10	7,39	7,68	7,99	●	
3030608	0,6	0,30	8,0	45	0,50	0,55	4	8,53	8,96	9,34	9,69	10,07	10,48	●	
3030802	0,8	0,40	2,0	45	0,60	0,75	4	2,16	2,31	2,47	2,63	2,79	2,96	●	
3030804	0,8	0,40	4,0	45	0,60	0,75	4	4,29	4,56	4,81	5,05	5,28	5,51	○	
3030805	0,8	0,40	5,0	45	0,60	0,75	4	5,36	5,67	5,96	6,23	6,49	6,75	○	
3030806	0,8	0,40	6,0	45	0,60	0,75	4	6,42	6,77	7,10	7,39	7,68	7,99	○	
3030807	0,8	0,40	7,0	45	0,60	0,75	4	7,48	7,87	8,22	8,54	8,88	9,24	●	
3030808	0,8	0,40	8,0	45	0,60	0,75	4	8,53	8,96	9,34	9,69	10,07	10,48	○	
3030810	0,8	0,40	10,0	45	0,60	0,75	4	10,64	11,13	11,56	11,99	12,46	12,97	●	
3031003	1,0	0,50	3,0	45	0,80	0,95	4	3,23	3,44	3,65	3,86	4,06	4,25	○	
3031004	1,0	0,50	4,0	45	0,80	0,95	4	4,29	4,56	4,81	5,05	5,28	5,51	●	
3031005	1,0	0,50	5,0	45	0,80	0,95	4	5,36	5,67	5,96	6,23	6,49	6,75	○	
3031006	1,0	0,50	6,0	45	0,80	0,95	4	6,42	6,77	7,10	7,39	7,68	7,99	●	
3031007	1,0	0,50	7,0	45	0,80	0,95	4	7,48	7,87	8,22	8,54	8,88	9,24	●	
3031008	1,0	0,50	8,0	45	0,80	0,95	4	8,53	8,96	9,34	9,69	10,07	10,48	●	
3031009	1,0	0,50	9,0	45	0,80	0,95	4	9,59	10,05	10,45	10,84	11,27	11,72	●	
3031010	1,0	0,50	10,0	45	0,80	0,95	4	10,64	11,13	11,56	11,99	12,46	12,97	●	
3031012	1,0	0,50	12,0	45	0,80	0,95	4	12,74	13,29	13,78	14,29	14,85	15,45	●	
3031014	1,0	0,50	14,0	50	0,80	0,95	4	14,83	15,44	15,99	16,59	17,24	17,94	○	
3031016	1,0	0,50	16,0	50	0,80	0,95	4	16,92	17,58	18,21	18,89	19,63	20,43	○	
3031020	1,0	0,50	20,0	55	0,80	0,95	4	21,09	21,85	22,64	23,49	24,41	-	○	
3031206	1,2	0,60	6,0	45	1,00	1,15	4	6,42	6,77	7,10	7,39	7,68	7,99	○	
3031208	1,2	0,60	8,0	45	1,00	1,15	4	8,53	8,96	9,34	9,69	10,07	10,48	●	
3031210	1,2	0,60	10,0	45	1,00	1,15	4	10,64	11,13	11,56	11,99	12,46	12,97	●	
3031212	1,2	0,60	12,0	45	1,00	1,15	4	12,74	13,29	13,78	14,29	14,85	15,45	●	
3031408	1,4	0,70	8,0	45	1,10	1,35	4	8,53	8,96	9,34	9,69	10,07	10,48	●	
3031412	1,4	0,70	12,0	45	1,10	1,35	4	12,74	13,29	13,78	14,29	14,85	15,45	●	
3031416	1,4	0,70	16,0	50	1,10	1,35	4	12,74	17,58	18,21	18,89	19,63	20,43	●	
3031508	1,5	0,75	8,0	45	1,20	1,45	4	16,92	8,96	9,34	9,69	10,07	10,48	●	
3031512	1,5	0,75	12,0	45	1,20	1,45	4	21,09	13,29	13,78	14,29	14,85	15,45	○	
3031516	1,5	0,75	16,0	50	1,20	1,45	4	4,29	17,58	18,21	18,89	19,63	20,43	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	○	○		◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○	○		

● Delivery from stock
○ Available on short notice

WX-LN-EBD



HIGH PERFORMANCE
- 2 flutes
- Long neck

HIGH PERFORMANCE
- 2 Schneiden
- Überlaufhals

ALTA PRESTAZIONE
- 2 denti
- Scaricato lungo

HAUTE PERFORMANCE
- 2 lèvres
- Dégagement long

HIGH PERFORMANCE
- 2 skær
- Long neck

HIGH PERFORMANCE
- 2 skär
- Lång reducering

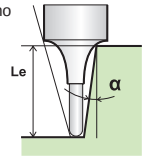
ALTO RENDIMIENTO
- 2 labios
- Cuello largo

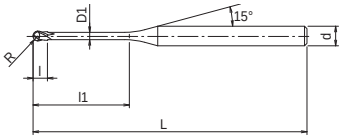
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Длинная шейка

WXL-LN-EBD (page D.7~D.41) is OSG's new offering for this tool



No numerical value means no interference with workpiece





EDP	D	R	l1	L	l	d1	d	Le (α) 0,5°	1°	1,5°	2°	2,5°	3°	Stock	Price
3031520	1,5	0,75	20,0	55	1,20	1,45	4	6,42	21,85	22,64	23,49	24,41	-	○	
3031608	1,6	0,80	8,0	45	1,30	1,55	4	8,53	8,96	9,34	9,69	10,07	10,48	○	
3031612	1,6	0,80	12,0	45	1,30	1,55	4	10,64	13,29	13,78	14,29	14,85	15,45	●	
3031616	1,6	0,80	16,0	50	1,30	1,55	4	12,74	17,58	18,21	18,89	19,63	20,43	●	
3031620	1,6	0,80	20,0	55	1,30	1,55	4	14,83	21,85	22,64	23,49	24,41	-	●	
3031808	1,8	0,90	8,0	45	1,40	1,75	4	16,92	8,96	9,34	9,69	10,07	10,48	○	
3031812	1,8	0,90	12,0	45	1,40	1,75	4	19,01	13,29	13,78	14,29	14,85	15,45	●	
3031816	1,8	0,90	16,0	50	1,40	1,75	4	21,09	17,58	18,21	18,89	19,63	20,43	●	
3031820	1,8	0,90	20,0	55	1,40	1,75	4	23,17	21,85	22,64	23,49	24,41	-	●	
3032004	2,0	1,00	4,0	45	1,60	1,95	4	26,28	4,56	4,81	5,06	5,28	5,51	○	
3032006	2,0	1,00	6,0	45	1,60	1,95	4	31,46	6,77	7,10	7,39	7,68	7,99	●	
3032008	2,0	1,00	8,0	45	1,60	1,95	4	8,42	8,96	9,34	9,69	10,07	10,48	●	
3032010	2,0	1,00	10,0	45	1,60	1,95	4	10,51	11,13	11,56	11,99	12,46	12,97	●	
3032012	2,0	1,00	12,0	45	1,60	1,95	4	16,76	13,29	13,78	14,29	14,85	15,45	●	
3032014	2,0	1,00	14,0	50	1,60	1,95	4	20,91	15,44	15,99	16,59	17,24	17,94	○	
3032016	2,0	1,00	16,0	50	1,60	1,95	4	26,09	17,58	18,21	18,89	19,63	20,43	●	
3032018	2,0	1,00	18,0	55	1,60	1,95	4	31,26	19,71	20,43	21,19	22,02	22,91	○	
3032020	2,0	1,00	20,0	55	1,60	1,95	4	36,43	21,85	22,64	23,49	-	-	●	
3032022	2,0	1,00	22,0	60	1,60	1,95	4	10,51	23,99	24,86	25,79	-	27,88	●	
3032025	2,0	1,00	25,0	65	1,60	1,95	4	16,76	27,20	28,19	-	-	31,61	○	
3032030	2,0	1,00	30,0	70	1,60	1,95	4	20,91	32,55	33,73	-	-	37,83	○	
3033008	3,0	1,50	8,0	50	2,40	2,85	6	26,09	8,79	9,13	9,74	9,84	10,24	○	
3033010	3,0	1,50	10,0	50	2,40	2,85	6	31,26	10,95	11,35	11,77	12,23	12,73	●	
3033016	3,0	1,50	16,0	55	2,40	2,85	6	36,43	17,37	18,00	18,67	19,40	20,19	●	
3033020	3,0	1,50	20,0	60	2,40	2,85	6	41,59	21,65	22,43	23,27	24,18	25,16	●	
3033025	3,0	1,50	25,0	65	2,40	2,85	6	46,76	27,00	27,97	29,02	30,15	-	●	
3033030	3,0	1,50	30,0	70	2,40	2,85	6	51,93	32,35	33,51	34,77	-	-	●	
3033035	3,0	1,50	35,0	80	2,40	2,85	6	20,91	37,69	39,06	40,52	-	-	○	
3034010	4,0	2,00	10,0	60	3,20	3,85	6	26,09	10,95	11,35	11,77	12,23	12,73	○	
3034016	4,0	2,00	16,0	60	3,20	3,85	6	31,26	17,37	18,00	18,67	19,40	20,19	○	
3034020	4,0	2,00	20,0	65	3,20	3,85	6	36,43	21,65	22,43	23,27	-	25,16	●	
3034025	4,0	2,00	25,0	70	3,20	3,85	6	-	27,00	27,97	-	-	-	○	
3034030	4,0	2,00	30,0	80	3,20	3,85	6	-	32,35	33,51	-	-	-	○	
3034035	4,0	2,00	35,0	80	3,20	3,85	6	-	37,69	-	-	-	-	●	
3034040	4,0	2,00	40,0	90	3,20	3,85	6	-	43,04	-	-	-	-	●	
3034045	4,0	2,00	45,0	90	3,20	3,85	6	-	48,39	-	-	-	-	●	
3034050	4,0	2,00	50,0	100	3,20	3,85	6	-	53,74	-	-	-	-	○	
3035020	5,0	2,50	20,0	70	4,00	4,85	6	-	21,65	-	-	-	-	●	
3035025	5,0	2,50	25,0	70	4,00	4,85	6	-	27,00	-	-	-	-	○	
3035030	5,0	2,50	30,0	80	4,00	4,85	6	-	-	-	-	-	-	●	
3035035	5,0	2,50	35,0	80	4,00	4,85	6	-	-	-	-	-	-	●	
3036030	6,0	3,00	30,0	80	4,80	5,85	6	-	-	-		-	-	○	
3036050	6,0	3,00	50,0	120	4,80	5,85	6	-	-	-	-	-	-	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	○	○		◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○	○		

WX-HS-CRE



HIGH PERFORMANCE
- 4 flutes
- Stub length

HIGH PERFORMANCE
- 4 Schneiden
- Kurzer Hals

ALTA PRESTAZIONE
- 4 denti
- Serie corta

HAUTE PERFORMANCE
- 4 lèvres
- Série courte

HIGH PERFORMANCE
- 4 skær
- Stub længde

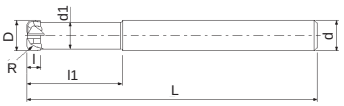
HIGH PERFORMANCE
- 4 skär
- Kort skärlängd

ALTO RENDIMIENTO
- 4 labios
- Serie corta

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 4 режущих кромки
- короткая длина

CARBIDE | WX | FIT | HIGH SPEED | RF

CC | 0 ~ -0.03 | min^{-1} D.213-214



EDP	D	R	L	l1	l	d1	d	ZΔ	Stock	Price
3019867	6	1,5	50	24	2,5	5,4	6	4	●	
3019889	8	2,0	60	32	3,5	7,2	8	4	●	
3019909	10	2,0	70	40	4,0	9,0	10	4	●	
3019933	12	3,0	80	48	5,0	11,0	12	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	◎	○		◎

Cu	Al	Graphite	Ti	HRS	Plast.	

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE
- 3,4 flutes

HIGH PERFORMANCE
- 3,4 Schneiden

ALTA PRESTAZIONE
- 3,4 denti

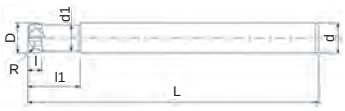
HAUTE PERFORMANCE
- 3,4 lèvres

HIGH PERFORMANCE
- 3,4 skær

HIGH PERFORMANCE
- 3,4 skär

ALTO RENDIMIENTO
- 3,4 labios

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 3,4 режущих кромки



EDP	D	R	L	l1	l	d1	d	ZΔ	Stock	Price
8549421	2	0,50	60	5,0	0,8	1,8	6	3	●	
8549433	3	0,75	60	7,5	1,2	2,7	6	4	●	
8549445	4	1,00	70	10,0	1,6	3,6	6	4	●	
8549457	5	1,20	80	12,5	2,0	4,5	6	4	●	
8549467	6	1,50	90	12,0	2,5	5,4	6	4	●	
8549477	7	1,50	90	-	3,0	-	6	4	●	
8549489	8	2,00	100	16,0	3,5	7,2	8	4	●	
8549499	9	2,00	100	-	4,0	-	8	4	●	
8549509	10	2,00	100	20,0	4,0	9,0	10	4	●	
8549519	11	2,00	100	-	4,5	-	10	4	●	
8549533	12	3,00	110	24,0	5,0	11,0	12	4	●	
8549543	13	3,00	110	-	5,5	-	12	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	◎	○		◎

Cu	Al	Graphite	Ti	HRS	Plast.	

WX-CR-PHS



HIGH PERFORMANCE
- 4 flutes
- For multi purpose use

HIGH PERFORMANCE
- 4 Schneiden
- Für allgemeine Anwendungen

ALTA PRESTAZIONE
- 4 denti
- Multifunzione

HAUTE PERFORMANCE
- 4 lèvres
- Pour application universelle

HIGH PERFORMANCE
- 4 skær
- Universal anvendelig

HIGH PERFORMANCE
- 4 skär
- Allround

ALTO RENDIMIENTO
- 4 labios
- Para aplicaciones generales

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 4 режущих кромки
- Универсальная

CARBIDE | WX | 45° | FIT | HIGH SPEED

SC | RF | CC | 0 ~ -0.02 | min⁻¹ D.217-218



EDP	D	R	L	l	d	Stock	Price
3016331	3	0,2	60	8	6	●	
3016333	3	0,5	60	8	6	●	
3016341	4	0,2	60	11	6	●	
3016343	4	0,5	60	11	6	●	
3016345	4	1,0	60	11	6	●	
3016351	5	0,2	60	13	6	●	
3016353	5	0,5	60	13	6	●	
3016355	5	1,0	60	13	6	●	
3016362	6	0,3	60	13	6	●	
3016363	6	0,5	60	13	6	●	
3016365	6	1,0	60	13	6	●	
3016382	8	0,3	80	19	8	●	
3016383	8	0,5	80	19	8	●	
3016385	8	1,0	80	19	8	●	
3016387	8	1,5	80	19	8	●	
3016389	8	2,0	80	19	8	●	
3016402	10	0,3	80	22	10	●	
3016403	10	0,5	80	22	10	●	
3016405	10	1,0	80	22	10	●	
3016407	10	1,5	80	22	10	●	
3016409	10	2,0	80	22	10	●	
3016413	10	3,0	80	22	10	●	
3016433	12	0,5	100	26	12	●	
3016435	12	1,0	100	26	12	●	
3016437	12	1,5	100	26	12	●	
3016439	12	2,0	100	26	12	●	
3016443	12	3,0	100	26	12	●	
3016462	16	1,0	115	32	16	●	
3016463	16	1,5	115	32	16	●	
3016464	16	2,0	115	32	16	●	
3016465	16	3,0	115	32	16	●	
3016482	20	1,0	125	38	20	●	
3016483	20	1,5	125	38	20	●	
3016484	20	2,0	125	38	20	●	
3016485	20	3,0	125	38	20	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	○	○		◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		◎	◎		

● Delivery from stock
○ Available on short notice

FX-MG-EDS



SLOTTING END MILLS
- 2 flutes
- Stub length

2 SCHNEIDEN SCHAFTFRÄSER
- 2 Schneiden
- Kurzer Hals

FRESE PER NERVATURE
- 2 denti
- Serie corta

FRAISE À RAINURER
- 2 lèvres
- Série courte

ENDESKÆRS FRÆSERE
- 2 skær
- Stub længde

RAKA FRÄSAR
- 2 skär
- Kort skärlängd

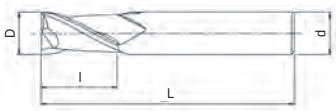
FRESAS DE RANURAR
- 2 labios
- Serie corta

Пазовые концевые фрезы
- 2 режущих кромки
- короткая длина

WXL-2D-DE (page D.34) is OSG's new offering for this tool

CARBIDE | FX | 30° | FIT | HIGH SPEED | CC

D > 12 0 ~ -0.03 | D ≤ 12 0 ~ -0.02 | min⁻¹ D.219



EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
8519002	0,2	40	0,4	3	○		8519054	5,4	50	13,0	6	○	
8519003	0,3	40	0,6	3	○		8519055	5,5	50	13,0	6	○	
8519004	0,4	40	0,8	3	○		8519056	5,6	50	13,0	6	○	
8519005	0,5	40	1,0	3	○		8519057	5,7	50	13,0	6	○	
8519006	0,6	40	1,2	3	○		8519058	5,8	50	13,0	6	○	
8519007	0,7	40	1,4	3	○		8519059	5,9	50	13,0	6	○	
8519008	0,8	40	1,6	3	○		8519060	6,0	50	13,0	6	○	
8519009	0,9	40	2,0	3	○		8519061	6,1	60	16,0	8	○	
8519010	1,0	40	2,5	4	○		8519062	6,2	60	16,0	8	○	
8519011	1,1	40	2,5	4	○		8519063	6,3	60	16,0	8	○	
8519012	1,2	40	4,0	4	○		8519064	6,4	60	16,0	8	○	
8519013	1,3	40	4,0	4	○		8519065	6,5	60	16,0	8	○	
8519014	1,4	40	4,0	4	○		8519066	6,6	60	16,0	8	○	
8519015	1,5	40	4,0	4	○		8519067	6,7	60	16,0	8	○	
8519016	1,6	40	5,0	4	○		8519068	6,8	60	16,0	8	○	
8519017	1,7	40	5,0	4	○		8519069	6,9	60	16,0	8	○	
8519018	1,8	40	5,0	4	○		8519070	7,0	60	16,0	8	○	
8519019	1,9	40	5,0	4	○		8519071	7,1	60	16,0	8	○	
8519020	2,0	40	6,0	4	○		8519072	7,2	60	16,0	8	○	
8519021	2,1	40	6,0	4	○		8519073	7,3	60	16,0	8	○	
8519022	2,2	40	6,0	4	○		8519074	7,4	60	16,0	8	○	
8519023	2,3	40	6,0	4	○		8519075	7,5	60	16,0	8	○	
8519024	2,4	40	8,0	4	○		8519076	7,6	60	19,0	8	○	
8519025	2,5	40	8,0	4	○		8519077	7,7	60	19,0	8	○	
8519026	2,6	40	8,0	4	○		8519078	7,8	60	19,0	8	○	
8519027	2,7	40	8,0	4	○		8519079	7,9	60	19,0	8	○	
8519028	2,8	40	8,0	4	○		8519080	8,0	60	19,0	8	○	
8519029	2,9	40	8,0	4	○		8519081	8,1	70	19,0	10	○	
8519030	3,0	45	8,0	6	○		8519082	8,2	70	19,0	10	○	
8519031	3,1	45	10,0	6	○		8519083	8,3	70	19,0	10	○	
8519032	3,2	45	10,0	6	○		8519084	8,4	70	19,0	10	○	
8519033	3,3	45	10,0	6	○		8519085	8,5	70	19,0	10	○	
8519034	3,4	45	10,0	6	○		8519086	8,6	70	19,0	10	○	
8519035	3,5	45	10,0	6	○		8519087	8,7	70	19,0	10	○	
8519036	3,6	45	10,0	6	○		8519088	8,8	70	19,0	10	○	
8519037	3,7	45	10,0	6	○		8519089	8,9	70	19,0	10	○	
8519038	3,8	45	11,0	6	○		8519090	9,0	70	19,0	10	○	
8519039	3,9	45	11,0	6	○		8519091	9,1	70	19,0	10	○	
8519040	4,0	45	11,0	6	○		8519092	9,2	70	19,0	10	○	
8519041	4,1	45	11,0	6	○		8519093	9,3	70	19,0	10	○	
8519042	4,2	45	11,0	6	○		8519094	9,4	70	19,0	10	○	
8519043	4,3	45	11,0	6	○		8519095	9,5	70	19,0	10	○	
8519044	4,4	45	11,0	6	○		8519096	9,6	70	22,0	10	○	
8519045	4,5	45	11,0	6	○		8519097	9,7	70	22,0	10	○	
8519046	4,6	45	11,0	6	○		8519098	9,8	70	22,0	10	○	
8519047	4,7	45	11,0	6	○		8519099	9,9	70	22,0	10	○	
8519048	4,8	50	13,0	6	○		8519100	10,0	70	22,0	10	○	
8519049	4,9	50	13,0	6	○		8519101	10,1	75	22,0	12	○	
8519050	5,0	50	13,0	6	○		8519102	10,2	75	22,0	12	○	
8519051	5,1	50	13,0	6	○		8519103	10,3	75	22,0	12	○	
8519052	5,2	50	13,0	6	○		8519104	10,4	75	22,0	12	○	
8519053	5,3	50	13,0	6	○		8519105	10,5	75	22,0	12	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	○	○		○	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○	○		



SLOTTING END MILLS
- 2 flutes
- Stub length

2 SCHNEIDEN SCHAFTFRÄSER
- 2 Schneiden
- Kurzer Hals

FRESE PER NERVATURE
- 2 denti
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FRAISE À RAINURER
- 2 lèvres
- Série courte

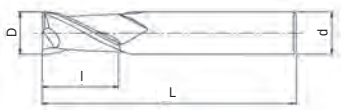
ENDESKÆRS FRÆSERE
- 2 skær
- Stub længde

RAKA FRÄSAR
- 2 skär
- Kort skärlängd

FRESAS DE RANURAR
- 2 labios
- Serie corta

Пазовые концевые фрезы
- 2 режущих кромки
- короткая длина

WXL-2D-DE (page D.34) is OSG's new offering for this tool



EDP	D	L	l	d	Stock	Price
8519106	10,6	75	22,0	12	○	
8519107	10,7	75	22,0	12	○	
8519108	10,8	75	22,0	12	○	
8519109	10,9	75	22,0	12	○	
8519110	11,0	75	22,0	12	○	
8519111	11,1	75	22,0	12	○	
8519112	11,2	75	22,0	12	○	
8519113	11,3	75	22,0	12	○	
8519114	11,4	75	22,0	12	○	
8519115	11,5	75	22,0	12	○	
8519116	11,6	75	22,0	12	○	
8519117	11,7	75	22,0	12	○	
8519118	11,8	70	22,0	12	○	
8519119	11,9	75	26,0	12	○	
8519120	12,0	75	26,0	12	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение						
~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	○	○		○	◎
Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○	○		

FX-MG-EDL



HIGH PERFORMANCE
- 2 flutes
- Long cut length

HIGH PERFORMANCE
- 2 Schneiden
- Schneidenlänge lang

ALTA PRESTAZIONE
- 2 denti
- Lunghezza di taglio lunga

HAUTE PERFORMANCE
- 2 lèvres
- Long. coupe longue

HIGH PERFORMANCE
- 2 skær
- Lang skærlængde

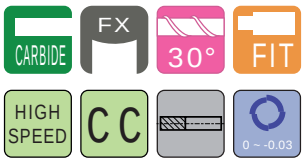
HIGH PERFORMANCE
- 2 skär
- Lång skärlängd

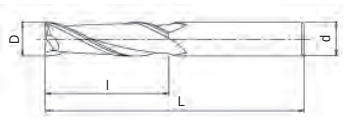
ALTO RENDIMIENTO
- 2 labios
- Longitud de corte larga

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Длинная режущая часть

WXL-4D-DE (page D.36) is OSG's new offering for this tool







EDP	D	L	l	d	Stock	Price
8522010	1,0	50	4	4	○	
8522015	1,5	50	6	4	○	
8522020	2,0	50	9	4	○	
8522025	2,5	50	12	4	○	
8522030	3,0	50	12	6	○	
8522035	3,5	50	14	6	○	
8522040	4,0	50	17	6	○	
8522045	4,5	50	17	6	○	
8522050	5,0	60	20	6	○	
8522055	5,5	60	20	6	○	
8522060	6,0	60	20	6	○	
8522065	6,5	70	24	8	○	
8522070	7,0	70	24	8	○	
8522075	7,5	70	24	8	○	
8522080	8,0	70	28	8	○	
8522085	8,5	80	28	10	○	
8522090	9,0	80	28	10	○	
8522095	9,5	80	28	10	○	
8522100	10,0	80	34	10	○	
8522105	10,5	90	34	12	○	
8522110	11,0	90	34	12	○	
8522115	11,5	90	34	12	○	
8522120	12,0	90	40	12	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	○			○	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○	○		

FX-MG-EXDL



HIGH PERFORMANCE
- 2 flutes
- Extra long cut length

HIGH PERFORMANCE
- 2 Schneiden
- Extra Schneidenlänge lang

ALTA PRESTAZIONE
- 2 denti
- Lunghezza di taglio extra lunga

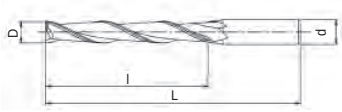
HAUTE PERFORMANCE
- 2 lèvres
- Long. coupe extra longue

HIGH PERFORMANCE
- 2 skær
- Ekstra lang skærlængde

HIGH PERFORMANCE
- 2 skär
- Extra lång skärlängd

ALTO RENDIMIENTO
- 2 labios
- Longitud de corte extra larga

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Особо длинная режущая часть



EDP	D	L	l	d	Stock	Price
8542830	3	60	20	6	○	
8542840	4	70	32	6	○	
8542850	5	80	40	6	○	
8542860	6	80	40	6	○	
8542880	8	110	63	8	○	
8542900	10	125	75	10	○	
8542920	12	150	90	12	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение						
~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	○		○	◎
Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○			

FX-SS-EDS



HIGH PERFORMANCE
- 2 flutes
- Slim shank

HIGH PERFORMANCE
- 2 Schneiden
- Schaftdurchmesser kleiner als Schneide

ALTA PRESTAZIONE
- 2 denti
- Diametro del gambo inferiore al dia. del taglio

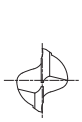
HAUTE PERFORMANCE
- 2 lèvres
- Dia. Queue inf. dia coupe

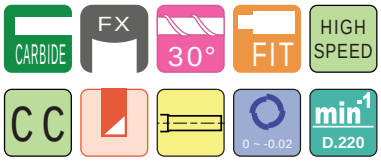
HIGH PERFORMANCE
- 2 skær
- Tyndt skaft

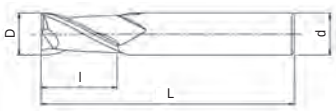
HIGH PERFORMANCE
- 2 skär
- Helreducerat skaft

ALTO RENDIMIENTO
- 2 labios
- Cuello delgado

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Утоненный хвостовик







EDP	D	L	l	d	Stock	Price
8408456	6	90	15	5	●	
8408458	8	100	20	7	●	
8408460	10	100	25	9	●	
8408462	12	110	30	11	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	○	○		○	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○	○		

FX-EDS-6



HIGH PERFORMANCE
- 2 flutes
- Long neck
- Shank dia. 6

HIGH PERFORMANCE
- 2 Schneiden
- Langer Hals
- Schaftdurchmesser dia. 6

ALTA PRESTAZIONE
- 2 denti
- Serie lunga
- Diametro del gambo dia. 6

HAUTE PERFORMANCE
- 2 lèvres
- Série longue
- Diamètre queue dia. 6

HIGH PERFORMANCE
- 2 skær
- Langt skaft
- Skaft dia. 6

HIGH PERFORMANCE
- 2 skär
- Lång reducering
- Skaft dia. 6

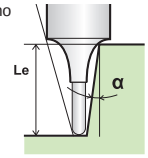
ALTO RENDIMIENTO
- 2 labios
- Serie larga
- Cuello dia. 6

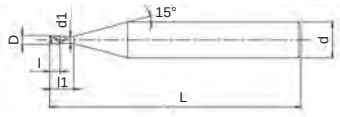
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- короткая длина
- Хвостовик Ø6 мм

CARBIDE | FX | 30° | FIT | HIGH SPEED

CC | Ø2<D | 0 ~ -0.015

No numerical value means no interference with workpiece





EDP	D	l1	L	l	d1	d	α 0,5°	α 1°	α 1,5°	α 2°	α 2,5°	α 3°	Stock	Price
8544102	0,2	-	50	0,3	-	6	-	-	-	-	-	-	●	
8544103	0,3	-	50	0,4	-	6	-	-	-	-	-	-	●	
8544104	0,4	-	50	0,6	-	6	-	-	-	-	-	-	●	
8544105	0,5	1,5	50	0,7	0,45	6	1,55	1,60	1,66	1,72	1,79	1,86	●	
8544106	0,6	1,8	50	0,9	0,55	6	1,86	1,92	1,99	2,07	2,15	2,23	●	
8544108	0,8	2,4	50	1,2	0,75	6	2,48	2,56	2,66	2,76	2,86	2,98	●	
8544110	1,0	2,5	50	1,5	0,95	6	2,58	2,67	2,77	2,87	2,98	3,10	●	
8544112	1,2	3,0	50	1,8	1,15	6	3,10	3,20	3,32	3,45	3,58	3,72	●	
8544114	1,4	3,5	50	2,1	1,35	6	3,61	3,74	3,87	4,02	4,18	4,35	●	
8544115	1,5	3,8	50	2,3	1,45	6	3,92	4,06	4,21	4,36	4,54	4,72	●	
8544116	1,6	4,0	50	2,4	1,55	6	4,13	4,27	4,43	4,59	4,77	4,97	●	
8544118	1,8	4,5	50	2,7	1,75	6	4,65	4,81	4,98	5,17	5,37	5,59	●	
8544120	2,0	5,0	50	3,0	1,95	6	5,16	5,34	5,54	5,74	5,97	6,21	●	
8544125	2,5	5,0	50	3,7	2,40	6	5,16	5,34	5,54	5,74	5,97	6,21	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	○		○	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○	○		

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

FX-LN-EDS-6



HIGH PERFORMANCE
- 2 flutes
- Long neck
- Shank dia. 6

HIGH PERFORMANCE
- 2 Schneiden
- Langer Hals
- Schaftdurchmesser dia. 6

ALTA PRESTAZIONE
- 2 denti
- Serie lunga
- Diametro del gambo dia. 6

HAUTE PERFORMANCE
- 2 lèvres
- Série longue
- Diamètre queue dia. 6

HIGH PERFORMANCE
- 2 skær
- Langt skaft
- Skaft dia. 6

HIGH PERFORMANCE
- 2 skär
- Lång reducering
- Skaft dia. 6

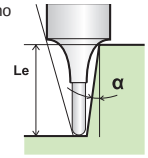
ALTO RENDIMIENTO
- 2 labios
- Serie larga
- Cuello dia. 6

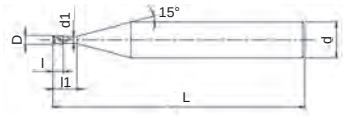
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- короткая длина
- Хвостовик Ø6 мм

CARBIDE | FX | 30° | FIT | HIGH SPEED

CC | Ø2<D | 0 ~ -0.015 | min⁻¹ D.221-222

No numerical value means no interference with workpiece





EDP	D	l1	L	l	d1	d	α 0,5°	α 1°	α 1,5°	α 2°	α 2,5°	α 3°	Stock	Price
8544205	0,5	2,5	60	0,7	0,45	6	2,58	2,67	2,77	2,87	2,98	3,10	●	
8544206	0,6	3,0	60	0,9	0,55	6	3,10	3,20	3,32	3,45	3,58	3,72	●	
8544208	0,8	4,0	60	1,2	0,75	6	4,13	4,27	4,43	4,59	4,77	4,97	●	
8544210	1,0	5,0	60	1,5	0,95	6	5,16	5,34	5,54	5,74	5,97	6,21	●	
8544212	1,2	6,0	60	1,8	1,15	6	6,20	6,41	6,65	6,89	7,16	7,45	●	
8544214	1,4	7,0	60	2,1	1,35	6	7,23	7,48	7,75	8,04	8,36	8,70	●	
8544215	1,5	7,5	60	2,3	1,45	6	7,75	8,02	8,31	8,62	8,96	9,32	●	
8544216	1,6	8,0	60	2,4	1,55	6	8,26	8,55	8,86	9,19	9,55	9,94	●	
8544218	1,8	9,0	60	2,7	1,75	6	9,30	9,62	9,97	10,35	10,75	11,19	●	
8544220	2,0	10,0	60	3,0	1,95	6	10,34	10,70	11,08	11,50	11,95	12,43	●	
8544225	2,5	12,5	60	3,7	2,40	6	12,92	13,37	13,85	14,37	14,93	15,54	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	○		○	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○	○		

FX-MG-EMS



HIGH PERFORMANCE
- 4 flutes
- Stub length

HIGH PERFORMANCE
- 4 Schneiden
- Kurzer Hals

ALTA PRESTAZIONE
- 4 denti
- Serie corta

HAUTE PERFORMANCE
- 4 lèvres
- Série courte

HIGH PERFORMANCE
- 4 skær
- Stub længde

HIGH PERFORMANCE
- 4 skär
- Kort skärlängd

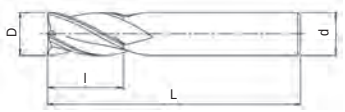
ALTO RENDIMIENTO
- 4 labios
- Serie corta

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 4 режущих кромки
- Короткая длина

WXL-EMS (page D.37) is OSG's new offering for this tool

CARBIDE | FX | 30° | FIT | HIGH SPEED | CC

D > 12 0 ~ -0.03 | D ≤ 12 0 ~ -0.02 | min⁻¹ D.223



EDP	D	L	l	d	Stock	Price
8520020	2,0	40	6	4	●	
8520025	2,5	40	8	4	○	
8520030	3,0	45	8	6	●	
8520035	3,5	45	10	6	○	
8520040	4,0	45	11	6	●	
8520045	4,5	45	11	6	○	
8520050	5,0	50	13	6	●	
8520055	5,5	50	13	6	○	
8520060	6,0	50	13	6	●	
8520065	6,5	60	16	8	○	
8520070	7,0	60	16	8	○	
8520075	7,5	60	16	8	○	
8520080	8,0	60	19	8	●	
8520085	8,5	70	19	10	○	
8520090	9,0	70	19	10	○	
8520095	9,5	70	19	10	○	
8520100	10,0	70	22	10	●	
8520105	10,5	75	22	12	○	
8520110	11,0	75	22	12	○	
8520115	11,5	75	22	12	○	
8520120	12,0	75	26	12	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	○	○		○	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○	○		

● Delivery from stock
○ Available on short notice

FX-MG-EML



HIGH PERFORMANCE
- 4 flutes
- Long cutlength

HIGH PERFORMANCE
- 4 Schneiden
- Hohe Schneidenlänge

ALTA PRESTAZIONE
- 4 denti
- Lunghezza di taglio lunga

HAUTE PERFORMANCE
- 4 lèvres
- Longueur de coupe longue

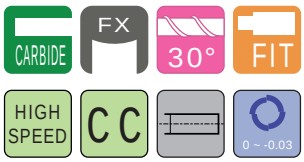
HIGH PERFORMANCE
- 4 skær
- Lang skærlængde

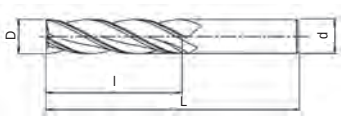
HIGH PERFORMANCE
- 4 skär
- Lång skärlängd

ALTO RENDIMIENTO
- 4 labios
- Longitud de corte larga

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 4 режущих кромки
- Длинная режущая часть







EDP	D	L	l	d	Stock	Price
8523030	3,0	50	12	6	●	
8523035	3,5	50	14	6	○	
8523040	4,0	50	17	6	●	
8523045	4,5	50	17	6	○	
8523050	5,0	60	20	6	●	
8523055	5,5	60	20	6	○	
8523060	6,0	60	20	6	●	
8523065	6,5	70	24	8	○	
8523070	7,0	70	24	8	●	
8523075	7,5	70	24	8	○	
8523080	8,0	70	28	8	●	
8523085	8,5	80	28	10	○	
8523090	9,0	80	28	10	○	
8523095	9,5	80	28	10	○	
8523100	10,0	80	34	10	●	
8523105	10,5	90	34	12	○	
8523110	11,0	90	34	12	●	
8523115	11,5	90	34	12	○	
8523120	12,0	90	40	12	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	○			○	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○	○		



HIGH PERFORMANCE
- 4 flutes
- Extra long cutlength

HIGH PERFORMANCE
- 4 Schneiden
- Extra hohe Schneidenlänge

ALTA PRESTAZIONE
- 4 denti
- Lunghezza di taglio extra lunga

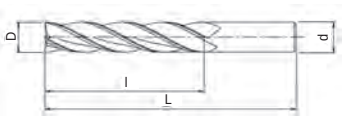
HAUTE PERFORMANCE
- 4 lèvres
- Longueur de coupe extra longue

HIGH PERFORMANCE
- 4 skær
- Ekstra lang skærlængde

HIGH PERFORMANCE
- 4 skär
- Extra lång skärlängd

ALTO RENDIMIENTO
- 4 labios
- Longitud de corte extra larga

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 4 режущих кромки
- Особо длинная режущая часть



EDP	D	L	l	d	Stock	Price
8543330	3	60	20	6	○	
8543340	4	70	32	6	○	
8543350	5	80	40	6	○	
8543360	6	80	40	6	○	
8543380	8	110	63	8	○	
8543400	10	125	75	10	○	
8543420	12	150	90	12	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение						
~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎				○	◎
Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○			

FX-SS-EMS



HIGH PERFORMANCE
- 4 flutes
- Slim shank

HIGH PERFORMANCE
- 4 Schneiden
- Schaftdurchmesser kleiner als Schneide

ALTA PRESTAZIONE
- 4 denti
- Diametro del gambo inferiore al dia. del taglio

HAUTE PERFORMANCE
- 4 lèvres
- Dia. Queue inf. dia coupe

HIGH PERFORMANCE
- 4 skær
- Tyndt skaft

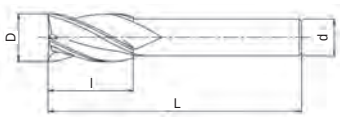
HIGH PERFORMANCE
- 4 skär
- Helreducerat skaft

ALTO RENDIMIENTO
- 4 labios
- Cuello delgado

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 4 режущих кромки
- Утоненный хвостовик







EDP	D	L	l	d	Stock	Price
8408506	6	90	15	5	●	
8408508	8	100	20	7	●	
8408510	10	100	25	9	●	
8408512	12	110	30	11	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	○	○		○	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○			

FX-LN-EMS-6



HIGH PERFORMANCE
- 4 flutes
- Long neck
- Shank dia. 6

HIGH PERFORMANCE
- 4 Schneiden
- Langer Hals
- Schaftdurchmesser dia. 6

ALTA PRESTAZIONE
- 4 denti
- Serie lunga
- Diametro del gambo dia. 6

HAUTE PERFORMANCE
- 4 lèvres
- Série longue
- Diamètre queue dia. 6

HIGH PERFORMANCE
- 4 skær
- Long neck
- Skaft dia. 6

HIGH PERFORMANCE
- 4 skär
- Lång reducering
- Skaft dia. 6

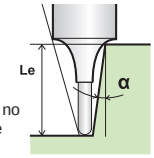
ALTO RENDIMIENTO
- 4 labios
- Serie larga
- Cuello dia. 6

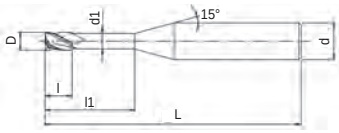
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 4 режущих кромки
- Длинная шейка
- Хвостовик Ø6 мм

CARBIDE | FX | 30° | FIT | HIGH SPEED | CC

Ø2SD | 0 ~ -0.0015 | min⁻¹ D.225

No numerical value means no interference with workpiece





EDP	D	l1	L	l	d1	d	α 0,5°	α 1°	α 1,5°	α 2°	α 2,5°	α 3°	Stock	Price
8544310	1,0	5,0	60	1,5	0,95	6	5,16	5,34	5,54	5,74	5,97	6,21	●	
8544312	1,2	6,0	60	1,8	1,15	6	6,20	6,41	6,65	6,89	7,16	7,45	●	
8544315	1,5	7,5	60	2,3	1,45	6	7,75	8,02	8,31	8,62	8,96	9,32	●	
8544320	2,0	10,0	60	3,0	1,95	6	10,34	10,70	11,08	11,50	11,95	12,43	●	
8544325	2,5	12,5	60	3,7	2,40	6	12,92	13,37	13,85	14,37	14,93	15,54	●	
8544330	3,0	15,0	70	4,5	2,85	6	15,50	16,05	16,62	17,25	17,92	18,65	●	
8544335	3,5	17,5	70	5,3	3,35	6	18,09	18,72	19,40	20,12	20,91	21,76	●	
8544340	4,0	20,0	70	6,0	3,85	6	20,67	21,39	22,17	23,00	-	-	●	
8544350	5,0	25,0	80	7,5	4,85	6	25,84	26,74	-	-	-	-	●	
8544360	6,0	30,0	90	9,0	5,85	6	-	-	-	-	-	-	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	○		○	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○			

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

FX-MG-EHS



HIGH PERFORMANCE
- Good chip ejection
- For difficult milling materials

HIGH PERFORMANCE
- Optimal Spanabfuhr
- Für schwer zerspanbare Werkstoffe

ALTA PRESTAZIONE
- Per una migliore evacuazione del truciolo
- Per materiali difficili da lavorare

HAUTE PERFORMANCE
- Bonne éjection du copeau
- Pour matières difficiles à usiner

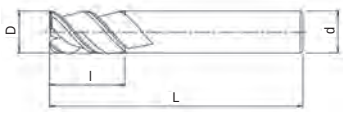
HIGH PERFORMANCE
- God spånafgang
- Til svært bearbejdelige materialer

HIGH PERFORMANCE
- God spånavgång
- För svårbearbetade material

ALTO RENDIMIENTO
- Buena evacuación de viruta
- Para materiales de difícil mecanización

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Хорошее выталкивание стружки
- Для трудно обрабатываемых материалов





EDP	D	L	l	d	ZΔ	Stock	Price
8542130	3	50	8	6	3	●	
8542430	3	50	8	6	4	●	
8542140	4	50	11	6	3	●	
8542440	4	50	11	6	4	●	
8542150	5	50	13	6	3	●	
8542450	5	50	13	6	4	●	
8542160	6	50	13	6	3	●	
8542460	6	50	13	6	4	●	
8542170	7	60	16	8	3	●	
8542180	8	60	19	8	3	●	
8542480	8	60	19	8	4	●	
8542190	9	70	19	10	3	●	
8542200	10	70	22	10	3	●	
8542500	10	70	22	10	4	●	
8542210	11	75	22	12	3	●	
8542220	12	75	26	12	3	●	
8542520	12	75	26	12	4	●	
8542230	13	90	26	16	3	●	
8542240	14	90	26	16	3	●	
8542540	14	90	26	16	4	●	
8542250	15	90	26	16	3	●	
8542550	15	90	26	16	4	●	
8542260	16	100	32	16	3	●	
8542560	16	100	32	16	4	●	
8542280	18	100	32	20	3	●	
8542580	18	100	32	20	4	●	
8542300	20	105	38	20	3	●	
8542600	20	105	38	20	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	○	○		◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		◎	◎		

FX-MG-EHL



HIGH PERFORMANCE
- Good chip ejection
- For difficult milling materials

HIGH PERFORMANCE
- Optimal Spanabfuhr
- Für schwer zerspanbare Werkstoffe

ALTA PRESTAZIONE
- Per una migliore evacuazione del truciolo
- Per materiali difficili da lavorare

HAUTE PERFORMANCE
- Bonne éjection du copeau
- Pour matières difficiles à usiner

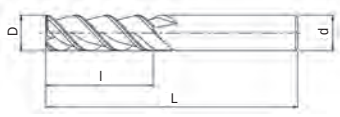
HIGH PERFORMANCE
- God spånafgang
- Til svært bearbejdelige materialer

HIGH PERFORMANCE
- God spånavgång
- För svårbearbetade material

ALTO RENDIMIENTO
- Buena evacuación de viruta
- Para materiales de difícil mecanización

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Хорошее выталкивание стружки
- Для трудно обрабатываемых материалов





EDP	D	L	l	d	ZΔ	Stock	Price
8408406	6	60	20	6	3	●	
8408408	8	70	28	8	3	●	
8408410	10	80	34	10	3	●	
8408412	12	90	40	12	3	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	○			◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		◎	◎		

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

HYP-HP-WRESF



HY-PRO
- For general roughing

HY-PRO
- Für Schruppen

HY-PRO
- Per sgrossatura

HY-PRO
- Pour ébauche

HY-PRO
- Til skrubfræsing

HY-PRO
- För skrubbfräsing

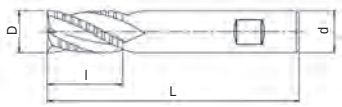
HY-PRO
- Para desbaste

HY-PRO
- Для черновой обработки

HY-PRO

CARBIDE | TiAlN | 45°

CC | min⁻¹ D.227



EDP	D	L	l	d	ZΔ	Stock	Price
48624060	6	64	19	6	4	●	
48624080	8	64	21	8	4	●	
48624100	10	70	22	10	4	●	
48624120	12	76	25	12	4	●	
48625160	16	89	32	16	5	●	
48626200	20	102	38	20	6	●	
48626250	25	102	38	25	6	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎				○	○

Cu	Al	Graphite	Ti	HRS	Plast.	

HYP-CR-HI-WEMS



HY-PRO
- 4 flutes
- Variable lead type

HY-PRO
- 4 Schneiden
- Variabler Führung

HY-PRO
- 4 denti
- Passo variabile

HY-PRO
- 4 lèvres
- Hélice variable

HY-PRO
- 4 skær
- Variabel helix

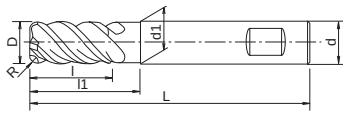
HY-PRO
- 4 skär
- Variabel helix

-HY-PRO
- 4 labios
- Introduce la helice veriable

HY-PRO
- 4 режущих кромки
- С переменным углом наклона витков

HY-PRO

CARBIDE | TiAlN | 35°~38° | C C | min⁻¹ D.227



EDP	D	R	L	l	l1	d1	d	Stock	Price
4832004011	4	0,5	57	11	-	-	6	●	
4832005011	5	0,5	57	13	-	-	6	●	
4832006011	6	0,5	57	13	20	5,8	6	●	
4832006012	6	1,0	57	13	20	5,8	6	●	
4832006013	6	1,5	57	13	20	5,8	6	●	
4832006014	6	2,0	57	13	20	5,8	6	●	
4832008011	8	0,5	63	19	25	7,8	8	●	
4832008012	8	1,0	63	19	25	7,8	8	●	
4832008013	8	1,5	63	19	25	7,8	8	●	
4832008014	8	2,0	63	19	25	7,8	8	●	
4832010011	10	0,5	72	22	30	9,8	10	●	
4832010012	10	1,0	72	22	30	9,8	10	●	
4832010013	10	1,5	72	22	30	9,8	10	●	
4832010014	10	2,0	72	22	30	9,8	10	●	
4832010016	10	3,0	72	22	30	9,8	10	●	
4832012011	12	0,5	83	26	38	11,8	12	●	
4832012012	12	1,0	83	26	38	11,8	12	●	
4832012013	12	1,5	83	26	38	11,8	12	●	
4832012014	12	2,0	83	26	38	11,8	12	●	
4832012016	12	3,0	83	26	38	11,8	12	●	
4832016011	16	0,5	92	32	45	15,8	16	●	
4832016012	16	1,0	92	32	45	15,8	16	●	
4832016014	16	2,0	92	32	45	15,8	16	●	
4832016016	16	3,0	92	32	45	15,8	16	●	
4832016018	16	4,0	92	32	45	15,8	16	●	
4832020012	20	1,0	104	38	60	19,8	20	●	
4832020014	20	2,0	104	38	60	19,8	20	●	
4832020016	20	3,0	104	38	60	19,8	20	●	
4832020018	20	4,0	104	38	60	19,8	20	●	
4832020020	20	5,0	104	38	60	19,8	20	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	○			◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
			◎	◎		

● Delivery from stock
○ Available on short notice

HYP-CR-HD-WEMS



HY-PRO
- 4 flutes
- Variable lead type

HY-PRO
- 4 Schneiden
- Variabler Führung

HY-PRO
- 4 denti
- Passo variabile

HY-PRO
- 4 lèvres
- Hélice variable

HY-PRO
- 4 skær
- Variabel helix

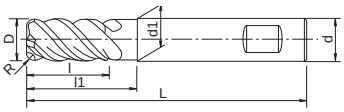
HY-PRO
- 4 skär
- Variabel helix

-HY-PRO
- 4 labios
- Introduce la helice veriable

HY-PRO
- 4 режущих кромки
- С переменным углом наклона витков

HY-PRO

CARBIDE | TiAlN | 35°~38° | CC | min⁻¹ D.227



EDP	D	R	L	l	l1	d1	d	Stock	Price
4833006010	6	0,25	57	13	20	5,8	6	●	
4833008010	8	0,25	63	19	25	7,8	8	●	
4833010010	10	0,25	72	22	30	9,8	10	●	
4833012010	12	0,25	83	26	38	11,8	12	●	
4833016010	16	0,25	92	32	45	15,8	16	●	
4833020010	20	0,25	104	38	60	19,8	20	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	○			◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
			◎	◎		

HYP-HI-(W)EMS



HY-PRO
- 4 flutes
- Variable lead type

HY-PRO
- 4 Schneiden
- Variabler Führung

HY-PRO
- 4 denti
- Passo variabile

HY-PRO
- 4 lèvres
- Hélice variable

HY-PRO
- 4 skær
- Variabel helix

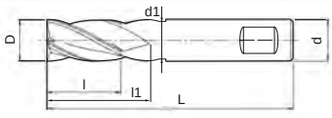
HY-PRO
- 4 skär
- Variabel helix

-HY-PRO
- 4 labios
- Introduce la helice veriable

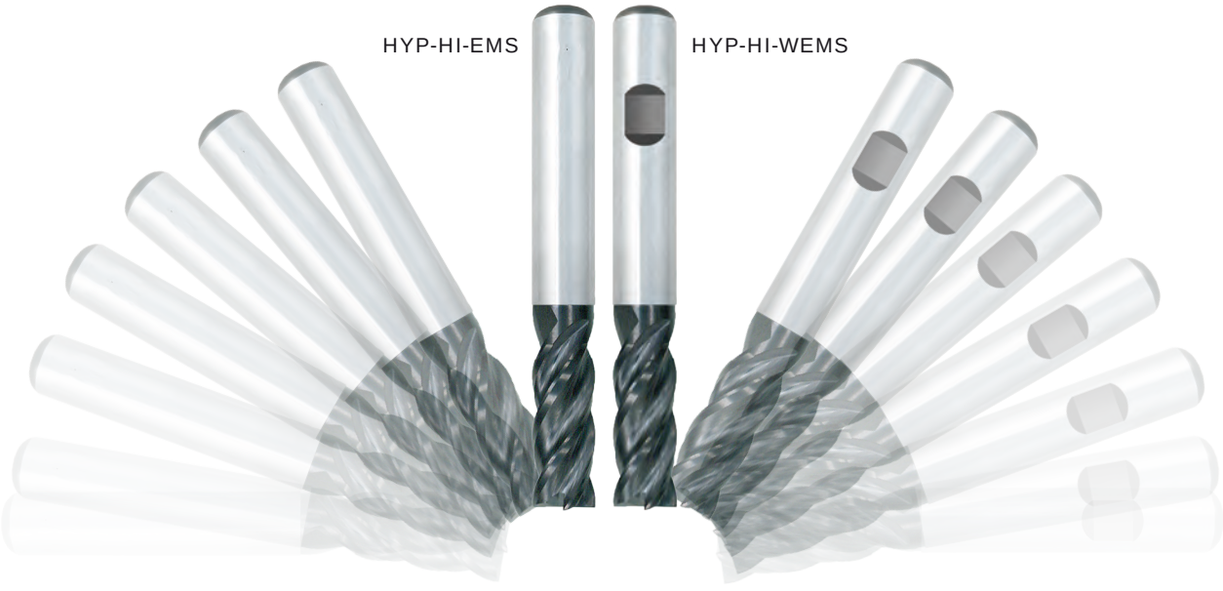
HY-PRO
- 4 режущих кромки
- С переменным углом наклона витков

HY-PRO

CARBIDE | TiAlN | 35°~38° | CC | min⁻¹ D.227



EDP	Type	D	L	l	l1	d1	d	Stock	Price
48320040	HYP-HI-EMS	4	57	11	-	-	6	●	
48320050	HYP-HI-EMS	5	57	13	-	-	6	●	
48320060	HYP-HI-EMS	6	57	13	20	5,8	6	●	
48320080	HYP-HI-EMS	8	63	19	25	7,8	8	●	
48320100	HYP-HI-EMS	10	72	22	30	9,8	10	●	
48320120	HYP-HI-EMS	12	83	26	38	11,8	12	●	
48320160	HYP-HI-EMS	16	92	32	45	15,8	16	●	
48320200	HYP-HI-EMS	20	104	38	60	19,8	20	●	
483200401	HYP-HI-WEMS	4	57	11	-	-	6	●	
483200501	HYP-HI-WEMS	5	57	13	-	-	6	●	
483200601	HYP-HI-WEMS	6	57	13	20	5,8	6	●	
483200801	HYP-HI-WEMS	8	63	19	25	7,8	8	●	
483201001	HYP-HI-WEMS	10	72	22	30	9,8	10	●	
483201201	HYP-HI-WEMS	12	83	26	38	11,8	12	●	
483201601	HYP-HI-WEMS	16	92	32	45	15,8	16	●	
483202001	HYP-HI-WEMS	20	104	38	60	19,8	20	●	



Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение						
~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	○			◎	◎
Cu	Al	Graphite	Ti	HRS	Plast.	
			◎	◎		

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

HYP-HS-CRE



HY-PRO
- 4 flutes
- Corner radius

HY-PRO
- 4 Schneiden
- Mehrschneider mit Eckenradius

HY-PRO
- 4 denti
- Frese toriche

HY-PRO
- 4 lèvres
- Fraise à rayon

HY-PRO
- 4 skær
- hjørneradius

HY-PRO
- 4 skär
- Hörnradie

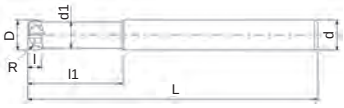
HY-PRO
- 4 labio
- Vertice radio

HY-PRO
- 4 режущих кромки
- Концевые фрезы с радиусом

HY-PRO

CARBIDE | TiAlN | HIGH SPEED | FIT

C C | RF | min^{-1} D.227



EDP	D	R	L	l1	l	d1	d	ZΔ	Stock	Price
48340060	6	1,5	57	24	2,5	5,0	6	4	●	
48340080	8	2,0	63	32	3,5	7,0	8	4	●	
48340100	10	2,0	72	40	4,0	9,0	10	4	●	
48340120	12	3,0	83	48	5,0	11,0	12	4	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	◎	○		◎

Cu	Al	Graphite	Ti	HRS	Plast.	

HYP-SB-EBD



HY-PRO
- 2 flutes
- Center cutting

HY-PRO
- 2 Schneiden
- Zentrumschneidend

HY-PRO
- 2 denti
- Taglio al centro

HY-PRO
- 2 lèvres
- Coupe au centre

HY-PRO
- 2 skær
- Borende

HY-PRO
- 2 skär
- Borrande

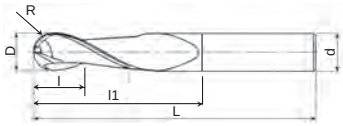
HY-PRO
- 2 labios
- Corte central

HY-PRO
- 2 режущих кромки
- Режущий центр

HY-PRO

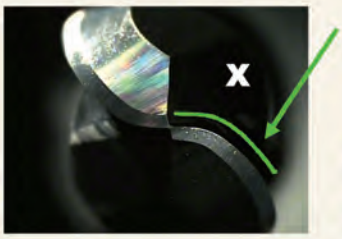
CARBIDE | TiAlN | 30° | FIT

CC | ± 0.01 | min⁻¹ D.228



EDP	D	R	L	l	l1	d	ZΔ	Stock	Price
48350030	3	1,5	57	4,0	9,0	6	2	●	
48350040	4	2,0	57	5,0	12,0	6	2	●	
48350050	5	2,5	57	6,0	15,0	6	2	●	
48350060	6	3,0	57	7,0	18,0	6	2	●	
48350080	8	4,0	63	9,0	20,0	8	2	●	
48350100	10	5,0	72	11,0	25,0	10	2	●	
48351200	12	6,0	83	13,0	25,0	12	2	●	

HY-PRO HYP-SB-EBD Geometry



Long cutting edge

X>Y

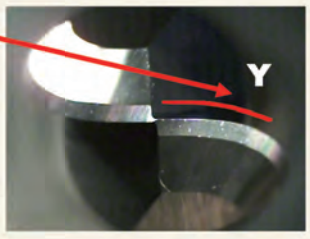
Less torque
Less heat build-up
Better surface finish
Long tool life

Standard Geometry

Short cutting edge

X>Y

Normal torque
Normal heat build-up
Average surface finish
Standard tool life



ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение						
~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎			○	◎
Cu	Al	Graphite	Ti	HRS	Plast.	
○	○					

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

FX-MG-EBD-3



HIGH PERFORMANCE
- 2 flutes
- Shank dia. 3

HIGH PERFORMANCE
- 2 Schneiden
- Schaftdurchmesser dia. 3

ALTA PRESTAZIONE
- 2 denti
- Diametro del gambo dia. 3

HAUTE PERFORMANCE
- 2 lèvres
- Diamètre queue dia. 3

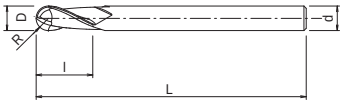
HIGH PERFORMANCE
- 2 skær
- Skaft dia. 3

HIGH PERFORMANCE
- 2 skär
- Skaft dia. 3

ALTO RENDIMIENTO
- 2 labios
- Cuello dia. 3

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Хвостовик Ø3 мм





EDP	D	R	L	l	d	Stock	Price
8523504	0,4	0,20	40	0,8	3	●	
8523505	0,5	0,25	40	1,1	3	●	
8523506	0,6	0,30	40	1,1	3	●	
8523507	0,7	0,35	40	1,5	3	●	
8523508	0,8	0,40	40	2,0	3	●	
8523509	0,9	0,45	40	2,2	3	●	
8523510	1,0	0,50	40	2,5	3	●	
8523511	1,1	0,55	40	3,0	3	●	
8523512	1,2	0,60	40	3,0	3	●	
8523513	1,3	0,65	40	3,5	3	●	
8523514	1,4	0,70	40	3,5	3	●	
8523515	1,5	0,75	40	4,0	3	●	
8523516	1,6	0,80	40	4,0	3	●	
8523517	1,7	0,85	40	4,5	3	●	
8523518	1,8	0,90	40	4,5	3	●	
8523519	1,9	0,95	40	5,0	3	●	
8523520	2,0	1,00	40	5,0	3	●	
8523521	2,1	1,05	40	6,0	3	●	
8523522	2,2	1,10	40	6,0	3	●	
8523523	2,3	1,15	40	6,0	3	●	
8523524	2,4	1,20	40	6,0	3	●	
8523525	2,5	1,25	40	6,0	3	●	
8523526	2,6	1,30	40	8,0	3	●	
8523527	2,7	1,35	40	8,0	3	●	
8523528	2,8	1,40	40	8,0	3	●	
8523529	2,9	1,45	40	8,0	3	●	
8523530	3,0	1,50	40	8,0	3	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	○		◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○	○		

FX-HS-EBDS



HIGH PERFORMANCE
- Rigid end mill for hardened steel

HIGH PERFORMANCE
- Stabile Schneidengeometrie für Kopierfräsen

ALTA PRESTAZIONE
- Frese rigide per acciaio trattato

HAUTE PERFORMANCE
- Fraise rigide pour acier traité

HIGH PERFORMANCE
- Udviklet til hærdet stål

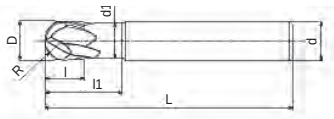
HIGH PERFORMANCE
- Utvecklat för härdat stål

ALTO RENDIMIENTO
- Fresa rígida para acero templado

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- жесткая концевая фреза для закаленных сталей

CARBIDE | FX | 30° | FIT | HIGH SPEED

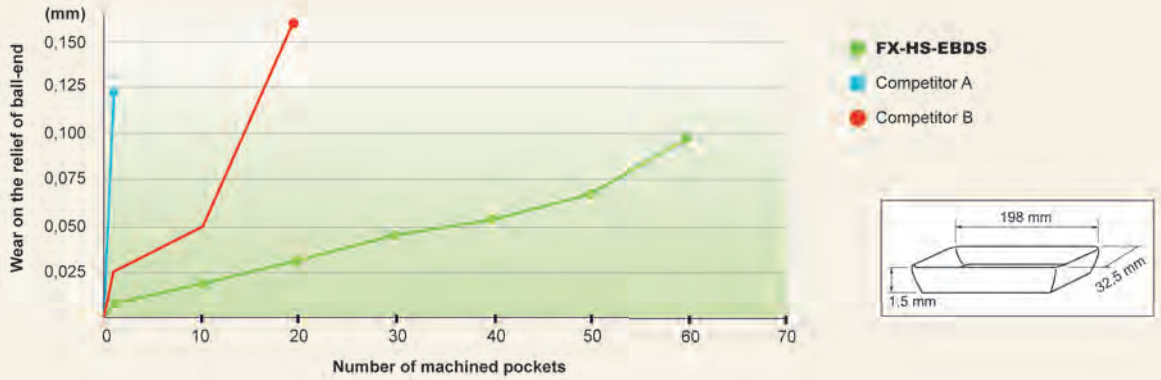
R | ± 0.01 R ≤ 1 | ± 0.0015 R ≥ 1.5 | min⁻¹ D.229



EDP	D	R	l1	L	l	d1	d	Stock	Price
8521403	3	1,5	7,5	50	3	2,85	6	●	
8521404	4	2,0	10,0	50	4	3,85	6	●	
8521405	5	2,5	12,5	50	5	4,80	6	●	
8521406	6	3,0	15,0	50	6	5,70	6	●	
8521408	8	4,0	20,0	60	8	7,60	8	●	
8521410	10	5,0	25,0	70	10	9,50	10	●	
8521412	12	6,0	30,0	80	12	11,40	12	●	

FX-HS-EBDS Performance Data

Size	R3 x 15	Milling Method	Pocket milling
Mat.	50 HRC	Depth of Cut	ap = 1,5 mm Pf = 2,5 mm
Cutting Speed	282,6 m/min (15.000 min -1)	Coolant	Air Blow
Feed	4.500 mm/min (0,15 mm/t)	Machine	Hor. Machining Center (BT40)



Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение						
~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	◎	○	◎	◎
Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○	○		

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

FX-MG-EBD



HIGH PERFORMANCE
- 2 flutes
- For general use

HIGH PERFORMANCE
- 2 Schneiden
- Für allgemeine Anwendungen

ALTA PRESTAZIONE
- 2 denti
- Per applicazioni generali

HAUTE PERFORMANCE
- 2 lèvres
- Pour application universelle

HIGH PERFORMANCE
- 2 skær
- Til generelt brug

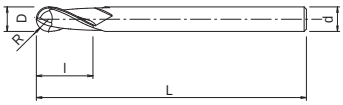
HIGH PERFORMANCE
- 2 skär
- För diverse applikationer

ALTO RENDIMIENTO
- 2 labios
- Para aplicaciones generales

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Общего назначения

WXL-EBD (page D.42) is OSG's new offering for this tool

CARBIDE | FX | 30° | FIT | HIGH SPEED | R ± 0.01 | min⁻¹ D.230



EDP	D	R	L	l	d	Stock	Price
8521010	1,0	0,50	50	2,5	4	○	
8521012	1,2	0,60	50	3,0	4	○	
8521014	1,4	0,70	50	3,5	4	○	
8521015	1,5	0,75	50	4,0	4	○	
8521016	1,6	0,80	50	4,0	4	○	
8521018	1,8	0,90	50	4,5	4	○	
8521020	2,0	1,00	50	5,0	6	●	
8521025	2,5	1,25	60	6,0	6	○	
8521030	3,0	1,50	60	8,0	6	●	
8521035	3,5	1,75	70	8,0	6	○	
8521040	4,0	2,00	70	8,0	6	●	
8521041	4,4	2,00	60	8,0	4	●	
8521045	4,5	2,25	80	10,0	6	○	
8521050	5,0	2,50	80	10,0	6	●	
8521055	5,5	2,75	90	12,0	6	○	
8521060	6,0	3,00	90	12,0	6	●	
8521065	6,5	3,25	90	14,0	6	○	
8521070	7,0	3,50	90	14,0	6	○	
8521075	7,5	3,75	90	14,0	6	○	
8521080	8,0	4,00	100	14,0	8	●	
8521085	8,5	4,25	100	18,0	8	○	
8521090	9,0	4,50	100	18,0	8	○	
8521095	9,5	4,75	100	18,0	8	○	
8521100	10,0	5,00	100	18,0	10	●	
8521110	11,0	5,50	100	22,0	10	○	
8521120	12,0	6,00	110	22,0	12	●	
8521130	13,0	6,50	110	26,0	12	○	
8521140	14,0	7,00	110	26,0	12	○	
8521150	15,0	7,50	110	30,0	12	○	
8521160	16,0	8,00	140	30,0	16	○	
8521180	18,0	9,00	140	34,0	16	○	
8521200	20,0	10,00	160	38,0	20	○	
8521250	25,0	12,50	180	50,0	25	○	
8521300	30,0	15,00	180	55,0	25	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	○		◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○	○		

FX-LS-MG-EBD



HIGH PERFORMANCE
- 2 flutes
- Long shank

HIGH PERFORMANCE
- 2 Schneiden
- Langer Schaft

ALTA PRESTAZIONE
- 2 denti
- Gambo lungo

HAUTE PERFORMANCE
- 2 lèvres
- Queue longue

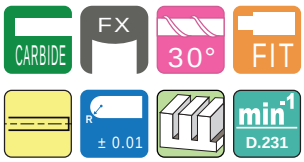
HIGH PERFORMANCE
- 2 skær
- Langt skaft

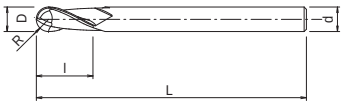
HIGH PERFORMANCE
- 2 skär
- Långt skaft

ALTO RENDIMIENTO
- 2 labios
- Mango larga

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Длинный хвостовик







EDP	D	R	L	l	d	Stock	Price
8541010	1	0,5	70	2,5	3	○	
8541020	2	1,0	70	5,0	3	○	
8541030	3	1,5	80	8,0	3	○	
8541040	4	2,0	100	8,0	4	○	
8541050	5	2,5	100	10,0	4	○	
8541060	6	3,0	140	12,0	6	○	
8541080	8	4,0	160	14,0	8	○	
8541100	10	5,0	180	18,0	10	○	
8541120	12	6,0	200	22,0	12	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	○		◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○	○		

● Delivery from stock
○ Available on short notice

FX-SS-EBD



HIGH PERFORMANCE
- 2 flutes
- Slim shank

HIGH PERFORMANCE
- 2 Schneiden
- Schaftdurchmesser kleiner als Schneide

ALTA PRESTAZIONE
- 2 denti
- Diametro del gambo inferiore al dia. del taglio

HAUTE PERFORMANCE
- 2 lèvres
- Dia. Queue inf. dia coupe

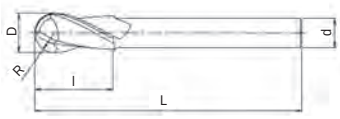
HIGH PERFORMANCE
- 2 skær
- Tyndt skaft

HIGH PERFORMANCE
- 2 skär
- Helreducerat skaft

ALTO RENDIMIENTO
- 2 labios
- Cuello delgado

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Утоненный хвостовик

CARBIDE | FX | 30° | FIT | HIGH SPEED | ± 0.01 | min⁻¹ D.232



EDP	D	R	L	l	d	Stock	Price
8408556	6	3	120	12	5	●	
8408558	8	4	130	14	7	●	
8408560	10	5	150	18	9	●	
8408562	12	6	150	22	11	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	○		◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○	○		

FX-EBD-6



HIGH PERFORMANCE
- 2 flutes
- Shank dia. 6

HIGH PERFORMANCE
- 2 Schneiden
- Schaftdurchmesser dia. 6

ALTA PRESTAZIONE
- 2 denti
- Diametro del gambo dia. 6

HAUTE PERFORMANCE
- 2 lèvres
- Diamètre queue dia. 6

HIGH PERFORMANCE
- 2 skær
- Skaft dia. 6

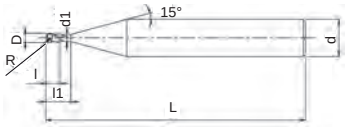
HIGH PERFORMANCE
- 2 skär
- Skaft dia. 6

ALTO RENDIMIENTO
- 2 labios
- Mango dia. 6

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Хвостовик Ø6 мм



CARBIDE | FX | 30° | FIT | ULTRA HIGH SPEED | ± 0.005 | min⁻¹ D.232



EDP	D	R	l1	L	l	d1	d	Stock	Price
8544402	0,2	0,10	-	50	0,2	-	6	●	
8544403	0,3	0,15	-	50	0,3	-	6	●	
8544404	0,4	0,20	-	50	0,4	-	6	●	
8544405	0,5	0,25	1,5	50	0,5	0,45	6	●	
8544806	0,6	0,30	1,1	50	0,6	0,55	6	●	
8544406	0,6	0,30	1,8	50	0,6	0,55	6	●	
8544808	0,8	0,40	1,5	50	0,8	0,75	6	●	
8544408	0,8	0,40	2,4	50	0,8	0,75	6	●	
8544810	1,0	0,50	1,8	50	1,0	0,95	6	●	
8544410	1,0	0,50	2,5	50	1,0	0,95	6	●	
8544812	1,2	0,60	2,2	50	1,2	1,15	6	●	
8544412	1,2	0,60	3,0	50	1,2	1,15	6	●	
8544414	1,4	0,70	3,5	50	1,4	1,35	6	●	
8544815	1,5	0,75	2,7	50	1,5	1,45	6	●	
8544415	1,5	0,75	3,8	50	1,5	1,45	6	●	
8544416	1,6	0,80	4,0	50	1,6	1,55	6	●	
8544418	1,8	0,90	4,5	50	1,8	1,75	6	●	
8544820	2,0	1,00	3,6	50	2,0	1,95	6	●	
8544420	2,0	1,00	5,0	50	2,0	1,95	6	●	
8544425	2,5	1,25	5,0	50	2,5	2,40	6	●	
8544430	3,0	1,50	6,0	50	3,0	2,85	6	●	
8544435	3,5	1,75	6,0	50	3,5	3,35	6	●	
8544440	4,0	2,00	6,0	50	4,0	3,85	6	●	
8544450	5,0	2,50	7,5	50	5,0	4,85	6	●	
8544460	6,0	3,00	9,0	50	6,0	5,85	6	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	○		◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○	○		

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

FX-LN-EBD-6



HIGH PERFORMANCE
- 2 flutes
- Long neck
- Shank dia. 6

HIGH PERFORMANCE
- 2 Schneiden
- Langer Hals
- Schaftdurchmesser dia. 6

ALTA PRESTAZIONE
- 2 denti
- Serie lunga
- Diametro del gambo dia. 6

HAUTE PERFORMANCE
- 2 lèvres
- Série longue
- Diamètre queue dia. 6

HIGH PERFORMANCE
- 2 skær
- Long neck
- Skaft dia. 6

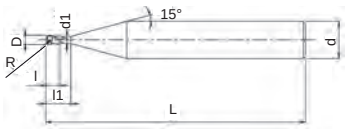
HIGH PERFORMANCE
- 2 skär
- Kort skärlängd, lång reducering
- Skaft dia. 6

ALTO RENDIMIENTO
- 2 labios
- Serie larga
- Cuello dia. 6

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Длинная шейка
- Хвостовик Ø6 мм







EDP	D	R	l1	L	l	d1	d	Stock	Price
8544505	0,5	0,25	2,5	60	0,5	0,45	6	●	
8544506	0,6	0,30	3,0	60	0,6	0,55	6	●	
8544508	0,8	0,40	4,0	60	0,8	0,75	6	●	
8544510	1,0	0,50	5,0	60	1,0	0,95	6	●	
8544512	1,2	0,60	6,0	60	1,2	1,15	6	●	
8544514	1,4	0,70	7,0	60	1,4	1,35	6	●	
8544515	1,5	0,75	7,5	60	1,5	1,45	6	●	
8544516	1,6	0,80	8,0	60	1,6	1,55	6	●	
8544518	1,8	0,90	9,0	60	1,8	1,75	6	●	
8544520	2,0	1,00	10,0	60	2,0	1,95	6	●	
8544525	2,5	1,25	12,5	60	2,5	2,40	6	●	
8544530	3,0	1,50	15,0	70	3,0	2,85	6	●	
8544535	3,5	1,75	17,5	70	3,5	3,35	6	●	
8544540	4,0	2,00	20,0	70	4,0	3,85	6	●	
8544550	5,0	2,50	25,0	80	5,0	4,85	6	●	
8544560	6,0	3,00	30,0	90	6,0	5,85	6	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	○		◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○			

FX-PC-MG-EBD



HIGH PERFORMANCE
- 2 flutes
- Pencil neck

HIGH PERFORMANCE
- 2 Schneiden
- Konischer Schaft

ALTA PRESTAZIONE
- 2 denti
- Riduzione conica

HAUTE PERFORMANCE
- 2 lèvres
- Dégagement conique

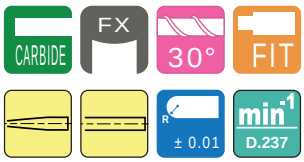
HIGH PERFORMANCE
- 2 skær
- Pencil neck

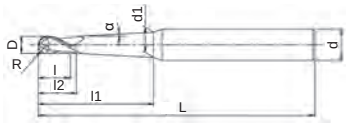
HIGH PERFORMANCE
- 2 skär
- Lång reducering

ALTO RENDIMIENTO
- 2 labios
- Mango refozado con cuello conico

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Коническая шейка







EDP	D	R	L	l	l1	l2	α	d1	d	Stock	Price
8541410	1	0,5	60	2,5	20,0	4,0	5°	3,8	6	●	
8541414	1	0,5	70	2,5	20,0	4,0	1°30'	1,8	6	●	
8541412	1	0,5	80	2,5	40,0	4,0	3°	4,8	6	●	
8541530	2	1,0	60	5,0	20,0	7,0	5°	4,3	6	●	
8541534	2	1,0	70	5,0	20,0	7,0	1°30'	2,7	6	●	
8541532	2	1,0	80	5,0	40,0	7,0	3°	5,5	6	●	
8541571	3	1,5	70	8,0	30,0	10,5	3°	5,0	6	●	
8541573	3	1,5	90	8,0	50,0	10,5	1°30'	5,1	6	●	
8541611	4	2,0	70	8,0	28,0	10,5	3°	6,0	6	●	
8541613	4	2,0	90	8,0	48,0	10,5	1°30'	6,0	6	●	
8541653	5	2,5	90	10,0	40,0	12,5	3°	8,0	8	●	
8541655	5	2,5	110	10,0	60,0	12,5	1°30'	7,5	8	●	
8541693	6	3,0	90	12,0	33,5	14,5	3°	8,0	8	●	
8541695	6	3,0	110	12,0	52,0	14,5	1°30'	8,0	8	●	
8541774	8	4,0	100	14,0	35,5	16,5	3°	10,0	10	●	
8541776	8	4,0	120	14,0	54,5	16,5	1°30'	10,0	10	●	
8541855	10	5,0	110	18,0	39,5	20,5	3°	12,0	12	●	
8541857	10	5,0	130	18,0	58,5	20,5	1°30'	12,0	12	●	
8541898	12	6,0	140	22,0	60,0	25,0	3°	16,0	16	●	
8541899	12	6,0	160	22,0	80,0	25,0	1°30'	14,9	16	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	○		◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○	○		

● Delivery from stock
○ Available on short notice

FX-CR-EDS-6



HIGH PERFORMANCE
- 2 flutes
- Shank dia. 6

HIGH PERFORMANCE
- 2 Schneiden
- Schaftdurchmesser dia. 6

ALTA PRESTAZIONE
- 2 denti
- Diametro del gambo dia. 6

HAUTE PERFORMANCE
- 2 lèvres
- Diamètre queue dia. 6

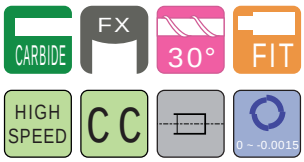
HIGH PERFORMANCE
- 2 skær
- Skaft dia. 6

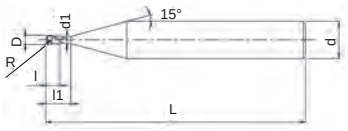
HIGH PERFORMANCE
- 2 skär
- Skaft dia. 6

ALTO RENDIMIENTO
- 2 labios
- Mango dia. 6

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Хвостовик Ø6 мм







EDP	D	l1	R	L	l	d1	d	α 0,5°	α 1°	α 1,5°	α 2°	α 2,5°	α 3°	Stock	Price
8545706	0,6	1,8	0,1	50	0,9	0,55	6	1,86	1,92	1,99	2,07	2,15	2,23	●	
8545708	0,8	2,4	0,1	50	1,2	0,75	6	2,48	2,56	2,66	2,76	2,86	2,98	●	
8545710	1,0	2,5	0,1	50	1,5	0,95	6	2,58	2,67	2,77	2,85	2,98	3,10	●	
8545712	1,2	3,0	0,1	50	1,8	1,15	6	3,10	3,20	3,32	3,45	3,58	3,72	●	
8545714	1,4	3,5	0,1	50	2,1	1,35	6	3,61	3,74	3,87	4,02	4,18	4,35	●	
8545715	1,5	3,8	0,1	50	2,3	1,45	6	3,92	4,06	4,21	4,36	4,54	4,72	●	
8545716	1,6	4,0	0,1	50	2,4	1,55	6	4,13	4,27	4,43	4,59	4,77	4,97	●	
8545718	1,8	4,5	0,1	50	2,7	1,75	6	4,62	4,81	4,98	5,17	5,37	5,59	●	
8545720	2,0	5,0	0,1	50	3,0	1,95	6	5,16	5,34	5,54	5,74	5,97	6,21	●	
8545725	2,5	5,0	0,1	50	3,7	2,40	6	5,16	5,34	5,54	5,74	5,97	6,21	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	○		○	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○	○		

FX-CR-MG-EDS



HIGH PERFORMANCE
- 2 flutes
- Short cutlenght

HIGH PERFORMANCE
- 2 Schneiden
- Schneidenlänge Kurz

ALTA PRESTAZIONE
- 2 denti
- Lunghezza di taglio corta

HAUTE PERFORMANCE
- 2 lèvres
- Long. coupe courte

HIGH PERFORMANCE
- 2 skær
- Kort skærlængde

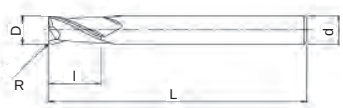
HIGH PERFORMANCE
- 2 skär
- Kort skärlängd

ALTO RENDIMIENTO
- 2 labios
- Longitud de corte corto

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Короткая режущая часть

CARBIDE | FX | 30° | FIT | HIGH SPEED | CC

D > 12 0 ~ -0.03 | D ≤ 12 0 ~ -0.02 | min⁻¹ D.238



EDP	D	R	L	l	d	Stock	Price
8543831	3	0,2	60	8	6	●	
8543833	3	0,5	60	8	6	●	
8543841	4	0,2	70	11	6	●	
8543843	4	0,5	70	11	6	●	
8543845	4	1,0	70	11	6	●	
8543851	5	0,2	80	13	6	●	
8543853	5	0,5	80	13	6	●	
8543855	5	1,0	80	13	6	●	
8543861	6	0,2	90	13	6	●	
8543863	6	0,5	90	13	6	●	
8543865	6	1,0	90	13	6	●	
8543867	6	1,5	90	13	6	●	
8543869	6	2,0	90	13	6	●	
8543883	8	0,5	100	19	8	●	
8543885	8	1,0	100	19	8	●	
8543887	8	1,5	100	19	8	●	
8543889	8	2,0	100	19	8	●	
8543903	10	0,5	100	22	10	●	
8543905	10	1,0	100	22	10	●	
8543907	10	1,5	100	22	10	●	
8543909	10	2,0	100	22	10	●	
8543913	10	3,0	100	22	10	●	
8543933	12	0,5	110	26	12	●	
8543935	12	1,0	110	26	12	●	
8543937	12	1,5	110	26	12	●	
8543939	12	2,0	110	26	12	●	
8543943	12	3,0	110	26	12	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	○	○		◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○	○		

● Delivery from stock
○ Available on short notice

FX-CR-MG-EDL



HIGH PERFORMANCE
- 2 flutes
- Long cut length

HIGH PERFORMANCE
- 2 Schneiden
- Schneidenlänge lang

ALTA PRESTAZIONE
- 2 denti
- Lunghezza di taglio lunga

HAUTE PERFORMANCE
- 2 lèvres
- Long. coupe longue

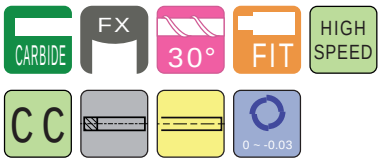
HIGH PERFORMANCE
- 2 skær
- Lang skærlængde

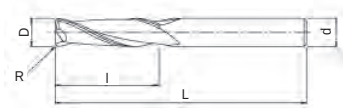
HIGH PERFORMANCE
- 2 skär
- Lång skärlängd

ALTO RENDIMIENTO
- 2 labios
- Longitud de corte larga

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Длинная режущая часть







EDP	D	R	L	l	d	Stock	Price
8523643	6	0,5	90	20	6	○	
8523645	6	1,0	90	20	6	○	
8523663	8	0,5	100	28	8	○	
8523665	8	1,0	100	28	8	○	
8523669	8	2,0	100	28	8	○	
8523683	10	0,5	100	34	10	○	
8523685	10	1,0	100	34	10	○	
8523689	10	2,0	100	34	10	○	
8523703	12	0,5	110	40	12	○	
8523705	12	1,0	110	40	12	○	
8523709	12	2,0	110	40	12	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	○			○	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○	○		

FX-CR-MG-EHS



HIGH PERFORMANCE
- Positive and sharp cutting edge
- For difficult milling materials

HIGH PERFORMANCE
- Pos. scharfe Schneidkante für reduzierte Schnittkräfte
- Für schwer zerspanbare Werkstoffe

ALTA PRESTAZIONE
- Taglio positivo e tranciante
- Per materiali difficili da lavorare

HAUTE PERFORMANCE
- Coupe positive et tranchante
- Pour matière difficile à usiner

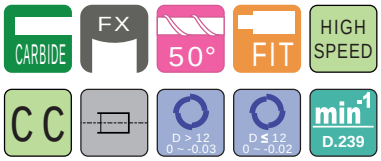
HIGH PERFORMANCE
- Positiv skærevinkel
- Til svært bearbejdelige materialer

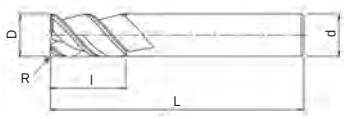
HIGH PERFORMANCE
- Positiv skärvinkel
- För svårbearbetade material

ALTO RENDIMIENTO
- Filo de corte afilado y positivo
- Para materiales de difícil mecanización

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Позитивные и острые режущие кромки
- Для труднообрабатываемых материалов







EDP	D	R	L	l	d	Stock	Price
8524261	6	0,2	90	13	6	○	
8524263	6	0,5	90	13	6	○	
8524265	6	1,0	90	13	6	○	
8524281	8	0,2	100	19	8	○	
8524283	8	0,5	100	19	8	○	
8524285	8	1,0	100	19	8	○	
8524289	8	2,0	100	19	8	○	
8524301	10	0,2	100	22	10	○	
8524303	10	0,5	100	22	10	○	
8524305	10	1,0	100	22	10	○	
8524309	10	2,0	100	22	10	○	
8524331	12	0,2	110	26	12	○	
8524333	12	0,5	110	26	12	○	
8524335	12	1,0	110	26	12	○	
8524339	12	2,0	110	26	12	○	
8524343	12	3,0	110	26	12	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	○	○		◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		◎	◎		

● Delivery from stock
○ Available on short notice

FX-CR-MG-EMS



HIGH PERFORMANCE
- 4 flutes
- Short cutlenght

HIGH PERFORMANCE
- 4 Schneiden
- Schneidenlänge Kurz

ALTA PRESTAZIONE
- 4 denti
- Lunghezza di taglio corta

HAUTE PERFORMANCE
- 4 lèvres
- Long. coupe courte

HIGH PERFORMANCE
- 4 skær
- Kort skærlængde

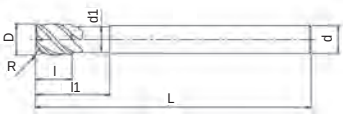
HIGH PERFORMANCE
- 4 skär
- Kort skärlängd

ALTO RENDIMIENTO
- 4 labios
- Longitud de corte corto

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 4 режущих кромки
- Короткая режущая часть

CARBIDE | FX | 30° | FIT | HIGH SPEED

CC | D > 12 0 ~ -0.03 | D ≤ 12 0 ~ -0.02



EDP	D	R	L	l	l1	d	d1	Stock	Price
W0280011A	4	0,5	45	4	12	6	3,8	●	
W0280012A	6	0,5	50	6	18	6	5,8	●	
W0280013A	6	1,0	50	6	18	6	5,8	●	
W0280014A	8	0,5	60	8	24	8	7,8	●	
W0280015A	8	1,0	60	8	24	8	7,8	●	
W0280016A	10	0,5	70	10	30	10	9,7	●	
W0280017A	10	1,0	70	10	30	10	9,7	●	
W0280018A	12	1,0	75	12	36	12	11,7	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	○		○	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○	○		

FX-CR-MG-EML



HIGH PERFORMANCE
- 4 flutes
- Long cut length

HIGH PERFORMANCE
- 4 Schneiden
- Schneidenlänge lang

ALTA PRESTAZIONE
- 4 denti
- Lunghezza di taglio lunga

HAUTE PERFORMANCE
- 4 lèvres
- Long. coupe longue

HIGH PERFORMANCE
- 4 skær
- Lang skærlængde

HIGH PERFORMANCE
- 4 skär
- Lång skärlängd

ALTO RENDIMIENTO
- 4 labios
- Longitud de corte larga

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 4 режущих кромки
- Длинная режущая часть



EDP	D	R	L	l	d	Stock	Price
8523843	6	0,5	90	20	6	○	
8523845	6	1,0	90	20	6	○	
8523863	8	0,5	100	28	8	○	
8523865	8	1,0	100	28	8	○	
8523869	8	2,0	100	28	8	○	
8523883	10	0,5	100	34	10	○	
8523885	10	1,0	100	34	10	○	
8523889	10	2,0	100	34	10	○	
8523903	12	0,5	110	40	12	○	
8523905	12	1,0	110	40	12	○	
8523909	12	2,0	110	40	12	○	
8523913	12	3,0	110	40	12	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	○			○	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○		○	○		

● Delivery from stock
○ Available on short notice

FXS-EMS



ULTRA HIGH PERFORMANCE
- Multiflutes
- Stub length
- For both general and hardened steel

ULTRA HIGH PERFORMANCE
- Multi-Schneiden
- Kurzer Hals
- Miniatur-Konusfräser

ULTRA ALTA PRESTAZIONE
- Multi-denti
- Serie corta
- Fresa multidenti

ULTRA HAUTE PERFORMANCE
- Multi-lèvres
- Série courte
- Fraises multilèvres

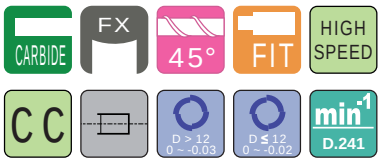
ULTRA HIGH PERFORMANCE
- Flérskærs endefræsere
- Stub længde
- Til hærdet stål samt generelt brug

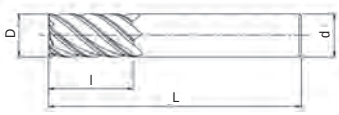
ULTRA HIGH PERFORMANCE
- Flerskärsfräs
- Kort utförande
- För allround och härdat stål

ULTRA ALTO RENDIMIENTO
- Multi labio
- Serie corta
- Para aceros duros y muy duros

УЛЬТРА ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Многозубая
- короткая длина
- Многофункциональная концевая фреза







EDP	D	L	l	d	ZΔ	Stock	Price
8517510	1,0	60	3,5	6	4	●	
8517515	1,5	60	5,0	6	4	●	
8517520	2,0	60	7,0	6	4	●	
8517525	2,5	60	8,0	6	4	●	
8517530	3,0	60	10,0	6	4	●	
8517535	3,5	60	12,0	6	4	●	
8517540	4,0	60	12,0	6	4	●	
8517545	4,5	60	15,0	6	4	○	
8517550	5,0	60	15,0	6	4	●	
8517555	5,5	60	15,0	6	4	○	
8517560	6,0	60	15,0	6	6	●	
8517580	8,0	70	20,0	8	6	●	
8517600	10,0	80	25,0	10	6	●	
8517620	12,0	90	30,0	12	6	●	
8517640	14,0	100	35,0	16	6	○	
8517650	15,0	105	40,0	16	6	○	
8517660	16,0	105	40,0	16	6	●	
8517680	18,0	110	40,0	20	6	○	
8517700	20,0	110	45,0	20	6	●	
8517750	25,0	125	50,0	25	8	○	
8517800	30,0	140	55,0	32	8	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	◎	○	○	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
			○	○		

FXS-LS-EMS



ULTRA HIGH PERFORMANCE
- Multiflutes
- Stub length
- For both general and hardened steel

ULTRA HIGH PERFORMANCE
- Multi-Schneiden
- Kurzer Hals
- Miniatur-Konusfräser

ULTRA ALTA PRESTAZIONE
- Multi-denti
- Serie corta
- Fresa multidenti

ULTRA HAUTE PERFORMANCE
- Multi-lèvres
- Série courte
- Fraises multilèvres

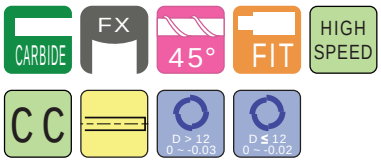
ULTRA HIGH PERFORMANCE
- Flérskærs endefræsere
- Stub længde
- Til hærdet stål samt generelt brug

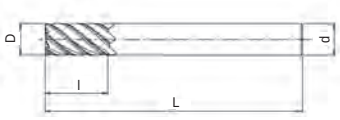
ULTRA HIGH PERFORMANCE
- Flerskärsfräs
- långt utförande
- För allround och härdat stål

ULTRA ALTO RENDIMIENTO
- Multi labio
- Serie corta
- Para aceros duros y muy duros

УЛЬТРА ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Многозубая
- короткая длина
- Многофункциональная концевая фреза







EDP	D	L	l	d	ZΔ	Stock	Price
8538530	3	80	10	6	4	○	
8538540	4	80	12	6	4	○	
8538550	5	80	15	6	4	○	
8538560	6	90	15	6	6	○	
8538580	8	100	20	8	6	○	
8538600	10	100	25	10	6	○	
8538620	12	110	30	12	6	○	
8538660	16	140	40	16	6	○	
8538680	18	160	40	16	6	○	
8538700	20	160	45	20	6	○	
8538720	22	180	45	20	6	○	
8538750	25	180	50	25	8	○	
8538780	28	200	55	25	8	○	
8538800	30	200	55	32	8	○	
8538900	30	200	55	25	8	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	◎	○	○	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
			○	○		

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

FXS-EML



ULTRA HIGH PERFORMANCE
- Multiflutes
- Stub length
- For both general and hardened steel

ULTRA HIGH PERFORMANCE
- Multi-Schneiden
- Kurzer Hals
- Miniatur-Konusfräser

ULTRA ALTA PRESTAZIONE
- Multi-denti
- Serie corta
- Fresa multidenti

ULTRA HAUTE PERFORMANCE
- Multi-lèvres
- Série courte
- Fraises multilèvres

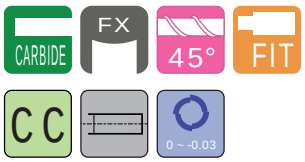
ULTRA HIGH PERFORMANCE
- Flérskærs endefræsere
- Stub længde
- Til hærdet stål samt generelt brug

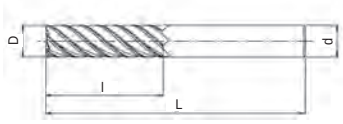
ULTRA HIGH PERFORMANCE
- Flerskärsfräs
- långt utförande
- För allround och härdat stål

ULTRA ALTO RENDIMIENTO
- Multi labio
- Serie corta
- Para aceros duros y muy duros

УЛЬТРА ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Многозубая
- короткая длина
- Многофункциональная концевая фреза







EDP	D	L	l	d	ZΔ	Stock	Price
8518560	6	70	25	6	6	●	
8518580	8	80	35	8	6	●	
8518600	10	100	45	10	6	●	
8518620	12	110	55	12	6	●	
8518660	16	125	65	16	6	●	
8518700	20	140	75	20	6	○	
8518750	25	165	90	25	8	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	◎		○	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
			○	○		

FXS-HPE



HIGH PERFORMANCE
- 4 flutes
- Extra long shank
- For deep wall applications

HIGH PERFORMANCE
- 4 Schneiden
- Extra langer Schaft
- Für Taschenfräsen

ALTA PRESTAZIONE
- 4 denti
- Gambo extra lungo
- Per fresature di pareti profondi

HAUTE PERFORMANCE
- 4 lèvres
- Queue extra longue
- Pour rainurage

HIGH PERFORMANCE
- 4 skær
- Ekstra langt skaft
- Dyb sidefræsning

HIGH PERFORMANCE
- 4 skär
- Skaft extra lång
- Djup valsfräsning

ALTO RENDIMIENTO
- 4 labios
- Mango extra-largo
- Fresado de paredes profundas

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 4 режущих кромки
- Особо длинный хвостовик
- Фрезерование глубоких стенок







EDP	D	L	l	d	Stock	Price
8546600	10	130	15	8	●	
8546620	12	150	18	10	●	
8546640	14	160	21	12	●	
8546680	18	180	27	16	●	
8546720	22	200	33	20	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	○		○	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
			○	○		

OSG Europe: www.osgeurope.com

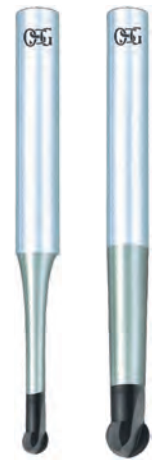
● Delivery from stock
○ Available on short notice

FXS-EQD

FXS

FXS

GO TO LIVE STOCK CHECK



Type 1 Type 2

HIGH PERFORMANCE
- 2 flutes
- 220° cutting edge

HIGH PERFORMANCE
- 2 Schneiden
- 220° Kugel

ALTA PRESTAZIONE
- 2 denti
- Tagliente a 220°

HAUTE PERFORMANCE
- 2 lèvres
- Sphérique sur 220°

HIGH PERFORMANCE
- 2 skær
- 220° skærevinkel

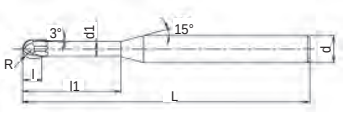
HIGH PERFORMANCE
- 2 skär
- 220° skärvinkel

ALTO RENDIMIENTO
- 2 labios
- 220° Filo de corte

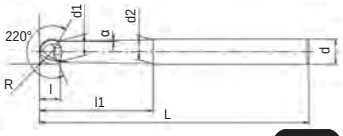
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Режущая кромка 220

CARBIDE FX FIT

min^{-1} D.243



Type 1



Type 2

EDP	D	R	L	l	l1	d1	d2	α	d	Type	Stock	Price
8544005	1,0	0,5	60	0,7	5	0,85	0,85	-	6	1	●	
8544010	2,0	1,0	60	1,5	10	1,70	1,70	-	6	1	●	
8544015	3,0	1,5	70	2,3	15	2,70	2,70	-	6	1	●	
8544020	4,0	2,0	70	3,0	20	3,70	3,70	-	6	1	●	
8544030	6,0	3,0	90	4,0	30	4,60	5,90	1°30'	6	2	●	
8544040	8,0	4,0	100	5,4	40	6,20	7,90	1°30'	8	2	●	
8544050	10,0	5,0	110	6,7	50	7,70	9,90	1°30'	10	2	●	

CARBIDE

CARBIDE

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	○		◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
			○	○		

FXS-EBT



HIGH PERFORMANCE

- Rigid end mill for hardened steeL
- Feed can be increased with 50%

HIGH PERFORMANCE

- Stabile Schneidengeometrie für Kopierfräsen
- 50% Vorschubsteigerung möglich

ALTA PRESTAZIONE

- Frese rigide per acciaio trattato
- L'avanzamento puo essere aumentato del 50%

HAUTE PERFORMANCE

- Fraise rigide pour acier traité
- Avances peuvent êtres augmentées de 50%

HIGH PERFORMANCE

- Udviklet til hærdet stål
- Tilspændingen kan muligvis øges med 50%

HIGH PERFORMANCE

- Utvecklat för härdat stål
- Matningen kan höjas med upp till 50%

ALTO RENDIMIENTO

- Fresa rígida para acero templado
- El avance se puede incrementar con un 50%

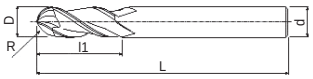
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- жесткая концевая фреза для закаленных сталей
- подача может быть увеличена на 50% процентов



CARBIDE | FX | 30° | HIGH SPEED | R

PR | 0 ~ -0.015 | min⁻¹ D.244



EDP	D	R	L	l1	d	Stock	Price
8518106	6	3	50	12	6	●	
8518108	8	4	50	14	8	●	
8518110	10	5	70	18	10	●	
8518112	12	6	80	22	12	●	
8518116	16	8	100	30	16	●	
8518120	20	10	110	38	20	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	◎	○		
Cu	Al	Graphite	Ti	HRS	Plast.	

● Delivery from stock
○ Available on short notice

FXS-HS-EBM



HIGH PERFORMANCE
- Rigid end mill for hardened steel
- High feed and speed
- Exterior mold roughing milling

HIGH PERFORMANCE
- Stabile Schneidengeometrie für Kopierfräsen
- HSC, allgemeine Anwendung
- Für Formen Aussenbearbeitung

ALTA PRESTAZIONE
- Frese rigide per acciaio trattato
- Alti avanzamenti e velocita di taglio
- Sgrossature, in contornatura

HAUTE PERFORMANCE
- Fraise rigide pour acier traité
- Hautes avances et vitesses de coupe
- Ebauche, usinage de moule extérieur

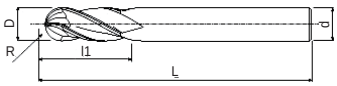
HIGH PERFORMANCE
- Udviklet til hærdet stål
- Høj tilspænding og omdrejninger
- Skrubfræsning af udvendig formpart

HIGH PERFORMANCE
- Utvecklat för härdat stål
- Höga varvtal och matningar
- Skrubbfräsning av utvändig formpart

ALTO RENDIMIENTO
- Fresa rígida para acero templado
- Alto avance y alta velocidad
- Fresado de desbaste de molde exterior

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- жесткая концевая фреза для закаленных сталей
- Высокая подача и скорость
- Наружная черновая обработка прессформ

CARBIDE | FX | 30° | HIGH SPEED | R | ± 0.0015 | min⁻¹ D.245



EDP	D	R	L	l1	d	Stock	Price
8521706	6	3	50	12	6	●	
8521708	8	4	50	14	8	●	
8521710	10	5	70	18	10	●	
8521712	12	6	80	22	12	●	
8521716	16	8	100	30	16	●	
8521720	20	10	110	38	20	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	◎	◎		
Cu	Al	Graphite	Ti	HRS	Plast.	

FXS-EBM



HIGH PERFORMANCE
- Rigid end mill for hardened steel
- High feed and speed
- Exterior mold roughing milling

HIGH PERFORMANCE
- Stabile Schneidengeometrie für Kopierfräsen
- HSC, allgemeine Anwendung
- Für Formen Aussenbearbeitung

ALTA PRESTAZIONE
- Frese rigide per acciaio trattato
- Alti avanzamenti e velocita di taglio
- Sgrossature, in contornatura

HAUTE PERFORMANCE
- Fraise rigide pour acier traité
- Hautes avances et vitesses de coupe
- Ebauche, usinage de moule extérieur

HIGH PERFORMANCE
- Udviklet til hærdet stål
- Høj tilspænding og omdrejninger
- Skrubfræsning af udvendig formpart

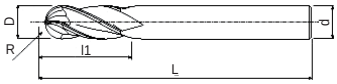
HIGH PERFORMANCE
- Utvecklat för härdat stål
- Höga varvtal och matningar
- Skrubbfräsning av utvändig formpart

ALTO RENDIMIENTO
- Fresa rígida para acero templado
- Alto avance y alta velocidad
- Fresado de desbaste de molde exterior

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- жесткая концевая фреза для закаленных сталей
- Высокая подача и скорость
- Наружная черновая обработка прессформ



CARBIDE | FX | 30° | FIT | HIGH SPEED | R ± 0.0015 | min⁻¹ D.246



EDP	D	R	L	l1	d	Stock	Price
8518206	6	3	90	12	6	●	
8518208	8	4	100	14	8	●	
8518210	10	5	100	18	10	●	
8518212	12	6	110	22	12	●	
8518216	16	8	140	30	16	●	
8518220	20	10	160	38	20	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	◎	◎		
Cu	Al	Graphite	Ti	HRS	Plast.	

● Delivery from stock
○ Available on short notice

FXS-HS-PKE



HIGH PERFORMANCE
- 2 flutes
- For pocket applications

HIGH PERFORMANCE
- 2 Schneiden
- Für Taschenfräsen

ALTA PRESTAZIONE
- 2 denti
- Per sgrossatura in cavità

HAUTE PERFORMANCE
- 2 lèvres
- Pour ébauche poches

HIGH PERFORMANCE
- 2 skærs
- For lomme skrubfræsning

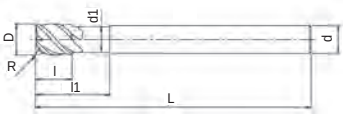
HIGH PERFORMANCE
- 2 skär
- För skrubbfräsning i kavitet

ALTO RENDIMIENTO
- 2 labios
- Para desbaste de cajeras

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 ух зубая со
- Фрезерование карманов







EDP	D	R	L	l	l1	d1	d	Stock	Price
8535016	6	0,5	50	9	15	5,7	6	●	
8535216	6	1,0	50	9	15	5,7	6	●	
8535018	8	0,5	60	12	20	7,6	8	●	
8535218	8	1,0	60	12	20	7,6	8	●	
8535020	10	0,5	70	15	25	9,5	10	●	
8535220	10	1,0	70	15	25	9,5	10	●	
8535022	12	0,5	80	18	30	11,4	12	●	
8535222	12	1,0	80	18	30	11,4	12	●	
8535226	16	1,0	100	24	40	15,2	16	●	
8535626	16	2,0	100	24	40	15,2	16	●	
8535826	16	3,0	100	24	40	15,2	16	●	
8535230	20	1,0	110	30	50	19,0	20	●	
8535630	20	2,0	110	30	50	19,0	20	●	
8535830	20	3,0	110	30	50	19,0	20	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	○		◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
			◎	◎		

FXS-PKE



HIGH PERFORMANCE
- 2 flutes
- For pocket applications

HIGH PERFORMANCE
- 2 Schneiden
- Für Taschenfräsen

ALTA PRESTAZIONE
- 2 denti
- Per sgrossatura in cavità

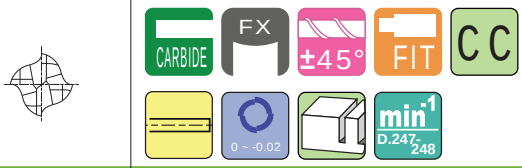
HAUTE PERFORMANCE
- 2 lèvres
- Pour ébauche poches

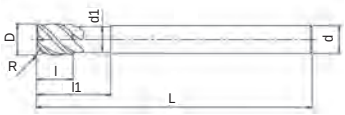
HIGH PERFORMANCE
- 2 skærs
- For lomme skrubfræsning

HIGH PERFORMANCE
- 2 skär
- För skrubbfräsning i kavitet

ALTO RENDIMIENTO
- 2 labios
- Para desbaste de cajeras

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 ух зубая со
- Фрезерование карманов





EDP	D	R	L	l	l1	d1	d	Stock	Price
8547803	3	0,2	60	5	9	2,85	6	●	
8547853	3	0,2	70	5	15	2,85	6	●	
8548003	3	0,5	60	5	9	2,85	6	●	
8548053	3	0,5	70	5	15	2,85	6	●	
8547804	4	0,2	70	6	12	3,80	6	●	
8547854	4	0,2	80	6	20	3,80	6	●	
8548004	4	0,5	70	6	12	3,80	6	●	
8548054	4	0,5	80	6	20	3,80	6	●	
8547805	5	0,2	80	8	15	4,80	6	●	
8547855	5	0,2	90	8	25	4,80	6	●	
8548005	5	0,5	80	8	15	4,80	6	●	
8548055	5	0,5	90	8	25	4,80	6	●	
8548006	6	0,5	90	9	18	5,80	6	●	
8548056	6	0,5	100	9	30	5,80	6	●	
8548206	6	1,0	90	9	18	5,80	6	●	
8548256	6	1,0	100	9	30	5,80	6	●	
8548008	8	0,5	100	12	24	7,70	8	●	
8548058	8	0,5	110	12	40	7,70	8	●	
8548208	8	1,0	100	12	24	7,70	8	●	
8548258	8	1,0	110	12	40	7,70	8	●	
8548010	10	0,5	100	15	30	9,70	10	●	
8548060	10	0,5	120	15	50	9,70	10	●	
8548210	10	1,0	100	15	30	9,70	10	●	
8548260	10	1,0	120	15	50	9,70	10	●	
8548610	10	2,0	100	15	30	9,70	10	●	
8548660	10	2,0	120	15	50	9,70	10	●	
8548012	12	0,5	110	18	36	11,70	12	●	
8548062	12	0,5	130	18	60	11,70	12	●	
8548212	12	1,0	110	18	36	11,70	12	●	
8548262	12	1,0	130	18	60	11,70	12	●	
8548612	12	2,0	110	18	36	11,70	12	●	
8548662	12	2,0	130	18	60	11,70	12	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	○		◎	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
			◎	◎		

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

FXS-MFE



HIGH PERFORMANCE
- Radius at both ends of cutting edge
- For deep wall applications

HIGH PERFORMANCE
- Eckenradius vorne und hinten
- Für Taschenfräsen

ALTA PRESTAZIONE
- Con raggio anteriore e posteriore
- Per fresature di pareti profondi

HAUTE PERFORMANCE
- A rayon avant et arrière
- Pour fraisage cavité profonde

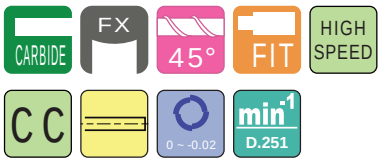
HIGH PERFORMANCE
- Radius i begge ender af skæret
- For dyb sidefræsning

HIGH PERFORMANCE
- Radie i båda ändar av skäret.
- För djup valsfräsning

ALTO RENDIMIENTO
- Radio a ambos extremos del filo de corte
- Para fresado de paredes profundas

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Радиус с обеих концов режущей части
- Для обработки глубоких стенок







EDP	D	R	L	l	d	Stock	Price
8546103	10	0,5	130	15	8	●	
8546105	10	1,0	130	15	8	●	
8546123	12	0,5	150	18	10	●	
8546125	12	1,0	150	18	10	●	
8546143	14	0,5	160	21	12	●	
8546145	14	1,0	160	21	12	●	
8546183	18	0,5	180	27	16	●	
8546185	18	1,0	180	27	16	●	
8546223	22	0,5	200	33	20	●	
8546225	22	1,0	200	33	20	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	○		○	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
			○	○		

FXS-CR-EMS



HIGH PERFORMANCE
- Multiflutes
- For hardened steel

HIGH PERFORMANCE
- 3 Schneiden
- Für gehärteten Stahl

ALTA PRESTAZIONE
- 3 denti
- Per Acciai temprati

HAUTE PERFORMANCE
- 3 lèvres
- Pour des aciers trempés

HIGH PERFORMANCE
- 3 skær
- Til hærdet stål

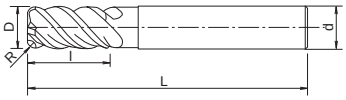
HIGH PERFORMANCE
- 3 skär
- Flerskärsfräs

ALTO RENDIMIENTO
- 3 labios
- De acero templado

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Многозубые
- Для закаленных сталей

CARBIDE | FX | 45° | FIT | HIGH SPEED

CC | D > 12 0 ~ -0.03 | D ≤ 12 0 ~ -0.02 | min⁻¹ D.252



EDP	D	R	L	l	d	ZΔ	Stock	Price
8545511	6	0,5	90	15	6	6	○	
8545512	6	1,0	90	15	6	6	○	
8545516	8	0,5	100	20	8	6	○	
8545517	8	1,0	100	20	8	6	○	
8545518	8	2,0	100	20	8	6	○	
8545521	10	0,5	100	25	10	6	○	
8545522	10	1,0	100	25	10	6	○	
8545523	10	2,0	100	25	10	6	○	
8545526	12	0,5	110	30	12	6	○	
8545527	12	1,0	110	30	12	6	○	
8545528	12	2,0	110	30	12	6	○	
8545529	12	3,0	110	30	12	6	○	
8545531	16	0,5	140	40	16	6	○	
8545532	16	1,0	140	40	16	6	○	
8545533	16	2,0	140	40	16	6	○	
8545534	16	3,0	140	40	16	6	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
◎	◎	◎	◎	○	○	◎

Cu	Al	Graphite	Ti	HRS	Plast.	
			○	○		

● Delivery from stock
○ Available on short notice

CBN-SXB



HIGH PERFORMANCE
- 2 flutes
- For materials up to and over 68 HRC

HIGH PERFORMANCE
- 2 Schneiden
- Für Materialien bis und über 68 HRC

ALTA PRESTAZIONE
- 2 denti
- Per materiali fino e oltre 68 HRC

HAUTE PERFORMANCE
- 2 lèvres
- Pour matériaux jusqu'à et supérieur à 68 HRC

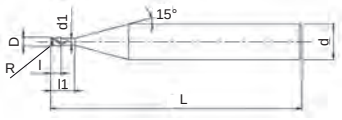
HIGH PERFORMANCE
- 2 skær
- Til materialer op til og over 68 HRC

HIGH PERFORMANCE
- 2 skär
- Till material upp till och över 68 HRC

ALTO RENDIMIENTO
- 2 labios
- Para materiales hasta 68 HrC

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Для материалов > 68HRC

CBN | 30° | FIT | R ± 0.01 | ~68 HRC! | min⁻¹ D.253



EDP	D	R	L	l	d	Stock	Price
8525210	2,5	0,5	50	0,6	6	●	
8525220	5,0	1,0	50	1,2	6	●	
8525230	6,0	1,5	50	1,8	6	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
○	◎	◎	◎	◎		
Cu	Al	Graphite	Ti	HRS	Plast.	



HIGH PERFORMANCE
- 2 flutes
- Stub length
- For alu. & Cu alloys

HIGH PERFORMANCE
- 2 Schneiden
- Kurzer Hals
- Für Alu. und Kupfer-legierungen

ALTA PRESTAZIONE
- 2 denti
- Serie corta
- Per alumlinio e rame

HAUTE PERFORMANCE
- 2 lèvres
- Série courte
- Pour aluminium et des alliages de cuivre

HIGH PERFORMANCE
- 2 skær
- Stub længde
- Til aluminium & kobber legeringer

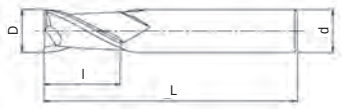
HIGH PERFORMANCE
- 2 skär
- Kort skärlängd
- För aluminium & koppar legeringer

ALTO RENDIMIENTO
- 2 labios
- Serie corta
- Para aluminio y Aleaciones de cobre

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- короткая длина
- Для алюминиевых и медных сплавов

CARBIDE | 30° | FIT | CC

SF | □ | 0 ~ -0.03 | min⁻¹ D.253



EDP	D	L	l	d	Stock	Price
8502010	1,0	40	2	4	●	
8502015	1,5	40	4	4	●	
8502020	2,0	40	6	4	●	
8502025	2,5	40	8	4	●	
8502030	3,0	45	8	6	●	
8502035	3,5	45	10	6	●	
8502040	4,0	45	11	6	●	
8502045	4,5	45	11	6	●	
8502050	5,0	50	13	6	●	
8502055	5,5	50	13	6	●	
8502060	6,0	50	13	6	●	
8502065	6,5	60	16	8	●	
8502070	7,0	60	16	8	●	
8502075	7,5	60	16	8	●	
8502080	8,0	60	19	8	●	
8502085	8,5	70	19	10	●	
8502090	9,0	70	19	10	●	
8502095	9,5	70	19	10	●	
8502100	10,0	70	22	10	●	
8502105	10,5	75	22	12	●	
8502110	11,0	75	22	12	●	
8502115	11,5	75	22	12	●	
8502120	12,0	75	26	12	●	
8502130	13,0	85	26	12	●	
8502140	14,0	85	26	12	●	
8502150	15,0	90	26	16	●	
8502160	16,0	100	32	16	●	
8502170	17,0	100	32	16	●	
8502180	18,0	100	32	16	●	
8502190	19,0	100	32	20	●	
8502200	20,0	105	38	20	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
Cu	Al	Graphite	Ti	HRS	Plast.	
◎	◎				○	

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE
- 2 flutes
- Long length
- For alu. & Cu alloys

HIGH PERFORMANCE
- 2 Schneiden
- Langer Hals
- Für Alu. und Kupfer-legierungen

ALTA PRESTAZIONE
- 2 denti
- Serie lunga
- Per alumlinio e rame

HAUTE PERFORMANCE
- 2 lèvres
- Série longue
- Pour aluminium et des alliages de cuivre

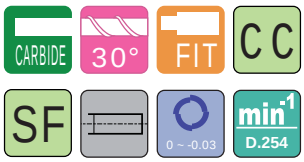
HIGH PERFORMANCE
- 2 skær
- Stub længde
- Til aluminium & kobber legeringer

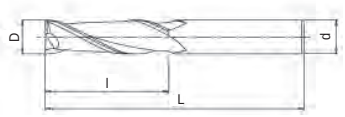
HIGH PERFORMANCE
- 2 skär
- Skärlängd lang
- För aluminium & koppar legeringer

ALTO RENDIMIENTO
- 2 labios
- Serie lunga
- Para aluminio y Aleaciones de cobre

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- короткая длина
- Для алюминиевых и медных сплавов







EDP	D	L	l	d	Stock	Price
8502630	3,0	50	12	6	●	
8502635	3,5	50	14	6	●	
8502640	4,0	50	17	6	●	
8502645	4,5	50	17	6	●	
8502650	5,0	60	20	6	●	
8502655	5,5	60	20	6	●	
8502660	6,0	60	20	6	●	
8502665	6,5	70	24	8	●	
8502670	7,0	70	24	8	●	
8502675	7,5	70	24	8	●	
8502680	8,0	70	28	8	●	
8502685	8,5	80	28	10	●	
8502690	9,0	80	28	10	●	
8502695	9,5	80	28	10	●	
8502700	10,0	80	34	10	●	
8502705	10,5	90	34	12	●	
8502710	11,0	90	34	12	●	
8502715	11,5	90	34	12	●	
8502720	12,0	90	40	12	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB

Cu	Al	Graphite	Ti	HRS	Plast.	
◎	◎				○	



HIGH PERFORMANCE
- 3 flutes
- Stub length
- For alu. & Cu alloys

HIGH PERFORMANCE
- 3 Schneiden
- Kurzer Hals
- Für Alu. und Kupfer-legierungen

ALTA PRESTAZIONE
- 3 denti
- Serie corta
- Per alumlinio e rame

HAUTE PERFORMANCE
- 3 lèvres
- Série courte
- Pour aluminium et des alliages de cuivre

HIGH PERFORMANCE
- 3 skær
- Stub længde
- Til aluminium & kobber legeringer

HIGH PERFORMANCE
- 3 skär
- Kort skärlängd
- För aluminium & koppar legeringer

ALTO RENDIMIENTO
- 3 labios
- Serie corta
- Para aluminio y Aleaciones de cobre

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 3 режущих кромки
- короткая длина
- Для алюминиевых и медных сплавов







EDP	D	L	l	d	Stock	Price
8502806	3	50	8	6	●	
8502808	4	50	11	6	●	
8502810	5	50	13	6	●	
8502812	6	50	13	6	●	
8502816	8	60	19	8	●	
8502820	10	70	22	10	●	
8502822	12	75	26	12	●	
8502826	16	100	32	16	●	
8502830	20	105	38	20	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB

Cu	Al	Graphite	Ti	HRS	Plast.	
◎	◎				○	

● Delivery from stock
○ Available on short notice

CAP-EBD



HIGH PERFORMANCE
- 2 flutes
- For alu. & Cu alloys

HIGH PERFORMANCE
- 2 Schneiden
- Für Alu. und Kupfer-legierungen

ALTA PRESTAZIONE
- 2 denti
- Per alumlinio e rame

HAUTE PERFORMANCE
- 2 lèvres
- Pour aluminium et des alliages de cuivre

HIGH PERFORMANCE
- 2 skær
- Til aluminium & kobber legeringer

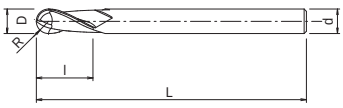
HIGH PERFORMANCE
- 2 skär
- För aluminium & koppar legeringer

ALTO RENDIMIENTO
- 2 labios
- Para aluminio y Aleaciones de cobre

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Для алюминиевых и медных сплавов







EDP	D	R	L	l	d	Stock	Price
8503410	1,0	0,50	60	2,5	4	●	
8503412	1,2	0,60	60	3,0	4	●	
8503414	1,4	0,70	60	3,5	4	●	
8503415	1,5	0,75	60	4,0	4	●	
8503416	1,6	0,80	60	4,0	4	●	
8503418	1,8	0,90	60	4,5	4	●	
8503420	2,0	1,00	60	5,0	6	●	
8503425	2,5	1,25	70	6,0	6	●	
8503430	3,0	1,50	70	8,0	6	●	
8503435	3,5	1,75	70	8,0	6	●	
8503440	4,0	2,00	80	8,0	6	●	
8503450	5,0	2,50	90	10,0	6	●	
8503460	6,0	3,00	90	12,0	6	●	
8503480	8,0	4,00	110	14,0	8	●	
8503500	10,0	5,00	125	18,0	10	●	
8503520	12,0	6,00	140	22,0	12	●	
8503560	16,0	8,00	160	30,0	16	●	
8503600	20,0	10,00	180	38,0	20	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB

Cu	Al	Graphite	Ti	HRS	Plast.	
◎	◎				◎	

CA-PKE



HIGH PERFORMANCE
- 3 flutes
- For pocket applications
- For alu. & Cu alloys

HIGH PERFORMANCE
- 3 Schneiden
- Für Taschenfräsen
- Für Alu. und Kupfer-legierungen

ALTA PRESTAZIONE
- 3 denti
- Per sgrossatura in cavità
- Per alumlinio e rame

HAUTE PERFORMANCE
- 3 lèvres
- Pour ébauche poches
- Pour aluminium et des alliages de cuivre

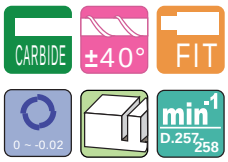
HIGH PERFORMANCE
- 3 skær
- Til lomme skrubfræsning
- Til aluminium & kobber legeringer

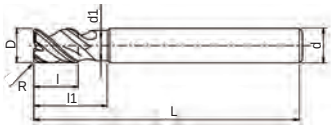
HIGH PERFORMANCE
- 3 skär
- För skrubbfräsning i kavitet
- För aluminium & koppar legeringer

ALTO RENDIMIENTO
- 3 labios
- Para desbaste de cajeras
- Para aluminio y Aleaciones de cobre

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 3 режущих кромки
- Фрезерование карманов
- Для алюминиевых и медных сплавов







EDP	D	R	L	l	l1	d1	d	Stock	Price
8533033	3	0,5	0,5	4,5	9	2,7	6	●	
8533043	4	0,5	0,5	6,0	12	3,6	6	●	
8533053	5	0,5	0,5	7,5	15	4,5	6	●	
8533063	6	0,5	0,5	9,0	15	5,4	6	●	
8533065	6	1,0	1,0	9,0	15	5,4	6	●	
8533083	8	0,5	0,5	12,0	20	7,2	8	●	
8533085	8	1,0	1,0	12,0	20	7,2	8	●	
8533103	10	0,5	0,5	15,0	25	9,0	10	●	
8533105	10	1,0	1,0	15,0	25	9,0	10	●	
8533123	12	0,5	0,5	18,0	30	11,0	12	●	
8533125	12	1,0	1,0	18,0	30	11,0	12	●	
8533163	16	0,5	0,5	24,0	40	15,0	16	●	
8533165	16	1,0	1,0	24,0	40	15,0	16	●	
8533169	16	3,0	3,0	24,0	40	15,0	16	●	
8533203	20	0,5	0,5	30,0	50	19,0	20	●	
8533205	20	1,0	1,0	30,0	50	19,0	20	●	
8533209	20	3,0	3,0	30,0	50	19,0	20	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB

Cu	Al	Graphite	Ti	HRS	Plast.	
◎	◎				○	

● Delivery from stock
○ Available on short notice

CA-MFE



HIGH PERFORMANCE
- Radius at both ends of cutting edge
- For deep wall applications
- 3 flutes
- For alu. & Cu alloys

HIGH PERFORMANCE
- Eckenradius vorne und hinten
- Für Taschenfräsen
- 3 Schneiden
- Für Alu. und Kupfer-legierungen

ALTA PRESTAZIONE
- Con raggio anteriore e posteriore
- Per fresature di pareti profondi
- 3 denti
- Per alumlinio e rame

HAUTE PERFORMANCE
- A rayon avant et arrière
- Pour fraisage cavité profonde
- 3 lèvres
- Pour aluminium et des alliages de cuivre

HIGH PERFORMANCE
- Radius i begge ender af skæret
- Til dyb sidefræsning
- 3 skær
- Til aluminium & kobber legeringer

HIGH PERFORMANCE
- Radie i båda ändar av skäret.
- För djup valsfräsning
- 3 skär
- För aluminium & koppar legeringer

ALTO RENDIMIENTO
- Radio a ambos extremos del filo de corte
- Para fresado de paredes profundas
- 3 labio
- Para aluminio y Aleaciones de cobre

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Радиус с обеих концов режущей части
- Обработка глубоких стенок
- 3 режущих кромки
- Для алюминиевых и медных сплавов

CARBIDE | ±40° | FIT | HIGH SPEED | SF

0 ~ -0.02 | min^{-1} D.259



EDP	D	R	L	l	d	Stock	Price
8532100	10	-	130	15	8	●	
8532103	10	0,5	130	15	8	●	
8532105	10	1,0	130	15	8	●	
8532120	12	-	150	18	10	●	
8532123	12	0,5	150	18	10	●	
8532125	12	1,0	150	18	10	●	
8532140	14	-	160	21	12	●	
8532145	14	1,0	160	21	12	●	
8532149	14	3,0	160	21	12	●	
8532180	18	-	180	27	16	●	
8532185	18	1,0	180	27	16	●	
8532189	18	3,0	180	27	16	●	
8532220	22	-	200	33	20	●	
8532225	22	1,0	200	33	20	●	
8532229	22	3,0	200	33	20	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB

Cu	Al	Graphite	Ti	HRS	Plast.	
◎	◎				○	

CRN-LN-EDS



HIGH PERFORMANCE
- 2 flutes
- Long neck
- For alu. & Cu alloys

HIGH PERFORMANCE
- 2 Schneiden
- Langer Hals
- Für Alu. und Kupfer-legierungen

ALTA PRESTAZIONE
- 2 denti
- Serie lunga
- Per alumlinio e rame

HAUTE PERFORMANCE
- 2 lèvres
- Série longue
- Pour aluminium et des alliages de cuivre

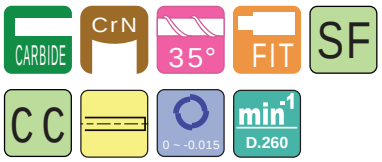
HIGH PERFORMANCE
- 2 skær
- Long neck
- Til aluminium & kobber legeringer

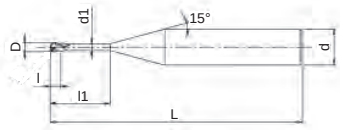
HIGH PERFORMANCE
- 2 skär
- Lång reducering
- For aluminium & koppar legeringer

ALTO RENDIMIENTO
- 2 labios
- Serie larga
- Para aluminio y Aleaciones de cobre

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- короткая длина
- Для алюминиевых и медных сплавов







EDP	D	l1	L	l	d1	d	Stock	Price
8530005	0,5	2,5	60	0,7	0,45	6	●	
8530008	0,8	4,0	60	1,2	0,75	6	●	
8530010	1,0	5,0	60	1,5	0,95	6	●	
8530015	1,5	7,5	60	2,3	1,45	6	●	
8530020	2,0	10,0	60	3,0	1,95	6	●	
8530025	2,5	12,5	70	3,7	2,40	6	●	
8530030	3,0	15,0	70	4,5	2,85	6	●	
8530040	4,0	20,0	80	6,0	3,85	6	●	
8530050	5,0	25,0	90	7,5	4,85	6	●	
8530060	6,0	30,0	90	9,0	5,85	6	●	
8530080	8,0	40,0	110	12,0	7,85	8	●	
8530100	10,0	50,0	125	15,0	9,85	10	●	
8530120	12,0	60,0	140	18,0	11,85	12	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB

Cu	Al	Graphite	Ti	HRS	Plast.	
◎	○				◎	

OSG Europe: www.osgeurope.com

● Delivery from stock
○ Available on short notice

CRN-EMS



HIGH PERFORMANCE
- 4 flutes
- Stub length
- For alu. & Cu alloys

HIGH PERFORMANCE
- 4 Schneiden
- Kurzer Hals
- Für Alu. und Kupfer-legierungen

ALTA PRESTAZIONE
- 4 denti
- Serie corta
- Per alumlinio e rame

HAUTE PERFORMANCE
- 4 lèvres
- Série courte
- Pour aluminium et des alliages de cuivre

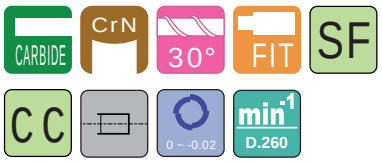
HIGH PERFORMANCE
- 4 skær
- Stub længde
- Til aluminium & kobber legeringer

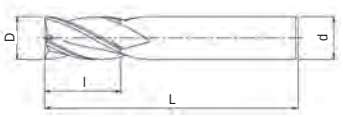
HIGH PERFORMANCE
- 4 skär
- Kort skärlängd
- For aluminium & koppar legeringer

ALTO RENDIMIENTO
- 4 labios
- Serie corta
- Para aluminio y Aleaciones de cobre

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 4 режущих кромки
- короткая длина
- Для алюминиевых и медных сплавов







EDP	D	L	l	d	Stock	Price
8530330	3	70	8	6	●	
8530340	4	80	11	6	●	
8530350	5	90	13	6	●	
8530360	6	90	13	6	●	
8530380	8	110	19	8	●	
8530400	10	125	22	10	●	
8530420	12	140	26	12	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB

Cu	Al	Graphite	Ti	HRS	Plast.	
◎	○				◎	

CRN-EBD

CrN

GO TO LIVE STOCK CHECK



HIGH PERFORMANCE
- 2 flutes
- For alu. & Cu alloys

HIGH PERFORMANCE
- 2 Schneiden
- Für Alu. und Kupfer-legierungen

ALTA PRESTAZIONE
- 2 denti
- Per alumlinio e rame

HAUTE PERFORMANCE
- 2 lèvres
- Pour aluminium et des alliages de cuivre

HIGH PERFORMANCE
- 2 skær
- Til aluminium & kobber legeringer

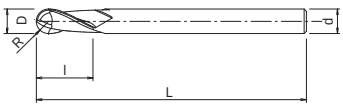
HIGH PERFORMANCE
- 2 skär
- För aluminium & koppar legeringer

ALTO RENDIMIENTO
- 2 labios
- Para aluminio y Aleaciones de cobre

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Для алюминиевых и медных сплавов



CARBIDE | CrN | 30° | FIT | SF | R ± 0.01 | min⁻¹ D.261



EDP	D	R	L	l	d	Stock	Price
8503860	6	3	90	12	6	●	
8503880	8	4	110	14	8	●	
8503900	10	5	125	18	10	●	
8503920	12	6	140	22	12	●	

CARBIDE

CARBIDE

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB

Cu	Al	Graphite	Ti	HRS	Plast.	
◎	○				○	

● Delivery from stock
○ Available on short notice

CRN-LN-EBD



HIGH PERFORMANCE
- 2 flutes
- Long neck
- For alu. & Cu alloys

HIGH PERFORMANCE
- 2 Schneiden
- Langer Hals
- Für Alu. und Kupfer-legierungen

ALTA PRESTAZIONE
- 2 denti
- Serie lunga
- Per alumlinio e rame

HAUTE PERFORMANCE
- 2 lèvres
- Série longue
- Pour aluminium et des alliages de cuivre

HIGH PERFORMANCE
- 2 skar
- Længde
- For aluminium & kobber legeringer

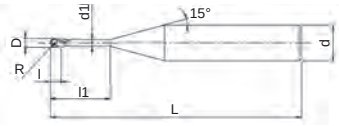
HIGH PERFORMANCE
- 2 skär
- Skärlängd lang
- For aluminium & kobber legeringer

ALTO RENDIMIENTO
- 2 labio
- Serie larga
- Para aluminio y Aleaciones de cobre

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- короткая длина
- Легированного алюминия, Медных







EDP	D	R	l1	L	l	d1	d	Stock	Price
8503810	1,0	0,50	5,0	60	1,5	0,95	6	●	
8503812	1,2	0,60	6,0	60	1,8	1,15	6	●	
8503814	1,4	0,70	7,0	60	2,1	1,35	6	●	
8503815	1,5	0,75	7,5	60	2,3	1,45	6	●	
8503816	1,6	0,80	8,0	60	2,4	1,55	6	●	
8503818	1,8	0,90	9,0	60	2,7	1,75	6	●	
8503820	2,0	1,00	10,0	60	3,0	1,95	6	●	
8503825	2,5	1,25	12,5	70	3,7	2,40	6	●	
8503830	3,0	1,50	15,0	70	4,5	2,85	6	●	
8503835	3,5	1,75	17,5	70	5,3	3,35	6	●	
8503840	4,0	2,00	20,0	80	6,0	3,85	6	●	
8503850	5,0	2,50	25,0	90	7,5	4,85	6	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB

Cu	Al	Graphite	Ti	HRS	Plast.	
◎	○				○	

HYP-EDS-TIAIN



HY-PRO
- Micro grain carbide
- 2 flutes

Slotting end mill

HY-PRO
- Hartmetall, Feinstkorn
- 2 Schneiden

Schaftfräser

HY-PRO
- Carburo micrograna
- 2 denti

Fresa per nervature

HY-PRO
- Carbure micrograin
- 2 lèvres

Fraise à rainurer

HY-PRO
- HM Micro grain
- 2 skær

Endeskærs fræsere

HY-PRO
- HM Micro grain
- 2 skär

Raka fräsar

HY-PRO
- Metal duro Micro Grano
- 2 labios

Fresas de ranurar

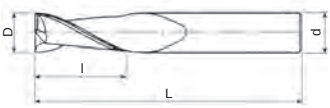
HY-PRO
- Микрозернистый карбид
- 2 режущих кромки

Пазовые концевые фрезы

HY-PRO

CARBIDE TiAIN

C C



EDP	D	L	l	d	Stock	Price
402-0394TL	1,0	39	3	3	○	
402-0591TL	1,5	39	5	3	○	
402-0787TL	2,0	39	7	3	○	
402-0984TL	2,5	39	8	3	○	
402-1181TL	3,0	39	10	3	○	
402-1378TL	3,5	51	12	4	○	
402-1575TL	4,0	51	14	4	○	
402-1772TL	4,5	51	14	5	○	
402-1968TL	5,0	51	16	5	○	
402-2362TL	6,0	64	19	6	○	
402-2756TL	7,0	64	19	8	○	
402-3150TL	8,0	64	21	8	○	
402-3543TL	9,0	70	22	10	○	
402-3937TL	10,0	70	25	10	○	
402-4331TL	11,0	70	25	11	○	
402-4724TL	12,0	76	25	12	○	
402-5512TL	14,0	89	30	14	○	
402-6299TL	16,0	89	32	16	○	
402-7087TL	18,0	102	35	18	○	
402-7874TL	20,0	102	38	20	○	
402-8661TL	22,0	102	38	22	○	
402-9843TL	25,0	102	38	25	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
○	○				○	○

Cu	Al	Graphite	Ti	HRS	Plast.	
	○					

● Delivery from stock
○ Available on short notice



HY-PRO
- Micro grain carbide non coated
- 2 flutes

Slotting end mill

HY-PRO
- Hartmetall, Feinstkorn
- 2 Schneiden

Schaftfräser

HY-PRO
- Carburo micrograna non rivestito
- 2 denti

Fresa per nervature

HY-PRO
- Carbure micrograin non revêtu
- 2 lèvres

Fraise à rainurer

HY-PRO
- Micro grain hårdmetal ubelagt
- 2 skær

Endeskærs fræsere

HY-PRO
- Micro grain HM utan beläggning
- 2 skär

Raka fräsar

HY-PRO
- Metal micro grano sin recubrir
- 2 labios

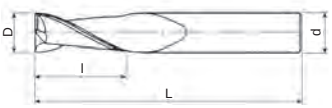
Fresas de ranurar

HY-PRO
- Мелкозернистый карбид без покрытия
- 2 режущих кромки

Пазовые концевые фрезы

HY-PRO

CARBIDE CC



EDP	D	L	l	d	Stock	Price
402-0394	1,0	39	3	3	○	
402-0591	1,5	39	5	3	○	
402-0787	2,0	39	7	3	○	
402-0984	2,5	39	8	3	○	
402-1181	3,0	39	10	3	○	
402-1378	3,5	51	12	4	○	
402-1575	4,0	51	14	4	○	
402-1772	4,5	51	14	5	○	
402-1968	5,0	51	16	5	○	
402-2362	6,0	64	19	6	○	
402-2756	7,0	64	19	8	○	
402-3150	8,0	64	21	8	○	
402-3543	9,0	70	22	10	○	
402-3937	10,0	70	25	10	○	
402-4331	11,0	70	25	11	○	
402-4724	12,0	76	25	12	○	
402-5512	14,0	89	30	14	○	
402-6299	16,0	89	32	16	○	
402-7087	18,0	102	35	18	○	
402-7874	20,0	102	38	20	○	
402-8661	22,0	102	38	22	○	
402-9843	25,0	102	38	25	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
○	○				○	○

Cu	Al	Graphite	Ti	HRS	Plast.	
	○					



HY-PRO
- Micro grain carbide
- 3 flutes

Multiflute end mills

HY-PRO
- Hartmetall, Feinstkorn
- 3 Schneiden

Mehrschneider

HY-PRO
- Carburo micrograna
- 3 denti

Fresa multidenti

HY-PRO
- Carbure micrograin non revêtu
- 3 lèvres

Fraises multilèvres

HY-PRO
- HM Micro grain
- 3 skær

Flérskærs endefræsere

HY-PRO
- HM Micro grain
- 3 skär

Flerskärsfräs

HY-PRO
- Metal duro Micro Grano
- 3 labios

Fresas multi labio

HY-PRO
- Микрозернистый карбид
- 3 режущих кромки

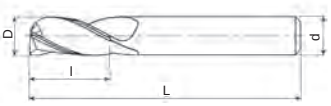
Многозубые концевые фрезы

HY-PRO



CARBIDE | TiAIN

C C



EDP	D	L	l	d	Stock	Price
403-0394TL	1,0	39	3	3	○	
403-0591TL	1,5	39	5	3	○	
403-0787TL	2,0	39	7	3	○	
403-0984TL	2,5	39	8	3	○	
403-1181TL	3,0	39	10	3	○	
403-1378TL	3,5	51	12	4	○	
403-1575TL	4,0	51	14	4	○	
403-1772TL	4,5	51	14	5	○	
403-1968TL	5,0	51	16	5	○	
403-2362TL	6,0	64	19	6	○	
403-2756TL	7,0	64	19	8	○	
403-3150TL	8,0	64	21	8	○	
403-3543TL	9,0	70	22	10	○	
403-3937TL	10,0	70	25	10	○	
403-4331TL	11,0	70	25	11	○	
403-4724TL	12,0	76	25	12	○	
403-5512TL	14,0	89	30	14	○	
403-6299TL	16,0	89	32	16	○	
403-7087TL	18,0	102	35	18	○	
403-7874TL	20,0	102	38	20	○	
403-8661TL	22,0	102	38	22	○	
403-9843TL	25,0	102	38	25	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
○	○				○	○

Cu	Al	Graphite	Ti	HRS	Plast.	
	○					

● Delivery from stock
○ Available on short notice



HY-PRO
- micro grain carbide non coated
- 3 flutes

Multiflute end mill

HY-PRO
- Hartmetall, Feinstkorn
- 3 Schneiden

Mehrschneider

HY-PRO
- Carburo micrograna non rivestito
- 3 denti

Fresa multidenti

HY-PRO
- Carbure micrograin non revêtu
- 3 lèvres

Fraise multilèvres

HY-PRO
- Micro grain hårdmetal ubelagt
- 3 skær

Flérskærs endefræsere

HY-PRO
- Micro grain HM utan beläggning
- 3 skär

Flerskärsfräs

HY-PRO
- Metal micro grano sin recubrir
- 3 labios

Fresas multi labio

HY-PRO
- Мелкозернистый карбид без покрытия
- 3 режущих кромки

Многозубые концевые фрезы

HY-PRO

CARBIDE CC



EDP	D	L	l	d	Stock	Price
403-0394	1,0	39	3	3	○	
403-0591	1,5	39	5	3	○	
403-0787	2,0	39	7	3	○	
403-0984	2,5	39	8	3	○	
403-1181	3,0	39	10	3	○	
403-1378	3,5	51	12	4	○	
403-1575	4,0	51	14	4	○	
403-1772	4,5	51	14	5	○	
403-1968	5,0	51	16	5	○	
403-2362	6,0	64	19	6	○	
403-2756	7,0	64	19	8	○	
403-3150	8,0	64	21	8	○	
403-3543	9,0	70	22	10	○	
403-3937	10,0	70	25	10	○	
403-4331	11,0	70	25	11	○	
403-4724	12,0	76	25	12	○	
403-5512	14,0	89	30	14	○	
403-6299	16,0	89	32	16	○	
403-7087	18,0	102	35	18	○	
403-7874	20,0	102	38	20	○	
403-8661	22,0	102	38	22	○	
403-9843	25,0	102	38	25	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
○	○				○	○

Cu	Al	Graphite	Ti	HRS	Plast.	
	○					



HY-PRO
- Micro grain carbide
- 4 flutes

Multiflute end mill

HY-PRO
- Hartmetall, Feinstkorn
- 4 Schneiden

Mehrschneider

HY-PRO
- Carburo micrograna
- 4 denti

Fresa multidenti

HY-PRO
- Carbure micrograin
- 4 lèvres

Fraise multilèvres

HY-PRO
- HM Micro grain
- 4 skær

Flérskærs endefræsere

HY-PRO
- HM Micro grain
- 4 skär

Flerskärsfräs

HY-PRO
- Metal duro Micro Grano
- 4 labios

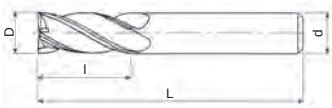
Fresas multi labio

HY-PRO
- Микрозернистый карбид
- 4 режущих кромки

Многозубые концевые фрезы

HY-PRO

CARBIDE TiAIN



EDP	D	L	l	d	Stock	Price
404-0394TL	1,0	39	3	3	○	
404-0591TL	1,5	39	5	3	○	
404-0787TL	2,0	39	7	3	○	
404-0984TL	2,5	39	8	3	○	
404-1181TL	3,0	39	10	3	○	
404-1378TL	3,5	51	12	4	○	
404-1575TL	4,0	51	14	4	○	
404-1772TL	4,5	51	14	5	○	
404-1968TL	5,0	51	16	5	○	
404-2362TL	6,0	64	19	6	○	
404-2756TL	7,0	64	19	8	○	
404-3150TL	8,0	64	21	8	○	
404-3543TL	9,0	70	22	10	○	
404-3937TL	10,0	70	25	10	○	
404-4331TL	11,0	70	25	11	○	
404-4724TL	12,0	76	25	12	○	
404-5512TL	14,0	89	30	14	○	
404-6299TL	16,0	89	32	16	○	
404-7087TL	18,0	102	35	18	○	
404-7874TL	20,0	102	38	20	○	
404-8661TL	22,0	102	38	22	○	
404-9843TL	25,0	102	38	25	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
○	○				○	○

Cu	Al	Graphite	Ti	HRS	Plast.	
	○					

● Delivery from stock
○ Available on short notice



HY-PRO
- Micro grain carbide non coated
- 4 flutes

Multiflute end mill

HY-PRO
- Hartmetall, Feinstkorn
- 4 Schneiden

Mehrschneider

HY-PRO
- Carburo micrograna non rivestito
- 4 denti

Fresa multidenti

HY-PRO
- Carbure micrograin non revêtu
- 4 lèvres

Fraise multilèvres

HY-PRO
- Micro grain hårdmetal ubelagt
- 4 skær

Flérskærs endefræsere

HY-PRO
- Micro grain HM utan beläggning
- 4 skär

Flerskärsfräs

HY-PRO
- Metal micro grano sin recubrir
- 4 labios

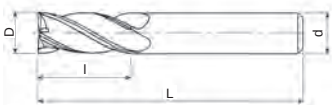
Fresas multi labio

HY-PRO
- Мелкозернистый карбид без покрытия
- 4 режущих кромки

Многозубые концевые фрезы

HY-PRO

CARBIDE CC



EDP	D	L	l	d	Stock	Price
404-0394	1,0	39	3	3	○	
404-0591	1,5	39	5	3	○	
404-0787	2,0	39	7	3	○	
404-0984	2,5	39	8	3	○	
404-1181	3,0	39	10	3	○	
404-1378	3,5	51	12	4	○	
404-1575	4,0	51	14	4	○	
404-1772	4,5	51	14	5	○	
404-1968	5,0	51	16	5	○	
404-2362	6,0	64	19	6	○	
404-2756	7,0	64	19	8	○	
404-3150	8,0	64	21	8	○	
404-3543	9,0	70	22	10	○	
404-3937	10,0	70	25	10	○	
404-4331	11,0	70	25	11	○	
404-4724	12,0	76	25	12	○	
404-5512	14,0	89	30	14	○	
404-6299	16,0	89	32	16	○	
404-7087	18,0	102	35	18	○	
404-7874	20,0	102	38	20	○	
404-8661	22,0	102	38	22	○	
404-9843	25,0	102	38	25	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
○	○				○	○

Cu	Al	Graphite	Ti	HRS	Plast.	
	○					

HYP-CR-EMS



HY-PRO
- 4 flutes
- Corner radius

HY-PRO
- 4 Schneiden
- Mehrschneider mit Eckenradius

HY-PRO
- 4 denti
- Frese toriche

HY-PRO
- 4 lèvres
- Fraise à rayon

HY-PRO
- 4 skær
- Hjørneradius

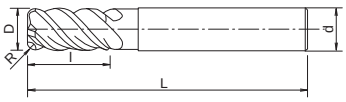
HY-PRO
- 4 skär
- Hörnradie

HY-PRO
- 4 labio
- Vertice radio

HY-PRO
- 4 режущих кромки
- Концевые фрезы с радиусом

HY-PRO

CARBIDE | TiAlN | 35°~38° | C C



EDP	D	R	L	l	d	Stock	Price
404-1968R05	5	0,5	51	16	5	○	
404-2362R05	6	0,5	64	19	6	○	
404-1968R08	6	0,8	64	19	6	○	
404-2362R10	6	1,0	64	19	6	○	
404-1968R15	6	1,5	64	19	6	○	
404-2362R20	6	2,0	64	19	6	○	
404-3150R05	8	0,5	64	21	8	○	
404-3150R08	8	0,8	64	21	8	○	
404-3150R10	8	1,0	64	21	8	○	
404-3150R15	8	1,5	64	21	8	○	
404-3150R20	8	2,0	64	21	8	○	
404-3150R25	8	2,5	64	21	8	○	
404-3150R30	8	3,0	64	21	8	○	
404-3937R05	10	0,5	70	22	10	○	
404-3937R08	10	0,8	70	22	10	○	
404-3937R10	10	1,0	70	22	10	○	
404-3937R15	10	1,5	70	22	10	○	
404-3937R20	10	2,0	70	22	10	○	
404-3937R25	10	2,5	70	22	10	○	
404-3937R30	10	3,0	70	22	10	○	
404-3937R32	10	3,2	70	22	10	○	
404-4724R05	12	0,5	76	25	12	○	
404-4724R08	12	0,8	76	25	12	○	
404-4724R10	12	1,0	76	25	12	○	
404-4724R15	12	1,5	76	25	12	○	
404-4724R20	12	2,0	76	25	12	○	
404-4724R25	12	2,5	76	25	12	○	
404-4724R30	12	3,0	76	25	12	○	
404-4724R32	12	3,2	76	25	12	○	
404-4724R40	12	4,0	76	25	12	○	
404-6299R05	16	0,5	89	32	16	○	
404-6299R10	16	1,0	89	32	16	○	
404-6299R20	16	2,0	89	32	16	○	
404-6299R25	16	2,5	89	32	16	○	
404-6299R30	16	3,0	89	32	16	○	
404-6299R40	16	4,0	89	32	16	○	
404-6299R50	16	5,0	89	32	16	○	
404-7874R05	20	0,5	102	38	20	○	
404-7874R10	20	1,0	102	38	20	○	
404-7874R20	20	2,0	102	38	20	○	
404-7874R30	20	3,0	102	38	20	○	
404-7874R50	20	5,0	102	38	20	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
○	○				○	○

Cu	Al	Graphite	Ti	HRS	Plast.	
	○					

● Delivery from stock
○ Available on short notice

HYP-EBD-TIAIN



HY-PRO
- Micro grain carbide
- 2 flutes - ball nose

Ball nose end mill

HY-PRO
- Hartmetall, Feinstkorn
- 2 Schneiden - Kopierfräser

Kopierfräser

HY-PRO
- Carburo micrograna
- 2 denti - Frese sferiche

Fresa sferiche

HY-PRO
- Carbure micrograin
- 2 lèvres - boule

Fraise hémisphérique

HY-PRO
- HM Micro grain
- 2 skær - Radius

Radius fræsere

HY-PRO
- HM Micro grain
- 2 skär, - fullradie

Fullradie fräsar

HY-PRO
- Metal duro Micro Grano
- 2 labios - punta esférica

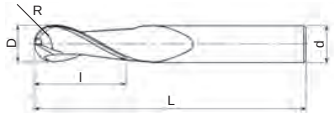
Fresas de punta esférica

HY-PRO
- Микрозернистый карбид
- 2 режущих кромки

Сферические концевые фрезы

HY-PRO

CARBIDE TiAlN



EDP	D	R	L	l	d	Stock	Price
402-0394-BNTL	1,0	0,50	39	3	3	○	
402-0591-BNTL	1,5	0,75	39	5	3	○	
402-0787-BNTL	2,0	1,00	39	7	3	○	
402-0984-BNTL	2,5	1,25	39	8	3	○	
402-1181-BNTL	3,0	1,50	39	10	3	○	
402-1378-BNTL	3,5	1,75	51	12	4	○	
402-1575-BNTL	4,0	2,00	51	14	4	○	
402-1772-BNTL	4,5	2,25	51	14	5	○	
402-1968-BNTL	5,0	2,50	51	16	5	○	
402-2362-BNTL	6,0	3,00	64	19	6	○	
402-2756-BNTL	7,0	3,50	64	19	8	○	
402-3150-BNTL	8,0	4,00	64	21	8	○	
402-3543-BNTL	9,0	4,50	70	22	10	○	
402-3937-BNTL	10,0	5,00	70	25	10	○	
402-4331-BNTL	11,0	5,50	70	25	11	○	
402-4724-BNTL	12,0	6,00	76	25	12	○	
402-5512-BNTL	14,0	7,00	89	30	14	○	
402-6299-BNTL	16,0	8,00	89	32	16	○	
402-7874-BNTL	20,0	10,00	102	38	20	○	
402-8661-BNTL	22,0	11,00	102	38	22	○	
402-9843-BNTL	25,0	12,50	102	38	25	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
○	○				○	○

Cu	Al	Graphite	Ti	HRS	Plast.	
	○					



HY-PRO
- Micro grain carbide
- 2 flutes - ball nose

Ball nose end mill

HY-PRO
- Hartmetall, Feinstkorn
- 2 Schneiden - Kopierfräser

Kopierfräser

HY-PRO
- Carburo micrograna
- 2 denti - Frese sferiche

Fresa sferiche

HY-PRO
- Carbure micrograin
- 2 lèvres - boule

Fraise hémisphérique

HY-PRO
- HM Micro grain
- 2 skær - Radius

Radius fræsere

HY-PRO
- HM Micro grain
- 2 skär, - fullradie

Fullradie fräsar

HY-PRO
- Metal duro Micro Grano
- 2 labios - punta esférica

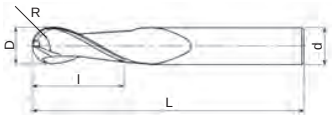
Fresas de punta esférica

HY-PRO
- Микрозернистый карбид
- 2 режущих кромки

Сферические концевые фрезы

HY-PRO

CARBIDE



EDP	D	R	L	l	d	Stock	Price
402-0394-BN	1,0	0,50	39	3	3	○	
402-0591-BN	1,5	0,75	39	5	3	○	
402-0787-BN	2,0	1,00	39	7	3	○	
402-0984-BN	2,5	1,25	39	8	3	○	
402-1181-BN	3,0	1,50	39	10	3	○	
402-1378-BN	3,5	3,75	51	12	4	○	
402-1575-BN	4,0	2,00	51	14	4	○	
402-1772-BN	4,5	2,25	51	14	5	○	
402-1968-BN	5,0	2,50	51	16	5	○	
402-2362-BN	6,0	3,00	64	19	6	○	
402-2756-BN	7,0	3,50	64	19	8	○	
402-3150-BN	8,0	4,00	64	21	8	○	
402-3543-BN	9,0	4,50	70	22	10	○	
402-3937-BN	10,0	5,00	70	25	10	○	
402-4331-BN	11,0	5,50	70	25	11	○	
402-4724-BN	12,0	6,00	76	25	12	○	
402-5512-BN	14,0	7,00	89	30	14	○	
402-6299-BN	16,0	8,00	89	32	16	○	
402-7087-BN	18,0	9,00	102	35	18	○	
402-7874-BN	20,0	10,00	102	38	20	○	
402-8661-BN	22,0	11,00	102	38	22	○	
402-9843-BN	25,0	12,50	102	38	25	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
○	○				○	○

Cu	Al	Graphite	Ti	HRS	Plast.	
	○					

● Delivery from stock
○ Available on short notice

HC-BD2-TIAIN



HY-PRO
- Micro grain carbide
- 2 flutes - ball nose

Ball nose end mill

HY-PRO
- Hartmetall, Feinstkorn
- 2 Schneiden - Kopierfräser

Kopierfräser

HY-PRO
- Carburo micrograna
- 2 denti - Frese sferiche

Fresa sferiche

HY-PRO
- Carbure micrograin
- 2 lèvres - boule

Fraise hémisphérique

HY-PRO
- HM Micro grain
- 2 skær - Radius

Radius fræsere

HY-PRO
- HM Micro grain
- 2 skär, - fullradie

Fullradie fräsar

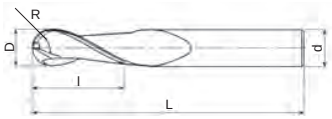
HY-PRO
- Metal duro Micro Grano
- 2 labios - punta esférica

Fresas de punta esférica

HY-PRO
- Микрозернистый карбид
- 2 режущих кромки

Сферические концевые фрезы

CARBIDE TiAlN



EDP	D	R	L	l	d	Stock	Price
Q7400203TA	1,5	0,75	60	8	6	○	
Q7400204TA	2,0	1,00	70	8	6	○	
Q7400205TA	2,5	1,25	80	10	6	○	
Q7400206TA	3,0	1,50	90	12	6	○	
Q7400208TA	4,0	2,00	100	14	8	○	
Q7400210TA	5,0	2,50	100	18	10	○	
Q7400212TA	6,0	3,00	110	22	12	○	
Q7400216TA	8,0	4,00	140	30	16	○	
Q7400220TA	10,0	5,00	180	50	20	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
○	○				○	○

Cu	Al	Graphite	Ti	HRS	Plast.	
	○					

MG-EDS



MG
- Micro grain carbide non coated
- 2 flutes

Slotting end mill

MG
- Hartmetall, Feinstkorn
- 2 Schneiden

Schaftfräser

MG
- Carburo micrograna non rivestito
- 2 denti

Fresa per nervature

MG
- Carbure micrograin non revêtu
- 2 lèvres

Fraise à rainurer

MG
- Micro grain hårdmetal ubelagt
- 2 skær

Endeskærs fræsere

MG
- Micro grain HM utan beläggning
- 2 skär

Raka fräsar

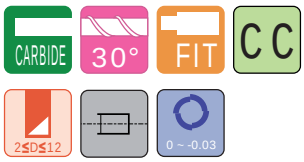
MG
- Metal micro grano sin recubrir
- 2 labios

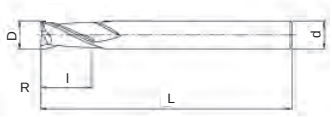
Fresas de ranurar

MG
- Мелкозернистый карбид без покрытия
- 2 режущих кромки

Пазовые концевые фрезы







EDP	D	L	l	d	Stock	Price
84002	1,0	40	2,5	4	○	
84003	1,5	40	4,0	4	○	
84004	2,0	40	6,0	4	○	
84005	2,5	40	8,0	4	○	
84006	3,0	45	8,0	6	○	
84007	3,5	45	10,0	6	○	
84008	4,0	45	11,0	6	○	
84009	4,5	45	11,0	6	○	
84010	5,0	50	13,0	6	○	
84011	5,5	50	13,0	6	○	
84012	6,0	50	13,0	6	○	
84013	6,5	60	16,0	8	○	
84014	7,0	60	16,0	8	○	
84015	7,5	60	16,0	8	○	
84016	8,0	60	19,0	8	○	
84017	8,5	70	19,0	10	○	
84018	9,0	70	19,0	10	○	
84019	9,5	70	19,0	10	○	
84020	10,0	70	22,0	10	○	
84051	10,5	75	22,0	12	○	
84021	11,0	75	22,0	12	○	
84052	11,5	75	26,0	12	○	
84022	12,0	75	26,0	12	○	
84023	13,0	85	26,0	12	○	
84024	14,0	85	26,0	12	○	
84025	15,0	90	26,0	16	○	
84026	16,0	100	32,0	16	○	
84027	17,0	100	32,0	16	○	
84028	18,0	100	32,0	16	○	
84029	19,0	105	38,0	20	○	
84030	20,0	105	38,0	20	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
○	○					○

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○					

● Delivery from stock
○ Available on short notice

MG-EDL



MG
- Micro grain carbide non coated
- 2 flutes

Slotting end mill

MG
- Hartmetall, Feinstkorn
- 2 Schneiden

Schaftfräser

MG
- Carburo micrograna non rivestito
- 2 denti

Fresa per nervature

MG
- Carbure micrograin non revêtu
- 2 lèvres

Fraise à rainurer

MG
- Micro grain hårdmetal ubelagt
- 2 skær

Endeskærs fræsere

MG
- Micro grain HM utan beläggning
- 2 skär

Raka fräsar

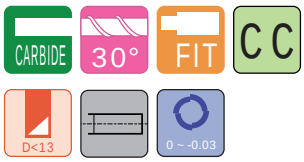
MG
- Metal micro grano sin recubrir
- 2 labios

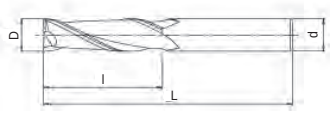
Fresas de ranurar

MG
- Мелкозернистый карбид без покрытия
- 2 режущих кромки

Пазовые концевые фрезы







EDP	D	L	l	d	Stock	Price
84106	3	50	12	6	○	
84108	4	50	17	6	○	
84110	5	60	20	6	○	
84112	6	60	20	6	○	
84114	7	70	24	8	○	
84116	8	70	28	8	○	
84118	9	80	28	10	○	
84120	10	80	34	10	○	
84121	11	90	34	12	○	
84122	12	90	40	12	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
○	○					○

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○					

MG-EMS



MG
- Micro grain carbide non coated
- 4 flutes

Multiflute end mill

MG
- Hartmetall, Feinstkorn
- 4 Schneiden

Mehrschneider

MG
- Carburo micrograna non rivestito
- 4 denti

Fresa multidenti

MG
- Carbure micrograin non revêtu
- 4 lèvres

Fraise multilèvres

MG
- Micro grain hårdmetal ubelagt
- 4 skær

Flérskærs endefræsere

MG
- Micro grain HM utan beläggning
- 4 skär

Flerskärsfräs

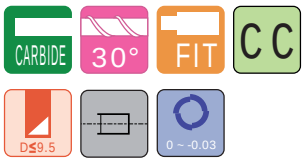
MG
- Metal micro grano sin recubrir
- 4 labios

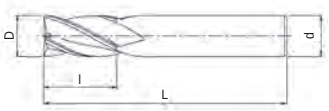
Fresas multi labio

MG
- Мелкозернистый карбид без покрытия
- 4 режущих кромки

Многозубые концевые фрезы







EDP	D	L	l	d	Stock	Price
84404	2,0	40	6	4	○	
84405	2,5	40	8	4	○	
84406	3,0	45	8	6	○	
84407	3,5	45	10	6	○	
84408	4,0	45	11	6	○	
84409	4,5	45	11	6	○	
84410	5,0	50	13	6	○	
84411	5,5	50	13	6	○	
84412	6,0	50	13	6	○	
84413	6,5	60	16	8	○	
84414	7,0	60	16	8	○	
84415	7,5	60	16	8	○	
84416	8,0	60	19	8	○	
84417	8,5	70	19	10	○	
84418	9,0	70	19	10	○	
84419	9,5	70	19	10	○	
84420	10,0	70	22	10	○	
84451	10,5	75	22	12	○	
84421	11,0	75	22	12	○	
84452	11,5	75	26	12	○	
84422	12,0	75	26	12	○	
84423	13,0	85	26	12	○	
84424	14,0	85	26	12	○	
84425	15,0	90	26	16	○	
84426	16,0	100	32	16	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
○	○					○

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○					

● Delivery from stock
○ Available on short notice

MG-EML



MG
- Micro grain carbide non coated
- 4 flutes

Multiflute end mill

MG
- Hartmetall, Feinstkorn
- 4 Schneiden

Mehrschneider

MG
- Carburo micrograna non rivestito
- 4 denti

Fresa multidenti

MG
- Carbure micrograin non revêtu
- 4 lèvres

Fraise multilèvres

MG
- Micro grain hårdmetal ubelagt
- 4 skær

Flérskærs endefræsere

MG
- Micro grain HM utan beläggning
- 4 skär

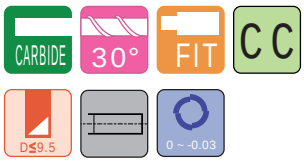
Flerskärsfräs

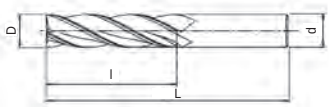
MG
- Metal micro grano sin recubrir
- 4 labios

Fresas multi labio

MG
- Мелкозернистый карбид без покрытия
- 4 режущих кромки

Многозубые концевые фрезы





EDP	D	L	l	d	Stock	Price
84506	3	50	12	6	○	
84508	4	50	17	6	○	
84510	5	60	20	6	○	
84512	6	60	20	6	○	
84514	7	70	24	8	○	
84516	8	70	28	8	○	
84518	9	80	28	10	○	
84520	10	80	34	10	○	
84521	11	90	34	12	○	
84522	12	90	40	12	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
○	○					○

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○					

MG-ETS



MG
- Micro grain carbide non coated
- 3 flutes

Multiflute end mill

MG
- Hartmetall, Feinstkorn
- 3 Schneiden

Mehrschneider

MG
- Carburo micrograna non rivestito
- 3 denti

Fresa multidenti

MG
- Carbure micrograin non revêtu
- 3 lèvres

Fraise multilèvres

MG
- Micro grain hårdmetal ubelagt
- 3 skær

Flérskærs endefræsere

MG
- Micro grain HM utan beläggning
- 3 skär

Flerskärsfräs

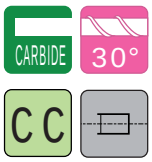
MG
- Metal micro grano sin recubrir
- 3 labios

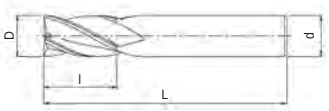
Fresas multi labio

MG
- Мелкозернистый карбид без покрытия
- 3 режущих кромки

Многозубые концевые фрезы







EDP	D	L	l	d	Stock	Price
4097800020	2,0	40	6	4	○	
4097800025	2,5	40	8	4	○	
4097800030	3,0	45	8	6	○	
4097800035	3,5	45	10	6	○	
4097800040	4,0	45	11	6	○	
4097800045	4,5	45	11	6	○	
4097800090	5,0	50	13	6	○	
4097800055	5,5	50	13	6	○	
4097800050	6,0	50	13	6	○	
4097800065	6,5	60	16	8	○	
4097800070	7,0	60	16	8	○	
4097800075	7,5	60	16	8	○	
4097800060	8,0	60	19	8	○	
4097800085	8,5	70	19	10	○	
4097800091	9,0	70	19	10	○	
4097800095	9,5	70	19	10	○	
4097800100	10,0	70	22	10	○	
4097800110	11,0	75	22	12	○	
4097800120	12,0	75	26	12	○	
4097800130	13,0	85	26	12	○	
4097800140	14,0	85	26	12	○	
4097800150	15,0	90	26	16	○	
4097800160	16,0	100	32	16	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
○	○					○

Cu	Al	Graphite	Ti	HRS	Plast.	
○	○					

● Delivery from stock
○ Available on short notice



MG
- Micro grain carbide non coated
- 3 flutes

Multiflute end mill

MG
- Hartmetall, Feinstkorn
- 3 Schneiden

Mehrschneider

MG
- Carburo micrograna non rivestito
- 3 denti

Fresa multidenti

MG
- Carbure micrograin non revêtu
- 3 lèvres

Fraise multilèvres

MG
- Micro grain hårdmetal ubelagt
- 3 skær

Flérskærs endefræsere

MG
- Micro grain HM utan beläggning
- 3 skär

Flerskärsfräs

MG
- Metal micro grano sin recubrir
- 3 labios

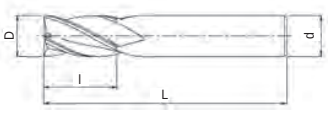
Fresas multi labio

MG
- Мелкозернистый карбид без покрытия
- 3 режущих кромки

Многозубые концевые фрезы



CARBIDE | 30° | C C



EDP	D	L	l	d	Stock	Price
4098800030	3	50	12	6	○	
4098800040	4	50	17	6	○	
4098800050	5	60	20	6	○	
4098800060	6	60	20	6	○	
4098800070	7	70	24	8	○	
4098800080	8	70	28	8	○	
4098800090	9	80	28	10	○	
4098800100	10	80	34	10	○	
4098800110	11	90	34	12	○	
4098800120	12	90	40	12	○	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение

~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	SUS ~35 HRC	GG-GGG ~350 HB
○	○					○

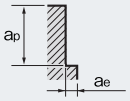
Cu	Al	Graphite	Ti	HRS	Plast.	
○	○					

NEO-PHS/NEO-CR-PHS

Side milling - Konturfräsen - Conturnatura - Coutournage / Semi-finishing - Semi-finitura - Semi-finition - Semi-finition
Sidefræsning - Valsfräsning - Contorneado - Боковое фрезерование / Sletfræsning - Finfräsning - Acabado - Получистовая

	C≤0,2% - GG S55C ■ SS400 ■ FC250 ~750 N/mm²		SCM - SKD SKT ■ SKS ■ SCM ~30 N/mm²		30~38 HRC - SUS NAK55 ■ HPM1 ■ SKT ■ SKD 30~38 N/mm²		38~45 HRC - SUS SUS304 ■ SKD 38~45 N/mm²		45~55 HRC - HRS 45~55 N/mm²		Heat Resistant Alloy Steels-Inconel	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
3	12.500	1.100	9.550	840	8.100	625	7.650	615	7.400	545	3.800	220
4	9.750	1.200	7.550	985	6.400	680	6.050	710	5.850	630	3.000	240
5	7.950	1.300	6.150	1.050	5.250	725	4.950	775	4.800	670	2.450	245
6	6.750	1.600	5.250	1.200	4.450	890	4.200	835	4.050	695	2.100	250
8	5.050	1.550	3.950	1.100	3.350	815	3.150	810	3.050	675	1.600	225
10	4.100	1.450	3.200	1.050	2.700	725	2.550	715	2.450	635	1.250	215
12	3.400	1.400	2.650	1.000	2.250	720	2.100	675	2.050	605	1.050	210
16	2.550	1.200	2.000	940	1.700	635	1.600	555	1.550	505	765	210
20	2.050	985	1.600	755	1.350	590	1.250	515	1.250	460	635	200
25	1.650	880	1.250	675	1.100	535	1.000	485	990	395	510	185

Max cutting depth



ap	ae
≤1,5D	≤0,2D

ap	ae
≤1,5D	≤0,1D

ap	ae
≤1,5D	≤0,05D

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used
3. Please use a suitable fluid with high smoke retardant properties
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.

1. Utilizzare una macchina ed un mandrino di elevato rigidità e di alta precisione
2. Regolare la velocità e l'avanzamento se si aumenta la profondità di passata e se utilizzata su macchina non rigide
3. Utilizare dei lubrificanti di taglio adequati, dotati di une elevato coefficiente di rallentamento di emessione del fumo
4. Durante la fresatura a secco, utilizzare dell'aria

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel
2. Vorschub und Geschwindigkeit der Schnittiefe und Maschinen-Starrheit anpassen
3. Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen
4. Bei Trockenbearbeitung Druckluft zum Entfernen der Späne verwenden

1. Utiliser une machine et un porte-outil de grande rigidité et de haute précision
2. Ajuster vitesse et avance en cas de profondeur de coupe importante ou en utilisant une machine non-rigide
3. Utiliser des fluides de coupes de haute qualité avec un coef. élevé de ralentissement d'émission de fumée
4. Lors de l'usinage à sec, veuillez utiliser de l'air pour l'évacuation des copeaux

1. Anvend stabil maskine og værktøjsholder
2. Justér omdrejninger og tilspænding ved stor skæredybde eller en ustabil maskine bruges
3. Anvend en passende skærevæske
4. Under tørbearbejdning anvend lufttryk for at bortskaffe spåner

1. Use maquina y portaherramientas rigidos y precisos
2. Ajustar el avance cuando la profundidad de corte es grande o cuando se se utilizan máquinas de poca rigidez
3. Use fluido de corte adecuado con retardador de humos
4. Fresado en seco (sin líquido), por favor, utilice el aire soplado para eliminar la viruta de la zona de corte

1. Använd en stabil maskin och verktygshållare
2. Justera varvtal och matning vid stora skärdjup eller om instabil maskin används
3. Använd anpassad skärvätska
4. Vid torrbearbetning använd tryckluft för att transportera bort spånor

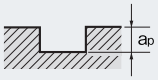
1. Используйте жесткие и точные станки и фрезерные патроны
2. Пожалуйста отрегулируйте обороты шпинделя и подачу, когда глубина резания велика или при использовании станков с низкой жесткостью
3. используйте соответствующую СОЖ с высокой устойчивостью к возникновению дыма
4. При сухом (без СОЖ) фрезеровании, используйте воздушную струю для удаления стружки и предотвращения спрессовывания стружки

NEO-PHS/NEO-CR-PHS

Slotting - Nutenfräsen - Per scanalature profonde - Rainurage
Skæredata - Skärdata - Ranurado - Фрезерование пазов

	C≤0,2% - GG S55C ■ SS400 ■ FC250 ~750 N/mm²		SCM - SKD SKT ■ SKS ■ SCM ~30 N/mm²		30~38 HRC - SUS NAK55 ■ HPM1 ■ SKT ■ SKD 30~38 N/mm²		38~45 HRC - SUS SUS304 ■ SKD 38~45 N/mm²		45~55 HRC - HRS 45~55 N/mm²		Heat Resistant Alloy Steels-Inconel	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
3	10.500	730	8.550	680	7.850	520	7.450	460	7.200	440	2.500	125
4	7.750	730	6.400	775	5.900	520	5.550	515	5.400	495	1.900	135
5	6.200	735	5.100	755	4.700	545	4.450	545	4.300	535	1.500	145
6	5.150	740	4.250	635	3.950	575	3.700	570	3.600	545	1.250	145
8	3.850	600	3.200	550	2.950	550	2.800	525	2.700	510	945	155
10	3.100	580	2.550	540	2.350	480	2.250	475	2.150	455	760	145
12	2.600	560	2.150	475	1.950	460	1.850	440	1.800	435	630	145
16	1.950	555	1.600	430	1.500	370	1.400	370	1.350	365	475	110
20	1.550	475	1.300	380	1.200	355	1.100	330	1.100	330	380	110
25	1.250	450	1.000	365	945	315	890	285	865	235	300	105

Max cutting depth



ap
≤0,5D

ap
≤0,2D

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used
3. Please use a suitable fluid with high smoke retardant properties
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.

1. Utilizzare una macchina ed un mandrino di elevato rigidità e di alta precisione
2. Regolare la velocità e l'avanzamento se si aumenta la profondità di passata e se utilizzata su macchina non rigide
3. Utilizare dei lubrificanti di taglio adequati, dotati di une elevato coefficiente di rallentamento di emessione del fumo
4. Durante la fresatura a secco, utilizzare dell'aria

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel
2. Vorschub und Geschwindigkeit der Schnittiefe und Maschinen-Starrheit anpassen
3. Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen
4. Bei Trockenbearbeitung Druckluft zum Entfernen der Späne verwenden

1. Utiliser une machine et un porte-outil de grande rigidité et de haute précision
2. Ajuster vitesse et avance en cas de profondeur de coupe importante ou en utilisant une machine non-rigide
3. Utiliser des fluides de coupes de haute qualité avec un coef. élevé de ralentissement d'émission de fumée
4. Lors de l'usinage à sec, veuillez utiliser de l'air pour l'évacuation des copeaux

1. Anvend stabil maskine og værktøjsholder
2. Justér omdrejninger og tilspænding ved stor skæredybde eller en ustabil maskine bruges
3. Anvend en passende skærevæske
4. Under tørbearbejdning anvend lufttryk for at bortskaffe spåner

1. Use maquina y portaherramientas rigidos y precisos
2. Ajustar el avance cuando la profundidad de corte es grande o cuando se se utilizan máquinas de poca rigidez
3. Use fluido de corte adecuado con retardador de humos
4. Fresado en seco (sin líquido), por favor, utilice el aire soplado para eliminar la viruta de la zona de corte

1. Använd en stabil maskin och verktygshållare
2. Justera varvtal och matning vid stora skärdjup eller om instabil maskin används
3. Använd anpassad skärvätska
4. Vid torrbearbetning använd tryckluft för att transportera bort spånor

1. Используйте жесткие и точные станки и фрезерные патроны
2. Пожалуйста отрегулируйте обороты шпинделя и подачу, когда глубина резания велика или при использовании станков с низкой жесткостью
3. используйте соответствующую СОЖ с высокой устойчивостью к возникновению дыма
4. При сухом (без СОЖ) фрезеровании, используйте воздушную струю для удаления стружки и предотвращения спрессовывания стружки

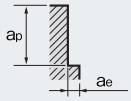
NEO-EMS/NEO-CR-EMS

Side milling - Konturfräsen - Fresatura contornatura - Fraisage contournage
Sidefræsning - Valsfräsning - Contorneado - Боковое фрезерование



	C≤0,2% - GG S55C ■ SS400 ■ FC250 ~750 N/mm²		SCM - SKD SKT ■ SKS ■ SCM ~30 HRC		30~38 HRC NAK55 ■ HPM1 ■ SKT ■ SKD 30~38 N/mm²		38~45 HRC - SUS SUS304 ■ SKD 38~45 N/mm²		45~55 HRC - HRS 45~55 N/mm²		Heat Resistant Alloy Steels Inconel	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
6	7.100	2.300	5.500	1.750	4.700	1.300	4.400	1.250	4.300	1.050	2.200	360
8	5.350	2.250	4.150	1.600	3.500	1.200	3.300	1.200	3.200	1.000	1.650	330
10	4.300	2.100	3.350	1.550	2.850	1.100	2.650	1.050	2.600	925	1.350	310
12	3.600	2.000	2.800	1.500	2.350	1.050	2.250	980	2.150	875	1.100	305
16	2.700	1.750	2.100	1.350	1.750	925	1.650	805	1.600	735	835	305
20	2.150	1.450	1.650	1.100	1.400	850	1.350	745	1.300	665	670	300
25	1.700	1.300	1.350	975	1.150	775	1.050	705	1.050	575	535	265

Max cutting depth



ap	ae
≤1,5D	≤0,2D

ap	ae
≤1,5D	≤0,1D

ap	ae
≤1,5D	≤0,05D

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used
3. Please use a suitable fluid with high smoke retardant properties
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.

1. Utilizzare una macchina ed un mandrino di elevato rigidità e di alta precisione
2. Regolare la velocità e l'avanzamento se si aumenta la profondità di passata e se utilizzata su macchina non rigide
3. Utilizare dei lubrificanti di taglio adequati, dotati di une elevato coefficiente di rallentamento di emessione del fumo
4. Durante la fresatura a secco, utilizzare dell'aria

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel
2. Vorschub und Geschwindigkeit der Schnittiefe und Maschinen-Starrheit anpassen
3. Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen
4. Bei Trockenbearbeitung Druckluft zum Entfernen der Späne verwenden

1. Utiliser une machine et un porte-outil de grande rigidité et de haute précision
2. Ajuster vitesse et avance en cas de profondeur de coupe importante ou en utilisant une machine non-rigide
3. Utiliser des fluides de coupes de haute qualité avec un coef. élevé de ralentissement d'émission de fumée
4. Lors de l'usinage à sec, veuillez utiliser de l'air pour l'évacuation des copeaux

1. Anvend stabil maskine og værktøjsholder
2. Justér omdrejninger og tilspænding ved stor skæredybde eller en ustabil maskine bruges
3. Anvend en passende skærevæske
4. Under tørbearbejdning anvend lufttryk for at bortskaffe spåner

1. Use maquina y portaherramientas rigidos y precisos
2. Ajustar el avance cuando la profundidad de corte es grande o cuando se se utilizan máquinas de poca rigidez
3. Use fluido de corte adecuado con retardador de humos
4. Fresado en seco (sin líquido), por favor, utilice el aire soplado para eliminar la viruta de la zona de corte

1. Använd en stabil maskin och verktygshållare
2. Justera varvtal och matning vid stora skärdjup eller om instabil maskin används
3. Använd anpassad skärvätska
4. Vid torrbearbetning använd tryckluft för att transportera bort spånor

1. Используйте жесткие и точные станки и фрезерные патроны
2. Пожалуйста отрегулируйте обороты шпинделя и подачу, когда глубина резания велика или при использовании станков с низкой жесткостью
3. используйте соответствующую СОЖ с высокой устойчивостью к возникновению дыма
4. При сухом (без СОЖ) фрезеровании, используйте воздушную струю для удаления стружки и предотвращения спрессовывания стружки

CARBIDE

NEO-EMS/NEO-CR-EMS

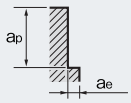
High speed side milling - HSC Konturfräsen - Sgrossatura e contornatura alta velocità - Contournage UGV
High speed sidefræsning - High speed valsfräsning - Contorneado a alta velocidad - Высокоскоростное контурное фрезерование



	C≤0,2% - GG S55C ■ SS400 ■ FC250 ~750 N/mm²		SCM - SKD SKT ■ SKS ■ SCM ~30 HRC		30~38 HRC NAK55 ■ HPM1 ■ SKT ■ SKD 30~38 N/mm²		38~45 HRC - SUS SUS304 ■ SKD 38~45 N/mm²		45~55 HRC - HRS 45~55 N/mm²		Heat Resistant Alloy Steels Inconel	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
6	14.000	4.750	11.000	3.550	9.150	2.650	8.600	2.500	8.350	2.100	4.300	745
8	10.500	4.600	8.050	3.300	6.850	2.450	6.450	2.400	6.250	2.050	3.250	675
10	8.400	3.900	6.500	3.000	5.550	2.200	5.200	2.100	5.050	1.900	2.600	640
12	7.000	3.800	5.450	2.900	4.600	2.150	4.350	2.000	4.200	1.800	2.150	625
16	5.250	3.550	4.100	2.800	3.450	1.900	3.250	1.650	3.150	1.500	1.650	620
20	4.200	2.900	3.250	2.250	2.750	1.750	2.600	1.550	2.550	1.350	1.300	610
25	3.350	2.600	2.600	2.000	2.200	1.600	2.100	1.450	2.000	1.150	1.050	550

SUS304 ■ SKD

Max cutting depth



ap	ae
≤1,5D	≤0,05D aeMAX=0, 5mm

ap	ae
≤1,5D	≤0,02D

ap	ae
≤1D	≤0,02D aeMAX=0, 5mm

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used
3. Please use a suitable fluid with high smoke retardant properties
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.

1. Utilizzare una macchina ed un mandrino di elevato rigidità e di alta precisione
2. Regolare la velocità e l'avanzamento se si aumenta la profondità di passata e se utilizzata su macchina non rigide
3. Utilizare dei lubrificanti di taglio adequati, dotati di une elevato coefficiente di rallentamento di emessione del fumo
4. Durante la fresatura a secco, utilizzare dell'aria

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel
2. Vorschub und Geschwindigkeit der Schnittiefe und Maschinen-Starrheit anpassen
3. Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen
4. Bei Trockenbearbeitung Druckluft zum Entfernen der Späne verwenden

1. Utiliser une machine et un porte-outil de grande rigidité et de haute précision
2. Ajuster vitesse et avance en cas de profondeur de coupe importante ou en utilisant une machine non-rigide
3. Utiliser des fluides de coupes de haute qualité avec un coef. élevé de ralentissement d'émission de fumée
4. Lors de l'usinage à sec, veuillez utiliser de l'air pour l'évacuation des copeaux

1. Anvend stabil maskine og værktøjsholder
2. Justér omdrejninger og tilspænding ved stor skæredybde eller en ustabil maskine bruges
3. Anvend en passende skærevæske
4. Under tørbearbejdning anvend lufttryk for at bortskaffe spåner

1. Use maquina y portaherramientas rigidos y precisos
2. Ajustar el avance cuando la profundidad de corte es grande o cuando se se utilizan máquinas de poca rigidez
3. Use fluido de corte adecuado con retardador de humos
4. Fresado en seco (sin líquido), por favor, utilice el aire soplado para eliminar la viruta de la zona de corte

1. Använd en stabil maskin och verktygshållare
2. Justera varvtal och matning vid stora skärdjup eller om instabil maskin används
3. Använd anpassad skärvätska
4. Vid torrbearbetning använd tryckluft för att transportera bort spånor

1. Используйте жесткие и точные станки и фрезерные патроны
2. Пожалуйста отрегулируйте обороты шпинделя и подачу, когда глубина резания велика или при использовании станков с низкой жесткостью
3. используйте соответствующую СОЖ с высокой устойчивостью к возникновению дыма
4. При сухом (без СОЖ) фрезеровании, используйте воздушную струю для удаления стружки и предотвращения спрессовывания стружки

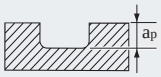
WXL-1,5D-DE

Slotting - Nutenfräsen - Per scanalature profonde - Rainurage
Skæredata - Skärdata - Ranurado - Фрезерование пазов



Ø	Cu		<32 HRC FC250 ■ SS400 ■ S55C ■ NAK55 ~35 HRC		33~41 HRC SKT ■ SKD61 ■ NAK80 ■ HPM1 ■ DH 33~41 HRC		42~50 HRC SKT ■ SKD61 ■ NAK80 ■ HPM1 ■ DH 42~50 HRC	
	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
0,1	50.000	120	40.000	80	40.000	75	40.000	38
0,2	50.000	170	40.000	110	40.000	90	40.000	45
0,3	50.000	210	40.000	140	40.000	100	40.000	70
0,4	50.000	230	40.000	150	40.000	110	34.500	75
0,5	50.000	250	38.500	150	31.000	110	27.500	75
0,6	50.000	280	33.500	150	24.500	110	21.000	75
0,7	50.000	310	30.000	150	21.500	110	18.500	75
0,8	50.000	360	27.000	150	19.500	110	17.000	80
0,9	50.000	400	23.500	150	17.000	110	15.000	80
1,0	50.000	430	22.000	150	15.500	110	13.500	80
1,1	50.000	420	20.000	150	14.000	110	12.500	80
1,2	50.000	420	18.500	150	13.500	110	11.500	80
1,3	47.000	410	17.500	150	12.500	110	11.000	80
1,4	44.000	410	16.000	150	11.500	110	10.000	80
1,5	40.000	400	15.500	150	11.000	110	9.900	80
1,6	39.000	400	15.000	150	10.500	110	9.400	80
1,7	36.500	400	14.000	150	9.900	110	8.800	80
1,8	34.500	400	13.500	160	9.400	110	8.500	80
1,9	32.500	400	12.500	160	8.800	110	7.900	85
2,0	30.000	380	12.000	160	8.700	110	7.900	90
2,1	29.000	410	11.500	170	8.300	110	7.400	90
2,2	28.000	410	11.000	170	8.200	110	7.200	90
2,3	27.500	410	11.000	180	8.000	110	7.000	90
2,4	26.000	430	10.500	180	7.900	110	6.900	90
2,5	24.500	430	10.500	200	7.600	110	6.600	90
2,6	23.500	470	9.800	200	7.400	125	6.300	90
2,7	23.000	470	9.500	200	7.100	125	6.100	90
2,8	22.000	470	9.100	210	6.900	125	5.800	95
2,9	21.500	470	8.800	210	6.700	125	5.700	95
3,0	21.000	540	8.900	230	6.800	130	5.700	100
3,1	20.000	550	8.700	240	6.700	130	5.600	100
3,2	19.500	560	8.400	240	6.500	145	5.400	105
3,3	19.000	560	8.100	250	6.300	145	5.200	105
3,4	18.000	560	7.900	250	6.100	145	5.100	105
3,5	18.000	560	7.800	250	6.000	155	5.000	105
3,6	17.500	580	7.600	270	5.900	155	4.900	110
3,7	16.500	580	7.400	270	5.700	155	4.700	110
3,8	16.000	590	7.300	280	5.700	155	4.600	110
3,9	15.500	590	7.100	280	5.500	160	4.500	110
4,0	15.500	600	7.000	280	5.500	160	4.500	115
4,1	15.500	640	6.900	290	5.400	160	4.400	115
4,2	15.000	640	6.800	290	5.300	160	4.400	115
4,3	14.000	640	6.700	310	5.200	160	4.300	115
4,4	14.000	670	6.600	320	5.100	170	4.200	125
4,5	14.000	670	6.600	320	5.100	170	4.200	125
4,6	13.500	700	6.500	330	4.900	170	4.100	125
4,7	13.500	700	6.500	350	4.900	170	4.100	125
4,8	13.500	710	6.400	350	4.800	170	4.100	125
4,9	13.500	710	6.300	360	4.700	170	4.000	125
5,0	12.500	720	6.200	370	4.600	170	3.900	130
5,1	12.500	720	6.100	370	4.500	170	3.900	130
5,2	12.000	720	6.000	370	4.400	170	3.800	130
5,3	12.000	720	5.900	370	4.400	170	3.800	130
5,4	11.500	720	5.800	370	4.300	170	3.600	130
5,5	11.500	720	5.700	370	4.200	170	3.500	130
5,6	11.500	720	5.600	370	4.100	170	3.500	130
5,7	11.000	720	5.500	370	4.000	170	3.400	130
5,8	11.000	710	5.400	370	3.900	170	3.300	130
5,9	10.500	710	5.300	370	3.800	170	3.300	130
6,0	10.000	710	5.200	370	3.800	170	3.200	130

Max cutting depth



D < ø1	0,1D
ø1 ≤ D < ø3	0,3D
ø3 ≤ D	0,5D

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.

1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. In caso di vibrazione, ridurre simultaneamente la velocità di taglio e l'avanzamento.
3. Utilizare dei lubrificanti di taglio adequati, dotati di une elevato coefficiente di rallentamento di emessione del fumo.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindigkeit reduzieren.
3. Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen.

1. Uitiliser une machine et un porte-outil de grande rigidité et de haute précision.
2. En cas de vibrations, réduisez, simultanément, la vitesse de coupe et l'avance.
3. Utiliser des fluides de coupes de haute qualité avec un coef, élevé de ralentissement d'emission de fumée.

1. Anvend stabil maskine og værktøjsholder
2. Ved vibrationer reducér omdrejninger og tilspænding simultant
3. Anvend en passende skærevæske.

1. Use maquina y portaherramientas rigidos y precisos
2. En caso de vibración reduzca velocidad y avance simultaneamente
3. Use fluido de corte adecuado con retardador de humos

1. Använd en stabil maskin och verktygshållare
2. Vid vibrationer sänk varvtal och matning med samma procenttal
3. Använd anpassad skärvätska.

1.Используйте жесткие и точные станки и фрезерные патроны
2.При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя
3.Используйте соответствующую СОЖ с высокой устойчивостью к возникновению дыма

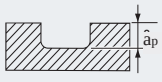
WXL-2D-DE

Slotting - Nutenfräsen - Per scanalature profonde - Rainurage
Skæredata - Skärdata - Ranurado - Фрезерование пазов



Ø	Cu S (min⁻¹)	Cu F (mm/min)	<32 HRC FC250 ■ SS400 ■ S55C ■ NAK55 ~35 HRC S (min⁻¹)	<32 HRC F (mm/min)	33~41 HRC SKT ■ SKD61 ■ NAK80 ■ HPM1 ■ DH 33~41 HRC S (min⁻¹)	33~41 HRC F (mm/min)	42~50 HRC SKT ■ SKD61 ■ NAK80 ■ HPM1 ■ DH 42~50 HRC S (min⁻¹)	42~50 HRC F (mm/min)
0,1	50.000	100	32.000	70	32.000	60	32.000	30
0,2	50.000	140	32.000	90	32.000	75	32.000	35
0,3	50.000	170	32.000	110	32.000	80	32.000	55
0,4	50.000	190	32.000	120	32.000	90	27.500	60
0,5	50.000	200	31.000	120	25.000	90	22.000	60
0,6	50.000	230	27.000	120	19.500	90	17.000	60
0,7	50.000	250	24.000	120	17.000	90	15.000	60
0,8	50.000	290	21.500	120	15.500	90	13.500	65
0,9	49.000	320	19.000	120	13.500	90	12.000	65
1,0	47.500	350	17.500	120	12.500	90	11.000	65
1,1	43.000	340	16.000	120	11.500	90	9.900	65
1,2	40.500	340	15.000	120	10.500	90	9.300	65
1,3	38.000	330	14.000	120	9.900	90	8.700	65
1,4	35.000	330	13.000	120	9.200	90	8.100	65
1,5	32.000	320	12.500	120	8.900	90	7.900	65
1,6	31.000	320	12.000	120	8.500	90	7.500	65
1,7	29.000	320	11.000	120	7.900	90	7.000	65
1,8	28.000	320	10.500	130	7.500	90	6.800	68
1,9	26.000	320	10.000	130	7.100	90	6.300	68
2,0	24.000	310	9.700	130	7.000	90	6.300	70
2,1	23.000	330	9.300	140	6.600	90	5.900	70
2,2	22.500	330	9.000	140	6.500	90	5.700	70
2,3	22.000	330	8.800	150	6.400	90	5.600	70
2,4	20.500	350	8.600	150	6.300	90	5.500	70
2,5	20.000	350	8.200	160	6.100	90	5.300	70
2,6	19.000	380	7.900	160	5.900	100	5.000	70
2,7	18.000	380	7.600	160	5.700	100	4.900	70
2,8	17.500	380	7.300	170	5.500	100	4.700	75
2,9	17.000	380	7.100	170	5.300	100	4.500	75
3,0	16.000	400	6.900	170	5.300	100	4.400	75
3,1	15.500	410	6.700	180	5.100	100	4.300	75
3,2	15.000	420	6.500	180	5.000	110	4.200	80
3,3	14.500	420	6.300	190	4.800	110	4.000	80
3,4	14.000	420	6.100	190	4.600	110	3.900	80
3,5	14.000	420	6.000	190	4.600	120	3.800	80
3,6	13.500	430	5.900	200	4.500	120	3.700	85
3,7	12.500	430	5.700	200	4.400	120	3.600	85
3,8	12.500	440	5.600	210	4.400	120	3.600	85
3,9	12.000	440	5.500	210	4.200	125	3.500	85
4,0	12.000	450	5.400	210	4.200	125	3.500	90
4,1	11.500	480	5.300	220	4.100	125	3.400	90
4,2	11.500	480	5.300	220	4.100	125	3.300	90
4,3	11.000	480	5.200	230	4.000	125	3.300	90
4,4	11.000	500	5.100	240	3.900	130	3.200	95
4,5	10.500	500	5.100	240	3.900	130	3.200	95
4,6	10.500	520	5.000	250	3.800	130	3.200	95
4,7	10.500	520	5.000	260	3.800	130	3.100	95
4,8	10.500	530	4.900	260	3.700	130	3.100	95
4,9	10.000	530	4.900	270	3.600	130	3.100	95
5,0	9.500	540	4.800	270	3.500	130	3.000	100
5,1	9.500	540	4.700	270	3.500	130	3.000	100
5,2	9.300	540	4.600	270	3.400	130	2.900	100
5,3	9.200	540	4.600	270	3.400	130	2.900	100
5,4	9.000	540	4.500	270	3.300	130	2.800	100
5,5	8.800	540	4.400	270	3.200	130	2.700	100
5,6	8.700	540	4.300	270	3.100	130	2.600	100
5,7	8.500	540	4.200	270	3.100	130	2.600	100
5,8	8.400	530	4.200	270	3.000	130	2.600	100
5,9	8.200	530	4.100	270	2.900	130	2.500	100
6,0	7.900	530	4.000	270	2.900	130	2.500	100
6,5	7.500	530	3.700	270	2.700	130	2.300	100
7,0	6.900	530	3.400	270	2.500	130	2.100	100
7,5	6.400	530	3.200	270	2.300	130	2.000	100
8,0	5.900	520	3.000	260	2.200	125	1.900	100
8,5	5.600	520	2.800	260	2.000	125	1.700	100
9,0	5.300	510	2.600	260	1.900	125	1.500	100
9,5	5.100	510	2.500	260	1.800	125	1.400	95
10,0	4.700	500	2.400	250	1.700	125	1.500	95
11,0	4.400	500	2.200	250	1.600	125	1.100	95
12,0	4.000	510	2.000	250	1.400	125	1.200	95
16,0	3.000	400	1.500	200	1.100	115	800	80
18,0	2.700	360	1.300	180	900	100	700	70
20,0	2.400	300	1.200	150	800	90	600	60

Max cutting depth



D < ø1	0,1D
ø1 ≤ D < ø3	0,3D
ø3 ≤ D	0,5D

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.

1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. In caso di vibrazione, ridurre simultaneamente la velocità di taglio e l'avanzamento.
3. Utilizare dei lubrificanti di taglio adequati, dotati di une elevato coefficiente di rallentamento di emessione del fumo.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindigkeit reduzieren.
3. Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen.

1. Utitiliser une machine et un porte-outil de grande rigidité et de haute précision.
2. En cas de vibrations, réduisez, simultanément, la vitesse de coupe et l'avance.
3. Utiliser des fluides de coupes de haute qualité avec un coef, élevé de ralentissement d'emission de fumée.

1. Anvend stabil maskine og værktøjsholder
2. Ved vibrationer reducér omdrejninger og tilspænding simultant
3. Anvend en passende skæreveæske.

1. Use maquina y portaherramientas rigidos y precisos
2. En caso de vibración reduzca velocidad y avance simultaneamente
3. Use fluido de corte adecuado con retardador de humos

1. Använd en stabil maskin och verktygshållare
2. Vid vibrationer sänk varvtal och matning med samma procenttal
3. Använd anpassad skärvätska.

1.Используйте жесткие и точные станки и фрезерные патроны
2.При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя
3.Используйте соответствующую СОЖ с высокой устойчивостью к возникновению дыма

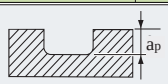
WXL-3D-DE

Slotting - Nutenfräsen - Per scanalature profonde - Rainurage
Skæredata - Skärdata - Ranurado - Фрезерование пазов



Ø	Cu S (min-1)	Cu F (mm/min)	<32 HRC FC250 ■ SS400 ■ S55C ■ NAK55 ~35 HRC S (min-1)	<32 HRC F (mm/min)	33~41 HRC SKT ■ SKD61 ■ NAK80 ■ HPM1 ■ DH 33~41 HRC S (min-1)	33~41 HRC F (mm/min)	42~50 HRC SKT ■ SKD61 ■ NAK80 ■ HPM1 ■ DH 42~50 HRC S (min-1)	42~50 HRC F (mm/min)
0,1	50.000	100	32.000	70	32.000	60	32.000	30
0,2	50.000	140	32.000	90	32.000	75	32.000	35
0,3	50.000	170	32.000	110	32.000	80	32.000	55
0,4	50.000	190	32.000	120	32.000	90	27.500	60
0,5	50.000	200	31.000	120	25.000	90	22.000	60
0,6	50.000	230	27.000	120	19.500	90	17.000	60
0,7	50.000	250	24.000	120	17.000	90	15.000	60
0,8	50.000	290	21.500	120	15.500	90	13.500	65
0,9	49.000	320	19.000	120	13.500	90	12.000	65
1,0	47.500	350	17.500	120	12.500	90	11.000	65
1,1	43.000	340	16.000	120	11.500	90	9.900	65
1,2	40.500	340	15.000	120	10.500	90	9.300	65
1,3	38.000	330	14.000	120	9.900	90	8.700	65
1,4	35.000	330	13.000	120	9.200	90	8.100	65
1,5	32.000	320	12.500	120	8.900	90	7.900	65
1,6	31.000	320	12.000	120	8.500	90	7.500	65
1,7	29.000	320	11.000	120	7.900	90	7.000	65
1,8	28.000	320	10.500	130	7.500	90	6.800	68
1,9	26.000	320	10.000	130	7.100	90	6.300	68
2,0	24.000	310	9.700	130	7.000	90	6.300	70
2,1	23.000	330	9.300	140	6.600	90	5.900	70
2,2	22.500	330	9.000	140	6.500	90	5.700	70
2,3	22.000	330	8.800	150	6.400	90	5.600	70
2,4	20.500	350	8.600	150	6.300	90	5.500	70
2,5	20.000	350	8.200	160	6.100	90	5.300	70
2,6	19.000	380	7.900	160	5.900	100	5.000	70
2,7	18.000	380	7.600	160	5.700	100	4.900	70
2,8	17.500	380	7.300	170	5.500	100	4.700	75
2,9	17.000	380	7.100	170	5.300	100	4.500	75
3,0	16.000	400	6.900	170	5.300	100	4.400	75
3,1	15.500	410	6.700	180	5.100	100	4.300	75
3,2	15.000	420	6.500	180	5.000	110	4.200	80
3,3	14.500	420	6.300	190	4.800	110	4.000	80
3,4	14.000	420	6.100	190	4.600	110	3.900	80
3,5	14.000	420	6.000	190	4.600	120	3.800	80
3,6	13.500	430	5.900	200	4.500	120	3.700	85
3,7	12.500	430	5.700	200	4.400	120	3.600	85
3,8	12.500	440	5.600	210	4.400	120	3.600	85
3,9	12.000	440	5.500	210	4.200	125	3.500	85
4,0	12.000	450	5.400	210	4.200	125	3.500	90
4,1	11.500	480	5.300	220	4.100	125	3.400	90
4,2	11.500	480	5.300	220	4.100	125	3.300	90
4,3	11.000	480	5.200	230	4.000	125	3.300	90
4,4	11.000	500	5.100	240	3.900	130	3.200	95
4,5	10.500	500	5.100	240	3.900	130	3.200	95
4,6	10.500	520	5.000	250	3.800	130	3.200	95
4,7	10.500	520	5.000	260	3.800	130	3.100	95
4,8	10.500	530	4.900	260	3.700	130	3.100	95
4,9	10.000	530	4.900	270	3.600	130	3.100	95
5,0	9.500	540	4.800	270	3.500	130	3.000	100
5,1	9.500	540	4.700	270	3.500	130	3.000	100
5,2	9.300	540	4.600	270	3.400	130	2.900	100
5,3	9.200	540	4.600	270	3.400	130	2.900	100
5,4	9.000	540	4.500	270	3.300	130	2.800	100
5,5	8.800	540	4.400	270	3.200	130	2.700	100
5,6	8.700	540	4.300	270	3.100	130	2.600	100
5,7	8.500	540	4.200	270	3.100	130	2.600	100
5,8	8.400	530	4.200	270	3.000	130	2.600	100
5,9	8.200	530	4.100	270	2.900	130	2.500	100
6,0	7.900	530	4.000	270	2.900	130	2.500	100
6,5	7.500	530	3.700	270	2.700	130	2.300	100
7,0	6.900	530	3.400	270	2.500	130	2.100	100
7,5	6.400	530	3.200	270	2.300	130	2.000	100
8,0	5.900	520	3.000	260	2.200	125	1.900	100
8,5	5.600	520	2.800	260	2.000	125	1.700	100
9,0	5.300	510	2.600	260	1.900	125	1.500	100
9,5	5.100	510	2.500	260	1.800	125	1.400	95
10,0	4.700	500	2.400	250	1.700	125	1.500	95
11,0	4.400	500	2.200	250	1.600	125	1.100	95
12,0	4.000	510	2.000	250	1.400	125	1.200	95
16,0	3.000	400	1.500	200	1.100	115	800	80
18,0	2.700	360	1.300	180	900	100	700	70
20,0	2.400	300	1.200	150	800	90	600	60

Max cutting depth



D < ø1	0,1D
ø1 ≤ D < ø3	0,3D
ø3 ≤ D	0,5D

1. Use a rigid and precise machine and holder. 2. When chattering occurs, reduce the speed and feed simultaneously. 3. Use a suitable cutting fluid with high smoke retardant properties.	1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione. 2. In caso di vibrazione, ridurre simultaneamente la velocità di taglio e l'avanzamento. 3. Utilizare dei lubrificanti di taglio adequati, dotati di une elevato coefficiente di rallentamento di emessione del fumo.
1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel. 2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindigkeit reduzieren. 3. Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen.	1. Utiliser une machine et un porte-outil de grande rigidité et de haute précision. 2. En cas de vibrations, réduisez, simultanément, la vitesse de coupe et l'avance. 3. Utiliser des fluides de coupes de haute qualité avec un coef, élevé de ralentissement d'emission de fumée.
1. Anvend stabil maskine og værktøjsholder 2. Ved vibrationer reducér omdrejninger og tilspænding simultant 3. Anvend en passende skærevæske.	1. Use maquina y portaherramientas rigidos y precisos 2. En caso de vibración reduzca velocidad y avance simultaneamente 3. Use fluido de corte adecuado con retardador de humos
1. Använd en stabil maskin och verktygshållare 2. Vid vibrationer sänk varvtal och matning med samma procenttal 3. Använd anpassad skärvätska.	1.Используйте жесткие и точные станки и фрезерные патроны 2.При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя 3.Используйте соответствующую СОЖ с высокой устойчивостью к возникновению дыма

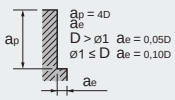
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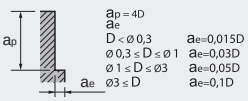
Side milling - Konturfräsen - Sgrossatura e contornatura - Contournage
Sidefræsning - Valsfräsning - Contorneado - Боковое фрезерование



Ø	Cu		<32 HRC FC250 ■ SS400 ■ S55C ■ NAK55 ~35 HRC		33~41 HRC SKT ■ SKD61 ■ NAK80 ■ HPM1 ■ DH 33~41 HRC		42~50 HRC SKT ■ SKD61 ■ NAK80 ■ HPM1 ■ DH 42~50 HRC	
	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
0,2	32.000	90	22.500	30	19.000	30	—	—
0,3	32.000	110	22.500	40	19.000	35	—	—
0,4	25.000	110	16.000	45	14.500	35	—	—
0,5	20.000	120	13.000	45	13.000	40	—	—
0,6	16.000	120	11.000	45	10.000	40	—	—
0,7	16.000	120	9.400	45	6.800	40	—	—
0,8	12.000	120	8.400	45	6.000	40	—	—
0,9	12.000	120	7.500	45	5.400	40	—	—
1,0	9.800	120	5.700	45	5.400	40	—	—
1,1	9.500	140	5.200	45	5.000	40	—	—
1,2	8.600	130	4.800	45	4.500	40	—	—
1,3	8.100	130	4.500	45	4.200	40	—	—
1,4	7.500	130	4.200	45	3.900	40	—	—
1,5	7.000	130	3.900	45	3.600	40	—	—
1,6	6.400	120	3.700	45	3.500	40	—	—
1,7	6.200	120	3.600	45	3.400	40	—	—
1,8	5.800	120	3.300	45	3.100	40	—	—
1,9	5.500	120	3.200	45	3.000	40	—	—
2,0	5.200	120	3.000	45	2.800	40	—	—
2,1	4.800	120	2.900	45	2.800	40	—	—
2,2	4.600	130	2.700	50	2.600	40	—	—
2,3	4.500	130	2.700	50	2.600	40	—	—
2,4	4.400	130	2.600	55	2.500	40	—	—
2,5	4.100	140	2.500	55	2.500	40	—	—
2,6	3.900	140	2.400	55	2.400	40	—	—
2,7	3.700	150	2.300	55	2.300	45	—	—
2,8	3.600	150	2.200	55	2.200	45	—	—
2,9	3.500	150	2.100	60	2.100	45	—	—
3,0	3.400	150	2.100	60	2.100	50	1.900	30
3,1	3.200	160	2.000	60	2.000	50	1.800	30
3,2	3.000	160	2.000	65	2.000	50	1.800	30
3,3	2.900	160	1.900	65	1.900	55	1.700	30
3,4	2.800	160	1.800	70	1.800	55	1.700	30
3,5	2.800	160	1.800	70	1.800	55	1.600	30
3,6	2.700	160	1.800	70	1.800	60	1.600	30
3,7	2.700	170	1.700	70	1.700	60	1.500	35
3,8	2.500	170	1.700	70	1.700	60	1.500	35
3,9	2.400	170	1.600	75	1.600	60	1.500	35
4,0	2.400	170	1.600	75	1.600	65	1.400	35
4,1	2.400	180	1.600	75	1.600	65	1.400	35
4,2	2.300	190	1.600	80	1.600	65	1.400	35
4,3	2.300	190	1.500	80	1.500	65	1.400	35
4,4	2.100	190	1.500	80	1.500	65	1.400	35
4,5	2.100	200	1.500	85	1.500	65	1.300	40
4,6	2.100	200	1.500	85	1.500	65	1.300	40
4,7	2.100	200	1.500	90	1.500	65	1.300	40
4,8	2.100	200	1.500	90	1.500	65	1.300	40
4,9	2.000	210	1.400	90	1.400	65	1.300	40
5,0	2.000	210	1.400	95	1.400	65	1.300	40
5,1	1.900	210	1.400	95	1.400	65	1.200	40
5,2	1.900	210	1.400	95	1.400	65	1.200	40
5,3	1.800	210	1.300	95	1.300	65	1.200	40
5,4	1.800	210	1.300	95	1.300	65	1.200	40
5,5	1.800	210	1.300	95	1.300	65	1.100	40
5,6	1.700	210	1.300	95	1.300	65	1.100	40
5,7	1.700	210	1.300	95	1.300	65	1.100	40
5,8	1.700	210	1.200	95	1.200	65	1.100	40
5,9	1.600	210	1.200	95	1.200	65	1.000	40
6,0	1.600	210	1.200	95	1.200	65	1.000	40
8,0	1.100	200	900	95	900	65	800	40
10,0	900	200	700	90	700	65	630	40
12,0	800	200	600	90	600	65	525	40

Max cutting depth





1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.

1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. In caso di vibrazione, ridurre simultaneamente la velocità di taglio e l'avanzamento.
3. Utilizare dei lubrificanti di taglio adequati, dotati di une elevato coefficiente di rallentamento di emessione del fumo.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindigkeit reduzieren.
3. Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen.

1. Utiliser une machine et un porte-outil de grande rigidité et de haute précision.
2. En cas de vibrations, réduisez, simultanément, la vitesse de coupe et l'avance.
3. Utiliser des fluides de coupes de haute qualité avec un coef, élevé de ralentissement d'emission de fumée.

1. Anvend stabil maskine og værktøjsholder
2. Ved vibrationer reducér omdrejninger og tilspænding simultant
3. Anvend en passende skærevæske.

1. Use maquina y portaherramientas rigidos y precisos
2. En caso de vibración reduzca velocidad y avance simultaneamente
3. Use fluido de corte adecuado con retardador de humos

1. Använd en stabil maskin och verktygshållare
2. Vid vibrationer sänk varvtal och matning med samma procenttal
3. Använd anpassad skärvätska.

1.Используйте жесткие и точные станки и фрезерные патроны
2.При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя
3.Используйте соответствующую СОЖ с высокой устойчивостью к возникновению дыма

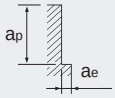
WXL-EMS

Side milling - Konturfräsen - Sgrossatura e contornatura - Contournage
Sidefræsning - Valsfräsning - Contorneado - Боковое фрезерование

Ø	Cu S (min⁻¹)	Cu F (mm/min)	~35 HRC FC250 ■ SS400 ■ S55C ■ NAK55 ~35 HRC S (min⁻¹)	~35 HRC F (mm/min)	35~45 HRC SKT ■ SKD61 ■ NAK80 ■ HPM1 ■ DH 35~45 HRC S (min⁻¹)	35~45 HRC F (mm/min)	45~50 HRC SKT ■ SKD61 ■ NAK80 ■ HPM1 ■ DH 45~50 HRC S (min⁻¹)	45~50 HRC F (mm/min)
1	50.000	440	24.000	210	14.000	78	12.500	70
1,5	50.000	975	16.000	310	9.250	115	8.400	105
2	47.500	1.100	12.000	295	7.000	110	6.350	100
2,5	38.000	1.900	9.600	480	6.200	140	5.550	125
3	32.000	1.600	8.150	430	5.300	125	4.750	110
4	24.000	1.700	6.050	450	4.250	135	3.700	115
5	19.000	2.000	4.900	520	3.550	140	3.150	125
6	16.000	2.000	4.100	520	2.950	145	2.650	130
8	12.000	1.900	3.050	505	2.200	145	1.950	130
10	9.500	1.900	2.450	505	1.750	145	1.550	130
12	7.900	1.900	2.050	505	1.450	145	1.300	130
14	6.800	1.900	1.750	495	1.250	145	1.100	125
15	6.300	1.900	1.600	490	1.150	135	1.050	120
16	5.900	1.800	1.500	480	1.100	130	995	115
18	5.300	1.800	1.350	470	990	115	880	105
20	4.700	1.700	1.200	445	890	105	795	95
25	3.800	1.400	970	360	710	85	635	75
30	3.100	1.100	815	300	590	70	530	60

Max cutting depth

	ap	ae
Dc<Ø3	1,5D	0,05D
Ø3≤D	1,5D	0,1D



ae	ae
1D	0,02D

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.
4. Refer to the table above to set the milling conditions in accorance with the actual situation

1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. In caso di vibrazione, ridurre simultaneamente la velocità di taglio e l'avanzamento.
3. Utilizare dei lubrificanti di taglio adequati, dotati di une elevato coefficiente di rallentamento di emessione del fumo.
4. Variare le condizioni della suddetta tabella in conformità alla effettiva situazione.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel..
2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindigkeit reduzieren
3. Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen.
4. Entnehmen sie die Schnittdaten entsprechend Ihrer aktuellen Bearbeitungsaufgabe aus der oben gezeigten Tabelle.

1. Uitiliser une machine et un porte-outil de grande rigidité et de haute précision.
2. Utiliser de l'arrosage en brouillard (mist).
3. Utiliser des fluides de coupes de haute qualité avec un coef, élevé de ralentissement d'emission de fumée.
4. Ajuster la vitesse, avances et la profondeur de coupe en fonction de la précision de la machine ainsi que le chemin de fraisage.

1.Anvend stabil maskine og værktøjsholder
2 Ved vibrationer reducér omdrejninger og tilspænding procenttal
3.Anvend en passende skærevæske
4.Se ovenstående tabel for skæredata tilpasset den aktuelle situation

1.Use maquina y portaherramientas rigidos y precisos
2.En caso de vibración reduzca velocidad y avance simultaneamente
3.Use fluido de corte adecuado con retardador de humos
4.Referirse a la tabla de arriba para las condiciones de fresado, de acuerdo con la situación real

1.Använd en stabil maskin och verktygshållare
2.Vid vibrationer sänk varvtal och matning med samma simultant
3.Använd anpassad skärvätska
4.Se ovanstående tabell för skärdata anpassat till det aktuella ingreppet

1.Используйте жесткие и точные станки и фрезерные патроны
2.При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя
3.Используйте соответствующую СОЖ с высокой устойчивостью к возникновению дыма
4.См. таблицу выше, чтобы установить параметры фрезерования в соответствии с фактической ситуацией

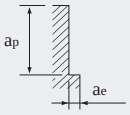
WXL-EMS

High speed side milling - HSC Konturfräsen - Sgrossatura e contornatura alta velocità - Contournage UGV
Højhastigheds sidefræsning - High speed valsfräsning - Contorneado a alta velocidad - Высокоскоростное контурное фрезерование

Ø	Cu S (min⁻¹)	Cu F (mm/min)	~35 HRC FC250 ■ SS400 ■ S55C ■ NAK55 ~35 HRC S (min⁻¹)	~35 HRC F (mm/min)	35~45 HRC SKT ■ SKD61 ■ NAK80 ■ HPM1 ■ DH 35~45 HRC S (min⁻¹)	35~45 HRC F (mm/min)	45~50 HRC SKT ■ SKD61 ■ NAK80 ■ HPM1 ■ DH 45~50 HRC S (min⁻¹)	45~50 HRC F (mm/min)
6	26.000	2.900	20.000	2.300	13.000	1.500	7.950	795
8	19.500	3.000	14.500	2.300	9.900	1.450	5.950	795
10	15.500	2.900	12.000	2.300	7.950	1.450	4.750	795
12	13.000	3.000	9.900	2.300	6.600	1.450	3.950	790
14	11.000	2.800	8.500	2.200	5.650	1.350	3.400	740
15	10.500	2.800	7.950	2.150	5.250	1.350	3.150	730
16	9.700	2.700	7.450	2.100	4.950	1.350	2.950	715
18	8.600	2.700	6.600	2.100	4.400	1.300	2.650	705
20	7.800	2.600	5.950	2.000	3.950	1.300	2.350	665
25	6.200	2.000	4.750	1.600	3.150	1.050	1.900	560
30	5.200	1.700	3.950	1.350	2.650	890	1.550	455

Max cutting depth

	ap	ae
D<Ø8	1.5D	0.01D
Ø8≤D	1.5D	0.02D



	ap	ae
D<Ø8	1D	0.01D
Ø8≤D	1D	0.02D

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.

1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. In caso di vibrazione, ridurre simultaneamente la velocità di taglio e l'avanzamento.
3. Utilizare dei lubrificanti di taglio adequati, dotati di une elevato coefficiente di rallentamento di emessione del fumo.
4. Durante la fresatura a secco, utilizzare dell'aria.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindigkeit reduzieren.
3. Benutzen Sie Kühlmittel mit rauchhemmemden Zusätzen.
4. Bei Trockenbearbeitung Druckluft zum Entfernen der Späne verwenden.

1. Utitiliser une machine et un porte-outil de grande rigidité et de haute précision.
2. Utiliser de l'arrosage en brouillard (mist).
3. Utiliser des fluides de coupes de haute qualité avec un coef, élevé de ralentissement d'emission de fumée.
4. Lors de l'usinage à sec veuillez utiliser de l'air pour l'évacuation des copeaux.

1.Anvend stabil maskine og værktøjsholder
2.Ved vibrationer reducér omdrejninger og tilspænding simultant
3.Anvend en passende skærevæske
4.Se ovenstående tabel for skæredata tilpasset den aktuelle situation.

1.Use maquina y portaherramientas rigidos y precisos
2.En caso de vibración reduzca velocidad y avance simultaneamente
3.Use fluido de corte adecuado con retardador de humos
4.Referirse a la tabla de arriba para las condiciones de fresado, de acuerdo con la situación real

1.Använd en stabil maskin och verktygshållare
2.Vid vibrationer sänk varvtal och matning med samma simultant
3.Använd anpassad skärvätska
4.Se ovanstående tabell för skärdata anpassat till det aktuella ingreppet

1.Используйте жесткие и точные станки и фрезерные патроны
2При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя
3.Используйте соответствующую СОЖ с высокой устойчивостью к возникновению дыма
4.При сухом (без СОЖ) фрезеровании, используйте воздушную струю для удаления стружки и предотвращения спрессовывания стружки

WXL-LN-EDS

Slotting - Nutenfräsen - Per scanalature profonde - Rainurage
Skæredata - Skärdata - Ranurado - Фрезерование пазов



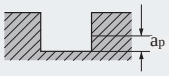
		Cu			<32 HRC FC250 ■ SS400 ■ S55C ~35 HRC			33~41 HRC SKT ■ SKD61 ■ NAK80 ■ HPM1 ■ DH 33~41 HRC			42~50 HRC SKT ■ SKD61 ■ NAK80 ■ HPM1 ■ DH 42~50 HRC		
D	l2	S (min⁻¹)	F (mm/min)	ap	S (min⁻¹)	F (mm/min)	ap	S (min⁻¹)	F (mm/min)	ap	S (min⁻¹)	F (mm/min)	ap
0,2	0,5	35.200	490	0,022	32.000	450	0,018	32.000	450	0,015	29.000	250	0,012
0,2	1,0	35.200	380	0,016	32.000	350	0,013	32.000	350	0,011	29.000	200	0,009
0,2	1,5	31.000	270	0,010	28.000	250	0,008	28.000	250	0,007	25.000	150	0,005
0,3	1,0	38.500	480	0,032	32.000	400	0,027	32.000	350	0,023	29.000	300	0,018
0,3	2,0	33.500	360	0,024	28.000	300	0,020	28.000	250	0,017	25.000	200	0,013
0,3	3,0	26.500	300	0,011	22.000	250	0,009	22.000	160	0,007	20.000	150	0,005
0,4	2,0	38.500	480	0,031	32.000	400	0,026	32.000	350	0,022	29.000	300	0,018
0,4	3,0	33.500	360	0,020	28.000	300	0,017	28.000	250	0,014	25.000	200	0,011
0,4	4,0	26.500	300	0,014	22.000	250	0,012	22.000	200	0,010	20.000	150	0,008
0,5	2,0	38.500	600	0,054	32.000	500	0,045	32.000	400	0,038	29.000	300	0,030
0,5	4,0	33.500	480	0,025	28.000	400	0,021	28.000	320	0,018	25.000	250	0,014
0,5	6,0	26.500	420	0,007	22.000	350	0,006	22.000	220	0,005	20.000	180	0,004
0,5	8,0	24.000	320	0,006	20.000	270	0,005	20.000	180	0,003	20.000	150	0,003
0,6	2,0	38.500	720	0,065	32.000	600	0,054	32.000	400	0,045	27.000	300	0,036
0,6	4,0	33.500	540	0,048	28.000	450	0,040	28.000	300	0,033	25.000	200	0,026
0,6	6,0	26.500	300	0,022	22.000	250	0,018	22.000	200	0,015	20.000	150	0,012
0,6	8,0	26.500	300	0,008	22.000	250	0,007	22.000	200	0,006	20.000	150	0,005
0,6	10,0	24.000	240	0,006	20.000	200	0,005	18.000	150	0,004	18.000	130	0,003
0,7	2,0	38.500	720	0,076	32.000	600	0,063	32.000	500	0,053	26.000	400	0,042
0,7	4,0	33.500	540	0,055	28.000	450	0,046	28.000	300	0,039	22.000	300	0,031
0,7	6,0	33.500	540	0,035	28.000	450	0,029	28.000	200	0,025	22.000	200	0,020
0,7	8,0	26.500	300	0,020	22.000	250	0,017	22.000	200	0,014	20.000	150	0,011
0,7	10,0	26.500	300	0,010	22.000	250	0,008	22.000	200	0,007	20.000	150	0,006
0,8	4,0	38.500	720	0,064	32.000	600	0,053	32.000	600	0,044	25.000	400	0,035
0,8	6,0	31.000	540	0,041	26.000	450	0,034	26.000	400	0,028	21.000	300	0,022
0,8	8,0	26.500	420	0,029	22.000	350	0,024	22.000	300	0,020	18.000	250	0,016
0,8	10,0	26.500	420	0,012	22.000	350	0,010	22.000	300	0,008	18.000	240	0,006
0,8	12,0	20.500	360	0,008	17.000	300	0,007	17.000	300	0,006	15.000	200	0,004
0,9	6,0	36.000	1.200	0,071	30.000	1.000	0,059	28.000	780	0,050	22.000	600	0,040
0,9	8,0	31.000	960	0,046	26.000	800	0,038	25.000	600	0,032	19.000	400	0,025
0,9	10,0	24.000	720	0,032	20.000	600	0,027	20.000	500	0,023	16.000	300	0,018
0,9	15,0	20.500	360	0,010	17.000	300	0,008	17.000	300	0,006	16.000	300	0,005
1,0	6,0	32.500	1.200	0,084	27.000	1.000	0,070	26.000	900	0,060	20.000	600	0,040
1,0	8,0	27.500	960	0,048	23.000	800	0,040	22.000	700	0,040	18.000	400	0,030
1,0	10,0	23.000	720	0,036	19.000	600	0,030	18.000	500	0,028	15.000	300	0,020
1,0	12,0	23.000	720	0,024	19.000	600	0,020	18.000	500	0,019	15.000	300	0,010
1,0	14,0	18.000	480	0,012	15.000	400	0,010	15.000	400	0,009	12.000	200	0,008
1,0	16,0	18.000	360	0,010	15.000	300	0,008	15.000	300	0,007	12.000	200	0,006
1,2	6,0	27.500	1.200	0,096	23.000	1.000	0,080	22.000	900	0,070	17.000	600	0,050
1,2	8,0	24.000	840	0,084	20.000	700	0,070	19.000	700	0,050	14.000	400	0,040
1,2	10,0	24.000	840	0,060	20.000	700	0,050	19.000	700	0,040	14.000	400	0,030
1,2	12,0	20.500	720	0,048	17.000	600	0,040	16.000	500	0,030	11.000	300	0,020
1,4	6,0	24.000	1.200	0,156	20.000	1.000	0,130	19.000	900	0,110	15.000	600	0,090
1,4	8,0	21.500	960	0,108	18.000	800	0,090	17.000	700	0,080	13.000	400	0,060
1,4	10,0	21.500	960	0,072	18.000	800	0,060	17.000	700	0,050	13.000	400	0,040
1,4	12,0	21.500	960	0,060	18.000	800	0,050	17.000	700	0,040	13.000	400	0,030
1,4	14,0	18.000	720	0,048	15.000	600	0,040	14.000	500	0,035	11.000	300	0,030
1,4	16,0	18.000	720	0,036	15.000	600	0,030	14.000	500	0,020	11.000	300	0,020
1,5	6,0	21.500	1.200	0,168	18.000	1.000	0,140	18.000	900	0,110	14.000	600	0,090
1,5	8,0	19.000	960	0,120	16.000	800	0,100	15.000	700	0,080	12.000	400	0,070
1,5	10,0	19.000	960	0,096	16.000	800	0,080	15.000	700	0,070	12.000	400	0,050
1,5	12,0	19.000	960	0,072	16.000	800	0,060	15.000	700	0,050	12.000	400	0,040
1,5	14,0	19.000	960	0,060	16.000	800	0,050	15.000	700	0,045	12.000	400	0,035
1,5	16,0	17.000	720	0,060	14.000	600	0,050	13.000	500	0,040	10.000	300	0,030
1,5	18,0	17.000	720	0,036	14.000	600	0,030	13.000	500	0,020	10.000	300	0,020
1,5	20,0	14.500	500	0,024	12.000	420	0,020	11.000	380	0,015	10.000	300	0,010
1,6	6,0	20.500	1.200	0,180	17.000	1.000	0,150	17.000	900	0,130	13.000	600	0,100
1,6	8,0	18.000	960	0,168	15.000	800	0,140	15.000	700	0,120	11.000	400	0,100
1,6	10,0	18.000	960	0,132	15.000	800	0,110	15.000	700	0,090	11.000	400	0,070
1,6	12,0	18.000	960	0,084	15.000	800	0,070	15.000	700	0,060	11.000	400	0,050
1,6	14,0	18.000	960	0,072	15.000	800	0,060	15.000	700	0,050	11.000	400	0,040
1,6	16,0	15.500	720	0,060	13.000	600	0,050	13.000	500	0,040	9.000	300	0,035
1,6	18,0	15.500	720	0,048	13.000	600	0,040	13.000	500	0,030	9.000	300	0,030
1,6	20,0	15.500	720	0,024	13.000	600	0,020	13.000	500	0,020	9.000	300	0,010
1,8	6,0	19.000	1.300	0,264	16.000	1.100	0,220	15.000	1.000	0,180	12.000	700	0,140
1,8	8,0	19.000	1.300	0,252	16.000	1.100	0,210	15.000	1.000	0,170	12.000	700	0,130
1,8	10,0	17.000	960	0,144	14.000	800	0,120	14.000	700	0,100	10.000	500	0,080
1,8	12,0	17.000	960	0,120	14.000	800	0,100	14.000	700	0,080	10.000	500	0,070
1,8	14,0	17.000	960	0,096	14.000	800	0,080	14.000	700	0,060	10.000	500	0,050
1,8	16,0	17.000	960	0,084	14.000	800	0,070	14.000	700	0,050	10.000	500	0,040
1,8	18,0	14.500	720	0,060	12.000	600	0,050	12.000	500	0,045	8.000	400	0,035
1,8	20,0	14.500	720	0,048	12.000	600	0,040	12.000	500	0,040	8.000	400	0,030
2,0	6,0	18.000	1.300	0,372	15.000	1.100	0,310	14.000	1.000	0,260	11.000	700	0,210
2,0	8,0	18.000	1.300	0,312	15.000	1.100	0,260	14.000	1.000	0,220	11.000	700	0,180
2,0	10,0	15.500	960	0,288	13.000	800	0,240	12.000	700	0,200	9.000	500	0,160
2,0	12,0	15.500	960	0,156	13.000	800	0,130	12.000	700	0,110	9.000	500	0,090
2,0	14,0	15.500	960	0,132	13.000	800	0,110	12.000	700	0,090	9.000	500	0,070
2,0	16,0	15.500	960	0,096	13.000	800	0,080	12.000	700	0,070	9.000	500	0,060
2,0	18,0	15.500	960	0,084	13.000	800	0,070	12.000	700	0,060	9.000	500	0,050
2,0	20,0	13.000	720	0,060	11.000	600	0,050	10.000	500	0,050	7.000	400	0,040
2,0	25,0	13.000	720	0,036	11.000	600	0,030	10.000	500	0,020	7.000	400	0,020
2,0	30,0	13.000	720	0,024	11.000	600	0,020	10.000	500	0,010	7.000	400	0,010
2,5	8,0	14.500	1.300	0,468	12.000	1.100	0,390	11.000	1.000	0,330	9.000	700	0,260
2,5	10,0	14.500	1.300	0,396	12.000	1.100	0,330	11.000	1.000	0,280	9.000	700	0,220
2,5	12,0	14.500	1.300	0,276	12.000	1.100	0,230	11.000	1.000	0,190	9.000	700	0,150
2,5	14,0	12.000	960	0,204	10.000	800	0,170	9.000	700	0,140	7.000	500	0,110
2,5	16,0	12.000	960	0,144	10.000	800	0,120	9.000	700	0,100	7.000	500	0,080

WXL-LN-EDS

Slotting - Nutenfräsen - Per scanalature profonde - Rainurage
Skæredata - Skärdata - Ranurado - Фрезерование пазов

		Cu			<32 HRC FC250 ■ SS400 ■ S55C ~35 HRC			33~41 HRC SKT ■ SKD61 ■ NAK80 ■ HPM1 ■ DH 33~41 HRC			42~50 HRC SKT ■ SKD61 ■ NAK80 ■ HPM1 ■ DH 42~50 HRC		
D	l2	S (min⁻¹)	F (mm/min)	ap	S (min⁻¹)	F (mm/min)	ap	S (min⁻¹)	F (mm/min)	ap	S (min⁻¹)	F (mm/min)	ap
2,5	18	12.000	960	0,132	10.000	800	0,110	9.000	700	0,090	7.000	500	0,070
2,5	20	12.000	960	0,108	10.000	800	0,090	9.000	700	0,080	7.000	500	0,060
2,5	25	9.600	720	0,096	8.000	600	0,080	8.000	500	0,060	6.000	400	0,050
2,5	30	9.600	720	0,036	8.000	600	0,030	8.000	500	0,030	6.000	400	0,020
3,0	8	12.000	1.300	0,432	10.000	1.100	0,360	10.000	1.000	0,300	8.000	700	0,240
3,0	10	12.000	1.300	0,348	10.000	1.100	0,290	10.000	1.000	0,240	8.000	700	0,190
3,0	12	12.000	1.300	0,324	10.000	1.100	0,270	10.000	1.000	0,230	8.000	700	0,180
3,0	14	12.000	1.300	0,300	10.000	1.100	0,250	10.000	1.000	0,210	8.000	700	0,170
3,0	16	12.000	960	0,240	10.000	800	0,200	9.000	700	0,170	6.000	500	0,130
3,0	18	12.000	960	0,168	10.000	800	0,140	9.000	700	0,120	6.000	500	0,100
3,0	20	12.000	960	0,156	10.000	800	0,130	9.000	700	0,110	6.000	500	0,080
3,0	25	12.000	960	0,132	10.000	800	0,110	9.000	700	0,090	6.000	500	0,070
3,0	30	9.600	720	0,108	8.000	600	0,090	7.000	500	0,080	5.000	400	0,060
3,0	35	9.600	720	0,084	8.000	600	0,070	7.000	500	0,060	5.000	400	0,050
3,0	40	9.600	720	0,048	8.000	600	0,040	7.000	500	0,030	5.000	400	0,020
4,0	12	8.550	1.350	0,456	7.000	1.100	0,380	7.000	1.000	0,320	6.000	700	0,260
4,0	16	8.550	1.350	0,432	7.000	1.100	0,360	7.000	1.000	0,300	6.000	700	0,240
4,0	20	8.550	970	0,408	7.000	800	0,340	6.000	700	0,280	5.000	500	0,220
4,0	25	8.550	970	0,312	7.000	800	0,260	6.000	700	0,220	5.000	500	0,180
4,0	30	8.550	970	0,228	7.000	800	0,190	6.000	700	0,160	5.000	500	0,130
4,0	35	8.550	970	0,204	7.000	800	0,170	6.000	700	0,140	5.000	500	0,110
4,0	40	7.300	730	0,168	6.000	600	0,140	5.000	600	0,120	4.000	400	0,100
4,0	45	7.300	730	0,144	6.000	600	0,120	5.000	600	0,100	4.000	400	0,080
4,0	50	7.300	730	0,060	6.000	600	0,050	5.000	600	0,040	4.000	400	0,030
5,0	16	7.300	1.350	0,540	6.000	1.100	0,450	5.000	900	0,380	5.000	600	0,300
5,0	25	6.100	970	0,504	5.000	800	0,420	5.000	700	0,350	5.000	600	0,280
5,0	35	6.100	970	0,396	5.000	800	0,330	5.000	700	0,280	5.000	600	0,220
5,0	50	4.900	610	0,180	4.000	500	0,150	3.000	400	0,130	3.000	400	0,100

Max cutting depth



1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrification, mist coolant) or air blow is recommended.
3. When using cutting fluid, choose based on work material and cutting conditions.
4. The cutting conditions shown for 3D milling are low-load, safe conditions for references. Refer to the table above to set the milling conditions in accordance with the actual situation.
5. Please adjust conditions based on machining accuracy, machining shape and machining path.
6. When using a tool with a dia. of 0,5 or less, or an L/D (effective length/tool diameter) ratio of reater than 10, high loads can cause tool breakage.
7. When the availbale RPM are insufficient, please reduce the RPM and feed rates in proportion.

1. Utilizzare una macchina ed un mandrino di elevato rigidità e di alta precisione
2. Suggeriamo l'utilizzo di aria compressa o lubrificazione minimale (misto olio)
3. Quando si utilizza fluido da taglio, basare la scelta sul materiale e parametri di taglio
4. Le condizioni di taglio sono indicate per fresature 3D. Fare riferimento alle condizioni in tabella tenendo conto delle condizioni di lavoro specifiche.
5. Regolare la velocità, l'avanzamento e la profondità di taglio secondo le attuali condizioni di taglio
6. La presente tabella si riferisce a parametri approssimativi di operazioni di contornatura.
7. Regolare la velocità, l'avanzamento e la profondità di taglio

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel
2. Wir empfehlen Luft-oder Minimalmengenschmierung für die Bearbeitung von Kohlenstoffstahl und Gehärteter Stahl
3. Bei der Verwendung von Kühlmittel, wählen Sie auf der Werkstoffe und Schnittgeschwidigkeit
4. Die oben angegeben Schnittwerte sind für regular 3D fräsen. Entnehmen Sie die Schnittdaten entsprechend Ihrer aktuellen Bearbeitungsaufgabe aus der oben gezeigten Tabelle
5. Bitte regulieren Sie Schnittgeschwindigkeit, Vorschub und Spanntiefe entsprechend Ihrer aktuelllen Zerspannungbedingungen
6. Schnittwerde sind für Werkzeugen mit dia >0,5, oder L/D ratio (Länghe/dia) < 10. Bei andere Auskraglängen müssen Schnittgeschwindigkeit, Vorschub und Spanntiefe verändert werden
7. Bitte regulieren Sie Schnittgeschwindigkeit, Vorschub

1. Veuillez utiliser une machine rigide et des attachements précis
2. Pour l'usinage des aciers au carbone et des aciers traités, nous recommandons l'utilisation d'air mélangé à de l'huile/microlubrification ou de l'air comprimé
3. Si vous utilisez un liquide de coupe, veuillez veiller à ce qu'il soit approprié pour la matière usinée
4. Pour un diamètre d'outil donné, veuillez SVP bien accorder les paramètres du tableau ci-dessus à la longueur déport de l'outil
5. Veuillez SVP mettre en accord les performances de votre machine en accord avec la forme et le parcours de l'usinage
6. Si vous utilisez un outil de diamètre < ou égal à 0,5 mm avec un rapport longueur de sortie effective/Diamètre, supérieur à 10, veuillez SVP réduire l'avance de travail en conséquence
7. Si vous ne disposez pas des vitesses de rotation nécessaires, veuillez réduire avance et rotation proportionnellement

1. Anvend stabil maskine og værktøjsholder
2. Minimalsmøring tilrådes ved bearbejdning af legeret stål eller hærdet stål
3. Ved brug af kølemiddel, vælg da udfra emnemateriale og skæredata
4. Skæredata vist for 3D bearbejdning er lave data for sikkerhed. Se ovenstående tabel for skæredata der passer til aktuel situation
5. Venligst justér skæredata efter maskinens nøjagtighed og bearbejdningens udformning
6. Ved brug af fræser under Ø 0,5mm eller mindre, eller en L/D ratio større end 10, kan høj belastning kan resultere i brud. Tilpas derfor skæredata til aktuel situation
7. Hvis maskinen ikke har de tilstrækkelige omdrejninger, reducér omdrejninger og tilspænding proportionalt

1. Use maquina y portaherramientas rigidos y precisos
2. En mecanizado de aceros al carbono o de acero endurecido, recomendable MQL (cantidad mínima lubrificación / niebla refrigerante).
3. Use fluido de corte adecuado con retardador de humos
4. Datos de corte para fresado 3D con baja carga y condiciones de seguridad. Referirse a la tabla de arriba para las condiciones de fresado, conforme a la situación real
5. Por favor, ajustar las condiciones de mecanizado a la precisión, forma de mecanizado y recorrido del mecanizado
6. Con herramienta de Ø 0,5 (R 0,5) o menor, o un LD (vuelo efectivo / diámetro superior a 10, cargas elevadas pueden causar rotura de la herramienta.
7. Cuando las RPM disponibles son insuficientes, por favor, reducir la RPM y la velocidad de avance en proporción.

1. Använd en stabil maskin och verktygshållare
2. Minimalsmörjning rekommenderas vid bearbetning i legerat och härdat stål
3. Vid användning av skärvätska, välj skärvätska avsedd för arbetsmaterialet och skär möjligheterna
4. Skärdatan visar körning för 3D med liten belastning, för säkrare förhållande. Använd tabellen ovan som utgångspunkt för den aktuella situationen
5. Justera skärdatan efter detaljens utformning och maskinens stabilitet.
6. Vid användning av fräsar under Ø 0,5mm eller mindre, eller L/D (skärlängd/verktygs Ø) större än 10, kan hög belastning resultera i verktygsbrott. Anpassa därför skärdata till aktuell situation.
7. Om maskinen inte har tillräckligt med varvtal, reducera varvtal och matningar proportionellt

1. Используйте жесткие и точные станки и фрезерные патроны
2. Используйте соответствующую СОЖ с высокой устойчивостью к возникновению дыма
3. Используйте соответствующую СОЖ с высокой устойчивостью к возникновению дымаа
4. Пожалуйста отрегулируйте обороты шпинделя, подачу и глубину резания в соответствии с условиями обработки
5. Пожалуйста установите режимы резания основываясь на жесткости станка, формы детали и траектории фрезерования
6. Если максимальная скорость вращения шпинделя недостаточна, пожалуйста уменьшите обороты шпинделя и подачу пропорционально
7. Если максимальная скорость вращения шпинделя недостаточна, пожалуйста уменьшите обороты шпинделя и подачу пропорциональн

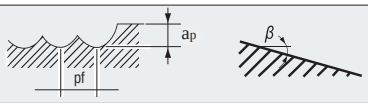
WXL-EBD

Regular milling - Normale Bearbeitung - Parametri di taglio - Fraisage regular
Almindelig fræsning - Konventionell fräsning - Fresado regular - Нормальное фрезерование



R	Cu				~35 HRC FC250 ■ SS400 ■ S55C ■ NAK55 ~35 HRC				35~45 HRC SKT ■ SKD61 ■ NAK80 ■ HPM1 ■ DH 33~41 HRC				45~50 HRC SKT ■ SKD61 ■ NAK80 ■ HPM1 ■ DH 42~50 HRC			
	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)
R 0,05	40.000	450	0,005	0,02	32.000	380	0,005	0,02	32.000	250	0,005	0,02	32.000	170	0,005	0,01
R 0,10	40.000	480	0,010	0,04	32.000	400	0,010	0,04	32.000	265	0,010	0,04	32.000	180	0,010	0,02
R 0,20	40.000	490	0,020	0,08	32.000	410	0,020	0,08	32.000	330	0,040	0,08	32.000	205	0,020	0,04
R 0,30	40.000	580	0,030	0,12	32.000	490	0,030	0,12	32.000	420	0,060	0,12	32.000	265	0,030	0,06
R 0,40	40.000	660	0,040	0,16	32.000	550	0,040	0,16	31.500	420	0,080	0,16	27.500	290	0,040	0,08
R 0,50	32.000	750	0,050	0,20	31.500	620	0,050	0,20	25.000	400	0,100	0,20	22.000	285	0,050	0,10
R 1,00	19.000	750	0,200	0,40	15.500	620	0,200	0,40	12.500	400	0,200	0,40	11.000	290	0,100	0,20
R 1,50	12.500	760	0,300	0,60	10.500	630	0,300	0,60	8.450	405	0,300	0,60	7.400	290	0,150	0,30
R 2,00	9.500	760	0,400	0,80	7.950	630	0,400	0,80	6.350	445	0,400	0,80	5.550	370	0,200	0,40
R 3,00	6.300	800	0,600	1,20	5.300	670	0,600	1,20	4.200	465	0,600	1,20	3.700	390	0,300	0,60
R 4,00	4.750	950	0,800	1,60	3.950	790	0,800	1,60	3.150	555	0,800	1,60	2.750	455	0,400	0,80
R 5,00	3.800	890	1,000	2,00	3.150	745	1,000	2,00	2.500	525	1,000	2,00	2.200	430	0,500	1,00
R 6,00	3.150	840	1,200	2,40	2.650	700	1,200	2,40	2.100	490	1,200	2,40	1.850	430	0,600	1,20
R 8,00	2.400	630	1,600	3,20	2.000	525	1,600	3,20	1.600	370	1,600	3,20	1.400	325	0,800	1,60
R 10,00	1.900	500	2,000	4,00	1.600	420	2,000	4,00	1.250	290	2,000	4,00	1.100	260	1,000	2,00

Max cutting depth



1.Use a rigid and precise machine and holder.
2.Use a suitable cutting fluid with high smoke retardant properties.
3.Refer to the table above to set the milling conditions in accorance with the actual situation.
* When the length of tool extension from the machine is long, reduce the speed and feed.
** When ß is less than 15°, speedand feed in the above table can be increased 1,5 to 2 times.

1.Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2.Utilizare dei lubrificanti di taglio adequanti, dotati di une elevato coefficiente di rallentamento di emessione del fumo.
3.Variare le condizioni della suddetta tabella in conformità alla effettiva situazione.
* Quando la sporgenza dell'utensile dal mandrino macchina è particolarmente lunga, ridurre ve locità e avanzamento..
** Quando ß è inferiore a 15°, la velocità e avanzamento sulla suddetta tebella possono essere aumentati di 1,2 a 1,5 volte.

1.Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2.Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen.
3.Entnehmen sie die Schnittdaten entsprechend Ihrer aktuellen Bearbeitungsaufgabe aus der oben gezeigten Tabelle.
* Bei sehr langen Ausspannlängen, reduzieren sie bitte Schnittgeschwindigkeit und Vorschub.
** Wenn ß kleiner 15° ist, können die in der Tabelle angegebenen Werte um das 1,5 bis 2-fache erhöht werden.

1.Utitiliser une machine et un porte-outil de grande rigidité et de haute précision.
2.Utiliser des fluides de coupes de haute qualité avec un coef, élevé de ralentissement d'emission de fumée.
3.Ajuster la vitesse, avances et la profondeur de coupe en fonction de la précision de la machine ainsi que le chemin de fraisage.
* Dans le cas d'une grande longueur d'outlil, reduire vitesse et avance.
** Quand ß est inférieur à 15°, la vitesse et avance citée dans la table ci-dessus, peuvent être augmentée 1,5 ~ 2 fois.

1.Anvend stabil maskine og værktøjsholder
2.Anvend en passende skærevæske
3.Se ovenstående tabel for skæredata tilpasset den aktuelle situation
* Ved langt udhæng, reducér omdrejninger og tilspænding
** Hvis β er under 15°, kan omdrejninger og tilspænding fra ovenstående tabel øges 1,5 til 2 gange

1.Använd en stabil maskin och verktygshållare
2.Använd anpassad skärvätska
3.Se ovanstående tabell för skärdata anpassat till det aktuella ingreppet
* Vid långt uthäng reducera varvtal och matning
** Om α flankvinkel understiger 15° kan varvtal och matning ökas 1,5 till 2 gånger

1.Use maquina y portaherramientas rigidos y precisos
2.Use fluido de corte adecuado con retardador de humos
3.Referirse a la tabla de arriba para las condiciones de fresado, de acuerdo con la situación real
* Con vuelo de herramienta largo, reduzca la velocidad y el avance
** Cuando β es menor de 15 °, la velocidad y avance en el cuadro anterior se puede aumentar entre 1,5 y 2 veces

1.Используйте жесткие и точные станки и фрезерные патроны
2.Используйте соответствующую СОЖ с высокой устойчивостью к возникновению дыма
3.См. таблицу выше, чтобы установить параметры фрезерования в соответствии с фактической ситуацией
* Если длинна инструмента велика, уменьшите обороты шпинделя и подачу
** Если уклон β меньше 15°, подача и обороты шпинделя могут быть увеличены в 1.5-2 раза

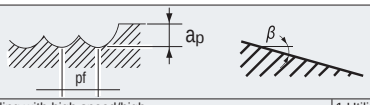
WXL-EBD

High speed light milling - HSC Standardfräsen - Fresatura alta velocità standard - Fraisage UGV
High speed bearbejdning (HSM) - Höghastighets maskinering (HSM) - Fresado ligero a alta velocidad - Высокоскоростное «легкое» фрезерование



R	Copper - Copper Alloys				Mild Steel - Carbon Steel FC250 ■ SS400 ■ S55C ■ NAK55 ~32 HRC				Hardened Steel - Prehardened Steel 33~41 HRC				42~45 HRC			
	S (min^{-1})	F (mm/min)	ap	pf	S (min^{-1})	F (mm/min)	ap	pf	S (min^{-1})	F (mm/min)	ap	pf	S (min^{-1})	F (mm/min)	ap	pf
R 0,50	50.000	3.350	0,02	0,05	50.000	2.800	0,02	0,05	50.000	2.500	0,02	0,05	47.500	2.250	0,02	0,05
R 1,00	31.500	3.350	0,04	0,1	25.000	2.800	0,04	0,1	24.500	2.500	0,04	0,1	23.500	2.250	0,04	0,1
R 1,50	21.000	3.350	0,06	0,15	16.500	2.800	0,06	0,15	16.000	2.500	0,06	0,15	15.500	2.250	0,06	0,15
R 2,00	15.500	4.080	0,06	0,2	15.500	3.400	0,08	0,2	15.000	2.750	0,08	0,2	13.500	2.450	0,08	0,2
R 2,50	10.500	5.160	0,12	0,3	13.500	4.300	0,3	0,6	11.500	2.750	0,3	0,6	9.500	2.250	0,12	0,3
R 3,00	7.900	3.840	0,16	0,4	10.000	3.200	0,4	0,8	8.950	2.100	0,4	0,8	7.150	1.700	0,16	0,4
R 4,00	6.300	3.120	0,2	0,5	8.250	2.600	0,5	1	7.150	1.700	0,5	1	5.700	1.350	0,2	0,5
R 5,00	5.250	2.580	0,24	0,6	6.850	2.150	0,5	24	5.950	1.400	0,5	2,4	4.750	1.100	0,24	0,6
R 6,00	4.950	1.550	0,32	0,8	4.110	1.290	0,5	3,2	4.460	1.050	0,5	3,2	3.560	820	0,32	0,8
R 8,00	3.950	1.240	0,4	1	3250	1.030	0,5	4	3.570	840	0,5	4	2.850	660	0,32	1

Max cutting depth



1. The indicated speeds and feeds are for high speed light milling with high speed/high precision machining centers.
2. We recommend using an air blow. If using cutting fluids, use a high quality fluid with smoke retardant properties.
3. Refer to top the table above to set the milling conditions in accordance with the actual situation.
4. When ß is less than 15°, speed and feed i the above table can be increased 1.2 ~ 1.5 times

1.Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione
2. Utilizzare del lubrificanti di taglio adequanti, dotati di une elevato coefficiente di rallentamento di emmissione del fumo
3. Variare le condizioni della suddetta tabella in conformità alla effectiva situazione
4. Quando β è inferiore à 15°, la velocità e avanzamento sulla suddetta tebella possono essere aumentati di 1,2 à 1,5 volte

1. Die Schnittdaten sind nur für HSC-Schlichten mit geeigneten Maschinen und Werkzeugaufnahmen
2. Wir empfehlen Luftdruch als Kühlmittel, Wenn Sie Schneidöl verwenden, bitte geeignetes Kühlmedium mit rauchhemmenden Zusätzen verwenden
3. Entnehmen Sie die Schnittdaten entsprechend Ihrer aktuellen Bearbeitungsaufgabe aus der oben gezigten Tabelle
4. Wenn β kleiner ist dan 15°, können die in der Tabelle angegebenen Werte um das 1,2 bis 1,5-fache erhöht werden

1. Les vitesses et avances indiquées sont d'application pour l'usinage haute vitesse
2. Nous conseillons l'utilisation de l'air comprimé. En cas d'utilisation des fluides de lubrification utilisez des produits avec des caractéristiques adéquats
3. Ajuster la vitesse, avances et profondeur de coupe en fonction de la précision de la machine ainsi que le chemin de fraisage
4. Quand β est inférieur à 15°, la vitesse et avance citée dans la table ci-dessus peuvent être augmentée 1,2 à 1,5 fois

1. De indikerede skæredata er for "light" højhastighedsbearbejdning i højhastigheds maskiner
2. Brug af lufttryk tilrådes. Ved brug af kølevæske, brug en høj kvalitet
3. Se ovenstående tabel for skæredata tilpasset den aktuelle situation
4. Hvis β er under 15°, kan omdrejninger og tilspænding fra ovenstående tabel øges 1,2 til 1,5 gange

1. La velocidad y de alta velocidad ligh fresado con alta velocidad de alta precisión machineing centros
2. Recomendable aire soplado, si utiliza fluidos de corte, use alta calidad con propiedades retardantes de humos
3. Referirse a la tabla de arriba para las condiciones de fresado, de acuerdo con la situación real
4. Cuando β es menor de 15 °, la velocidad y avance en el cuadro anterior se puede aumentar entre 1,52 y 1,5 veces

1. Den indikerade skärdatan är för finbearbetning i höghastighetsmaskiner
2. Tyckluft rekommenderas. Vid användning av skärvätska använd en hög kvalitet
3. Se ovanstående tabell för skärdata anpassat till det aktuella ingreppet
4. Om α flankvinkel understiger 15° kan varvtal och matning ökas 1,2 till 1,5 gånger

1. Указанные режимы резания для высокоскоростного легкого фрезерования на высокоскоростных прецизионных обрабатывающих центрах
2. Мы рекомендуем использовать обдув воздухом, при использовании жидкостного охлаждения, выбирайте качественную СОЖ с высокой устойчивостью к возникновению дыма
3. См. таблицу выше, чтобы установить параметры фрезерования в соответствии с фактической ситуацией
4. Если уклон β меньше 15°, подача и обороты шпинделя могут быть увеличены в 1,2-1,5 раза

WXL-LN-EBD

Regular milling - Normale Bearbeitung - Parametri di taglio - Fraisage regular
Almindelig fræsning - Konventionell fräsning - Fresado regular - Нормальное фрезерование



	Cu					~35 HRC FC250 ■ SS400 ■ S55C ■ NAK55 ~35 HRC				35~45 HRC SKT ■ SKD61 ■ NAK80 ■ HPM1 ■ DH 33~41 HRC				45~50 HRC SKT ■ SKD61 ■ NAK80 ■ HPM1 ■ DH 42~50 HRC			
R	Lg (mm)	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)
0,05	0,3	32.000	150	0,005	0,005	32.000	75	0,005	0,005	32.000	50	0,005	0,0005	32.000	35	0,005	0,005
0,05	0,5	32.000	120	0,005	0,005	32.000	60	0,005	0,005	32.000	40	0,005	0,0050	32.000	25	0,005	0,005
0,10	0,3	32.000	300	0,020	0,020	32.000	200	0,010	0,010	32.000	200	0,010	0,0100	32.000	200	0,005	0,005
0,10	0,5	32.000	300	0,020	0,020	32.000	200	0,010	0,010	32.000	200	0,010	0,0100	32.000	200	0,005	0,005
0,10	0,75	32.000	300	0,020	0,020	32.000	200	0,010	0,010	32.000	200	0,010	0,0100	32.000	100	0,005	0,005
0,10	1	32.000	150	0,020	0,020	32.000	100	0,010	0,010	32.000	100	0,010	0,0100	32.000	80	0,005	0,005
0,10	1,25	32.000	150	0,020	0,020	32.000	100	0,010	0,010	32.000	100	0,010	0,0100	32.000	80	0,005	0,005
0,10	1,5	32.000	150	0,020	0,020	32.000	100	0,010	0,010	32.000	100	0,010	0,0100	32.000	80	0,005	0,005
0,10	1,75	32.000	150	0,020	0,020	32.000	100	0,010	0,010	32.000	100	0,010	0,0100	32.000	80	0,005	0,005
0,10	2	32.000	150	0,010	0,010	32.000	100	0,010	0,010	32.000	100	0,010	0,0100	32.000	80	0,005	0,005
0,10	2,5	32.000	75	0,010	0,010	32.000	50	0,005	0,005	32.000	50	0,005	0,0050	32.000	40	0,003	0,005
0,10	3	32.000	75	0,010	0,010	32.000	50	0,005	0,005	32.000	50	0,005	0,0050	32.000	40	0,003	0,005
0,15	0,5	32.000	600	0,020	0,030	32.000	400	0,010	0,015	32.000	300	0,010	0,0150	32.000	300	0,005	0,005
0,15	0,6	32.000	600	0,020	0,030	32.000	400	0,010	0,015	32.000	300	0,010	0,0150	32.000	300	0,005	0,005
0,15	0,75	32.000	600	0,020	0,030	32.000	400	0,010	0,015	32.000	300	0,010	0,0150	32.000	300	0,005	0,005
0,15	1	32.000	450	0,020	0,030	32.000	300	0,010	0,015	32.000	200	0,010	0,0150	32.000	200	0,005	0,005
0,15	1,25	32.000	450	0,020	0,030	32.000	300	0,010	0,015	32.000	200	0,010	0,0150	32.000	200	0,005	0,005
0,15	1,5	32.000	450	0,020	0,030	32.000	300	0,010	0,015	32.000	200	0,010	0,0150	32.000	200	0,005	0,005
0,15	1,75	32.000	450	0,020	0,030	32.000	300	0,010	0,015	32.000	200	0,010	0,0150	32.000	200	0,005	0,005
0,15	2	32.000	450	0,020	0,030	32.000	300	0,010	0,015	32.000	200	0,010	0,0150	32.000	200	0,005	0,005
0,15	2,25	32.000	450	0,020	0,020	32.000	300	0,010	0,010	32.000	200	0,010	0,0100	32.000	200	0,010	0,010
0,15	2,5	32.000	450	0,020	0,020	32.000	300	0,010	0,010	32.000	200	0,010	0,0100	32.000	200	0,010	0,010
0,15	2,75	32.000	450	0,020	0,020	32.000	300	0,010	0,010	32.000	200	0,010	0,0100	32.000	200	0,010	0,010
0,15	3	32.000	450	0,020	0,020	32.000	300	0,010	0,010	32.000	200	0,010	0,0100	32.000	200	0,005	0,010
0,15	3,5	32.000	270	0,020	0,020	32.000	180	0,010	0,010	32.000	120	0,010	0,0100	32.000	120	0,005	0,010
0,15	4	32.000	270	0,020	0,020	32.000	180	0,010	0,010	32.000	120	0,010	0,0100	32.000	120	0,005	0,005
0,15	4,5	32.000	270	0,020	0,020	32.000	180	0,010	0,010	32.000	120	0,010	0,0100	32.000	120	0,003	0,005
0,15	5	32.000	150	0,010	0,020	32.000	100	0,005	0,010	32.000	70	0,005	0,0100	32.000	70	0,003	0,005
0,20	0,5	32.000	750	0,025	0,050	32.000	500	0,015	0,025	32.000	400	0,015	0,0200	32.000	400	0,010	0,010
0,20	0,75	32.000	750	0,025	0,050	32.000	500	0,015	0,025	32.000	400	0,015	0,0200	32.000	400	0,010	0,010
0,20	1	32.000	600	0,025	0,050	32.000	400	0,015	0,025	32.000	300	0,015	0,0200	32.000	300	0,010	0,010
0,20	1,5	32.000	600	0,025	0,050	32.000	400	0,015	0,025	32.000	300	0,015	0,0200	32.000	300	0,010	0,010
0,20	2	27.000	450	0,025	0,050	27.000	300	0,015	0,025	27.000	200	0,015	0,0200	27.000	200	0,010	0,010
0,20	2,5	27.000	450	0,025	0,050	27.000	300	0,015	0,025	27.000	200	0,015	0,0200	27.000	200	0,010	0,010
0,20	3	27.000	450	0,025	0,050	27.000	300	0,015	0,025	27.000	200	0,015	0,0200	27.000	200	0,010	0,010
0,20	3,5	27.000	450	0,025	0,050	27.000	300	0,015	0,025	27.000	200	0,015	0,0200	27.000	200	0,010	0,010
0,20	4	27.000	450	0,010	0,030	27.000	300	0,005	0,015	27.000	200	0,005	0,0120	27.000	200	0,005	0,010
0,20	4,5	24.000	300	0,010	0,030	27.000	200	0,005	0,015	27.000	100	0,005	0,0120	27.000	100	0,005	0,010
0,20	5	24.000	300	0,010	0,030	27.000	200	0,005	0,015	27.000	100	0,005	0,0120	27.000	100	0,005	0,010
0,20	5,5	21.000	300	0,010	0,020	27.000	200	0,005	0,010	27.000	100	0,005	0,008	27.000	100	0,005	0,005
0,20	6	21.000	150	0,010	0,015	27.000	100	0,005	0,008	27.000	80	0,005	0,006	27.000	80	0,003	0,005
0,25	1	32.000	750	0,040	0,050	32.000	500	0,020	0,025	32.000	400	0,020	0,020	32.000	400	0,010	0,010
0,25	1,5	32.000	750	0,040	0,050	32.000	500	0,020	0,025	32.000	400	0,020	0,020	32.000	400	0,010	0,010
0,25	2	32.000	600	0,040	0,050	32.000	400	0,020	0,025	32.000	300	0,020	0,020	32.000	300	0,010	0,010
0,25	2,5	27.000	450	0,040	0,050	27.000	300	0,020	0,025	27.000	200	0,020	0,020	27.000	200	0,010	0,010
0,25	3	27.000	450	0,040	0,050	27.000	300	0,020	0,025	27.000	200	0,020	0,020	27.000	200	0,010	0,010
0,25	3,5	27.000	450	0,040	0,050	27.000	300	0,020	0,025	27.000	200	0,020	0,020	27.000	200	0,010	0,010
0,25	4	27.000	450	0,040	0,050	27.000	300	0,020	0,025	27.000	200	0,020	0,020	27.000	200	0,010	0,010
0,25	4,5	21.000	300	0,040	0,050	20.000	200	0,020	0,025	20.000	200	0,020	0,020	20.000	200	0,010	0,010
0,25	5	21.000	300	0,040	0,050	20.000	200	0,020	0,025	20.000	150	0,020	0,020	20.000	150	0,010	0,010
0,25	5,5	21.000	300	0,020	0,030	20.000	200	0,010	0,015	20.000	150	0,010	0,010	20.000	150	0,010	0,010
0,25	6	21.000	300	0,020	0,030	20.000	200	0,010	0,015	20.000	150	0,010	0,010	20.000	150	0,010	0,010
0,25	7	21.000	300	0,020	0,030	20.000	200	0,010	0,015	20.000	150	0,010	0,010	20.000	150	0,010	0,010
0,25	8	21.000	300	0,020	0,030	15.000	200	0,010	0,015	15.000	150	0,010	0,010	15.000	150	0,005	0,010
0,25	9	18.000	150	0,020	0,020	15.000	100	0,010	0,010	15.000	80	0,005	0,010	15.000	80	0,005	0,005
0,25	10	18.000	150	0,010	0,010	15.000	100	0,005	0,005	15.000	80	0,005	0,005	15.000	80	0,003	0,005
0,30	1	32.000	900	0,045	0,120	32.000	600	0,030	0,060	32.000	500	0,030	0,050	32.000	500	0,030	0,030
0,30	1,5	32.000	900	0,045	0,120	32.000	600	0,030	0,060	32.000	500	0,030	0,050	32.000	500	0,030	0,030
0,30	2	32.000	675	0,045	0,120	32.000	450	0,030	0,060	32.000	300	0,030	0,050	32.000	300	0,030	0,030
0,30	2,5	30.000	675	0,045	0,120	32.000	450	0,030	0,060	32.000	300	0,030	0,050	32.000	300	0,030	0,030
0,30	3	30.000	375	0,045	0,120	25.000	250	0,030	0,060	24.000	200	0,030	0,050	24.000	200	0,030	0,030
0,30	3,5	30.000	375	0,045	0,120	25.000	250	0,030	0,060	24.000	200	0,030	0,040	24.000	200	0,03	0,030
0,30	4	30.000	375	0,045	0,120	25.000	250	0,030	0,060	24.000	200	0,030	0,040	24.000	200	0,030	0,030
0,30	4,5	30.000	375	0,045	0,120	25.000	250	0,030	0,060	24.000	200	0,030	0,040	24.000	200	0,030	0,030
0,30	5	30.000	375	0,045	0,120	25.000	250	0,030	0,060	24.000	200	0,030	0,040	24.000	200	0,020	0,020
0,30	5,5	25.000	300	0,045	0,120	20.000	200	0,030	0,060	20.000	200	0,030	0,040	20.000	200	0,020	0,020
0,30	6	25.000	225	0,045	0,120	20.000	150	0,030	0,060	20.000	150	0,030	0,040	20.000	150	0,020	0,020
0,30	6,5	25.000	225	0,045	0,120	20.000	150	0,030	0,060	20.000	150	0,030	0,040	20.000	150	0,020	0,020
0,30	7	25.000	225	0,045	0,120	20.000	150	0,030	0,060	20.000	150	0,030	0,040	20.000	150	0,020	0,020
0,30	7,5	25.000	225	0,045	0,120	20.000	150	0,030	0,060	20.000	150	0,030	0,040	20.000	150	0,020	0,020
0,30	8	25.000	225	0,045	0,120	20.000	150	0,030	0,060	20.000	150	0,030	0,040	20.000	150	0,020	0,020
0,30	8,5	22.000	225	0,045	0,120	20.000	150	0,030	0,060	20.000	150	0,020	0,040	20.000	150	0,010	0,010
0,30	9	22.000	225	0,030	0,100	20.000	150	0,020	0,050	20.000	150	0,020	0,040	20.000	150	0,010	0,010
0,30	9,5	22.000	225	0,030	0,100	17.000	150	0,020	0,050	17.000	150	0,020	0,040	17.000	150	0,010	0,010
0,30	10	20.000	150	0,025	0,050	17.000	100	0,015	0,025	17.000	100	0,015	0,020	17.000	100	0,0050	0,005
0,30	11	20.000	150	0,025	0,050	17.000	100	0,015	0,025	17.000	100	0,010	0,020	17.000	100	0,0050	0,005
0,30	12	20.000	120	0,025	0,050	17.000	80	0,015	0,025	17.000	80	0,010	0,012	17.000	80	0,0050	0,005
0,40	2	27.000	675	0,060	0,160	23.000	450	0,040	0,080	21.000	300	0,040	0,060	21.000	300	0,040	0,040
0,40	3	27.000	675	0,060	0,160	23.000	450	0,040	0,080	21.000	300	0,040	0,060	21.000	300	0,040	0,040
0,40	4	27.000	675	0,060	0,160	23.000	450	0,040	0,080	21.000	300	0,040	0,060	21.000	300	0,040	0,040
0,40	5	24.000	375	0,060	0,120	21.000	250	0,040	0,060	19.000	200	0,040	0,050	19.000	200	0,020	0,025
0,40	6	24.000	375	0,060	0,120	21.000	250	0,040	0,060	19.000	200	0,040	0,050	19.000	200	0,020	0,025
0,40	7	24.000	375	0,060	0,120	21.000	250	0,040	0,060	19.000	200	0,040	0,050	19.000	200	0,020	0,025
0,40	8	22.000	225	0,060	0,120	19.000	150	0,040	0,060	17.000	150	0,040	0,050	17.000	150	0,020	0,025
0,40	9	22.000	225	0,060	0,120	19.000	150	0,040	0,060	17.000	150	0,040	0,050	17.000	150	0,020	0,025
0,40	10	22.000	225	0,060	0,120	19.000	150	0,040	0,060	17.000	150	0,040	0,050	17.000	150	0,020	0,025
0,40	12	20.000	225	0,060	0,120	19.000	150	0,040	0,060	17.000	150	0,040	0,050	17.000	150	0,020	0,025

WXL-LN-EBD

Regular milling - Normale Bearbeitung - Parametri di taglio - Fraisage regular
Almindelig fræsning - Konventionell fräsning - Fresado regular - Нормальное фрезерование



		Cu				~35 HRC FC250 ■ SS400 ■ S55C ■ NAK55 ~35 HRC				35~45 HRC SKT ■ SKD61 ■ NAK80 ■ HPM1 ■ DH 33~41 HRC				45~50 HRC SKT ■ SKD61 ■ NAK80 ■ HPM1 ■ DH 42~50 HRC			
R	Lg (mm)	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)
0,50	2,5	28.000	900	0,075	0,20	25.000	600	0,05	0,100	21.000	400	0,05	0,08	21.000	400	0,050	0,050
0,50	3	28.000	750	0,075	0,20	25.000	500	0,05	0,100	21.000	300	0,05	0,08	21.000	300	0,050	0,050
0,50	4	28.000	750	0,075	0,20	25.000	500	0,05	0,100	21.000	300	0,05	0,08	21.000	300	0,050	0,050
0,50	5	21.000	450	0,075	0,20	19.000	300	0,05	0,100	16.000	200	0,05	0,08	16.000	200	0,050	0,050
0,50	6	21.000	450	0,075	0,20	19.000	300	0,05	0,100	16.000	200	0,05	0,08	16.000	200	0,050	0,050
0,50	7	21.000	450	0,075	0,15	19.000	300	0,05	0,075	16.000	200	0,05	0,06	16.000	200	0,030	0,030
0,50	8	21.000	450	0,075	0,15	19.000	300	0,05	0,075	16.000	200	0,05	0,06	16.000	200	0,030	0,030
0,50	9	21.000	450	0,075	0,15	19.000	300	0,05	0,075	16.000	200	0,05	0,06	16.000	200	0,030	0,030
0,50	10	18.000	300	0,060	0,12	17.000	200	0,03	0,050	14.000	150	0,03	0,04	14.000	150	0,010	0,015
0,50	12	18.000	300	0,060	0,12	17.000	200	0,03	0,050	14.000	150	0,03	0,04	14.000	150	0,010	0,015
0,50	14	18.000	300	0,060	0,12	17.000	200	0,03	0,050	14.000	150	0,03	0,04	14.000	150	0,010	0,015
0,50	16	16.000	300	0,060	0,12	13.000	200	0,03	0,050	10.000	150	0,03	0,04	10.000	150	0,010	0,015
0,50	18	16.000	300	0,060	0,12	13.000	200	0,03	0,050	10.000	150	0,03	0,04	10.000	150	0,010	0,015
0,50	20	16.000	300	0,060	0,12	13.000	200	0,03	0,050	10.000	150	0,03	0,04	10.000	150	0,010	0,015
0,50	22	16.000	225	0,050	0,05	13.000	150	0,02	0,025	10.000	100	0,02	0,02	10.000	100	0,005	0,005
0,60	4	20.000	750	0,090	0,24	17.000	500	0,06	0,012	14.000	300	0,06	0,10	14.000	300	0,060	0,060
0,60	6	20.000	450	0,090	0,24	17.000	300	0,06	0,012	14.000	200	0,06	0,10	14.000	200	0,060	0,060
0,60	8	20.000	450	0,090	0,24	17.000	300	0,06	0,012	14.000	200	0,06	0,10	14.000	200	0,060	0,060
0,60	10	20.000	450	0,090	0,18	17.000	300	0,06	0,090	14.000	200	0,06	0,07	14.000	200	0,030	0,030
0,60	12	16.000	300	0,090	0,18	14.000	200	0,06	0,090	11.000	150	0,06	0,07	11.000	150	0,030	0,030
0,60	14	16.000	300	0,090	0,18	14.000	200	0,06	0,090	11.000	150	0,06	0,07	11.000	150	0,100	0,030
0,60	16	16.000	300	0,090	0,18	14.000	200	0,06	0,090	11.000	150	0,06	0,07	11.000	150	0,100	0,030
0,60	18	16.000	300	0,090	0,18	14.000	200	0,06	0,090	11.000	150	0,06	0,07	11.000	150	0,100	0,030
0,60	20	16.000	300	0,090	0,28	14.000	200	0,06	0,090	11.000	150	0,06	0,07	11.000	150	0,100	0,030
0,60	24	16.000	300	0,090	0,20	14.000	200	0,06	0,090	11.000	150	0,06	0,07	11.000	150	0,100	0,030
0,70	8	18.000	450	0,100	0,28	15.500	300	0,07	0,140	12.000	250	0,07	0,10	12.000	250	0,070	0,070
0,70	12	18.000	450	0,100	0,20	15.500	300	0,07	0,100	12.000	250	0,07	0,08	12.000	250	0,070	0,070
0,70	16	13.000	300	0,090	0,18	12.000	200	0,06	0,090	9.000	150	0,04	0,07	9.000	150	0,010	0,030
0,75	3	20.000	900	0,120	0,30	15.000	600	0,08	0,150	12.000	500	0,08	0,12	12.000	300	0,080	0,100
0,75	4	20.000	900	0,120	0,30	15.000	600	0,08	0,150	12.000	500	0,08	0,12	12.000	300	0,080	0,100
0,75	6	18.000	750	0,120	0,30	15.000	500	0,08	0,150	12.000	350	0,08	0,12	12.000	300	0,080	0,100
0,75	8	17.000	450	0,120	0,30	15.000	300	0,08	0,150	12.000	250	0,08	0,12	12.000	250	0,080	0,100
0,75	10	17.000	450	0,120	0,30	15.000	300	0,08	0,150	12.000	250	0,08	0,12	12.000	250	0,080	0,100
0,75	12	17.000	450	0,120	0,24	15.000	300	0,08	0,120	12.000	250	0,08	0,09	12.000	250	0,050	0,060
0,75	14	17.000	450	0,120	0,24	15.000	300	0,08	0,120	12.000	250	0,08	0,09	12.000	250	0,050	0,060
0,75	16	13.000	300	0,090	0,18	12.000	200	0,06	0,100	9.5000	150	0,06	0,07	9.500	150	0,010	0,030
0,75	18	13.000	300	0,090	0,18	12.000	200	0,06	0,100	9.500	150	0,06	0,07	9.500	150	0,010	0,030
0,75	20	13.000	300	0,090	0,18	12.000	200	0,06	0,100	9.500	150	0,06	0,07	9.500	150	0,010	0,030
0,75	22	13.000	300	0,090	0,18	12.000	200	0,06	0,100	9.500	150	0,06	0,07	9.500	150	0,010	0,030
0,75	30	13.000	300	0,090	0,18	12.000	200	0,06	0,100	9.500	150	0,06	0,07	9.500	150	0,010	0,030
0,80	4	20.000	900	0,120	0,32	14.000	600	0,08	0,160	11.000	500	0,08	0,13	11.000	350	0,080	0,100
0,80	8	16.500	450	0,120	0,32	14.000	300	0,08	0,160	11.000	250	0,08	0,13	11.000	250	0,080	0,100
0,80	12	16.500	450	0,120	0,24	14.000	300	0,08	0,120	11.000	250	0,08	0,08	11.000	250	0,050	0,050
0,80	16	11.500	300	0,120	0,24	11.000	200	0,08	0,120	9.000	150	0,08	0,08	9.000	150	0,050	0,050
0,80	20	11.500	300	0,090	0,20	11.000	200	0,06	0,120	9.000	150	0,06	0,075	9.000	150	0,015	0,030
0,90	8	16.500	600	0,130	0,36	14.000	400	0,09	0,180	11.000	300	0,09	0,16	11.000	300	0,090	0,120
0,90	12	16.500	600	0,130	0,36	14.000	400	0,09	0,180	11.000	300	0,09	0,16	11.000	300	0,090	0,120
0,90	16	16.500	600	0,130	0,27	14.000	400	0,09	0,140	11.000	300	0,09	0,12	11.000	300	0,050	0,060
0,90	20	11.000	300	0,100	0,22	11.000	200	0,06	0,130	8.000	200	0,06	0,08	8.000	200	0,020	0,030
1,00	3	16.500	1.350	0,150	0,56	16.500	900	0,10	0,280	13.500	800	0,10	0,28	13.500	700	0,100	0,200
1,00	4	16.500	1.050	0,150	0,56	16.500	700	0,10	0,280	13.500	500	0,10	0,28	13.500	500	0,100	0,200
1,00	6	16.500	1.050	0,150	0,56	16.500	700	0,10	0,280	13.500	500	0,10	0,28	13.500	500	0,100	0,200
1,00	8	16.500	1.050	0,150	0,56	16.500	700	0,10	0,280	13.500	500	0,10	0,28	13500	500	0,100	0,200
1,00	10	14.000	750	0,150	0,56	13.000	500	0,10	0,280	10.000	300	0,10	0,28	10.000	300	0,100	0,200
1,00	12	14.000	750	0,150	0,56	13.000	500	0,10	0,280	10.000	300	0,10	0,28	10.000	300	0,100	0,200
1,00	14	14.000	750	0,150	0,56	13.000	500	0,10	0,280	10.000	300	0,10	0,28	10.000	300	0,100	0,200
1,00	16	14.000	750	0,150	0,42	13.000	500	0,10	0,210	10.000	300	0,10	0,18	10.000	300	0,060	0,100
1,00	18	14.000	750	0,150	0,42	13.000	500	0,10	0,210	10.000	300	0,10	0,18	10.000	300	0,060	0,100
1,00	20	11.000	375	0,150	0,42	10.000	250	0,10	0,210	8.000	200	0,10	0,18	8.000	200	0,060	0,100
1,00	22	11.000	375	0,150	0,42	10.000	250	0,10	0,210	8.000	200	0,10	0,18	8.000	200	0,060	0,100
1,00	25	11.000	375	0,150	0,42	10.000	250	0,10	0,210	8.000	200	0,10	0,18	8.000	200	0,060	0,100
1,00	30	11.000	375	0,150	0,42	10.000	250	0,10	0,210	8.000	200	0,10	0,18	8.000	200	0,060	0,100
1,00	35	10.000	375	0,150	0,42	10.000	250	0,10	0,210	8.000	200	0,10	0,18	8.000	200	0,060	0,100
1,00	40	10.000	300	0,150	0,42	10.000	200	0,10	0,210	8.000	160	0,10	0,18	8.000	160	0,060	0,100
1,25	6	16.000	1.050	0,180	0,70	12.000	700	0,12	0,350	10.000	600	0,12	0,30	10.000	600	0,100	0,250
1,25	10	14.000	1.050	0,180	0,70	12.000	700	0,12	0,350	10.000	600	0,12	0,30	10.000	600	0,100	0,250
1,25	15	14.000	600	0,180	0,70	10.000	400	0,12	0,350	8.500	300	0,12	0,30	8.500	300	0,100	0,250
1,25	20	12.000	600	0,180	0,56	10.000	400	0,12	0,280	8.500	300	0,12	0,20	8.500	300	0,080	0,150
1,25	25	12.000	450	0,180	0,56	8.000	300	0,12	0,280	6.500	250	0,12	0,20	6.500	250	0,080	0,150
1,25	30	12.000	375	0,180	0,56	8.000	250	0,12	0,280	6.500	200	0,12	0,20	6.500	200	0,080	0,150
1,25	35	12.000	375	0,180	0,56	8.000	250	0,12	0,280	6.500	200	0,12	0,20	6.500	200	0,080	0,150
1,50	6	15.000	1.200	0,200	0,84	9.500	800	0,15	0,420	7.500	600	0,15	0,42	7.500	600	0,150	0,300
1,50	8	12.000	900	0,200	0,84	9.500	600	0,15	0,420	7.500	400	0,15	0,36	7.500	400	0,150	0,300
1,50	10	12.000	900	0,200	0,84	9.500	600	0,15	0,420	7.500	400	0,15	0,36	7.500	400	0,150	0,300
1,50	12	10.000	900	0,200	0,84	9.500	600	0,15	0,420	7.500	400	0,15	0,36	7.500	400	0,150	0,300
1,50	14	10.000	900	0,200	0,84	9.500	600	0,15	0,420	7.500	400	0,15	0,36	7.500	400	0,150	0,300
1,50	15	10.000	600	0,200	0,84	8.500	400	0,15	0,420	6.500	250	0,15	0,36	6.500	250	0,150	0,300
1,50	16	10.000	450	0,200	0,84	8.500	300	0,15	0,420	6.500	250	0,15	0,36	6.500	250	0,150	0,300
1,50	20	10.000	450	0,200	0,84	8.500	300	0,15	0,420	6.500	250	0,15	0,36	6.500	250	0,150	0,300
1,50	25	10.000	450	0,200	0,84	8.500	300	0,15	0,420	6.500	250	0,15	0,30	6.500	250	0,090	0,150
1,50	30	9.000	375	0,200	0,84	7.500	250	0,15	0,420	6.000	200	0,15	0,30	6.000	200	0,090	0,150
1,50	35	9.000	375	0,200	0,84	7.500	250	0,15	0,420	6.000	200	0,15	0,30	6.000	200	0,090	0,150
1,50	40	9.000	375	0,200	0,84	7.500	250	0,15	0,420	6.000	200	0,15	0,30	6.000	200	0,090	0,150
1,75	10	10.000	1.050	0,400	0,98	8.500	700	0,15	0,420	6.500	500	0,15	0,42	6.500	500	0,150	0,350
1,75	15	10.000	900	0,400	0,98	8.500	600	0,15	0,420	6.500	400	0,15	0,42	6.500	400	0,150	0,350
1,75	20	8.000	750	0,400	0,98	7.500	500	0,15	0,490	5.500	300	0,15	0,42	5.500	300	0,150	0,350
1,75	25	8.000	600	0,400	0,98	7.500	400	0,15	0,490	5.500	275	0,15	0,42	5.500	275	0,150	0,350

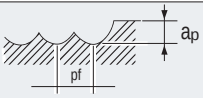
WXL-LN-EBD

Regular milling - Normale Bearbeitung - Parametri di taglio - Fraisage regular
Almindelig fræsning - Konventionell fräsning - Fresado regular - Нормальное фрезерование



		Cu				~35 HRC FC250 ■ SS400 ■ S55C ■ NAK55 ~35 HRC				35~45 HRC SKT ■ SKD61 ■ NAK80 ■ HPM1 ■ DH 33~41 HRC				45~50 HRC SKT ■ SKD61 ■ NAK80 ■ HPM1 ■ DH 42~50 HRC			
R	Lg (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)
1,75	30	8.000	450	0,40	0,98	7.500	300	0,15	0,49	5.500	250	0,15	0,35	5.500	250	0,10	0,20
1,75	35	8.000	375	0,40	0,98	6.000	250	0,15	0,49	5.000	200	0,15	0,35	5.000	200	0,10	0,20
1,75	40	6.000	375	0,30	0,98	6.000	250	0,15	0,49	5.000	200	0,15	0,35	5.000	200	0,10	0,20
1,75	45	6.000	375	0,30	0,98	6.000	250	0,15	0,49	5.000	200	0,15	0,35	5.000	200	0,10	0,20
2,00	8	11.000	1.200	0,50	1,28	7.500	800	0,20	0,64	6.000	700	0,20	0,60	6.000	700	0,20	0,40
2,00	10	9.000	900	0,50	1,28	7.500	600	0,20	0,64	6.000	400	0,20	0,60	6.000	400	0,20	0,40
2,00	12	9.000	900	0,50	1,28	7.500	600	0,20	0,64	6.000	400	0,20	0,60	6.000	400	0,20	0,40
2,00	14	9.000	900	0,50	1,28	7.500	600	0,20	0,64	6.000	400	0,20	0,60	6.000	400	0,20	0,40
2,00	15	9.000	900	0,50	1,28	7.500	600	0,20	0,64	6.000	400	0,20	0,60	6.000	400	0,20	0,40
2,00	16	9.000	900	0,50	1,28	7.500	600	0,20	0,64	6.000	400	0,20	0,60	6.000	400	0,20	0,40
2,00	20	7.000	600	0,50	1,28	6.000	400	0,20	0,64	5.000	250	0,20	0,60	5.000	250	0,20	0,40
2,00	25	7.000	600	0,50	1,28	6.000	400	0,20	0,64	5.000	250	0,20	0,60	5.000	250	0,20	0,40
2,00	30	7.000	600	0,40	1,28	6.000	400	0,20	0,64	5.000	250	0,20	0,56	5.000	250	0,12	0,20
2,00	35	7.000	600	0,40	1,28	6.000	400	0,20	0,64	5.000	250	0,20	0,56	5.000	250	0,12	0,20
2,00	40	5.000	375	0,35	1,28	5.000	250	0,20	0,64	4.000	200	0,20	0,56	4.000	200	0,12	0,20
2,00	45	5.000	375	0,35	1,28	5.000	250	0,20	0,64	4.000	200	0,20	0,56	4.000	200	0,12	0,20
2,00	50	5.000	375	0,35	1,28	5.000	250	0,20	0,64	4.000	200	0,20	0,56	4.000	200	0,12	0,20
2,50	10	9.000	1.350	0,60	1,80	6.500	900	0,25	0,90	5.000	750	0,25	0,70	5.000	750	0,25	0,50
2,50	15	9.000	1.350	0,60	1,80	6.500	900	0,25	0,90	5.000	750	0,25	0,70	5.000	750	0,25	0,50
2,50	20	7.000	750	0,60	1,80	6.500	500	0,25	0,90	5.000	400	0,25	0,70	5.000	400	0,25	0,50
2,50	25	6.000	750	0,60	1,80	5.000	500	0,25	0,90	4.000	250	0,25	0,70	4.000	250	0,25	0,50
2,50	30	6.000	750	0,60	1,80	5.000	500	0,25	0,90	4.000	250	0,25	0,70	4.000	250	0,25	0,50
2,50	35	6.000	750	0,60	1,80	5.000	500	0,25	0,90	4.000	250	0,25	0,70	4.000	250	0,25	0,50
2,50	40	5.000	600	0,40	1,80	4.000	400	0,25	0,90	4.000	200	0,25	0,60	4.000	200	0,20	0,25
2,50	45	5.000	600	0,40	1,80	4.000	400	0,25	0,90	4.000	200	0,25	0,60	4.000	200	0,20	0,25
2,50	50	5.000	450	0,40	1,80	4.000	300	0,25	0,90	4.000	200	0,25	0,60	4.000	200	0,20	0,25
3,00	10	7.000	1.500	0,75	2,40	5.500	1.000	0,30	1,20	4.500	800	0,30	0,96	4.500	800	0,30	0,60
3,00	20	7.000	1.200	0,75	2,40	5.500	800	0,30	1,20	4.500	600	0,30	0,96	4.500	600	0,30	0,60
3,00	25	6.000	900	0,75	2,40	5.500	600	0,30	1,20	4.500	400	0,30	0,96	4.500	400	0,30	0,60
3,00	30	5.000	600	0,75	2,40	4.000	400	0,30	1,20	4.000	300	0,30	0,96	4.000	300	0,30	0,60
3,00	35	5.000	600	0,75	2,40	4.000	400	0,30	1,20	4.000	300	0,30	0,96	4.000	300	0,30	0,60
3,00	40	5.000	600	0,60	2,40	4.000	400	0,30	1,20	4.000	300	0,30	0,96	4.000	300	0,30	0,60
3,00	45	5.000	600	0,60	2,40	4.000	400	0,30	1,20	4.000	300	0,30	0,96	4.000	300	0,30	0,60
3,00	50	5.000	600	0,60	2,40	4.000	400	0,30	1,20	4.000	300	0,30	0,96	4.000	300	0,30	0,60

Max cutting depth



1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication / mist coolant) is recommended.
3. Please adjust conditions based on machining accuracy, machining shape and machining path.
4. When using a tool with a diameter of dia. 0.5 (R0.25) or less, or an L/D (effective length/ tool diameter) ratio grater than 10, high loads can cause tool breakage. Therefore, adjust the cutting conditions based on the machining situation.
5. When the available RPM is insufficient, reduce the RPM and feed rates in proportion

1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. Suggeriamo l'utilizzo di aria compressa o lubrifacazione minimale (misto olio).
3. Regolare la velocità, l'avanzamento e la profondità di taglio secondo le attuali condizioni di taglio.
4. Queste condizioni di fresatura di freze Ø > 0.5 (R0.25), L/D ratio. (lunga/dia) < 10. Per sporgenze ridurre velocità, l'avanzamento e la profondità di taglio.
5. Regulare la velocità, l'avanzamento e la profondità di taglio.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Wir empfehlen Luft-oder Minimalmengenschmierung für die Bearbeitung von Kohlenstoffstahl und Gehärteter Stahl.
3. Bitte regulieren Sie Schnittgeschwindigkeit, Vorschub und Spanntiefe entsprechend Ihrer aktuellen Zerspannungsbedingungen.
4. Schnittwerde sind für Werkzeugen mit Ø > 0.5 (R0.25), und L/D ratio. (Länghe/dia) < 10. Bei andere Auskraglängen müssen Schnittgeschwindigkeit, Vorschub und Spanntiefe verändert werden.
5. Bitte regulieren Sie Schnittgeschwindigkeit und Vorschub.

1. Utiliser une machine et un porte-outil de grande rigidité et de haute précision.
2. Utiliser de l'arrosage en brouillard (mist).
3. Ajuster la vitesse, avances et la profondeur de coupe en fonction de la précision de la machine ainsi que le chemin de fraisage.
4. Les conditions de coupes ci-desus sont pour l'utilisation d'outil avec un Ø > 0.5 (R0.25), et un ratio L/D (longueur/dia) < 10. Ajuster ces conditions de coupes si nécessaire.
5. Ajuster la vitesse, avances et la profondeur de coupe.

1.Anvend stabil maskine og værktøjsholder
2.Minimalsmøring tilrådes ved bearbejdning af legeret stål eller hærdet stål
3.Venligst justér skæredata efter maskinens nøjagtighed og bearbejdningens udformning
4.Ved brug af fræser under Ø 0,5mm eller mindre, eller en L/D ratio størrer end 10, kan høj belastning kan resultere i brud. Tilpas derfor skæredata til aktuel situation
5.Hvis maskinen ikke har de tilstrækkelige omdrejninger, reducér omdrejninger og tilspænding proportionalt

1.Use maquina y portaherramientas rigidos y precisos
2.En mecanizado de aceros al carbono o de acero endurecido, recomendable MQL (cantidad mínima lubrificación / niebla refrigerante).
3.Por favor, ajustar las condiciones de mecanizado a la precisión, forma de mecanizado y recorrido del mecanizado
4.Con herramienta de Ø 0,5 (R 0,5) o menor, o un LD (vuelo efectivo / diámetro superior a 10, cargas elevadas pueden causar rotura de la herramienta.
5. Cuando las RPM disponibles son insuficientes, por favor, reducir la RPM y la velocidad de avance en proporción.

1.Använd en stabil maskin och verktygshållare
2.Minimalsmörjning rekommenderas vid bearbetning i legerat och härdat stål
3.Justera skärdatan efter detaljens utformning och maskinens stabilitet.
4.Vid användning av fräsar under Ø 0,5mm eller mindre, eller L/D (skärlängd/verktygs Ø) större än 10, kan hög belastning resultera i verktygsbrott. Anpassa därför skärdata till aktuell situation.
5. Om maskinen inte har tillräckligt med varvtal, reducera varvtal och matningar proportionellt

1.Используйте жесткие и точные станки и фрезерные патроны
2.При обработке углеродистой или закаленной сталей, рекомендуется использовать MQL (смазка минимальным количеством, масляный туман)
3.Пожалуйста установите режимы резания в соответствии с точностью станка, обрабатываемой детали и траектории обработки
4.При использовании инструмента Ø 0,5 или меньше, или соотношение L/D (эффективная длина / диаметр инструмента) большее, чем 10, высокие нагрузки могут вызвать поломку инструмента
5.Если максимальная скорость вращения шпинделя недостаточна, пожалуйста уменьшите обороты шпинделя и подачу пропорционально

WXL-LN-EBD

High speed light milling - HSC Standardfräsen - Fresatura alta velocità standard - Fraisage UGV
High speed bearbejdning (HSM) - High speed milling (HSM) - Fresado ligero a alta velocidad - Высокоскоростное «легкое» фрезерование



		Cu				~35 HRC FC250 ■ SS400 ■ S55C ■ NAK55 ~35 HRC				35~45 HRC SKT ■ SKD61 ■ NAK80 ■ HPM1 ■ DH 33~41 HRC				45~50 HRC SKT ■ SKD61 ■ NAK80 ■ HPM1 ■ DH 42~50 HRC			
R	Lg (mm)	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)
0,05	0,3	50.000	50.000	0,0030	0,005	50.000	150	0,003	0,003	50.000	100	0,003	0,003	50.000	70	0,003	0,003
0,05	0,5	50.000	50.000	0,0030	0,005	50.000	120	0,003	0,003	50.000	80	0,003	0,003	50.000	50	0,003	0,003
0,10	0,3	50.000	50.000	0,0075	0,010	50.000	400	0,005	0,005	50.000	380	0,005	0,005	50.000	380	0,005	0,005
0,10	0,5	50.000	50.000	0,0075	0,010	50.000	400	0,005	0,005	50.000	380	0,005	0,005	50.000	380	0,005	0,005
0,10	0,75	50.000	50.000	0,0075	0,010	50.000	360	0,005	0,005	50.000	340	0,005	0,005	50.000	340	0,005	0,005
0,10	1,0	50.000	50.000	0,0075	0,010	50.000	360	0,005	0,005	50.000	340	0,005	0,005	50.000	340	0,005	0,005
0,10	1,25	50.000	50.000	0,0075	0,010	47.000	320	0,005	0,005	47.000	300	0,005	0,005	47.000	300	0,005	0,005
0,10	1,5	50.000	50.000	0,0075	0,010	45.000	300	0,005	0,005	45.000	280	0,005	0,005	45.000	280	0,005	0,005
0,10	1,75	50.000	50.000	0,0075	0,010	42.000	260	0,005	0,005	42.000	240	0,005	0,005	42.000	240	0,005	0,005
0,10	2,0	50.000	50.000	0,0075	0,010	38.000	230	0,005	0,005	38.000	210	0,005	0,005	37.000	200	0,005	0,005
0,15	0,5	50.000	50.000	0,0075	0,020	50.000	620	0,005	0,010	50.000	600	0,005	0,010	50.000	600	0,005	0,010
0,15	0,6	50.000	50.000	0,0075	0,020	50.000	600	0,005	0,010	50.000	570	0,005	0,010	50.000	570	0,005	0,010
0,15	0,75	50.000	50.000	0,0075	0,020	50.000	600	0,005	0,010	50.000	570	0,005	0,010	50.000	570	0,005	0,010
0,15	1,0	50.000	50.000	0,0075	0,020	50.000	600	0,005	0,010	50.000	570	0,005	0,010	50.000	570	0,005	0,010
0,15	1,25	50.000	50.000	0,0075	0,020	50.000	600	0,005	0,010	50.000	570	0,005	0,010	50.000	570	0,005	0,010
0,15	1,5	50.000	50.000	0,0075	0,020	50.000	600	0,005	0,010	50.000	570	0,005	0,010	50.000	570	0,005	0,010
0,15	1,75	50.000	50.000	0,0075	0,020	47.000	510	0,005	0,010	47.000	480	0,005	0,010	47.000	480	0,005	0,010
0,15	2,0	50.000	50.000	0,0075	0,010	45.000	480	0,005	0,005	45.000	450	0,005	0,005	45.000	450	0,005	0,005
0,15	2,25	50.000	50.000	0,0075	0,010	45.000	400	0,005	0,005	45.000	380	0,005	0,005	45.000	380	0,005	0,005
0,15	2,5	50.000	50.000	0,0075	0,010	40.000	300	0,005	0,005	40.000	280	0,005	0,005	40.000	280	0,005	0,005
0,15	2,75	50.000	50.000	0,0075	0,010	38.000	250	0,005	0,005	38.000	230	0,005	0,005	38.000	230	0,005	0,005
0,15	3,0	50.000	50.000	0,0075	0,010	38.000	250	0,005	0,005	38.000	230	0,005	0,005	37.000	230	0,005	0,005
0,20	0,5	50.000	50.000	0,0150	0,040	50.000	920	0,020	0,010	50.000	870	0,010	0,020	50.000	870	0,010	0,020
0,20	0,75	50.000	50.000	0,0150	0,040	50.000	900	0,020	0,010	50.000	850	0,010	0,020	50.000	850	0,010	0,020
0,20	1,0	50.000	50.000	0,0150	0,040	50.000	900	0,020	0,010	50.000	850	0,010	0,020	50.000	850	0,010	0,020
0,20	1,5	50.000	50.000	0,0150	0,040	50.000	800	0,020	0,010	50.000	760	0,010	0,020	50.000	760	0,010	0,020
0,20	2,0	50.000	50.000	0,0150	0,040	50.000	700	0,020	0,010	50.000	660	0,010	0,020	50.000	660	0,010	0,020
0,20	2,5	50.000	50.000	0,0120	0,030	45.000	550	0,015	0,008	45.000	520	0,010	0,015	45.000	520	0,008	0,015
0,20	3,0	48.000	48.000	0,0075	0,020	43.000	500	0,005	0,010	43.000	470	0,010	0,010	43.000	470	0,005	0,010
0,20	3,5	45.000	45.000	0,0075	0,020	40.000	420	0,005	0,010	40.000	400	0,010	0,010	40.000	400	0,005	0,010
0,20	4,0	40.000	40.000	0,0075	0,010	36.000	370	0,005	0,005	36.000	350	0,010	0,005	35.000	340	0,005	0,005
0,25	1,0	50.000	50.000	0,0225	0,045	50.000	1.100	0,015	0,030	50.000	1.050	0,010	0,030	50.000	1.050	0,015	0,030
0,25	1,5	50.000	50.000	0,0225	0,045	50.000	1.100	0,015	0,030	50.000	1.050	0,010	0,030	50.000	1.050	0,015	0,030
0,25	2,0	50.000	50.000	0,0225	0,045	50.000	1.000	0,015	0,030	50.000	950	0,010	0,030	50.000	950	0,015	0,030
0,25	2,5	50.000	50.000	0,0225	0,045	50.000	1.000	0,015	0,030	50.000	950	0,010	0,030	50.000	950	0,015	0,030
0,25	3,0	50.000	50.000	0,0150	0,040	48.000	900	0,010	0,020	48.000	850	0,010	0,020	48.000	850	0,010	0,020
0,25	3,5	50.000	50.000	0,0150	0,040	45.000	700	0,010	0,020	45.000	650	0,010	0,020	45.000	650	0,010	0,020
0,25	4,0	45.000	45.000	0,0150	0,020	43.000	600	0,010	0,010	43.000	570	0,010	0,010	43.000	570	0,010	0,010
0,25	4,5	38.000	38.000	0,0150	0,020	38.000	500	0,010	0,010	38.000	470	0,010	0,010	38.000	470	0,010	0,010
0,25	5,0	30.000	760	0,0075	0,020	30.000	400	0,005	0,010	30.000	380	0,005	0,010	29.000	360	0,005	0,010
0,30	1,0	50.000	1.660	0,0450	0,100	50.000	1.400	0,030	0,050	50.000	1.300	0,030	0,050	50.000	1.300	0,030	0,050
0,30	1,5	50.000	1.600	0,0450	0,100	50.000	1.300	0,030	0,050	50.000	1.200	0,030	0,050	50.000	1.200	0,030	0,050
0,30	2,0	50.000	1.600	0,0450	0,100	50.000	1.300	0,030	0,050	50.000	1.200	0,030	0,050	50.000	1.200	0,030	0,050
0,30	2,5	50.000	1.550	0,0450	0,100	50.000	1.200	0,030	0,050	50.000	1.100	0,030	0,050	50.000	1.100	0,030	0,050
0,30	3,0	50.000	1.550	0,0300	0,060	50.000	1.200	0,020	0,030	50.000	1.100	0,020	0,030	50.000	1.100	0,020	0,030
0,30	3,5	50.000	1.340	0,0300	0,060	45.000	1.000	0,020	0,030	45.000	950	0,020	0,030	45.000	950	0,020	0,030
0,30	4,0	50.000	1.200	0,0150	0,040	40.000	900	0,010	0,020	40.000	850	0,010	0,020	40.000	850	0,010	0,020
0,30	4,5	45.000	1.040	0,0150	0,040	34.000	780	0,010	0,020	34.000	740	0,010	0,020	34.000	740	0,010	0,020
0,30	5,0	30.000	960	0,0150	0,040	30.000	680	0,010	0,020	30.000	640	0,010	0,020	30.000	640	0,010	0,020
0,30	5,5	30.000	820	0,0150	0,040	28.000	650	0,010	0,020	28.000	610	0,010	0,020	28.000	610	0,010	0,020
0,30	6,0	30.000	720	0,0150	0,040	26.000	600	0,010	0,020	26.000	570	0,010	0,020	25.000	540	0,010	0,020
0,40	2,0	50.000	2.200	0,0600	0,160	50.000	2.000	0,040	0,080	50.000	1.900	0,040	0,080	50.000	1.900	0,040	0,080
0,40	3,0	50.000	1.740	0,0600	0,160	48.000	1.600	0,040	0,080	48.000	1.500	0,040	0,080	48.000	1.500	0,040	0,080
0,40	4,0	50.000	1.680	0,0600	0,160	40.000	1.200	0,040	0,080	40.000	1.100	0,040	0,080	40.000	1.100	0,040	0,080
0,40	5,0	43.000	1.600	0,0450	0,100	34.000	950	0,030	0,050	34.000	900	0,030	0,050	34.000	900	0,030	0,050
0,40	6,0	32.000	1.260	0,0450	0,100	30.000	800	0,030	0,050	30.000	760	0,030	0,050	30.000	760	0,030	0,050
0,40	7,0	30.000	1.000	0,0200	0,080	25.000	600	0,010	0,020	25.000	570	0,010	0,020	25.000	570	0,010	0,020
0,40	8,0	24.000	720	0,0100	0,040	23.000	450	0,005	0,010	23.000	420	0,005	0,010	23.000	420	0,005	0,010
0,50	2,5	50.000	3.270	0,0750	0,200	50.000	3.400	0,050	0,100	50.000	3.200	0,050	0,100	50.000	3.200	0,050	0,100
0,50	3,0	50.000	3.060	0,0750	0,200	45.000	3.200	0,050	0,100	45.000	3.000	0,050	0,100	45.000	3.000	0,050	0,100
0,50	4,0	50.000	3.000	0,0750	0,200	40.000	3.000	0,050	0,100	40.000	2.850	0,050	0,100	40.000	2.850	0,050	0,100
0,50	5,0	47.000	2.870	0,0750	0,200	36.000	2.300	0,050	0,100	36.000	2.100	0,050	0,100	36.000	2.100	0,050	0,100
0,50	6,0	43.000	2.600	0,0750	0,200	30.000	2.000	0,050	0,100	30.000	1.900	0,050	0,100	30.000	1.900	0,050	0,100
0,50	7,0	30.000	2.350	0,0750	0,150	27.000	1.700	0,050	0,100	27.000	1.600	0,050	0,100	27.000	1.600	0,050	0,100
0,50	8,0	27.000	2.000	0,0750	0,150	26.000	1.600	0,050	0,100	26.000	1.500	0,050	0,100	26.000	1.500	0,050	0,100
0,50	9,0	26.000	1.540	0,0450	0,075	24.000	1.200	0,030	0,050	24.000	1.100	0,030	0,050	24.000	1.100	0,030	0,050
0,50	10,0	24.000	1.400	0,0150	0,040	22.000	1.100	0,010	0,020	22.000	1.000	0,010	0,020	21.000	950	0,010	0,020
0,60	4,0	40.000	3.000	0,1200	0,210	40.000	3.000	0,060	0,120	40.000	2.850	0,060	0,120	40.000	2.850	0,060	0,120
0,60	6,0	35.000	2.600	0,0900	0,210	32.000	2.100	0,060	0,120	32.000	2.000	0,060	0,120	32.000	2.000	0,060	0,120
0,60	8,0	30.000	2.000	0,0900	0,210	25.000	1.700	0,060	0,120	25.000	1.600	0,060	0,120	25.000	1.600	0,060	0,120
0,60	10,0	21.000	1.400	0,0750	0,120	20.000	1.200	0,050	0,100	20.000	1.100	0,050	0,100	18.000	990	0,050	0,100
0,60	12,0	20.000	1.000	0,0450	0,100	19.000	900	0,030	0,050	19.000	850	0,030	0,050	16.000	800	0,030	0,050
0,70	8,0	30.000	2.100	0,1400	0,245	25.000	1.700	0,070	0,140	25.000	1.600	0,070	0,140	25.000	1.600	0,070	0,140
0,70	12,0	22.000	1.210	0,0600	0,140	19.000	1.000	0,030	0,070	19.000	950	0,030	0,070	19.000	950	0,030	0,070
0,75	3,0	50.000	5.330	0,1500	0,300	50.000	4.800	0,075	0,150	50.000	4.800	0,075	0,150	50.000	4.800	0,075	0,150
0,75	4,0	42.000	4.110	0,1500	0,300	40.000	3.900	0,075	0,150	40.000	3.700	0,075	0,150	40.000	3.700	0,075	0,150
0,75	6,0	32.000	3.000	0,1500	0,300	30.000	2.900	0,075	0,150	30.000	2.700	0,075	0,150	30.000	2.700	0,075	0,150
0,75	8,0	30.000	2.650	0,1500	0,300	24.000	2.300	0,075	0,150	24.000	2.100	0,075	0,150	24.000	2.100	0,075	0,150
0,75	10,0	30.000	2.400	0,1500	0,300	24.000	2.000	0,075	0,150	24.000	1.900	0,075	0,150	24.000	1.900	0,075	0,150
0,75	12,0	24.000	1.400	0,1500	0,200	21.000	1.400	0,075	0,100	21.000	1.300	0,075	0,100	21.000	1.300	0,075	0,100
0,75	14,0	22.000	1.400	0,1000	0,200	18.000	1.200	0,050	0,100	18.000	1.100	0,050	0,100	17.000	1.100	0,050	0,100
0,80	4,0	40.000	4.500	0,1600	0,320	38.000	4.000	0,080	0,160	38.000	3.800	0,080	0,160	38.000	3.600	0,080	0,160
0,80	8,0	26.000	3.000	0,1600	0,320	24.000	3.000	0,080	0,160	24.000	2.800	0,080	0,160	23.000	2.600	0,080	0,160
0,80	12,0	24.000	2.400	0,1200	0,200	21.000	1.800	0,050	0,100	21.000	1.700	0,050	0,100	20.000	1.600	0,050	0,100
0,80	16,0	18.000	1.600	0,1000	0,200	16.000	800	0,050	0,100	16.000	760	0,050	0,100	15.000	700	0,050	0,100
0,90	8,0	25.000	3.200	0,1800	0,540	24.000	3.000	0,090	0,270	24.000	2.800	0,090	0,270	23.000	2.600	0,090	0,270
0,90	12,0	22.000	2.500	0,1800	0,360	18.000	1.800	0,090	0,180	15.800	1.500	0,090	0,180	14.700	1.350	0,090	0,180

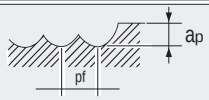
WXL-LN-EBD

High speed light milling - HSC Standardfräsen - Fresatura alta velocità standard - Fraisage UGV
High speed bearbejdning (HSM) - High speed milling (HSM) - Fresado ligero a alta velocidad - Высокоскоростное «легкое» фрезерование



		Cu				~35 HRC FC250 ■ SS400 ■ S55C ■ NAK55 ~35 HRC				35~45 HRC SKT ■ SKD61 ■ NAK80 ■ HPM1 ■ DH 33~41 HRC				45~50 HRC SKT ■ SKD61 ■ NAK80 ■ HPM1 ■ DH 42~50 HRC			
R	Lg (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)
0,90	16	16.000	1.200	0,100	0,24	16.000	980	0,050	0,12	14.000	850	0,050	0,12	13.000	780	0,050	0,12
1,00	3	50.000	5.800	0,200	0,40	50.000	5.600	0,100	0,20	50.000	5.600	0,100	0,20	47.000	5.300	0,100	0,20
1,00	4	50.000	5.800	0,200	0,40	50.000	5.600	0,100	0,20	50.000	5.600	0,100	0,20	47.000	5.300	0,100	0,20
1,00	6	38.000	4.000	0,200	0,40	36.000	3.000	0,100	0,20	36.000	2.800	0,100	0,20	34.000	2.600	0,100	0,20
1,00	8	27.000	3.360	0,200	0,40	25.000	2.600	0,100	0,20	25.000	2.400	0,100	0,20	23.000	2.200	0,100	0,20
1,00	10	22.000	3.050	0,200	0,40	20.000	2.400	0,100	0,20	20.000	2.200	0,100	0,20	19.000	2.000	0,100	0,20
1,00	12	16.000	2.580	0,200	0,40	16.000	2.000	0,100	0,20	16.000	1.900	0,100	0,20	15.000	1.700	0,100	0,20
1,00	14	15.000	2.400	0,200	0,30	15.000	1.800	0,100	0,20	15.000	1.700	0,100	0,20	14.000	1.500	0,100	0,20
1,00	16	14.000	2.200	0,200	0,20	14.000	1.700	0,100	0,10	14.000	1.600	0,100	0,10	13.000	1.400	0,100	0,10
1,00	18	13.000	2.000	0,200	0,20	13.000	1.600	0,100	0,10	13.000	1.500	0,100	0,10	12.000	1.300	0,100	0,10
1,00	20	12.000	1.200	0,100	0,20	12.000	1.200	0,050	0,10	11.000	1.100	0,050	0,10	10.000	1.000	0,050	0,10
1,25	6	32.000	5.550	0,250	0,40	28.000	4.600	0,100	0,20	28.000	4.300	0,100	0,20	25.000	3.700	0,100	0,20
1,25	10	21.000	4.000	0,250	0,40	20.000	3.300	0,100	0,20	20.000	3.100	0,100	0,20	18.000	2.700	0,100	0,20
1,25	15	17.000	3.000	0,250	0,40	17.000	2.800	0,100	0,20	17.000	2.600	0,100	0,20	16.000	2.400	0,100	0,20
1,25	20	15.000	1.800	0,250	0,40	15.000	1.800	0,100	0,20	15.000	1.700	0,100	0,20	14.000	1.500	0,100	0,20
1,25	25	12.000	1.010	0,060	0,10	12.000	1.000	0,030	0,05	12.000	950	0,030	0,05	10.000	860	0,030	0,05
1,25	30	10.000	800	0,060	0,10	-	-	-	-	-	-	-	-	-	-	-	-
1,50	6	42.000	6.800	0,300	0,60	41.500	6.200	0,150	0,30	41.500	6.200	0,150	0,30	32.000	4.800	0,150	0,30
1,50	8	32.000	4.600	0,300	0,60	30.000	4.500	0,150	0,30	30.000	4.200	0,150	0,30	25.000	3.500	0,150	0,30
1,50	10	28.000	4.000	0,300	0,60	25.000	3.800	0,150	0,30	25.000	3.600	0,150	0,30	20.000	2.800	0,150	0,30
1,50	12	24.000	3.100	0,300	0,60	20.000	3.000	0,150	0,30	20.000	2.800	0,150	0,30	18.000	2.500	0,150	0,30
1,50	14	22.000	2.900	0,300	0,60	18.000	2.700	0,150	0,30	18.000	2.500	0,150	0,30	15.000	2.000	0,150	0,30
1,50	15	20.000	2.800	0,250	0,60	16.000	2.400	0,100	0,30	16.000	2.200	0,100	0,30	13.000	1.700	0,100	0,30
1,50	16	20.000	2.600	0,250	0,40	16.000	2.000	0,100	0,20	16.000	1.900	0,100	0,20	13.000	1.500	0,100	0,20
1,50	20	16.000	2.200	0,250	0,40	14.000	1.800	0,100	0,20	14.000	1.700	0,100	0,20	11.000	1.300	0,100	0,20
1,50	25	16.000	1.800	0,125	0,20	12.000	1.200	0,050	0,10	12.000	1.100	0,050	0,10	9.000	820	0,050	0,10
1,50	30	12.000	1.000	0,075	0,10	10.000	800	0,030	0,05	10.000	760	0,030	0,05	7.800	590	0,030	0,05
1,75	10	26.000	5.400	0,375	0,60	25.000	3.750	0,150	0,30	25.000	3.500	0,150	0,30	19.500	2.660	0,150	0,30
1,75	15	20.000	4.000	0,300	0,60	18.000	3.000	0,100	0,30	18.000	2.800	0,100	0,30	14.000	2.180	0,100	0,30
1,75	20	18.000	3.000	0,300	0,40	16.000	2.700	0,100	0,20	16.000	2.500	0,100	0,20	12.000	1.850	0,100	0,20
1,75	25	14.000	2.800	0,200	0,20	12.000	2.000	0,100	0,10	12.000	1.900	0,100	0,10	9.000	1.400	0,100	0,10
1,75	30	10.000	2.200	0,125	0,20	10.000	1.600	0,050	0,10	10.000	1.500	0,050	0,10	8.000	1.200	0,050	0,10
1,75	35	10.000	1.200	0,100	0,10	10.000	1.000	0,050	0,05	10.000	950	0,050	0,50	7.000	670	0,050	0,50
2,00	8	31.000	5.700	0,400	1,00	31.000	5.700	0,200	0,50	31.000	5.700	0,200	0,50	24.000	4.400	0,200	0,50
2,00	10	25.000	4.500	0,400	1,00	25.000	4.500	0,200	0,50	25.000	4.200	0,200	0,50	20.000	3.300	0,200	0,50
2,00	12	20.000	4.000	0,400	1,00	20.000	3.600	0,200	0,50	20.000	3.400	0,200	0,50	16.000	2.700	0,200	0,50
2,00	14	20.000	4.000	0,400	1,00	20.000	3.600	0,200	0,50	20.000	3.400	0,200	0,50	16.000	2.700	0,200	0,50
2,00	15	20.000	4.000	0,400	1,00	20.000	3.600	0,200	0,50	20.000	3.400	0,200	0,50	16.000	2.700	0,200	0,50
2,00	16	20.000	3.460	0,400	0,60	18.000	3.200	0,200	0,50	18.000	3.000	0,200	0,50	14.000	2.300	0,200	0,50
2,00	20	18.000	3.000	0,400	0,50	16.000	2.800	0,200	0,40	16.000	2.600	0,200	0,40	12.000	1.900	0,200	0,40
2,00	25	18.000	3.000	0,250	0,60	16.000	2.800	0,100	0,30	16.000	2.600	0,100	0,30	12.000	1.900	0,100	0,30
2,00	30	16.000	2.850	0,250	0,40	14.000	2.400	0,100	0,20	14.000	2.200	0,100	0,20	11.000	1.700	0,100	0,20
2,00	35	14.000	2.200	0,250	0,40	12.000	1.800	0,100	0,20	12.000	1.700	0,100	0,20	9.000	1.700	0,100	0,20
2,00	40	12.000	1.600	0,125	0,20	10.000	1.300	0,050	0,10	10.000	1.200	0,050	0,10	7.000	840	0,050	0,10
2,50	10	25.000	5.600	0,500	1,25	25.000	5.400	0,250	0,50	25.000	5.400	0,250	0,50	19.000	4.000	0,250	0,50
2,50	15	20.000	4.400	0,500	1,25	20.000	4.200	0,250	0,50	20.000	3.900	0,250	0,50	16.000	3.100	0,250	0,50
2,50	20	18.000	3.800	0,500	1,25	16.000	3.500	0,250	0,50	16.000	3.300	0,250	0,50	12.000	2.400	0,250	0,50
2,50	25	20.000	3.400	0,400	0,75	15.000	3.200	0,200	0,30	15.000	3.000	0,200	0,30	12.000	2.400	0,200	0,30
2,50	30	16.000	2.900	0,250	0,75	14.000	2.500	0,100	0,30	14.000	2.300	0,100	0,30	11.000	1.800	0,100	0,30
2,50	35	14.000	2.200	0,250	0,75	12.000	1.600	0,100	0,30	12.000	1.500	0,100	0,30	9.000	1.100	0,100	0,30
2,50	40	12.000	1.800	0,250	0,50	10.000	1.200	0,100	0,20	10.000	1.100	0,100	0,20	8.000	880	0,100	0,20
2,50	45	9.000	1.200	0,200	0,25	9.000	900	0,100	0,10	9.000	850	0,100	0,10	7.000	660	0,100	0,10
2,50	50	8.000	1.100	0,200	0,25	8.000	800	0,100	0,10	8.000	760	0,100	0,10	6.000	570	0,100	0,10
3,00	10	22.000	5.900	0,750	1,25	20.000	5.400	0,300	0,50	20.000	5.000	0,300	0,50	15.000	3.750	0,300	0,50
3,00	20	18.000	4.400	0,750	1,25	16.000	4.200	0,300	0,50	16.000	3.900	0,300	0,50	12.000	2.900	0,300	0,50
3,00	25	14.000	4.000	0,600	1,25	12.000	3.200	0,300	0,50	12.000	3.000	0,300	0,50	9.000	2.250	0,300	0,50
3,00	30	10.000	3.200	0,600	1,25	10.000	2.600	0,300	0,50	10.000	2.400	0,300	0,50	8.000	1.900	0,300	0,50
3,00	35	9.000	3.000	0,400	1,00	9.000	2.300	0,200	0,40	9.000	2.100	0,200	0,40	7.000	1.600	0,200	0,40
3,00	40	9.000	2.800	0,400	0,75	9.000	2.000	0,200	0,30	9.000	1.900	0,200	0,30	7.000	1.400	0,200	0,30
3,00	45	8.000	2.500	0,400	0,75	8.000	1.800	0,200	0,30	8.000	1.700	0,200	0,30	6.500	1.300	0,200	0,30
3,00	50	7.000	2.300	0,400	0,75	7.000	1.600	0,200	0,30	7.000	1.500	0,200	0,30	5.500	1.100	0,200	0,30

Max cutting depth



1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication / mist coolant) is recommended.
3. Please adjust conditions based on machining accuracy, machining shape and machining path.
4. When using a tool with a diameter of dia. 0.5 (R0.25) or less, or an L/D (effective length/ tool diameter) ratio grater than 10, high loads can cause tool breakage. Therefore, adjust the cutting conditions based on the machining situation.
5. When the available RPM is insufficient, reduce the RPM and feed rates in proportion

1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. Suggeriamo l'utilizzo di aria compressa o lubrifacazione minimale (misto olio).
3. Regolare la velocità, l'avanzamento e la profondità di taglio secondo le attuali condizioni di taglio.
4. Queste condizioni di fresatura di freze Ø > 0.5 (R0.25), L/D ratio. (lunga/dia) < 10. Per sporgenze ridurre velocità, l'avanzamento e la profondità di taglio.
5. Regulare la velocità, l'avanzamento e la profondità di taglio.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Wir empfehlen Luft-oder Minimalmengenschmierung für die Bearbeitung von Kohlenstoffstahl und Gehärteter Stahl.
3. Bitte regulieren Sie Schnittgeschwindigkeit, Vorschub und Spanntiefe entsprechend Ihrer aktuellen Zerspannungbedingungen.
4. Schnittwerde sind für Werkzeugen mit Ø > 0.5 (R0.25), und L/D ratio. (Länghe/dia) < 10. Bei andere Auskraglängen müssen Schnittgeschwindigkeit, Vorschub und Spanntiefe verändert werden.
5. Bitte regulieren Sie Schnittgeschwindigkeit und Vorschub.

1. Utiliser une machine et un porte-outil de grande rigidité et de haute précision.
2. Utiliser de l'arrosage en brouillard (mist).
3. Ajuster la vitesse, avances et la profondeur de coupe en fonction de la précision de la machine ainsi que le chemin de fraisage.
4. Les conditions de coupes ci-desus sont pour l'utilisation d'outil avec un Ø > 0.5 (R0.25), et un ratio L/D (longueur/dia) < 10. Ajuster ces conditions de coupes si nécessaire.
5. Ajuster la vitesse, avances et la profondeur de coupe.

1.Anvend stabil maskine og værktøjsholder
2.Minimalsmøring tilrådes ved bearbejdning af legeret stål eller hærdet stål
3.Venligst justér skæredata efter maskinens nøjagtighed og bearbejdningens udformning
4.Ved brug af fræser under Ø 0,5mm eller mindre, eller en L/D ratio størrer end 10, kan høj belastning kan resultere i brud. Tilpas derfor skæredata til aktuel situation
5.Hvis maskinen ikke har de tilstrækkelige omdrejninger, reducér omdrejninger og tilspænding proportionalt

1.Use maquina y portaherramientas rigidos y precisos
2.En mecanizado de aceros al carbono o de acero endurecido, recomendable MQL (cantidad mínima lubrificación / niebla refrigerante).
3.Por favor, ajustar las condiciones de mecanizado a la precisión, forma de mecanizado y recorrido del mecanizado
4.Con herramienta de Ø 0,5 (R 0,5) o menor, o un LD (vuelo efectivo / diámetro superior a 10, cargas elevadas pueden causar rotura de la herramienta.
5.Cuando las RPM disponibles son insuficientes, por favor, reducir la RPM y la velocidad de avance en proporción.

1.Använd en stabil maskin och verktygshållare
2.Minimalsmörjning rekommenderas vid bearbetning i legerat och härdat stål
3.Justera skärdatan efter detaljens utformning och maskinens stabilitet.
4.Vid användning av fräsar under Ø 0,5mm eller mindre, eller L/D (skärlängd/verktygs Ø) större än 10, kan hög belastning resultera i verktygsbrott. Anpassa därför skärdata till aktuell situation.
5. Om maskinen inte har tillräckligt med varvtal, reducera varvtal och matningar proportionellt

1.Используйте жесткие и точные станки и фрезерные патроны
2.При обработке углеродистой или закаленной сталей, рекомендуется использовать MQL (смазка минимальным количеством, масляный туман)
3.Пожалуйста установите режимы резания в соответствии с точностью станка, обрабатываемой детали и траектории обработки
4.При использовании инструмента Ø 0,5 или меньше, или соотношение L/D (эффективная длина / диаметр инструмента) большее, чем 10, высокие нагрузки могут вызвать поломку инструмента
5.Если максимальная скорость вращения шпинделя недостаточна, пожалуйста уменьшите обороты шпинделя и подачу пропорционально

WXL-PC-EBD

Regular milling - Normale Bearbeitung - Parametri di taglio - Fraisage regular
Almindelig fræsning - Konventionell fräsning - Fresado regular - Нормальное фрезерование



				Copper Alloy				Mild Steel - Carbon Steel FC250 ■ SS400 ■ S55C ■ NAK55 ~32 HRC				Hardened Steels - Prehardened Steels SKT ■ SKD61 ■ NAK80 ■ NAK55 ■ HPM1 ■ DH							
												33 ~ 41 HRC				42 ~ 50 HRC			
R	∂n	l2	Cutting Angle	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)
0,1	0,5°	1	0,3°	32.000	200	0,02	0,02	32.000	150	0,01	0,01	32.000	150	0,01	0,01	32.000	100	0,005	0,005
0,1	0,5°	1,5	0,3°	32.000	200	0,02	0,02	32.000	150	0,01	0,01	32.000	150	0,01	0,01	32.000	100	0,005	0,005
0,1	0,5°	2	0,3°	32.000	150	0,02	0,02	32.000	100	0,01	0,01	32.000	100	0,01	0,01	32.000	80	0,005	0,005
0,1	0,5°	2,5	0,3°	32.000	150	0,01	0,01	32.000	100	0,005	0,005	32.000	100	0,005	0,005	32.000	80	0,005	0,005
0,1	0,5°	3	0,3°	32.000	100	0,01	0,01	32.000	80	0,005	0,005	32.000	80	0,005	0,005	32.000	60	0,003	0,005
0,1	1°	2	0,3°	32.000	150	0,02	0,02	32.000	100	0,01	0,01	32.000	100	0,01	0,01	32.000	80	0,005	0,005
0,1	1°	2,5	0,3°	32.000	150	0,02	0,02	32.000	100	0,01	0,01	32.000	100	0,01	0,01	32.000	80	0,005	0,005
0,1	1°	3	0,3°	32.000	150	0,01	0,01	32.000	100	0,005	0,005	32.000	100	0,005	0,005	32.000	80	0,005	0,005
0,15	0,5°	2	0,3°	32.000	600	0,02	0,03	32.000	300	0,01	0,015	32.000	200	0,01	0,015	32.000	200	0,005	0,005
0,15	0,5°	3	0,3°	32.000	450	0,02	0,02	32.000	300	0,01	0,01	32.000	200	0,01	0,01	32.000	200	0,01	0,01
0,15	1°	3	0,3°	32.000	450	0,02	0,02	32.000	300	0,01	0,015	32.000	200	0,01	0,015	32.000	200	0,005	0,005
0,15	1°	4	0,3°	32.000	450	0,02	0,02	32.000	300	0,01	0,01	32.000	200	0,01	0,01	32.000	200	0,01	0,01
0,2	0,5°	2	0,3°	27.000	450	0,03	0,05	32.000	400	0,015	0,025	32.000	300	0,015	0,02	32.000	300	0,01	0,01
0,2	0,5°	3	0,3°	27.000	450	0,025	0,05	27.000	300	0,015	0,025	27.000	200	0,015	0,02	27.000	200	0,01	0,01
0,2	0,5°	4	0,3°	27.000	450	0,02	0,05	27.000	300	0,015	0,025	27.000	200	0,015	0,02	27.000	200	0,01	0,01
0,2	0,5°	5	0,3°	27.000	400	0,015	0,05	27.000	300	0,005	0,015	27.000	200	0,005	0,012	27.000	200	0,005	0,01
0,2	0,5°	6	0,3°	27.000	300	0,01	0,03	27.000	300	0,005	0,015	27.000	200	0,005	0,012	27.000	200	0,005	0,01
0,2	1°	4	0,3°	27.000	450	0,025	0,05	27.000	300	0,015	0,025	27.000	200	0,015	0,02	27.000	200	0,01	0,01
0,2	1°	5	0,3°	27.000	450	0,02	0,05	27.000	300	0,015	0,025	27.000	200	0,015	0,02	27.000	200	0,01	0,01
0,2	1°	6	0,3°	27.000	400	0,015	0,05	27.000	300	0,005	0,015	27.000	200	0,005	0,012	27.000	200	0,005	0,01
0,25	0,5°	4	0,3°	32.000	600	0,04	0,05	32.000	400	0,02	0,025	32.000	300	0,02	0,02	32.000	300	0,01	0,015
0,25	0,5°	6	0,3°	27.000	450	0,04	0,05	20.000	200	0,02	0,025	20.000	150	0,02	0,02	20.000	150	0,01	0,01
0,25	0,5°	8	0,3°	21.000	300	0,02	0,03	20.000	200	0,01	0,015	20.000	150	0,01	0,01	20.000	150	0,01	0,01
0,25	0,5°	10	0,3°	21.000	300	0,02	0,03	20.000	200	0,01	0,015	20.000	150	0,01	0,01	20.000	150	0,005	0,01
0,25	1°	4	0,3°	32.000	600	0,04	0,05	32.000	400	0,02	0,025	32.000	300	0,02	0,02	32.000	300	0,01	0,01
0,25	1°	6	0,3°	27.000	450	0,04	0,05	32.000	400	0,02	0,025	32.000	300	0,02	0,02	32.000	300	0,01	0,01
0,25	1°	8	0,3°	27.000	450	0,04	0,05	20.000	200	0,02	0,025	20.000	150	0,02	0,02	20.000	150	0,01	0,01
0,25	1°	10	0,3°	21.000	300	0,02	0,03	20.000	200	0,02	0,025	20.000	150	0,02	0,02	20.000	150	0,01	0,01
0,25	1°	12	0,3°	21.000	300	0,02	0,03	20.000	200	0,01	0,015	20.000	150	0,01	0,01	20.000	150	0,01	0,01
0,3	0,5°	2	0,3°	32.000	675	0,045	0,12	32.000	450	0,03	0,06	32.000	300	0,03	0,05	32.000	300	0,03	0,03
0,3	0,5°	4	0,3°	30.000	375	0,045	0,12	25.000	250	0,03	0,06	24.000	200	0,03	0,05	24.000	200	0,03	0,03
0,3	0,5°	6	0,3°	30.000	375	0,045	0,12	25.000	250	0,03	0,06	24.000	200	0,03	0,04	24.000	200	0,02	0,02
0,3	0,5°	8	0,3°	25.000	225	0,045	0,12	20.000	150	0,03	0,06	20.000	150	0,03	0,04	20.000	150	0,02	0,02
0,3	0,5°	10	0,3°	25.000	225	0,045	0,12	20.000	150	0,03	0,06	20.000	150	0,03	0,04	20.000	150	0,02	0,02
0,3	0,5°	12	0,3°	25.000	225	0,045	0,12	20.000	150	0,03	0,06	20.000	150	0,02	0,04	20.000	150	0,01	0,01
0,3	0,5°	16	0,3°	20.000	150	0,025	0,05	20.000	150	0,03	0,06	20.000	150	0,01	0,04	20.000	150	0,01	0,01
0,3	1°	4	0,3°	30.000	375	0,045	0,12	25.000	250	0,03	0,06	24.000	200	0,03	0,05	24.000	200	0,03	0,03
0,3	1°	6	0,3°	30.000	375	0,045	0,12	25.000	250	0,03	0,06	24.000	200	0,03	0,04	24.000	200	0,02	0,02
0,3	1°	8	0,3°	30.000	375	0,045	0,12	25.000	250	0,03	0,06	24.000	200	0,03	0,04	24.000	200	0,02	0,02
0,3	1°	10	0,3°	25.000	225	0,045	0,12	20.000	150	0,03	0,06	20.000	150	0,03	0,04	20.000	150	0,02	0,02
0,3	1°	12	0,3°	25.000	225	0,045	0,12	20.000	150	0,03	0,06	20.000	150	0,03	0,04	20.000	150	0,02	0,02
0,3	1°	16	0,3°	25.000	225	0,045	0,12	20.000	150	0,03	0,06	20.000	150	0,03	0,04	20.000	150	0,02	0,02
0,4	0,5°	4	0,3°	27.000	675	0,06	0,16	23.000	450	0,04	0,08	21.000	300	0,04	0,06	21.000	300	0,04	0,08
0,4	0,5°	6	0,3°	24.000	375	0,06	0,12	21.000	250	0,04	0,06	19.000	200	0,04	0,05	19.000	200	0,03	0,05
0,4	0,5°	8	0,3°	24.000	375	0,06	0,12	21.000	250	0,04	0,06	19.000	200	0,04	0,05	19.000	200	0,03	0,05
0,4	0,5°	12	0,3°	22.000	225	0,06	0,12	19.000	150	0,04	0,06	17.000	150	0,04	0,05	17.000	150	0,02	0,05
0,4	1°	8	0,3°	24.000	375	0,06	0,12	21.000	250	0,04	0,06	19.000	200	0,04	0,05	19.000	200	0,03	0,05
0,4	1°	12	0,3°	24.000	375	0,06	0,12	21.000	250	0,04	0,06	19.000	200	0,04	0,05	19.000	200	0,02	0,05
0,4	1°	16	0,3°	22.000	225	0,06	0,12	19.000	150	0,04	0,06	17.000	150	0,04	0,05	17.000	150	0,02	0,02
0,5	0,5°	6	0,3°	28.000	750	0,075	0,2	25.000	500	0,05	0,1	21.000	300	0,05	0,08	21.000	300	0,05	0,05
0,5	0,5°	8	0,3°	28.000	750	0,075	0,2	25.000	500	0,05	0,1	21.000	300	0,05	0,08	21.000	300	0,05	0,05
0,5	0,5°	10	0,3°	21.000	450	0,075	0,15	19.000	300	0,05	0,1	16.000	200	0,05	0,08	16.000	200	0,05	0,05
0,5	0,5°	12	0,3°	21.000	450	0,075	0,15	19.000	300	0,05	0,1	16.000	200	0,05	0,08	16.000	200	0,05	0,05
0,5	0,5°	16	0,3°	18.000	300	0,06	0,12	17.000	200	0,03	0,05	14.000	150	0,03	0,04	14.000	150	0,01	0,025
0,5	0,5°	18	0,3°	18.000	300	0,06	0,12	17.000	200	0,03	0,05	14.000	150	0,03	0,04	14.000	150	0,01	0,025
0,5	0,5°	20	0,3°	18.000	300	0,06	0,12	17.000	200	0,03	0,05	14.000	150	0,03	0,04	14.000	150	0,01	0,025
0,5	0,5°	25	0,3°	16.000	300	0,06	0,12	13.000	200	0,03	0,05	10.000	150	0,03	0,04	10.000	150	0,01	0,015
0,5	0,5°	30	0,3°	16.000	300	0,06	0,12	13.000	200	0,03	0,05	10.000	150	0,03	0,04	10.000	150	0,01	0,015
0,5	0,5°	35	0,3°	13.000	300	0,04	0,12	13.000	200	0,01	0,05	10.000	150	0,01	0,04	10.000	150	0,005	0,015
0,5	1°	10	0,3°	28.000	750	0,075	0,2	25.000	500	0,05	0,1	21.000	300	0,05	0,08	21.000	300	0,05	0,05
0,5	1°	16	0,3°	21.000	450	0,075	0,15	19.000	300	0,05	0,1	16.000	200	0,05	0,08	16.000	200	0,05	0,05
0,5	1°	20	0,3°	21.000	450	0,075	0,15	17.000	200	0,03	0,05	14.000	150	0,03	0,04	14.000	150	0,01	0,02
0,5	1°	25	0,3°	18.000	300	0,06	0,12	17.000	200	0,03	0,05	14.000	150	0,03	0,04	14.000	150	0,01	0,02
0,5	1°	30	0,3°	18.000	300	0,06	0,12	17.000	200	0,03	0,05	14.000	150	0,03	0,04	14.000	150	0,01	0,015
0,5	1°	35	0,3°	18.000	300	0,06	0,12	17.000	200	0,03	0,05	14.000	150	0,03	0,04	14.000	150	0,01	0,015
0,5	1°	40	0,3°	18.000	300	0,06	0,12	17.000	200	0,03	0,05	14.000	150	0,03	0,04	14.000	150	0,01	0,015
0,5	1°	50	0,3°	16.000	300	0,06	0,12	13.000	200	0,03	0,05	10.000	150	0,03	0,04	10.000	150	0,01	0,015
0,5	1°	60	0,3°	16.000	300	0,06	0,12	13.000	200	0,03	0,05	10.000	150	0,03	0,04	10.000	150	0,01	0,015
0,5	1°	70	0,3°	12.000	300	0,06	0,12	13.000	200	0,02	0,05	10.000	150	0,02	0,04	10.000	150	0,01	0,015
0,5	1,5°	8	0,3°	28.000	750	0,075	0,2	25.000	500	0,05	0,1	21.000	300	0,05	0,08	21.000	300	0,05	0,05
0,5	1,5°	10	0,3°	28.000	750	0,075	0,2	25.000	500	0,05	0,1	21.000	300	0,05	0,08	21.000	300	0,05	0,05
0,5	1,5°	12	0,3°	28.000	750	0,075	0,2	25.000	500	0,05	0,1	21.000	300	0,05	0,08	21.000	300	0,05	0,05
0,5	1,5°	16	0,3°	21.000	450	0,075	0,15	19.000	300	0,05	0,1	16.000	200	0,05	0,08	16.000	200	0,05	0,05
0,5	1,5°	20	0,3°	21.000	450	0,075	0,15	19.000	300	0,05	0,1	16.000	200	0,05	0,08	16.000	200	0,05	0,05
0,5	1,5°	25	0,3°	21.000	450	0,075	0,15	19.000	300	0,05	0,1	16.000	200	0,05	0,08	16.000	200	0,05	0,05
0,5	1,5°	30	0,3°	21.000	450	0,075	0,15	19.000	300	0,05	0,1	16.000	200	0,05	0,08	16.000	200	0,05	0,05
0,5	1,5°	35	0,3°	21.000	450	0,075	0,15	17.000	200	0,03	0,05	14.000	150	0,03	0,04	14.000	150	0,01	0,02
0,5	2°	45	0,3°	21.000	450	0,075	0,15	19.000	300	0,05	0,1	16.000	200	0,05	0,08	16.000	200	0,05	0,05
0,6	0,5°	12	0,3°	20.000	450	0,09	0,24	17.000	300	0,06	0,12	14.000	200	0,06	0,1	14.000	200	0,06	0,06
0,6	0,5°	25	0,3°	16.000	300	0,09	0,18	14.000	200	0,06	0,09	11.000	150	0,06	0,07	11.000	150	0,02	0,03
0,6	1°	12	0,3°	20.000	450	0,09	0,24	17.000	300	0,06	0,12	14.000	200	0,06	0,1	14.000	200	0,06	0,06
0,6	1°	25	0,3°	16.000	300	0,09	0,24	14.000	200	0,06	0,09	11.000	150	0,06	0,07	11.000	150	0,02	0,03
0,6	1,5°	12	0,3°	20.000	600	0,09	0,24	17.000	450	0,06	0,12	14.000	300	0,06	0,1	14.000	300	0,06	0,06
0,6	1,5°	25	0,3°	20.000	450	0,09	0,24	17.000	300	0,06	0,12	14.000	200	0,06	0,1	14.000	200	0,06	0,06
0,75	0,5°	8	0,3°	18.000	750	0,14	0,3	15.000	500	0,08	0,15	12.000	350	0,08	0,15	12.000	300	0,08	0,15
0,75	0,5°	10	0,3°	17.000	450	0,14	0,3	15.000	300	0,08	0,15	12.000	250	0,08	0,15	12.000	250	0,08	0,15
0,75	0,5°	12	0,3°	17.000	450	0,12	0,3	15.000	300	0,08	0,15	12.000	250	0,08	0,15	12.000	250	0,08	0,15

WXL-PC-EBD

Regular milling - Normale Bearbeitung - Parametri di taglio - Fraisage regular
Almindelig fræsning - Konventionell fräsning - Fresado regular - Нормальное фрезерование



				Copper Alloy				Mild Steel - Carbon Steel FC250 ■ SS400 ■ S55C ■ NAK55 ~32 HRC				Hardened Steels - Prehardened Steels SKT ■ SKD61 ■ NAK80 ■ NAK55 ■ HPM1 ■ DH 33 ~ 41 HRC				42 ~ 50 HRC			
R	∂n	l2	Cutting Angle	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)
0,75	0,5°	16	0,3°	17.000	450	0,12	0,24	15.000	300	0,08	0,12	12.000	250	0,08	0,1	12.000	250	0,075	0,1
0,75	0,5°	20	0,3°	13.000	300	0,12	0,2	12.000	200	0,06	0,1	9.500	150	0,06	0,1	9.500	150	0,05	0,1
0,75	0,5°	25	0,3°	13.000	300	0,12	0,2	12.000	200	0,06	0,1	9.500	150	0,06	0,1	9.500	150	0,05	0,1
0,75	0,5°	30	0,3°	13.000	300	0,12	0,2	12.000	200	0,06	0,1	9.500	150	0,06	0,1	9.500	150	0,035	0,1
0,75	0,5°	35	0,3°	13.000	300	0,09	0,2	12.000	200	0,06	0,1	9.500	150	0,06	0,1	9.500	150	0,03	0,1
0,75	1°	10	0,3°	18.000	750	0,14	0,3	15.000	500	0,08	0,15	12.000	350	0,08	0,15	12.000	300	0,08	0,15
0,75	1°	12	0,3°	17.000	450	0,14	0,3	15.000	300	0,08	0,15	12.000	250	0,08	0,15	12.000	250	0,08	0,15
0,75	1°	16	0,3°	17.000	450	0,12	0,3	15.000	300	0,08	0,15	12.000	250	0,08	0,15	12.000	250	0,08	0,15
0,75	1°	20	0,3°	17.000	450	0,12	0,24	15.000	300	0,08	0,12	12.000	250	0,08	0,1	12.000	250	0,075	0,1
0,75	1°	25	0,3°	17.000	450	0,12	0,24	15.000	300	0,08	0,12	12.000	250	0,08	0,1	12.000	250	0,05	0,1
0,75	1°	30	0,3°	13.000	300	0,09	0,2	12.000	200	0,06	0,1	9.500	150	0,06	0,1	9.500	150	0,03	0,1
0,75	1°	35	0,3°	13.000	300	0,09	0,2	12.000	200	0,06	0,1	9.500	150	0,06	0,1	9.500	150	0,02	0,1
0,75	1,5°	10	0,3°	18.000	750	0,12	0,3	15.000	500	0,08	0,15	12.000	350	0,08	0,15	12.000	300	0,08	0,15
0,75	1,5°	12	0,3°	17.000	450	0,12	0,3	15.000	300	0,08	0,15	12.000	250	0,08	0,15	12.000	250	0,08	0,15
0,75	1,5°	16	0,3°	17.000	450	0,12	0,3	15.000	300	0,08	0,15	12.000	250	0,08	0,15	12.000	250	0,08	0,15
0,75	1,5°	20	0,3°	17.000	450	0,12	0,3	15.000	300	0,08	0,15	12.000	250	0,08	0,15	12.000	250	0,08	0,15
0,75	1,5°	25	0,3°	17.000	450	0,12	0,24	15.000	300	0,08	0,12	12.000	250	0,08	0,1	12.000	250	0,075	0,1
0,75	1,5°	30	0,3°	17.000	450	0,12	0,24	15.000	300	0,08	0,12	12.000	250	0,08	0,1	12.000	250	0,075	0,1
0,75	1,5°	35	0,3°	13.000	300	0,075	0,2	12.000	200	0,06	0,1	9.500	150	0,06	0,1	9.500	150	0,05	0,1
0,75	2°	38,6	0,3°	17.000	450	0,12	0,24	15.000	300	0,08	0,12	12.000	250	0,08	0,1	12.000	250	0,075	0,1
1	0,5°	8	0,3°	16.500	1.050	0,2	0,56	16.500	700	0,1	0,28	13.500	500	0,1	0,28	13.500	500	0,1	0,2
1	0,5°	10	0,3°	16.500	1.050	0,2	0,56	16.500	700	0,1	0,28	13.500	500	0,1	0,28	13.500	500	0,1	0,2
1	0,5°	12	0,3°	16.500	1.050	0,2	0,56	16.500	700	0,1	0,28	13.500	500	0,1	0,28	13.500	500	0,1	0,2
1	0,5°	16	0,3°	14.000	750	0,15	0,56	13.000	500	0,1	0,28	10.000	300	0,1	0,28	10.000	300	0,1	0,2
1	0,5°	20	0,3°	14.000	750	0,15	0,56	13.000	500	0,1	0,28	10.000	300	0,1	0,28	10.000	300	0,1	0,2
1	0,5°	25	0,3°	11.000	375	0,15	0,42	10.000	250	0,1	0,21	8.000	200	0,1	0,18	8.000	200	0,06	0,1
1	0,5°	30	0,3°	11.000	375	0,15	0,42	10.000	250	0,1	0,21	8.000	200	0,1	0,18	8.000	200	0,06	0,1
1	0,5°	35	0,3°	11.000	375	0,15	0,42	10.000	250	0,1	0,21	8.000	200	0,1	0,18	8.000	200	0,06	0,1
1	0,5°	40	0,3°	11.000	375	0,15	0,42	10.000	250	0,1	0,21	8.000	200	0,1	0,18	8.000	200	0,06	0,1
1	1°	16	0,3°	16.500	1.050	0,2	0,56	16.500	700	0,1	0,28	13.500	500	0,1	0,28	13.500	500	0,1	0,2
1	1°	20	0,3°	14.000	750	0,2	0,56	13.000	500	0,1	0,28	10.000	300	0,1	0,28	10.000	300	0,1	0,2
1	1°	25	0,3°	14.000	750	0,15	0,56	13.000	500	0,1	0,28	10.000	300	0,1	0,28	10.000	300	0,1	0,2
1	1°	30	0,3°	11.000	375	0,15	0,42	10.000	250	0,1	0,21	8.000	200	0,1	0,18	8.000	200	0,08	0,1
1	1°	35	0,3°	11.000	375	0,15	0,42	10.000	250	0,1	0,21	8.000	200	0,1	0,18	8.000	200	0,08	0,1
1	1°	40	0,3°	11.000	375	0,15	0,42	10.000	250	0,1	0,21	8.000	200	0,1	0,18	8.000	200	0,06	0,1
1	1°	50	0,3°	11.000	375	0,15	0,42	10.000	250	0,1	0,21	8.000	200	0,1	0,18	8.000	200	0,06	0,1
1	1°	60	0,3°	11.000	375	0,15	0,42	10.000	250	0,1	0,21	8.000	200	0,1	0,18	8.000	200	0,06	0,1
1	1°	70	0,3°	11.000	375	0,15	0,42	10.000	250	0,1	0,21	8.000	200	0,1	0,18	8.000	200	0,06	0,1
1	1,5°	16	0,3°	16.500	1.050	0,2	0,56	16.500	700	0,1	0,28	13.500	500	0,1	0,28	13.500	500	0,1	0,2
1	1,5°	20	0,3°	16.500	1.050	0,2	0,56	16.500	700	0,1	0,28	13.500	500	0,1	0,28	13.500	500	0,1	0,2
1	1,5°	25	0,3°	14.000	750	0,15	0,56	13.000	500	0,1	0,28	10.000	300	0,1	0,28	10.000	300	0,1	0,2
1	1,5°	30	0,3°	14.000	750	0,15	0,56	13.000	500	0,1	0,28	10.000	300	0,1	0,28	10.000	300	0,1	0,2
1	1,5°	35	0,3°	14.000	750	0,15	0,56	13.000	500	0,1	0,28	10.000	300	0,1	0,28	10.000	300	0,1	0,2
1	1,5°	41,5	0,3°	11.000	375	0,15	0,42	10.000	250	0,1	0,21	8.000	200	0,1	0,18	8.000	200	0,06	0,1
1	2°	31,5	0,3°	14.000	750	0,15	0,56	13.000	500	0,1	0,28	10.000	300	0,1	0,28	10.000	300	0,1	0,2
1,5	0,5°	8	0,3°	15.000	1.200	0,2	0,84	9.500	800	0,15	0,42	7.500	600	0,15	0,42	7.500	600	0,15	0,3
1,5	0,5°	10	0,3°	15.000	1.200	0,2	0,84	9.500	800	0,15	0,42	7.500	600	0,15	0,42	7.500	600	0,15	0,3
1,5	0,5°	12	0,3°	12.000	900	0,2	0,84	9.500	600	0,15	0,42	7.500	400	0,15	0,36	7.500	400	0,15	0,3
1,5	0,5°	16	0,3°	10.000	900	0,2	0,84	9.500	600	0,15	0,42	7.500	400	0,15	0,36	7.500	400	0,15	0,3
1,5	0,5°	20	0,3°	10.000	450	0,2	0,84	8.500	300	0,15	0,42	6.500	250	0,15	0,36	6.500	250	0,15	0,3
1,5	0,5°	25	0,3°	10.000	450	0,2	0,84	8.500	300	0,15	0,42	6.500	250	0,15	0,36	6.500	250	0,15	0,3
1,5	0,5°	30	0,3°	10.000	450	0,2	0,84	8.500	300	0,15	0,42	6.500	250	0,15	0,3	6.500	250	0,09	0,15
1,5	0,5°	35	0,3°	10.000	450	0,2	0,84	8.500	300	0,15	0,42	6.500	250	0,15	0,3	6.500	250	0,09	0,15
1,5	0,5°	40	0,3°	9.000	375	0,2	0,84	7.500	250	0,15	0,42	6.000	200	0,15	0,3	6.000	200	0,09	0,15
1,5	0,5°	50	0,3°	9.000	375	0,2	0,84	7.500	250	0,15	0,42	6.000	200	0,15	0,3	6.000	200	0,09	0,15
1,5	1°	20	0,3°	10.000	900	0,2	0,84	9.500	600	0,15	0,42	7.500	400	0,15	0,36	7.500	400	0,15	0,3
1,5	1°	25	0,3°	10.000	450	0,2	0,84	8.500	300	0,15	0,42	6.500	250	0,15	0,36	6.500	250	0,15	0,3
1,5	1°	30	0,3°	10.000	450	0,2	0,84	8.500	300	0,15	0,42	6.500	250	0,15	0,36	6.500	250	0,15	0,3
1,5	1°	35	0,3°	10.000	450	0,2	0,84	8.500	300	0,15	0,42	6.500	250	0,15	0,3	6.500	250	0,09	0,15
1,5	1°	40	0,3°	10.000	450	0,2	0,84	8.500	300	0,15	0,42	6.500	250	0,15	0,3	6.500	250	0,09	0,15
1,5	1°	50	0,3°	9.000	375	0,2	0,84	7.500	250	0,15	0,42	6.000	200	0,15	0,3	6.000	200	0,09	0,15
1,5	1°	60	0,3°	9.000	375	0,2	0,84	7.500	250	0,15	0,42	6.000	200	0,15	0,3	6.000	200	0,09	0,15
1,5	1°	70	0,3°	9.000	375	0,2	0,84	7.500	250	0,15	0,42	6.000	200	0,15	0,3	6.000	200	0,09	0,15
1,5	1,5°	20	0,3°	10.000	900	0,3	0,84	9.500	600	0,15	0,42	7.500	400	0,15	0,36	7.500	400	0,15	0,3
1,5	1,5°	25	0,3°	10.000	450	0,25	0,84	8.500	300	0,15	0,42	6.500	250	0,15	0,36	6.500	250	0,15	0,3
1,5	1,5°	30	0,3°	10.000	450	0,25	0,84	8.500	300	0,15	0,42	6.500	250	0,15	0,36	6.500	250	0,15	0,3
1,5	1,5°	35	0,3°	10.000	450	0,25	0,84	8.500	300	0,15	0,42	6.500	250	0,15	0,36	6.500	250	0,15	0,3
1,5	1,5°	40	0,3°	10.000	450	0,25	0,84	8.500	300	0,15	0,42	6.500	250	0,15	0,36	6.500	250	0,15	0,3
1,5	1,5°	50	0,3°	10.000	450	0,2	0,84	8.500	300	0,15	0,42	6.500	250	0,15	0,3	6.500	250	0,09	0,15
1,5	1,5°	62,5	0,3°	10.000	450	0,2	0,84	8.500	300	0,15	0,42	6.500	250	0,15	0,3	6.500	250	0,09	0,15
1,5	1,5°	47,5	0,3°	10.000	450	0,25	0,84	8.500	300	0,15	0,42	6.500	250	0,15	0,36	6.500	250	0,15	0,3
2	1°	20	0,5°	9.000	900	0,5	1,28	7.500	600	0,2	0,64	6.000	400	0,2	0,6	6.000	400	0,2	0,4
2	1°	30	0,5°	7.000	600	0,5	1,28	6.000	400	0,2	0,64	5.000	250	0,2	0,6	5.000	250	0,2	0,4
2	1°	40	0,5°	7.000	600	0,4	1,28	6.000	400	0,2	0,64	5.000	250	0,2	0,56	5.000	250	0,12	0,3
2	1°	50	0,5°	7.000	600	0,4	1,28	6.000	400	0,2	0,64	5.000	250	0,2	0,56	5.000	250	0,12	0,2
2	1°	60	0,5°	5.000	375	0,35	1,28	5.000	250	0,2	0,64	4.000	200	0,2	0,56	4.000	200	0,12	0,2
2	1,5°	44,2	0,5°	7.000	600	0,5	1,28	6.000	400	0,2	0,64	5.000	250	0,2	0,6	5.000	250	0,2	0,4
2	2°	34	0,5°	7.000	600	0,5	1,28	6.000	400	0,2	0,64	5.000	250	0,2	0,6	5.000	250	0,2	0,5
2,5	1°	30	0,5°	7.000	750	0,6	1,8	6.500	500	0,25	0,9	5.000	400	0,25	0,7	5.000	400	0,25	0,5
2,5	1°	40	0,5°	6.000	750	0,6	1,8	5.000	500	0,25	0,9	4.000	250	0,25	0,7	4.000	250	0,25	0,5
2,5	1°	60	0,5°	5.000	600	0,4	1,8	4.000	400	0,25	0,9	4.000	200	0,25	0,6	4.000	200	0,2	0,25
2,5	1,5°	26,9	0,5°	9.000	1.350	0,6	1,8	6.500	900	0,25	0,9	5.000	750	0,25	0,7	5.000	750	0,25	0,5
2,5	1,5°	65,1	0,5°	6.000	750	0,6	1,8	5.000	500	0,25	0,9	4.000	250	0,25	0,7	4.000	250	0,25	0,5
2,5	2°	50,1	0,5°	6.000	750	0,6	1,8	5.000	500	0,25	0,9	4.000	250	0,25	0,7	4.000	250	0,25	0,5
3	1°	30	0,5°	7.000	1.200	0,75	2,4	5.500	800	0,3	1,2	4.500	600	0,3	0,96	4.500	600	0,3	0,6
3	1°	40	0,5°	5.000	600	0,75	2,4	4.000	400	0,3	1,2	4.000	300	0,3	0,96	4.000	300	0,3	0,6
3	1°	50	0,5°	5.000	600	0,6	2,4	4.000	400	0,3	1,2	4.000	300	0,3	0,96	4.000	300	0,3	0,6

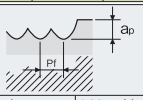
WXL-PC-EBD

Regular milling - Normale Bearbeitung - Parametri di taglio - Fraisage regular
Almindelig fræsning - Konventionell fräsning - Fresado regular - Нормальное фрезерование



	Copper Alloy						Mild Steel - Carbon Steel FC250 ■ SS400 ■ S55C ■ NAK55 ~32 HRC				Hardened Steels - Prehardened Steels SKT ■ SKD61 ■ NAK80 ■ NAK55 ■ HPM1 ■ DH 33 ~ 41 HRC				42 ~ 50 HRC			
R	∂n	l2	Cutting Angle	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)
3	1°	60	0,5°	5.000	600	0,6	2,4	4.000	400	0,3	1,2	4.000	300	0,3	0,96	4.000	300	0,3	0,6
3	1°	70	0,5°	5.000	600	0,6	2,4	4.000	400	0,3	1,2	4.000	300	0,3	0,96	4.000	300	0,3	0,3
3	1°	80	0,5°	5.000	600	0,45	2,4	4.000	400	0,2	1,2	4.000	300	0,2	0,96	4.000	300	0,2	0,3
3	1,5°	49	0,5°	5.000	600	0,6	2,4	4.000	400	0,3	1,2	4.000	300	0,3	0,96	4.000	300	0,3	0,6
3	2°	36	0,5°	7.000	1.200	0,75	2,4	5.500	800	0,3	1,2	4.500	600	0,3	0,96	4.500	600	0,3	0,6

Max cutting depth



1. Highly rigid machines and tool holders should be used. If not, machining should be kept below above-mentioned conditions
2. Tool vibrations should be kept at a minimum level for maximum accuracy.
3. Use a suitable cutting fluid with high smoke retardant properties.
4. For the milling of corners or removal of residue, reduce the cutting depth and feed to 70%..
5. More stable high-feed machining in corners can be attained by setting an R insertion or deceleration on the CAM or machine side.
6. When cutting load fluctuates (in the corners, etc.) or when high precision is required, be sure to control the rotational speed.
7. When cutting at greater than the recommended cutting angle, reduce the feed.
8. When cutting load is fluctuating, or when higher milling accuracy is required, keep machining conditions below the above-mentioned values.
9. When the rotational speed does not meet the recommended conditions, reduce the feed in proportion to the RPM that is suitable for your machine.
10. The chart above is intended as general guidelines for reference only. The given values should be adjusted individually based on actual machining conditions.
11. The cutting conditions are intended for intermediate machining after roughing.
12. When the work includes extensive roughing including flat areas, chattering is more likely to occur.
13. If the cutting depth is shallow, increase the cutting speed appropriately to minimize chattering.

1. Macchine altamente rigide e portautensili devono essere utilizzati. In caso contrario,la lavorazione deve essere mantenuta al di sotto menzionate condizioni.
2. Le vibrazioni utensile devono essere mantenute ad un livello minimo per la massima precisione.
3. Utilizzare un opportuno fluido di taglio con elevate proprietà ritardanti di fumo.
4. Per la fresatura di angoli o di rimozione di residui, ridurre la profondità di taglio e avanzamento al 70% .
5. Maggiore stabilità di lavorazione ad alto avanzamento negli angoli possono essere raggiunti mediante il fissaggio di un inserimento R o decelerazione del CAM o della macchina.
6. Quando il carico di taglio è variabile (negli angoli, ecc) o quando l'alta precisione è richiesta, assicurarsi di controllare la velocità di rotazione.
7. Quando si taglia a una quantità maggiore dei parametri raccomandati, ridurre l'avanzamento.
8. Quando il carico di taglio varia, o quando una maggiore precisione di fresatura è richiesta, mantenere i parametri di lavorazione al di sotto dei valori menzionati.
9. Quando la velocità di rotazione non soddisfa le condizioni raccomandate, ridurre l'avanzamento in proporzione al numero di giri che è adatto per la vostra macchina.
10. Il grafico sopra è da intendersi come linea guida generali di riferimento. I valori indicati devono essere regolato individualmente in base alle condizioni di lavoro effettivo.
11. Le condizioni di taglio si intendono per la lavorazione intermedia dopo la sgrossatura.
12. Quando la lavorazione comprende vaste aree irregolari comprese aree piane, è più probabile che si verifichino vibrazioni.
13. la profondità di asportazione è superficiale, aumentare la velocità di taglio opportunamente per ridurre al minimo le vibrazioni.

1. Es sollten hochtechnologische Maschinen und Spannzangen eingesetzt werden. Wenn dies nicht möglich ist, sollten die oben genannten Schnittdaten reduzieren werden.
2. Werkzeugvibrationen sollten für höchste Genauigkeit auf ein Minimum reduziert werden.
3. Benützen Sie ein geeignetes Schneidöl um Rauchentwicklung zu vermeiden
4. Für das Zerspanen von (Ecken, Abtrag, Resten????) sollten Sie die Schnittgeschwindigkeit und den Vorschub um 70% reduzieren!
5. Stabilere High Feed Bearbeitungen können durch bestimmte Radiusfunktionen Maschinenseitig oder mit dem CAM System erreicht werden.
6. Wenn die Schnittkräfte schwanken (in den Ecken) oder wenn höchste Präzision gefragt ist sollten Sie die Umdrehungen besonders kontrollieren.
7. Wenn Sie mit einem größeren Schnittwinkel zerspanen wie angegeben sollten Sie die Schnittgeschwindigkeit senken.
8. Wenn verschiedene Schneidöle verwendet werden, oder wenn Sie genaue Fräsoperationen benötigen fahren Sie die Maschine unter den oben angegebenen Schnittdaten.
9. Falls Ihre Maschinenleistung in Bezug auf die Umdrehungen die empfohlenen Schnittdaten nicht erreicht, reduzieren Sie bitte die Schnittgeschwindigkeit in Relation zum RPM Ihrer Maschine.
10. Bei den angegebenen Schnittdaten handelt es sich um eine Richtlinie für die Bearbeitung. Die tatsächlichen Schnittdaten sollten individuell auf Ihre tatsächlichen Bearbeitungsbedingungen eingestellt werden.
11. Die Schnittkonditionen sind ausgelegt für mittlere Bearbeitung nach dem Schruppen.
12. Wenn die Arbeit umfangreiches Schruppen auf ebenen Flächen umfasst, können Rattermarken auftreten.
13. Wenn die Schnitttiefe gering ist, sollten Sie die Schnittgeschwindigkeit erhöhen um Rattern zu vermeiden.

1. Utilisation sur machines et portes outils rigides. Si cela n'est pas possible, utiliser les conditions mentionnées ci-dessous
2. Eviter les vibrations de l'outil pour une précision maximale.
3. Utilisez un fluide de coupe approprié à haute propriété ignifugée.
4. Pour le fraisage des angles ou l'enlèvement de reste de matière, réduire la profondeur de coupe et la vitesse à 70%
5. L'usinage des angles à la grande avance peut être réaliser avec stabilité, par l'accélération et la décélération du calculateur et suivant la taille de la machine
6. Quand la puissance absorbée fluctue(dans les angles, etc) ou quand la haute précision est recherché, assurez-vous de contrôler la vitesse de rotation.
7. Quand la coupe est supérieure à l'angle recommandé, réduiser l'avance
8. Quand la puissance absorbée fluctue ou quand la haute précision est recherchée, maintenir les conditions d'usinage ci-dessous
9. Quand la vitesse de rotation ne correspond pas aux conditions recommandées, réduire l'avance en proportion de la vitesse de rotation adaptée à votre machine
10. Le tableau ci-dessus est destinée aux applications générales et comme référence. Les valeurs données doivent être ajustées en fonction des conditions réelles d'usinage
11. Les conditions de coupe sont destinées à l'usinage intermédiaire après ébauche.
12. Quand l'usinage comprend de la grosse ébauche et des zones plates, des vibrations sont susceptible de se produire
13. la profondeur de coupe est peu profonde, augmenter la vitesse de coupe de façon appropriée afin de minimiser des vibrations

1. Benyt en stabil maskine og værktøjsholder. Hvis dette ikke er tilgængeligt, skal lavere skæredata end de ovenstående benyttes.
2. For maksimal nøjagtighed, hold vibrationer på et absolut minimum.
3. Benyt en passende skærevæske
4. Ved fræsning i hjørner eller restbearbejdning, reducer skæredybde og tilspænding til 70%
5. stabil High Feed bearbejdning kan opnås ved at programmerer radius baner i indvendige hjørner
6. Når skærekraften er svingende (i hjørner og lign.) eller når høj præcision er ønsket, kontroller da at omdrejninger og tilspænding er overens.
7. Hvis større rampevinkel end anbefalet benyttes, reducer tilspændingen.
8. Når skærekraften er svingende eller en højere nøjagtighed er ønsket, anvend skæredata der er lavere end ovenstående.
9. Hvis de anbefalede omdrejninger ikke er tilgængelige på maskinen, reducer da tilspændingen i forhold til de tilgængelige omdrejninger.
10. Ovenstående skæredata er ment som en generel guideline. Skæredata skal altid justeres individuelt så de passer til den aktuelle opgave og det udstyr der er til rådighed.
11. Skæredata anbefalet til mellem slet efter skrub bearbejdning.
12. Når bearbejdningen indeholder omfattende skrubbearbejdning af flade områder, kan vibrationer opstå.
13. Hvis skæredybden er lav, øg da skærehastigheden for at minimere vibrationer

1. Deben emplarse maquinas y porta-herramientas de gran rigidez. De lo contrario deben reducirse las condiciones de corte citadas.
2. Las vibraciones de herramienta deben reducirse al mínimo para obtener la maxima precisión.
3. Utilice fluido de corte edecuado con fuerte retardante de humos.
4. Para eliminar o evacuar los residuos en rincones, reduzca velocidad y avance al 70%.
5. Puede obtenerse alta velocidad en los rincones insertando función R o deceleración en el CAM o la maquina.
6. Si flutua la carga de corte (rincones etc,) o requerida alta precisión, asegurese de controlar la velocidad de giro.
7. Si la rampa de corte es mayor del angulo recomendado, reduzca el avance.
8. Si flutua la carga de corte o requerida alta precisión, reduzca los valores de corte citados.
9. Si la velocidad de giro no puede ser alcanzada por la maquina, reduzca el avance en la misma proporción.
10. Este cuadro se entiende solo como guía de referencias general. Los valores indviduales deben ajustarse a la condiciones reales de mecanizado.
11. Los datos de corte se entienden para condiciones intermedias de mecanizado despues de desbaste.
12. Si el mecanizado incluye extensas areas planas de desbaste, es usual que aparezcan vibraciones.
13. En profudidad de corte minimas, incremente la velocidad de corte para minimzar las vibraciones.

1. Använd en stabil maskin och verktygshållare. Om inte stabila förhållande finns använd lägre skärdata än ovanstående.
2. För bästa förhållande, håll nere vibrationer.
3. Använd en passande skärvätska.
4. Vid fräsning i hörn eller restbearbetning, minska skärdjup och matning till 70%.
5. Stabil High-Feed bearbetning i hörn kan uppnås genom att en större R i detaljen än fräsens R radie bana programmeras, i CAM eller maskin.
6. När skärkraften varierar (i hörnen, etc.) eller när hög precision efterfrågas, kontrollera att varvtal och matning är konsekventa.
7. Om större rampvinkel än rekommenderat behövs, reducera matningen.
8. När skärkraften varierar, eller när högre fräsnings noggrannhet krävs, använd lägre skärdata än ovanstående skärdata.
9. När varvtalet inte kan uppnås, använd det varvtal ni har tillgång till och reducra matningen i förhållandet till varvtalet.
10. Ovanstående skärdata är menat som en riktlinje. De angivna värdena ska justeras individuellt på grundval av faktiska bearbetning villkor.
11. Skärdata rekommendationer för semi finish och grovbearbetning.
12. När det finns mycket grovbearbetning av plana områden kan vibrationer uppstår.
13. Om skärdjupet är litet, öka skärhastigheten för att minimera vibrationer.

1. Необходимо использовать жесткие фрезерный станок и фрезерные патроны. В противном случае, режимы резания должны быть ниже вышеупомянутых условий.
2. Для максимальной точности необходимо обеспечить минимальное биение инструмента.
3. Используйте подходящую СОЖ с высокой стойкостью к дымлению.
4. При фрезеровании углов и удалении остатков материала уменьшите глубину резания и подачу до 70%.
5. Более стабильную обработку на высоких подачах можно достичь задавая уменьшение подачь в углах в CAM системе или на ЧПУ.
6. Если нагрузка меняется, например, в углах или требуется высокая точность, необходимо контролировать скорость вращения шпинделя.
7. При фрезеровании под углом большим, чем рекомендованный уменьшите подачу.
8. Если нагрузка меняется или требуется высокая точность, установите параметры резания не выше указанных.
9. Если скорость вращения шпинделя ниже рекомендованной, то снизьте подачу пропорционально скорости вращения.
10. Указанные выше параметры только для справки. Указанные значения должны быть изменены в соответствии с реальными условиями обработки.
11. Условия резания для получистовой обработки после черновой.
12. Если работа требует много черновой обработки, включая плоские области, то возникновение вибраций очень вероятно.
13. Если глубина резания небольшая, можно увеличить скорость резания так, чтобы свести к м инимуму выбрацию инструмента.

WXL-PC-EBD

High speed light milling - HSC Standardfräsen - Fresatura alta velocità standard - Fraisage UGV
High speed bearbejdning (HSM) - High speed milling (HSM) - Fresado ligero a alta velocidad - Высокоскоростное «легкое» фрезерование



	Copper Alloy			Mild Steel - Carbon Steel FC250 ■ SS400 ■ S55C ■ NAK55 ~32 HRC				Hardened Steels - Prehardened Steels SKT ■ SKD61 ■ NAK80 ■ NAK55 ■ HPM1 ■ DH 33 ~ 41 HRC				42 ~ 50 HRC			
R	∂n	l2	Cutting Angle	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)
0.1	0.5°	1	0.3°	50.000	440	0,007	0,01	50.000	360	0,005	0,005	50.000	340	0,005	0,005	50.000	340	0,005	0,005
0,1	0,5°	1,5	0,3°	50.000	440	0,007	0,01	50.000	360	0,005	0,005	50.000	340	0,005	0,005	50.000	340	0,005	0,005
0,1	0,5°	2	0,3°	50.000	360	0,007	0,01	45.000	300	0,005	0,005	45.000	280	0,005	0,005	45.000	280	0,005	0,005
0,1	0,5°	2,5	0,3°	50.000	320	0,007	0,01	38.000	230	0,005	0,005	38.000	210	0,005	0,005	37.000	200	0,005	0,005
0,1	0,5°	3	0,3°	50.000	250	0,007	0,01	38.000	200	0,005	0,005	38.000	180	0,005	0,005	37.000	150	0,003	0,005
0,1	1°	3,5	0,3°	50.000	440	0,007	0,01	50.000	360	0,005	0,005	50.000	340	0,005	0,005	50.000	340	0,005	0,005
0,1	1°	4	0,3°	50.000	360	0,007	0,01	45.000	300	0,005	0,005	45.000	280	0,005	0,005	45.000	280	0,005	0,005
0,1	1°	4,5	0,3°	50.000	320	0,007	0,01	38.000	230	0,005	0,005	38.000	210	0,005	0,005	37.000	200	0,005	0,005
1,5	0,5°	2	0,3°	50.000	730	0,007	0,02	50.000	600	0,005	0,01	50.000	570	0,005	0,01	50.000	570	0,005	0,005
1,5	0,5°	3	0,3°	50.000	580	0,007	0,01	45.000	480	0,005	0,005	45.000	450	0,005	0,005	45.000	450	0,005	0,005
1,5	1°	3	0,3°	50.000	610	0,007	0,02	47.000	510	0,005	0,01	47.000	480	0,005	0,01	47.000	480	0,005	0,005
1,5	1°	4	0,3°	50.000	580	0,007	0,01	45.000	480	0,005	0,005	45.000	450	0,005	0,005	45.000	450	0,005	0,005
0,2	0,5°	2	0,3°	50.000	970	0,015	0,04	50.000	800	0,01	0,02	50.000	760	0,01	0,02	50.000	760	0,01	0,01
0,2	0,5°	3	0,3°	50.000	670	0,012	0,03	45.000	550	0,008	0,015	45.000	520	0,008	0,015	45.000	520	0,008	0,01
0,2	0,5°	4	0,3°	48.000	540	0,007	0,02	43.000	500	0,005	0,01	43.000	470	0,005	0,01	43.000	470	0,005	0,01
0,2	0,5°	5	0,3°	45.000	480	0,007	0,02	40.000	420	0,005	0,01	40.000	400	0,005	0,01	40.000	400	0,005	0,01
0,2	0,5°	6	0,3°	40.000	400	0,007	0,01	36.000	370	0,005	0,005	36.000	350	0,005	0,005	35.000	340	0,005	0,005
0,2	1°	4	0,3°	50.000	670	0,012	0,03	45.000	550	0,008	0,015	45.000	520	0,008	0,015	45.000	520	0,008	0,01
0,2	1°	5	0,3°	48.000	540	0,007	0,02	43.000	500	0,005	0,01	43.000	470	0,005	0,01	43.000	470	0,005	0,01
0,2	1°	6	0,3°	45.000	480	0,007	0,02	40.000	420	0,005	0,01	40.000	400	0,005	0,01	40.000	400	0,005	0,01
2,5	0,5°	4	0,3°	50.000	1.200	0,015	0,04	48.000	900	0,01	0,02	48.000	850	0,01	0,02	48.000	850	0,01	0,015
2,5	0,5°	6	0,3°	38.000	940	0,015	0,02	38.000	500	0,01	0,01	38.000	470	0,01	0,01	38.000	470	0,01	0,01
2,5	0,5°	8	0,3°	30.000	760	0,007	0,02	30.000	400	0,005	0,01	30.000	380	0,005	0,01	29.000	360	0,005	0,01
2,5	0,5°	10	0,3°	30.000	500	0,005	0,02	30.000	400	0,005	0,01	30.000	300	0,005	0,01	29.000	250	0,005	0,01
2,5	1°	4	0,3°	50.000	1.200	0,015	0,04	48.000	900	0,01	0,02	48.000	850	0,01	0,02	48.000	850	0,01	0,01
2,5	1°	6	0,3°	50.000	1.200	0,015	0,04	48.000	900	0,01	0,02	48.000	850	0,01	0,02	48.000	850	0,01	0,01
2,5	1°	8	0,3°	50.000	1.200	0,015	0,04	48.000	900	0,01	0,02	48.000	850	0,01	0,02	48.000	850	0,01	0,01
2,5	1°	10	0,3°	30.000	760	0,007	0,02	30.000	400	0,005	0,01	30.000	380	0,005	0,01	29.000	360	0,005	0,01
2,5	1°	12	0,3°	30.000	760	0,007	0,02	30.000	400	0,005	0,01	30.000	380	0,005	0,01	29.000	360	0,005	0,01
0,3	0,5°	2	0,3°	50.000	1.550	0,03	0,06	50.000	1.200	0,02	0,03	50.000	1.100	0,02	0,03	50.000	1.100	0,02	0,03
0,3	0,5°	4	0,3°	50.000	1.350	0,03	0,06	45.000	1.000	0,02	0,03	45.000	950	0,02	0,03	45.000	950	0,02	0,03
0,3	0,5°	6	0,3°	35.000	960	0,015	0,04	30.000	680	0,01	0,02	30.000	640	0,01	0,02	30.000	640	0,01	0,02
0,3	0,5°	8	0,3°	30.000	720	0,015	0,04	26.000	600	0,01	0,02	26.000	570	0,01	0,02	25.000	540	0,01	0,02
0,3	0,5°	10	0,3°	30.000	500	0,015	0,04	26.000	480	0,01	0,02	26.000	450	0,01	0,02	25.000	380	0,01	0,02
0,3	0,5°	12	0,3°	30.000	500	0,01	0,04	26.000	480	0,007	0,02	26.000	450	0,007	0,02	25.000	380	0,007	0,01
0,3	0,5°	16	0,3°	30.000	400	0,007	0,04	26.000	380	0,005	0,02	26.000	360	0,005	0,02	25.000	300	0,005	0,01
0,3	1°	4	0,3°	50.000	1.350	0,03	0,06	45.000	1.000	0,02	0,03	45.000	950	0,02	0,03	45.000	950	0,02	0,03
0,3	1°	6	0,3°	35.000	960	0,015	0,04	30.000	680	0,01	0,02	30.000	640	0,01	0,02	30.000	640	0,01	0,02
0,3	1°	8	0,3°	35.000	960	0,015	0,04	30.000	680	0,01	0,02	30.000	640	0,01	0,02	30.000	640	0,01	0,02
0,3	1°	10	0,3°	30.000	720	0,015	0,04	26.000	600	0,01	0,02	26.000	570	0,01	0,02	25.000	540	0,01	0,02
0,3	1°	12	0,3°	30.000	720	0,015	0,04	26.000	600	0,01	0,02	26.000	570	0,01	0,02	25.000	540	0,01	0,02
0,3	1°	16	0,3°	30.000	500	0,015	0,04	26.000	480	0,01	0,02	26.000	450	0,01	0,02	25.000	380	0,01	0,02
0,4	0,5°	4	0,3°	50.000	1.750	0,06	0,16	48.000	1.600	0,04	0,08	48.000	1.500	0,04	0,06	48.000	1.500	0,04	0,04
0,4	0,5°	6	0,3°	43.000	1.600	0,045	0,1	34.000	950	0,03	0,05	34.000	900	0,03	0,05	34.000	900	0,02	0,025
0,4	0,5°	8	0,3°	32.000	1.250	0,045	0,1	30.000	800	0,03	0,05	30.000	760	0,03	0,05	30.000	760	0,02	0,025
0,4	0,5°	12	0,3°	24.000	720	0,01	0,04	23.000	450	0,005	0,01	23.000	420	0,005	0,01	23.000	420	0,005	0,025
0,4	1°	8	0,3°	43.000	1.600	0,045	0,1	34.000	950	0,03	0,05	34.000	900	0,03	0,05	34.000	900	0,02	0,025
0,4	1°	12	0,3°	32.000	1.250	0,045	0,1	30.000	800	0,03	0,05	30.000	760	0,03	0,05	30.000	760	0,02	0,025
0,4	1°	16	0,3°	24.000	720	0,01	0,04	23.000	450	0,005	0,01	23.000	420	0,005	0,01	23.000	420	0,005	0,015
0,5	0,5°	6	0,3°	47.000	2.850	0,075	0,2	36.000	2.300	0,05	0,1	36.000	2.100	0,05	0,08	36.000	2.100	0,05	0,05
0,5	0,5°	8	0,3°	30.000	2.350	0,075	0,15	27.000	1.700	0,05	0,1	27.000	1.600	0,05	0,08	27.000	1.600	0,05	0,05
0,5	0,5°	10	0,3°	27.000	2.000	0,075	0,15	26.000	1.600	0,05	0,1	26.000	1.500	0,05	0,08	26.000	1.500	0,05	0,05
0,5	0,5°	12	0,3°	24.000	1.400	0,015	0,04	22.000	1.100	0,01	0,02	22.000	1.000	0,01	0,05	21.000	950	0,01	0,02
0,5	0,5°	16	0,3°	24.000	1.000	0,015	0,04	22.000	770	0,01	0,02	22.000	700	0,01	0,02	21.000	680	0,01	0,02
0,5	0,5°	18	0,3°	24.000	1.000	0,01	0,04	22.000	770	0,007	0,02	22.000	700	0,007	0,02	21.000	680	0,007	0,02
0,5	0,5°	20	0,3°	24.000	1.000	0,01	0,03	22.000	770	0,007	0,015	22.000	700	0,007	0,015	21.000	680	0,007	0,015
0,5	0,5°	25	0,3°	20.000	800	0,01	0,03	18.000	600	0,007	0,015	18.000	480	0,007	0,015	17.000	550	0,007	0,015
0,5	0,5°	30	0,3°	20.000	800	0,007	0,03	18.000	600	0,005	0,015	18.000	480	0,005	0,015	17.000	550	0,005	0,015
0,5	0,5°	35	0,3°	15.000	550	0,005	0,03	14.000	450	0,005	0,01	12.000	400	0,005	0,01	11.000	350	0,005	0,01
0,5	1°	10	0,3°	30.000	2.350	0,075	0,15	27.000	1.700	0,05	0,1	27.000	1.600	0,05	0,05	27.000	1.600	0,05	0,05
0,5	1°	16	0,3°	24.000	1.400	0,015	0,04	22.000	1.100	0,01	0,02	22.000	1.000	0,01	0,02	21.000	950	0,01	0,02
0,5	1°	20	0,3°	24.000	1.000	0,015	0,04	22.000	770	0,01	0,02	22.000	700	0,01	0,02	21.000	680	0,01	0,015
0,5	1°	25	0,3°	24.000	1.000	0,015	0,04	22.000	770	0,01	0,02	22.000	700	0,01	0,02	21.000	680	0,01	0,015
0,5	1°	30	0,3°	24.000	1.000	0,01	0,04	22.000	770	0,007	0,02	22.000	700	0,007	0,02	21.000	680	0,007	0,015
0,5	1°	35	0,3°	24.000	1.000	0,01	0,03	22.000	770	0,007	0,015	22.000	700	0,007	0,015	21.000	680	0,007	0,015
0,5	1°	40	0,3°	22.000	1.000	0,01	0,03	20.000	770	0,007	0,015	20.000	700	0,007	0,015	19.000	680	0,007	0,015
0,5	1°	50	0,3°	20.000	800	0,01	0,03	18.000	600	0,007	0,015	18.000	480	0,007	0,015	17.000	550	0,007	0,01
0,5	1°	60	0,3°	18.000	800	0,007	0,03	16.000	600	0,005	0,015	16.000	480	0,005	0,015	15.000	550	0,005	0,015
0,5	1°	70	0,3°	15.000	600	0,005	0,03	14.000	480	0,005	0,015	13.000	380	0,005	0,015	12.000	450	0,005	0,015
0,5	1,5°	8	0,3°	47.000	2.850	0,075	0,2	36.000	2.300	0,05	0,1	36.000	2.100	0,05	0,08	36.000	2.100	0,05	0,05
0,5	1,5°	10	0,3°	30.000	2.350	0,075	0,15	27.000	1.700	0,05	0,1	27.000	1.600	0,05	0,08	27.000	1.600	0,05	0,05
0,5	1,5°	12	0,3°	30.000	2.350	0,075	0,15	27.000	1.700	0,05	0,1	27.000	1.600	0,05	0,08	27.000	1.600	0,05	0,05
0,5	1,5°	16	0,3°	24.000	1.400	0,015	0,04	22.000	1.100	0,01	0,02	22.000	1.000	0,01	0,02	21.000	950	0,01	0,02
0,5	1,5°	20	0,3°	24.000	1.400	0,015	0,04	22.000	1.100	0,01	0,02	22.000	1.000	0,01	0,02	21.000	950	0,01	0,02
0,5	1,5°	25	0,3°	24.000	1.400	0,015	0,04	22.000	1.100	0,01	0,02	22.000	1.000	0,01	0,02	21.000	950	0,01	0,02
0,5	1,5°	30	0,3°	24.000	1.000	0,015	0,04	22.000	770	0,01	0,02	22.000	700	0,01	0,02	21.000	680	0,01	0,02
0,5	1,5°	35	0,3°	24.000	1.000	0,015	0,04	22.000	770	0,01	0,02	22.000	700	0,01	0,02	21.000	680	0,01	0,02
0,5	2°	45	0,3°	24.000	1.400	0,015	0,04	22.000	1.100	0,01	0,02	22.000	1.000	0,01	0,02	21.000	950	0,01	0,02
0,6	0,5°	12	0,3°	30.000	2.000	0,09	0,21	25.000	1.700	0,06	0,12	25.000	1.600	0,06	0,1	25.000	1.600	0,06	0,06
0,6	0,5°	25	0,3°	24.000	1.000	0,02	0,04	22.000	770	0,015	0,02	22.000	700	0,015	0,02	21.000	680	0,015	0,03
0,6	1°	12	0,3°	30.000	2.200	0,09	0,21	25.000	2.000	0,06	0,12	25.000	2.000	0,06	0,1	25.000	1.900	0,06	0,06
0,6	1°	25	0,3°	30.000	2.000	0,04	0,21	25.000	1.700	0,06	0,09	25.000	1.600	0,06	0,05	25.000	1.600	0,02	0,03
0,6	1,5°	12	0,3°	30.000	2.200	0,09	0,21	25.000	2.000	0,06	0,12	25.000	2.000	0,06	0,1	25.000	1.900	0,06	0,06
0,6	1,5°	25	0,3°	30.000	2.000	0,05	0,21	25.000	1.700	0,06	0,12	25.000	1.600	0.06	0.1	25.000	1.600	0.05	0.06

WXL-PC-EBD

High speed light milling - HSC Standardfräsen - Fresatura alta velocità standard - Fraisage UGV
High speed bearbejdning (HSM) - High speed milling (HSM) - Fresado ligero a alta velocidad - Высокоскоростное «легкое» фрезерование



	Copper Alloy							Mild Steel - Carbon Steel FC250 ■ SS400 ■ S55C ■ NAK55 ~32 HRC				Hardened Steels - Prehardened Steels SKT ■ SKD61 ■ NAK80 ■ NAK55 ■ HPM1 ■ DH							
												33 ~ 41 HRC				42 ~ 50 HRC			
R	∂n	l2	Cutting Angle	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)
0,75	0,5°	8	0,3°	32.000	3.000	0,12	0,3	30.000	2.900	0,075	0,15	30.000	2.700	0,075	0,12	30.000	2.700	0,075	0,1
0,75	0,5°	10	0,3°	30.000	2.650	0,12	0,3	24.000	2.300	0,075	0,15	24.000	2.100	0,075	0,12	24.000	2.100	0,075	0,1
0,75	0,5°	12	0,3°	30.000	2.400	0,12	0,3	24.000	2.000	0,075	0,15	24.000	1.900	0,075	0,12	24.000	1.900	0,075	0,1
0,75	0,5°	16	0,3°	24.000	1.400	0,12	0,2	21.000	1.400	0,075	0,1	21.000	1.300	0,075	0,09	21.000	1.300	0,05	0,06
0,75	0,5°	20	0,3°	22.000	1.400	0,1	0,2	18.000	1.200	0,05	0,1	18.000	1.100	0,05	0,07	17.000	1.100	0,03	0,03
0,75	0,5°	25	0,3°	22.000	1.100	0,1	0,2	18.000	1.000	0,05	0,1	18.000	900	0,05	0,07	17.000	900	0,02	0,03
0,75	0,5°	30	0,3°	22.000	1.100	0,075	0,2	18.000	1.000	0,035	0,1	18.000	900	0,035	0,07	17.000	900	0,01	0,03
0,75	0,5°	35	0,3°	20.000	1.000	0,05	0,2	17.000	9.000	0,03	0,1	17.000	800	0,03	0,07	15.000	800	0,01	0,03
0,75	1°	10	0,3°	32.000	3.000	0,12	0,3	30.000	2.900	0,075	0,15	30.000	2.700	0,075	0,12	30.000	2.700	0,075	0,1
0,75	1°	12	0,3°	30.000	2.650	0,12	0,3	24.000	2.300	0,075	0,15	24.000	2.100	0,075	0,12	24.000	2.100	0,075	0,1
0,75	1°	16	0,3°	30.000	2.400	0,12	0,3	24.000	2.000	0,075	0,15	24.000	1.900	0,075	0,12	24.000	1.900	0,075	0,1
0,75	1°	20	0,3°	24.000	1.400	0,12	0,2	21.000	1.400	0,075	0,1	21.000	1.300	0,075	0,09	21.000	1.300	0,05	0,06
0,75	1°	25	0,3°	22.000	1.400	0,1	0,2	18.000	1.200	0,05	0,1	18.000	1.100	0,05	0,09	17.000	1.100	0,05	0,06
0,75	1°	30	0,3°	22.000	1.400	0,07	0,2	18.000	1.200	0,05	0,1	18.000	1.100	0,05	0,07	17.000	1.100	0,03	0,03
0,75	1°	35	0,3°	22.000	1.100	0,07	0,2	18.000	1.000	0,05	0,1	18.000	900	0,05	0,07	17.000	900	0,02	0,03
0,75	1,5°	10	0,3°	32.000	3.000	0,12	0,3	30.000	2.900	0,075	0,15	30.000	2.700	0,075	0,12	30.000	2.700	0,075	0,1
0,75	1,5°	12	0,3°	32.000	3.000	0,12	0,3	30.000	2.900	0,075	0,15	30.000	2.700	0,075	0,12	30.000	2.700	0,075	0,1
0,75	1,5°	16	0,3°	30.000	2.400	0,12	0,3	24.000	2.000	0,075	0,15	24.000	1.900	0,075	0,12	24.000	1.900	0,075	0,1
0,75	1,5°	20	0,3°	30.000	2.400	0,12	0,3	24.000	2.000	0,075	0,15	24.000	1.900	0,075	0,12	24.000	1.900	0,08	0,1
0,75	1,5°	25	0,3°	24.000	1.400	0,1	0,2	21.000	1.400	0,075	0,1	21.000	1.300	0,075	0,09	21.000	1.300	0,05	0,06
0,75	1,5°	30	0,3°	24.000	1.400	0,1	0,2	21.000	1.400	0,075	0,1	21.000	1.300	0,075	0,09	21.000	1.300	0,05	0,06
0,75	1,5°	35	0,3°	22.000	1.400	0,05	0,2	18.000	1.200	0,05	0,1	18.000	1.100	0,05	0,07	17.000	1.100	0,02	0,03
0,75	2°	38,6	0,3°	24.000	1.400	0,1	0,2	21,000	1,400	0,075	0,1	21,000	1,300	0,075	0,09	21,000	1,300	0,05	0,06
1	0.5°	8	0.3°	27.000	3.350	0.15	0.4	25.000	2.600	0.1	0.2	25.000	2.400	0,1	0,2	23.000	2.200	0,1	0,2
1	0,5°	10	0,3°	22.000	3.050	0,15	0,4	20.000	2.400	0,1	0,2	20.000	2.200	0,1	0,2	19.000	2.000	0,1	0,2
1	0,5°	12	0,3°	22.000	3.050	0,15	0,4	20.000	2.400	0,1	0,2	20.000	2.200	0,1	0,2	19.000	2.000	0,1	0,2
1	0,5°	16	0,3°	15.000	2.400	0,15	0,3	15.000	1.800	0,1	0,2	15.000	1.700	0,1	0,2	14.000	1.500	0,1	0,2
1	0,5°	20	0,3°	15.000	2.200	0,15	0,2	14.000	1.700	0,1	0,1	14.000	1.600	0,1	0,1	13.000	1.400	0,1	0,1
1	0,5°	25	0,3°	12.000	1.200	0,1	0,2	12.000	1.200	0,05	0,1	11.000	1.100	0,05	0,1	10.000	1.000	0,05	0,1
1	0,5°	30	0,3°	12.000	1.000	0,1	0,2	12.000	1.000	0,05	0,1	11.000	900	0,05	0,1	10.000	800	0,05	0,1
1	0,5°	35	0,3°	12.000	1.000	0,075	0,2	12.000	1.000	0,03	0,1	11.000	900	0,03	0,1	10.000	800	0,03	0,1
1	0,5°	40	0,3°	12.000	800	0,05	0,2	12.000	800	0,02	0,1	11.000	800	0,02	0,1	10.000	700	0,02	0,1
1	1°	16	0,3°	22.000	3.050	0,15	0,4	20.000	2.400	0,1	0,2	20.000	2.200	0,1	0,2	19.000	2.000	0,1	0,2
1	1°	20	0,3°	15.000	2.400	0,15	0,3	15.000	1.800	0,1	0,2	15.000	1.700	0,1	0,2	14.000	1.500	0,1	0,2
1	1°	25	0,3°	15.000	2.200	0,15	0,2	14.000	1.700	0,1	0,1	14.000	1.600	0,1	0,1	13.000	1.400	0,1	0,1
1	1°	30	0,3°	14.000	2.200	0,15	0,2	14.000	1.700	0,1	0,1	14.000	1.600	0,1	0,1	13.000	1.400	0,07	0,1
1	1°	35	0,3°	12.000	1.200	0,1	0,2	12.000	1.200	0,05	0,1	11.000	1.100	0,05	0,1	10.000	1.000	0,05	0,1
1	1°	40	0,3°	12.000	1.000	0,1	0,2	12.000	1.000	0,05	0,1	11.000	900	0,05	0,1	10.000	800	0,05	0,1
1	1°	50	0,3°	12.000	1.000	0,075	0,2	12.000	1.000	0,03	0,1	11.000	900	0,03	0,1	10.000	800	0,03	0,1
1	1°	60	0,3°	12.000	800	0,05	0,2	12.000	800	0,02	0,1	11.000	800	0,02	0,1	10.000	700	0,02	0,1
1	1°	70	0,3°	12.000	800	0,03	0,1	12.000	800	0,01	0,05	11.000	800	0,01	0,05	10.000	700	0,01	0,05
1	1,5°	16	0,3°	22.000	3.050	0,2	0,4	20.000	2.400	0,1	0,2	20.000	2.200	0,1	0,2	19.000	2.000	0,1	0,2
1	1,5°	20	0,3°	22.000	3.050	0,2	0,4	20.000	2.400	0,1	0,2	20.000	2.200	0,1	0,2	19.000	2.000	0,1	0,2
1	1,5°	25	0,3°	15.000	2.400	0,15	0,3	15.000	1.800	0,1	0,2	15.000	1.700	0,1	0,2	14.000	1.500	0,1	0,2
1	1,5°	30	0,3°	15.000	2.200	0,15	0,2	14.000	1.700	0,1	0,1	14.000	1.600	0,1	0,1	13.000	1.400	0,1	0,1
1	1,5°	35	0,3°	15.000	2.200	0,15	0,2	14.000	1.700	0,1	0,1	14.000	1.600	0,1	0,1	13.000	1.400	0,1	0,1
1	1,5°	41,5	0,3°	12.000	1.200	0,1	0,2	12.000	1.200	0,05	0,1	11.000	1.100	0,05	0,1	10.000	1.000	0,05	0,1
1	2°	31,5	0,3°	15.000	2.400	0,15	0,3	15.000	1.800	0,1	0,2	15.000	1.700	0,1	0,2	14.000	1.500	0,1	0,2
1,5	0,5°	8	0,3°	32.000	4.600	0,2	0,6	30.000	4.500	0,15	0,3	30.000	4.200	0,15	0,3	25.000	3.500	0,15	0,3
1,5	0,5°	10	0,3°	28.000	4.000	0,2	0,6	25.000	3.800	0,15	0,3	25.000	3.600	0,15	0,3	20.000	2.800	0,15	0,3
1,5	0,5°	12	0,3°	28.000	4.000	0,2	0,6	25.000	3.800	0,15	0,3	25.000	3.600	0,15	0,3	20.000	2.800	0,15	0,3
1,5	0,5°	16	0,3°	22.000	2.900	0,2	0,6	18.000	2.700	0,15	0,3	18.000	2.500	0,15	0,3	15.000	2.000	0,15	0,3
1,5	0,5°	20	0,3°	20.000	2.600	0,15	0,4	16.000	2.000	0,1	0,2	16.000	1.900	0,1	0,2	13.000	1.500	0,1	0,2
1,5	0,5°	25	0,3°	16.000	2.200	0,15	0,4	14.000	1.800	0,1	0,2	14.000	1.700	0,1	0,2	11.000	1.300	0,1	0,2
1,5	0,5°	30	0,3°	16.000	1.800	0,125	0,2	12.000	1.200	0,05	0,1	12.000	1.100	0,05	0,1	9.000	820	0,05	0,1
1,5	0,5°	35	0,3°	12.000	1.000	0,075	0,1	10.000	800	0,03	0,05	9.000	760	0,03	0,05	7.800	590	0,03	0,05
1,5	0,5°	40	0,3°	12.000	800	0,075	0,1	10.000	600	0,03	0,05	9.000	600	0,03	0,05	7.800	480	0,03	0,05
1,5	0,5°	50	0,3°	10.000	650	0,05	0,1	8.000	500	0,02	0,05	7.500	500	0,02	0,05	6.200	400	0,02	0,05
1,5	1°	20	0,3°	22.000	2.900	0,2	0,6	18.000	2.700	0,15	0,3	18.000	2.500	0,15	0,3	15.000	2.000	0,15	0,3
1,5	1°	25	0,3°	20.000	2.600	0,2	0,4	16.000	2.000	0,1	0,2	16.000	1.900	0,1	0,2	13.000	1.500	0,1	0,2
1,5	1°	30	0,3°	16.000	2.200	0,2	0,4	14.000	1.800	0,1	0,2	14.000	1.700	0,1	0,2	11.000	1.300	0,1	0,2
1,5	1°	35	0,3°	16.000	1.800	0,125	0,2	12.000	1.200	0,05	0,1	12.000	1.100	0,05	0,1	9.000	820	0,05	0,1
1,5	1°	40	0,3°	16.000	1.800	0,125	0,2	12.000	1.200	0,05	0,1	12.000	1.100	0,05	0,1	9.000	820	0,05	0,1
1,5	1°	50	0,3°	12.000	1.000	0,075	0,1	10.000	800	0,03	0,05	9.000	760	0,03	0,05	7.800	590	0,03	0,05
1,5	1°	60	0,3°	12.000	800	0,075	0,1	10.000	600	0,03	0,05	9.000	600	0,03	0,05	7.800	480	0,03	0,05
1,5	1°	70	0,3°	10.000	650	0,05	0,1	8.000	500	0,02	0,05	7.500	500	0,02	0,05	6.200	400	0,02	0,05
1,5	1,5°	20	0,3°	22.000	2.900	0,25	0,6	18.000	2.700	0,15	0,3	18.000	2.500	0,15	0,3	15.000	2.000	0,15	0,3
1,5	1,5°	25	0,3°	20.000	2.600	0,2	0,4	16.000	2.000	0,1	0,2	16.000	1.900	0,1	0,2	13.000	1.500	0,1	0,2
1,5	1,5°	30	0,3°	20.000	2.600	0,2	0,4	16.000	2.000	0,1	0,2	16.000	1.900	0,1	0,2	13.000	1.500	0,1	0,2
1,5	1,5°	35	0,3°	16.000	2.200	0,2	0,4	14.000	1.800	0,1	0,2	14.000	1.700	0,1	0,2	11.000	1.300	0,1	0,2
1,5	1,5°	40	0,3°	16.000	2.200	0,2	0,4	14.000	1.800	0,1	0,2	14.000	1.700	0,1	0,2	11.000	1.300	0,1	0,2
1,5	1,5°	50	0,3°	16.000	1.800	0,125	0,2	12.000	1.200	0,05	0,1	12.000	1.100	0,05	0,1	9.000	820	0,05	0,1
1,5	1,5°	62,5	0,3°	12.000	1.000	0,075	0,1	10.000	800	0,03	0,05	9.000	760	0,03	0,05	7.800	590	0,03	0,05
1,5	1,5°	47,5	0,3°	16.000	2.200	0,25	0,4	14.000	1.800	0,1	0,2	14.000	1.700	0,1	0,2	11.000	1.300	0,1	0,2
2	1°	20	0,5°	20.000	3.450	0,4	0,6	18.000	3.200	0,2	0,5	18.000	3.000	0,2	0,5	14.000	2.300	0,2	0,4
2	1°	30	0,5°	18.000	3.000	0,4	0,5	16.000	2.800	0,2	0,4	16.000	2.600	0,2	0,4	12.000	1.900	0,2	0,4
2	1°	40	0,5°	18.000	3.000	0,25	0,6	16.000	2.800	0,1	0,3	16.000	2.600	0,1	0,3	12.000	1.900	0,1	0,3
2	1°	50	0,5°	14.000	2.200	0,25	0,4	12.000	1.800	0,1	0,2	12.000	1.700	0,1	0,2	9.000	1.700	0,1	0,2
2	1°	60	0,5°	16.000	1.800	0,125	0,2	12.000	1.200	0,05	0,1	12.000	1.100	0,05	0,1	9.000	820	0,05	0,1
2	1,5°	44,2	0,5°	18.000	3.000	0,25	0,6	16.000	2.800	0,1	0,3	16.000	2.600	0,1	0,3	12.000	1.900	0,1	0,3
2	2°	34	0,5°	20.000	3.450	0,4	0,6	18.000	3.200	0,2	0,5	18.000	3.000	0,2	0,5	14.000	2.300	0,2	0,5
2,5	1°	30	0,5°	20.000	3.400	0,4	0,75	15.000	3.200	0,2	0,3	15.000	3.000	0,2	0,3	12.000	2.400	0,2	0,3
2,5	1°	40	0,5°	16.000	2.900	0,25	0,75	14.000	2.500	0,1	0,3	14.000	2.300	0,1	0,3	11.000	1.800	0,1	0,3
2,5	1°	60	0,5°	12.000	1.800	0,25	0,5	10.000	1.200	0,1	0,2	10.000	1.100	0,1	0,2	8.000	880	0,1	0,2
2,5	1,5°	26,9	0,5°	18.000	3.800	0,5	1,25	16.000	3.500	0,25	0,5	16.000	3.300	0,25	0,5	12.000	2.400	0,25	0,5
2,5	1,5°	65,1	0,5°	14.000	2.200	0,25	0,75	12.000	1.600	0,1	0,3	12.000	1.500	0,1	0,3	9.000	1.100	0,1	0,3
2,5	2°	50,1	0,5°	16.000	2.900	0,25	0,75	14.000	2.500	0,1	0,3	14.000	2.300	0,1	0,3	11.000	1.800	0,1	0,3

WXL-PC-EBD

High speed light milling - HSC Standardfräsen - Fresatura alta velocità standard - Fraisage UGV
High speed bearbejdning (HSM) - High speed milling (HSM) - Fresado ligero a alta velocidad - Высокоскоростное легкое фрезерование



Copper Alloy

Mild Steel - Carbon Steel

FC250 ■ SS400 ■ S55C ■ NAK55
~32 HRC

Hardened Steels - Prehardened Steels

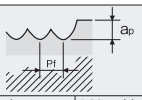
SKT ■ SKD61 ■ NAK80 ■ NAK55 ■ HPM1 ■ DH

33 ~ 41 HRC

42 ~ 50 HRC

R	∂n	l2	Cutting Angle	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)
3	1°	30	0,5°	14.000	4.000	0,6	1,25	12.000	3.200	0,3	0,5	12.000	3.000	0,3	0,5	9.000	2.250	0,3	0,5
3	1°	40	0,5°	10.000	3.200	0,6	1,25	10.000	2.600	0,3	0,5	10.000	2.400	0,3	0,5	8.000	1.900	0,3	0,5
3	1°	50	0,5°	9.000	3.000	0,4	1	9.000	2.300	0,2	0,4	9.000	2.100	0,2	0,4	7.000	1.600	0,2	0,4
3	1°	60	0,5°	9.000	2.800	0,4	0,75	9.000	2.000	0,2	0,3	9.000	1.900	0,2	0,3	7.000	1.400	0,2	0,3
3	1°	70	0,5°	7.000	2.300	0,4	0,75	7.000	1.600	0,2	0,3	7.000	1.500	0,2	0,3	5.500	1.100	0,2	0,3
3	1°	80	0,5°	6.000	2.000	0,3	0,75	6.000	1.300	0,15	0,3	6.000	1.200	0,15	0,3	5.000	900	0,15	0,3
3	1,5°	49	0,5°	10.000	3.200	0,6	1,25	10.000	2.600	0,3	0,5	10.000	2.400	0,3	0,5	8.000	1.900	0,3	0,5
3	2°	36	0,5°	14.000	4.000	0,6	1,25	12.000	3.200	0.3	0.5	12.000	3.000	0.3	0.5	9.000	2.250	0.3	0.5

Max cutting depth



1. Highly rigid machines and tool holders should be used. If not, machining should be kept below above-mentioned conditions
2. Tool vibrations should be kept at a minimum level for maximum accuracy.
3. Use a suitable cutting fluid with high smoke retardant properties.
4. For the milling of corners or removal of residue, reduce the cutting depth and feed to 70%..
5. More stable high-feed machining in corners can be attained by setting an R insertion or deceleration on the CAM or machine side.
6. When cutting load fluctuates (in the corners, etc.) or when high precision is required, be sure to control the rotational speed.
7. When cutting at greater than the recommended cutting angle, reduce the feed.
8. When cutting load is fluctuating, or when higher milling accuracy is required, keep machining conditions below the above-mentioned values.
9. When the rotational speed does not meet the recommended conditions, reduce the feed in proportion to the RPM that is suitable for your machine.
10. The chart above is intended as general guidelines for reference only. The given values should be adjusted individually based on actual machining conditions.
11. The cutting conditions are intended for intermediate machining after roughing.
12. When the work includes extensive roughing including flat areas, chattering is more likely to occur.
13. If the cutting depth is shallow, increase the cutting speed appropriately to minimize chattering.

1. Macchine altamente rigide e portautensili devono essere utilizzati. In caso contrario,la lavorazione deve essere mantenuta al di sotto menzionate condizioni.
2. Le vibrazioni utensile devono essere mantenute ad un livello minimo per la massima precisione.
3. Utilizzare un opportuno fluido di taglio con elevate proprietà ritardanti di fumo.
4. Per la fresatura di angoli o di rimozione di residui, ridurre la profondità di taglio e avanzamento al 70% .
5. Maggiore stabilità di lavorazione ad alto avanzamento negli angoli possono essere raggiunti mediante il fissaggio di un inserimento R o decelerazione del CAM o della macchina.
6. Quando il carico di taglio è variabile (negli angoli, ecc) o quando l'alta precisione è richiesta, assicurarsi di controllare la velocità di rotazione.
7. Quando si taglia a una quantità maggiore dei parametri raccomandati, ridurre l'avanzamento.
8. Quando il carico di taglio varia, o quando una maggiore precisione di fresatura è richiesta, mantenere i parametri di lavorazione al di sotto dei valori menzionati.
9. Quando la velocità di rotazione non soddisfa le condizioni raccomandate, ridurre l'avanzamento in proporzione al numero di giri che è adatto per la vostra macchina.
10. Il grafico sopra è da intendersi come linea guida generali di riferimento. I valori indicati devono essere regolato individualmente in base alle condizioni di lavoro effettivo.
11. Le condizioni di taglio si intendono per la lavorazione intermedia dopo la sgrossatura.
12. Quando la lavorazione comprende vaste aree irregolari comprese aree piane, è più probabile che si verifichino vibrazioni.
13. la profondità di asportazione è superficiale, aumentare la velocità di taglio opportunamente per ridurre al minimo le vibrazioni.

1. Es sollten hochtechnologische Maschinen und Spannzangen eingesetzt werden. Wenn dies nicht möglich ist, sollten die oben genannten Schnittdaten reduzieren werden.
2. Werkzeugvibrationen sollten für höchste Genauigkeit auf ein Minimum reduziert werden.
3. Benützen Sie ein geeignetes Schneidöl um Rauchentwicklung zu vermeiden
4. Für das Zerspanen von (Ecken, Abtrag, Resten????) sollten Sie die Schnittgeschwindigkeit und den Vorschub um 70% reduzieren!
5. Stabilere High Feed Bearbeitungen können durch bestimmte Radiusfunktionen Maschinenseitig oder mit dem CAM System erreicht werden.
6. Wenn die Schnittkräfte schwanken (in den Ecken) oder wenn höchste Präzision gefragt ist sollten Sie die Umdrehungen besonders kontrollieren.
7. Wenn Sie mit einem größeren Schnittwinkel zerspanen wie angegeben sollten Sie die Schnittgeschwindigkeit senken.
8. Wenn verschiedene Schneidöle verwendet werden, oder wenn Sie genaue Fräsoperationen benötigen fahren Sie die Maschine unter den oben angegebenen Schnittdaten.
9. Falls Ihre Maschinenleistung in Bezug auf die Umdrehungen die empfohlenen Schnittdaten nicht erreicht, reduzieren Sie bitte die Schnittgeschwindigkeit in Relation zum RPM Ihrer Maschine.
10. Bei den angegebenen Schnittdaten handelt es sich um eine Richtlinie für die Bearbeitung. Die tatsächlichen Schnittdaten sollten individuell auf Ihre tatsächlichen Bearbeitungsbedingungen eingestellt werden.
11. Die Schnittkonditionen sind ausgelegt für mittlere Bearbeitung nach dem Schruppen.
12. Wenn die Arbeit umfangreiches Schruppen auf ebenen Flächen umfasst, können Rattermarken auftreten.
13. Wenn die Schnitttiefe gering ist, sollten Sie die Schnittgeschwindigkeit erhöhen um Rattern zu vermeiden.

1. Utilisation sur machines et portes outils rigides. Si cela n'est pas possible, utiliser les conditions mentionnées ci-dessous
2. Eviter les vibrations de l'outil pour une précision maximale.
3. Utilisez un fluide de coupe approprié à haute propriété ignifugée.
4. Pour le fraisage des angles ou l'enlèvement de reste de matière, réduire la profondeur de coupe et la vitesse à 70%
5. L'usinage des angles à la grande avance peut être réaliser avec stabilité, par l'accélération et la décélération du calculateur et suivant la taille de la machine
6. Quand la puissance absorbée fluctue(dans les angles, etc) ou quand la haute précision est recherché, assurez-vous de contrôler la vitesse de rotation.
7. Quand la coupe est supérieure à l'angle recommandé, réduiser l'avance
8. Quand la puissance absorbée fluctue ou quand la haute précision est recherchée, maintenir les conditions d'usinage ci-dessous
9. Quand la vitesse de rotation ne correspond pas aux conditions recommandées, réduire l'avance en proportion de la vitesse de rotation adaptée à votre machine
10. Le tableau ci-dessus est destinée aux applications générales et comme référence. Les valeurs données doivent être ajustées en fonction des conditions réelles d'usinage
11. Les conditions de coupe sont destinées à l'usinage intermédiaire après ébauche.
12. Quand l'usinage comprend de la grosse ébauche et des zones plates, des vibrations sont susceptible de se produire
13. la profondeur de coupe est peu profonde, augmenter la vitesse de coupe de façon appropriée afin de minimiser des vibrations

1. Benyt en stabil maskine og værktøjsholder. Hvis dette ikke er tilgængeligt, skal lavere skæredata end de ovenstående benyttes.
2. For maksimal nøjagtighed, hold vibrationer på et absolut minimum.
3. Benyt en passende skærevæske
4. Ved fræsning i hjørner eller restbearbejdning, reducer skæredybde og tilspænding til 70%
5. stabil High Feed bearbejdning kan opnås ved at programmerer radius baner i indvendige hjørner
6. Når skærekraften er svingende (i hjørner og lign.) eller når høj præcision er ønsket, kontroller da at omdrejninger og tilspænding er overens.
7. Hvis større rampevinkel end anbefalet benyttes, reducer tilspændingen.
8. Når skærekraften er svingende eller en højere nøjagtighed er ønsket, anvend skæredata der er lavere end ovenstående.
9. Hvis de anbefalede omdrejninger ikke er tilgængelige på maskinen, reducer da tilspændingen i forhold til de tilgængelige omdrejninger.
10. Ovenstående skæredata er ment som en generel guideline. Skæredata skal altid justeres individuelt så de passer til den aktuelle opgave og det udstyr der er til rådighed.
11. Skæredata anbefalet til mellem slet efter skrub bearbejdning.
12. Når bearbejdningen indeholder omfattende skrubbearbejdning af flade områder, kan vibrationer opstå.
13. Hvis skæredybden er lav, øg da skærehastigheden for at minimere vibrationer

1. Deben emplarse maquinas y porta-herramientas de gran rigidez. De lo contrario deben reducirse las condiciones de corte citadas.
2. Las vibraciones de herramienta deben reducirse al mínimo para obtener la maxima precisión.
3. Utilice fluido de corte edecuado con fuerte retardante de humos.
4. Para eliminar o evacuar los residuos en rincones, reduzca velocidad y avance al 70%.
5. Puede obtenerse alta velocidad en los rincones insertando función R o deceleración en el CAM o la maquina.
6. Si flutua la carga de corte (rincones etc,) o requerida alta precisión, asegurese de controlar la velocidad de giro.
7. Si la rampa de corte es mayor del angulo recomendado, reduzca el avance.
8. Si flutua la carga de corte o requerida alta precisión, reduzca los valores de corte citados.
9. Si la velocidad de giro no puede ser alcanzada por la maquina, reduzca el avance en la misma proporción.
10. Este cuadro se entiende solo como guía de referencias general. Los valores indviduales deben ajustarse a la condiciones reales de mecanizado.
11. Los datos de corte se entienden para condiciones intermedias de mecanizado despues de desbaste.
12. Si el mecanizado incluye extensas areas planas de desbaste, es usual que aparezcan vibraciones.
13. En profudidad de corte minimas, incremente la velocidad de corte para minimzar las vibraciones.

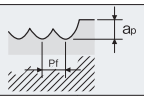
1. Använd en stabil maskin och verktygshållare. Om inte stabila förhållande finns använd lägre skärdata än ovanstående.
2. För bästa förhållande, håll nere vibrationer.
3. Använd en passande skärvätska.
4. Vid fräsning i hörn eller restbearbetning, minska skärdjup och matning till 70%.
5. Stabil High-Feed bearbetning i hörn kan uppnås genom att en större R i detaljen än fräsens R radie bana programmeras, i CAM eller maskin.
6. När skärkraften varierar (i hörnen, etc.) eller när hög precision efterfrågas, kontrollera att varvtal och matning är konsekventa.
7. Om större rampvinkel än rekommenderat behövs, reducera matningen.
8. När skärkraften varierar, eller när högre fräsnings noggrannhet krävs, använd lägre skärdata än ovanstående skärdata.
9. När varvtalet inte kan uppnås, använd det varvtal ni har tillgång till och reducra matningen i förhållandet till varvtalet.
10. Ovanstående skärdata är menat som en riktlinje. De angivna värdena ska justeras individuellt på grundval av faktiska bearbetning villkor.
11. Skärdata rekommendationer för semi finish och grovbearbetning.
12. När det finns mycket grovbearbetning av plana områden kan vibrationer uppstår.
13. Om skärdjupet är litet, öka skärhastigheten för att minimera vibrationer.

1. Необходимо использовать жесткие фрезерный станок и фрезерные патроны. В противном случае, режимы резания должны быть ниже вышеупомянутых условий.
2. Для максимальной точности необходимо обеспечить минимальное биение инструмента.
3. Используйте подходящую СОЖ с высокой стойкостью к дымлению.
4. При фрезеровании углов и удалении остатков материала уменьшите глубину резания и подачу до 70%.
5. Более стабильную обработку на высоких подачах можно достичь задавая уменьшение подачь в углах в CAM системе или на ЧПУ.
6. Если нагрузка меняется, например, в углах или требуется высокая точность, необходимо контролировать скорость вращения шпинделя.
7. При фрезеровании под углом большим, чем рекомендованный уменьшите подачу.
8. Если нагрузка меняется или требуется высокая точность, установите параметры резания не выше указанных.
9. Если скорость вращения шпинделя ниже рекомендованной, то снизьте подачу пропорционально скорости вращения.
10. Указанные выше параметры только для справки. Указанные значения должны быть изменены в соответствии с реальными условиями обработки.
11. Условия резания для получистовой обработки после черновой.
12. Если работа требует много черновой обработки, включая плоские области, то возникновение вибраций очень вероятно.
13. Если глубина резания небольшая, можно увеличить скорость резания так, чтобы свести к минимуму выбрацию инструмента.



R x l x L	(mm)	Graphite Roughing (mm⁻¹) Short ← Long	Roughing (mm/min) Short ← Long	Roughing (mm) ap	Roughing (mm) pf	Finishing (mm⁻¹) Short ← Long	Finishing (mm/min) Short ← Long	Finishing (mm) ap	Finishing (mm) pf
R2 x 8 x 80	16 ~ 40	20.000 ~ 11.000	3.150 ~ 1.800	0,4	1,2	20.000 ~ 11.000	2.100 ~ 1.200	0,12	0,12
R3 x 12 x 80	24 ~ 36	20.000 ~ 9.600	4.500 ~ 2.100	0,6	1,8	20.000 ~ 9.600	3.000 ~ 1.400	0,18	0,18
R4 x 16 x 100	32 ~ 56	16.000 ~ 7.200	3.900 ~ 1.800	0,8	2,4	16.000 ~ 7.200	2.600 ~ 1.200	0,22	0,22
R5 x 20 x 100	40 ~ 60	12.500 ~ 5.700	3.000 ~ 1.350	1,0	3,0	12.500 ~ 5.700	2.000 ~ 900	0,26	0,26
R6 x 36 x 130	48 ~ 84	10.500 ~ 4800	2.550 ~ 1.100	1,2	3,6	10.500 ~ 4.800	1.700 ~ 750	0,30	0,30

Max cutting depth



Set the diagonal plunge angle to be approximately 0,5˚ and 1˚.

1. Adjust the speed, the feed rate, and the depth of cut to suit your operating conditions, such as the milling shape, machine rigidity, tool holder rigidity, and work holding force.
2. If you are unable to raise the speed and feed rate higher than those indicated in the table above, lower the speed and feed rate using the same ratio.
3. If the workpiece gets chipped or if the operation requires a higher level of milling precision, lower the feed rate as necessary.
4. Depending on the shape, if the workpiece chatters, lower the speed and feed rate using the same ratio.
5. To mill graphite, use a dedicated milling machine. To prevent inhalation of dust, use a dust collector and a dust mask when working around graphite.
6. During milling, keep the runout at the tip of the end mill to be less than 0.01 mm.
7. To achieve efficient finishing, the feed rate may be adjusted as high as triple the rate.
8. For high-efficiency machining, lower the feed rate as far down as 30% for high-load operations such as slotting. This can minimize the amount of cutting remnants resulting from the flexing of the tool.
9. If gouging occurs while milling a flat area, raise the speed.
10. If a cut involves the shaping of a corner, use the corner radius process of the program, or adjust the speed so that it would not cause chattering, and reduce the speed at the corner at the same time (by approximately 60%).

1. Regolare l'avanzamento e la profonditàdi taglio secondo le attuali condizioni di taglio.
2. Se non non è possibile incrementare velocità e avanzamento come indicate in tabella3. Se il pezzo tende a scheggiare o se la lavorazione richiede alta precisione di fresatura, ridurre l'avanzamento secondo necessità.
4. A seconda della sagoma, se il pezzo vibra, ridurre simultaneamente velocità e avanzamento.
5. Per fresare Grafite utilizzare macchine dedicate. Per prevenire inalazioni di polveri, utilizzare un aspiratore e mascherina quando si lavora grafite.
6. Durante la fresatura, tenere la concentricità sulla punta della fresa sotto i 0.01mm.
7. Per raggiungere elevate finiture, l'avanzamento deve essere regolato tanto quanto il triplo del rapporto.
8. Per lavorazioni ad alta efficienza, ridurre l'avanzamento fino al 30% per operazioni ad alto caric come cave. Questo può ridurre il materiale residuo dovuto alla flessione dell'utensile.
9. Se si verificano scanalatura fresando una superficie piana, aumentare la velocità.
10. Se si lavorano angoli di raccordo, utilizzare programmi adeguati oppure regolare la velocità per non causare scheggiature e ridurre contemporaneamente l'avanzamento negli angoli (circa del 60%)

1. Bitte regulieren Sie Schnittgeschwidigkeit, Vorschub und Spanntiefe entsprechend Ihrer aktuellen Zerspanungsbedigungen.
2. Wenn es Ihnen nicht möglich ist die Drehzahlen und Vorschübe so zu fahren reduzieren Sie den Vorschub und die Drehzahl beim reduzieren versuchen Sie die Zahnvorschübe so einzuhalten wie in der Tabelle
3. Bei der Bearbeitung von Teilen mit hoher Präzision reduzieren Sie die Geschwindigkeit
4. Bei Vibration die Geschwindigkeiten im Verhältnis reduzieren
5. Bei der Bearbeitung von Grafit, müssen Sie darauf achten das Sie eine geeignete Maschine mit Absaugung nutzen
6. Die Rundlaufgenauigkeit des Werkzeugs beim fräsen muß kleiner 0.01mm liegen
7. Um effizientes Ergebnis zu bekommen kann der Vorschub teilweise um das 3 fache erhöht werden
8. Bei der Schwerzerspanung ist es von Vorteil den Vorschub manchmal um 30% zu senken, beim Nuten kann es sonst passieren das die Späne nicht gut abgeführt werden
9. Bei einer Geräuchentwicklung beim bearbeiten von ebenen Flächen sollte man den Vorschub erhöhen
10. Bei einer Umschlingung in der Ecke benutzen den Verrundungsradius in Ihrem CAM System oder reduzieren Sie die Geschwindigkeit um 60%

1. Ajuster le vitesse, avances et la profondeur de coupe pour être conforme aux conditions de coupe
2. Si il est imossible d'augmenter la vitesse et l'avance à des valeurs supérieres a celles indiquées dans le tableau ci-dessus, alorsv réduiser la vitesse et l'avance dans les même ratio
3. Dans le cas des copeaux sur le pièce de travail ou les opérations requises un niveau de précision élévée de fraisage, alors réduiser l'avance si nécessaire
4. Dépendant de la forme de la pièce, et si des vibrations se présentes, réduiser la vitesse et l'avance dans les mêmes ratio
5. Pour l'usiange du graphite, tilser une machine adéquate. Pour la prévention d' inhaler le poussière, utilser un aspirateur et un masque de protection
6. Lors de l'usinage, garder la non-balance de l'outil inférieur à 0,01 mm
7. Pour une finition éfficace, l'avance peut être augmenter avec un facteur de 3
8. Pour des machines de haute éfficacité, réduiser l'avance à 30% pour des usinages de grande puissance comme le rainurage. Ceci peur réduire le montant des pannes due à la flextion de l'outil
9. En cas de sons impropriété pendant le fraisage des plans plats, augmenter la vitesse
10. Quand le fraisage require l'usiange d'un coin, utilser la procédure "faire rayon" du programme ou ajuster la vitesse pour ne causer des vibrations et réduiser la vitesse dans le coin au même moment avec une valeur de approx. 60%

1. Justér hastighed, tilspænding og skæredybde således at det passer til omstændighederne såsom. Fræse kontur, maskinens stabilitet, holderens rigiditet og spændekraft.
2. Hvis maskinen ikke kan opnå de hastigheder og tilspændinger som står i ovenstående tabel, reducér da omdrejninger og tilspænding proportionalt.
3. Hvis operationen kræver en højere grad af præcision I fræsningen, reducér da tilspændingen.
4. Afhængigt af emnets udformning kan vibrationer opstå, reducér da omdrejninger og tilspænding proportionalt.
5. Ved fræsning I grafit, brug da en dedikeret maskine. For at undgå inhalation af grafit, benyt da støvfang og støvmaske.
6. Ved fræsning, sørg for at rundløbet ved spidsen af fræseren er under 0,01mm.
7. For at opnå mere effektiv sletbearbejdning, kan tilspændingen øges med faktor 3.
8. For at bearbejde "high-load" operationer såsom sporfræsning effektivt, reducér da tilspændingen helt ned til 30%. Dette kan reducere restbearbejdningen forårsaget af udbøjning på fræseren.
9. Hvis der opstår udhulning når et fladt område fræses, øg da hastigheden.
10. Hvis der bearbejdes indvendige hjørner skal der bruges radius kompensering for at forhindre vibrationer. Alternativt kan tilspænding sænkes til 60%.

1. Ajuste velocidad, avance y profundidad de corte hasta las adecuadas a su operación de fresado, rigidez de maquina y de fijaciones.
2. Si no puded aplicar las condiciones de corte recomendadas, reduzca velocidad y avance mm/min enb la misma proporción.
3. Si la pieza se descantilla y requiere un nivel superior de precisión reduzca el avance hasta conseguir el objetivo.
4. En caso de vibración reduzaca velocidad y avance en la misma proporción
5. Para fresar grafito use un maquina en exclusiva y adaptada para la extracción de polvo y humos
6. Durante el fresado mantenga el salto de fresa en la punta dentro de 0,01 mm
7. Eficiente para lograr el acabado, la velocidad de avance puede ajustarse tan alto como el triple
8. Para mecanizado de alta eficiencia en operaciones de sobrecarga que fuerzan a la flexión como ranurado, reduzca el avance un 30%.
9. Si se producen rayas en fresado plano, aumente la velocidad
10. En fresado de rincones use interpolación circular para evitar la sobrecarga. También reduzca v elocidad aproximadamente al 60% para evitar vibración.

1. Justera varvtalet, matningen och skärdjupet för att passa ditt arbetsförhållande såsom maskinens skick, skäringrepp, maskinens stabilitet eller uppspänningsanordning.
2. Om du inte uppnår varvtal eller matning enl. tabellen ovan, sänk varvtal och matning med samma föarhållande.
3. Om arbetsstycket flisas eller om operationen kräver en högre precision, minska matningen något.
4. Om det vibrerar beroende på detaljens utseende, minska varvtal och matning
5. För att fräsa i grafit använd en maskin som är till för grafit. För att motverka inandning av damm använd en dammsugare och använd även en dammfiltermask vid arbete med grafit.
7. Förr att uppnå en effektiv finbeabetning, kan matningen ökas upp till 3 gånger.
8. För högeffektiv maskinbearbetning, minska matningen så mycket som 30 % vid stora ingrepp som ger en hög belastning såsom spårfräsning.
9. Om där blir spår vid fräsning av en plan yta, öka varvtalet.
10. Om det blir fula ytor i ett hörn, använd hörn radie programmering i maskinen eller ändra varvtal så där inte uppstår vibrationer, dessutom reducera matningen i hörnorna (ungefär med 60 %)

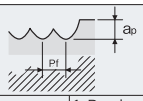
1. Пожалуйста отрегулируйте обороты шпинделя, подачу и глубину резания в соответствии с условиями обработки
2. Если Вы не можете поднять скорость и подачу до указанных выше в таблице значений, понизьте скорость и подачу, в одинаковой пропорции.
3. Если заготовка скалывается или если необходима высокая точность, понизьте норму подачи по мере необходимости.
4. В зависимости от формы, если заготовка вибрирует, понизьте скорость и подачу, в одинаковой пропорции.
5. Чтобы фрезеровать графит, используйте специализированный фрезерный станок. Чтобы предотвратить вдыхание пыли, используйте пылеулавливатель и маску, работая рядом с графитом.
6. Во время фрезерования, биение конца фрезы не должно превышать 0.01 мм.
7. Чтобы обеспечить эффективную финишную обработку, подача может быть установлена в три раза выше, чем указано.
8. Для высокопроизводительной обработки, понизьте подачу на 30 % при работе с большой нагрузкой
9. Если выдалбливание происходит, при обработки плоской области, увеличьте скорость.
10. Если необходимо обработать углы, используйте радиусную траекторию при прохождении углов или снизьте скорость и подачу так, чтобы не возникало вибраций (примерно на 60%)



Graphite

R x l2	Roughing (mm⁻¹) Short ← Long	Roughing (mm/min) Short ← Long	Roughing (mm) ap	Roughing (mm) pf	Finishing (mm⁻¹) Short ← Long	Finishing (mm/min) Short ← Long	Finishing (mm) ap	Finishing (mm) pf
R0,2 x 4	40.000 ~ 20.000	960 ~ 480	0,04	0,12	40.000 ~ 20.000	800 ~ 400	0,012	0,012
R0,2 x 8	30.000 ~ 18.000	430 ~ 250	0,03	0,08	30.000 ~ 18.000	360 ~ 210	0,012	0,012
R0,3 x 6	40.000 ~ 20.000	960 ~ 480	0,06	0,18	40.000 ~ 20.000	800 ~ 400	0,018	0,018
R0,3 x 10	33.000 ~ 20.000	635 ~ 385	0,05	0,15	33.000 ~ 20.000	530 ~ 320	0,018	0,018
R0,4 x 15	19.000 ~ 14.000	370 ~ 280	0,05	0,15	19.000 ~ 14.000	280 ~ 230	0,021	0,021
R0,5 x 6	40.000 ~ 20.000	1.150 ~ 575	0,10	0,30	40.000 ~ 20.000	950 ~ 480	0,030	0,030
R0,5 x 16	23.000 ~ 18.000	530 ~ 410	0,08	0,24	23.000 ~ 18.000	440 ~ 340	0,030	0,030
R0,5 x 20	18.000 ~ 12.000	310 ~ 205	0,07	0,20	18.000 ~ 12.000	260 ~ 170	0,030	0,030
R0,5 x 30	8.000 ~ 5.000	145 ~ 85	0,04	0,13	8.000 ~ 5.000	120 ~ 70	0,020	0,020
R0,75 x 6	40.000 ~ 20.000	1.800 ~ 900	0,15	0,45	40.000 ~ 20.000	1.500 ~ 750	0,045	0,045
R0,75 x 10	38.000 ~ 20.000	1.600 ~ 865	0,15	0,45	38.000 ~ 20.000	1.350 ~ 720	0,045	0,045
R0,75 x 16	30.000 ~ 20.000	1.300 ~ 865	0,15	0,45	30.000 ~ 20.000	1.100 ~ 720	0,045	0,045
R1 x 16	28.000 ~ 20.000	1.800 ~ 1.350	0,20	0,60	28.000 ~ 20.000	1.300 ~ 950	0,060	0,060
R1 x 30	16.000 ~ 11.500	840 ~ 615	0,18	0,52	16.000 ~ 11.500	600 ~ 440	0,060	0,060
R1,5 x 20	20.000 ~ 15.500	2.050 ~ 1.550	0,30	0,90	20.000 ~ 15.500	1.450 ~ 1.100	0,090	0,090
R1,5 x 40	12.500 ~ 9.200	1.000 ~ 740	0,22	0,65	12.500 ~ 9.200	720 ~ 530	0,090	0,090
R2 x 20	20.000 ~ 14.000	2.950 ~ 2.050	0,40	1,20	20.000 ~ 14.000	2.100 ~ 1.450	0,120	0,120

Max cutting depth



Set the diagonal plunge angle to be approximately 0,5˚ and 1˚.

1. Adjust the speed, the feed rate, and the depth of cut to suit your operating conditions, such as the milling shape, machine rigidity, tool holder rigidity, and work holding force.
2. If you are unable to raise the speed and feed rate higher than those indicated in the table above, lower the speed and feed rate using the same ratio.
3. If the workpiece gets chipped or if the operation requires a higher level of milling precision, lower the feed rate as necessary.
4. Depending on the shape, if the workpiece chatters, lower the speed and feed rate using the same ratio.
5. To mill graphite, use a dedicated milling machine. To prevent inhalation of dust, use a dust collector and a dust mask when working around graphite.
6. During milling, keep the runout at the tip of the end mill to be less than 0.01 mm.
7. To achieve efficient finishing, the feed rate may be adjusted as high as triple the rate.
8. For high-efficiency machining, lower the feed rate as far down as 30% for high-load operations such as slotting. This can minimize the amount of cutting remnants resulting from the flexing of the tool.
9. If gouging occurs while milling a flat area, raise the speed.
10. If a cut involves the shaping of a corner, use the corner radius process of the program, or adjust the speed so that it would not cause chattering, and reduce the speed at the corner at the same time (by approximately 60%).

1. Regolare l'avanzamento e la profonditàdi taglio secondo le attuali condizioni di taglio.
2. Se non non è possibile incrementare velocità e avanzamento come indicate in tabella3. Se il pezzo tende a scheggiare o se la lavorazione richiede alta precisione di fresatura, ridurre l'avanzamento secondo necessità.
4. A seconda della sagoma, se il pezzo vibra, ridurre simultaneamente velocità e avanzamento.
5. Per fresare Grafite utilizzare macchine dedicate. Per prevenire inalazioni di polveri, utilizzare un aspiratore e mascherina quando si lavora grafite.
6. Durante la fresatura, tenere la concentricità sulla punta della fresa sotto i 0.01mm.
7. Per raggiungere elevate finiture, l'avanzamento deve essere regolato tanto quanto il triplo del rapporto.
8. Per lavorazioni ad alta efficienza, ridurre l'avanzamento fino al 30% per operazioni ad alto caric come cave. Questo può ridurre il materiale residuo dovuto alla flessione dell'utensile.
9. Se si verificano scanalatura fresando una superficie piana, aumentare la velocità.
10. Se si lavorano angoli di raccordo, utilizzare programmi adeguati oppure regolare la velocità per non causare scheggiature e ridurre contemporaneamente l'avanzamento negli angoli (circa del 60%)

1. Bitte regulieren Sie Schnittgeschwidigkeit, Vorschub und Spanntiefe entsprechend Ihrer aktuellen Zerspanungsbedigungen.
2. Wenn es Ihnen nicht möglich ist die Drehzahlen und Vorschübe so zu fahren reduzieren Sie den Vorschub und die Drehzahl beim reduzieren versuchen Sie die Zahnvorschübe so einzuhalten wie in der Tabelle
3. Bei der Bearbeitung von Teilen mit hoher Präzision reduzieren Sie die Geschwindigkeit
4. Bei Vibration die Geschwindigkeiten im Verhältnis reduzieren
5. Bei der Bearbeitung von Grafit, müssen Sie darauf achten das Sie eine geeignete Maschine mit Absaugung nutzen
6. Die Rundlaufgenauigkeit des Werkzeugs beim fräsen muß kleiner 0.01mm liegen
7. Um effizientes Ergebnis zu bekommen kann der Vorschub teilweise um das 3 fache erhöht werden
8. Bei der Schwerzerspanung ist es von Vorteil den Vorschub manchmal um 30% zu senken, beim Nuten kann es sonst passieren das die Späne nicht gut abgeführt werden
9. Bei einer Geräuchentwicklung beim bearbeiten von ebenen Flächen sollte man den Vorschub erhöhen
10. Bei einer Umschlingung in der Ecke benutzen den Verrundungsradius in Ihrem CAM System oder reduzieren Sie die Geschwindigkeit um 60%

1. Ajuster le vitesse, avances et la profondeur de coupe pour être conforme aux conditions de coupe
2. Si il est imossible d'augmenter la vitesse et l'avance à des valeurs supérieres a celles indiquées dans le tableau ci-dessus, alorsv réduiser la vitesse et l'avance dans les même ratio
3. Dans le cas des copeaux sur le pièce de travail ou les opérations requises un niveau de précision élévée de fraisage, alors réduiser l'avance si nécessaire
4. Dépendant de la forme de la pièce, et si des vibrations se présentes, réduiser la vitesse et l'avance dans les mêmes ratio
5. Pour l'usiange du graphite, tilser une machine adéquate. Pour la prévention d' inhaler le poussière, utilser un aspirateur et un masque de protection
6. Lors de l'usinage, garder la non-balance de l'outil inférieur à 0,01 mm
7. Pour une finition éfficace, l'avance peut être augmenter avec un facteur de 3
8. Pour des machines de haute éfficacité, réduiser l'avance à 30% pour des usinages de grande puissance comme le rainurage. Ceci peur réduire le montant des pannes due à la flextion de l'outil
9. En cas de sons impropriété pendant le fraisage des plans plats, augmenter la vitesse
10. Quand le fraisage require l'usiange d'un coin, utilser la procédure "faire rayon" du programme ou ajuster la vitesse pour ne causer des vibrations et réduiser la vitesse dans le coin au même moment avec une valeur de approx. 60%

1. Justér hastighed, tilspænding og skæredybde således at det passer til omstændighederne såsom. Fræse kontur, maskinens stabilitet, holderens rigiditet og spændekraft.
2. Hvis maskinen ikke kan opnå de hastigheder og tilspændinger som står i ovenstående tabel, reducér da omdrejninger og tilspænding proportionalt.
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5. Ved fræsning I grafit, brug da en dedikeret maskine. For at undgå inhalation af grafit, benyt da støvfang og støvmaske.
6. Ved fræsning, sørg for at rundløbet ved spidsen af fræseren er under 0,01mm.
7. For at opnå mere effektiv sletbearbejdning, kan tilspændingen øges med faktor 3.
8. For at bearbejde "high-load" operationer såsom sporfræsning effektivt, reducér da tilspændingen helt ned til 30%. Dette kan reducere restbearbejdningen forårsaget af udbøjning på fræseren.
9. Hvis der opstår udhulning når et fladt område fræses, øg da hastigheden.
10. Hvis der bearbejdes indvendige hjørner skal der bruges radius kompensering for at forhindre vibrationer. Alternativt kan tilspænding sænkes til 60%.

1. Ajuste velocidad, avance y profundidad de corte hasta las adecuadas a su operación de fresado, rigidez de maquina y de fijaciones.
2. Si no puded aplicar las condiciones de corte recomendadas, reduzca velocidad y avance mm/min enb la misma proporción.
3. Si la pieza se descantilla y requiere un nivel superior de precisión reduzca el avance hasta conseguir el objetivo.
4. En caso de vibración reduzaca velocidad y avance en la misma proporción
5. Para fresar grafito use un maquina en exclusiva y adaptada para la extracción de polvo y humos
6. Durante el fresado mantenga el salto de fresa en la punta dentro de 0,01 mm
7. Eficiente para lograr el acabado, la velocidad de avance puede ajustarse tan alto como el triple
8. Para mecanizado de alta eficiencia en operaciones de sobrecarga que fuerzan a la flexión como ranurado, reduzca el avance un 30%.
9. Si se producen rayas en fresado plano, aumente la velocidad
10. En fresado de rincones use interpolación circular para evitar la sobrecarga. También reduzca v elocidad aproximadamente al 60% para evitar vibración.

1. Justera varvtalet, matningen och skärdjupet för att passa ditt arbetsförhållande såsom maskinens skick, skäringrepp, maskinens stabilitet eller uppspänningsanordning.
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4. Om det vibrerar beroende på detaljens utseende, minska varvtal och matning
5. För att fräsa i grafit använd en maskin som är till för grafit. För att motverka inandning av damm använd en dammsugare och använd även en dammfiltermask vid arbete med grafit.
7. Förr att uppnå en effektiv finbeabetning, kan matningen ökas upp till 3 gånger.
8. För högeffektiv maskinbearbetning, minska matningen så mycket som 30 % vid stora ingrepp som ger en hög belastning såsom spårfräsning.
9. Om där blir spår vid fräsning av en plan yta, öka varvtalet.
10. Om det blir fula ytor i ett hörn, använd hörn radie programmering i maskinen eller ändra varvtal så där inte uppstår vibrationer, dessutom reducera matningen i hörnorna (ungefär med 60 %)

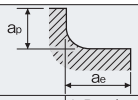
1. Пожалуйста отрегулируйте обороты шпинделя, подачу и глубину резания в соответствии с условиями обработки
2. Если Вы не можете поднять скорость и подачу до указанных выше в таблице значений, понизьте скорость и подачу, в одинаковой пропорции.
3. Если заготовка скалывается или если необходима высокая точность, понизьте норму подачи по мере необходимости.
4. В зависимости от формы, если заготовка вибрирует, понизьте скорость и подачу, в одинаковой пропорции.
5. Чтобы фрезеровать графит, используйте специализированный фрезерный станок. Чтобы предотвратить вдыхание пыли, используйте пылеулавливатель и маску, работая рядом с графитом.
6. Во время фрезерования, биение конца фрезы не должно превышать 0.01 мм.
7. Чтобы обеспечить эффективную финишную обработку, подача может быть установлена в три раза выше, чем указано.
8. Для высокопроизводительной обработки, понизьте подачу на 30 % при работе с большой нагрузкой
9. Если выдалбливание происходит, при обработки плоской области, увеличьте скорость.
10. Если необходимо обработать углы, используйте радиусную траекторию при прохождении углов или снизьте скорость и подачу так, чтобы не возникало вибраций (примерно на 60%)



Graphite

Dc x r x On x l2	Roughing (mm⁻¹) Short ← Long	Roughing (mm/min) Short ← Long	Roughing (mm) ap	Roughing (mm) pf	Finishing (mm⁻¹) Short ← Long	Finishing (mm/min) Short ← Long	Finishing (mm) ap	Finishing (mm) pf
0,5 x R0,1 x 0° x 4	20.000 ~ 16.000	720 ~ 575	0,05	0,24	20.000 ~ 16.000	600 ~ 480	0,05	0,12
0,5 x R0,1 x 0° x 6	20.000 ~ 16.000	720 ~ 575	0,05	0,24	20.000 ~ 16.000	600 ~ 480	0,05	0,12
1 x R0,1 x 0° x 10	16.000 ~ 12.000	1.150 ~ 865	0,10	0,48	16.000 ~ 12.000	960 ~ 720	0,08	0,24
2 x R0,2 x 0° x 10	16.000 ~ 12.000	2.050 ~ 1.500	0,30	1,28	16.000 ~ 12.000	1.450 ~ 1.100	0,08	0,64
2 x R0,2 x 0° x 20	11.000 ~ 8.000	1.400 ~ 1.000	0,18	1,20	11.000 ~ 8.000	990 ~ 720	0,08	0,64
4 x R0,3 x 0° x 40	12.000 ~ 8.000	3.450 ~ 2.300	0,35	2,80	12.000 ~ 8.000	2.450 ~ 1.650	0,08	1,40
4 x R0,5 x 0° x 25	12.000 ~ 8.000	2.950 ~ 1.870	0,40	3,00	12.000 ~ 8.000	2.180 ~ 1.180	0,32	1,50
4 x R0,5 x 0° x 40	12.000 ~ 8.000	3.450 ~ 2.300	0,35	3,00	12.000 ~ 8.000	2.410 ~ 1.650	0,08	1,70
4 x R1 x 0° x 40	12.000 ~ 8.000	3.450 ~ 2.300	0,35	3,00	12.000 ~ 8.000	2.410 ~ 1.650	0,08	2,00
6 x R0,3 x 0° x 30	12.000 ~ 8.000	3.450 ~ 2.300	1,50	4,80	12.000 ~ 8.000	2.410 ~ 1.650	0,15	2,40
6 x R0,5 x 0° x 30	12.000 ~ 7.000	4.300 ~ 2.500	1,50	4,00	12.000 ~ 7.000	3.050 ~ 1.800	0,20	2,00
6 x R1 x 0° x 30	12.000 ~ 7.000	4.300 ~ 2.500	1,50	3,20	12.000 ~ 7.000	3.050 ~ 1.800	0,40	1,60
8 x R0,3 x 0° x 100	5.000 ~ 3.500	2.000 ~ 800	2,00	4,20	5.000 ~ 3.500	1.500 ~ 500	0,10	2,00
8 x R0,5 x 0° x 32	10.000 ~ 7.000	3.800 ~ 2.650	2,00	5,60	10.000 ~ 7.000	2.700 ~ 1.900	0,20	2,80
8 x R0,5 x 0° x 100	5.000 ~ 3.500	2.000 ~ 800	2,00	3,60	5.000 ~ 3.500	1.500 ~ 500	0,10	1,40
8 x R1 x 0° x 100	5.000 ~ 3.500	2.000 ~ 800	2,00	3,00	5.000 ~ 3.500	1.500 ~ 500	0,20	1,00
10 x R0,5 x 0° x 40	8.000 ~ 4.000	3.050 ~ 1.500	2,50	7,20	8.000 ~ 4.000	2.200 ~ 1.100	0,20	4,40
10 x R1 x 0° x 40	8.000 ~ 4.000	3.050 ~ 1.500	2,50	6,40	8.000 ~ 4.000	2.200 ~ 1.100	0,40	3,20
12 x R1 x 0° x 48	6.000 ~ 3.000	2.300 ~ 1.150	3,00	8,00	6.000 ~ 3.000	1.650 ~ 815	0,40	4,00

Max cutting depth



Set the diagonal plunge angle to be approximately 0,5˚ and 1˚.

1. Adjust the speed, the feed rate, and the depth of cut to suit your operating conditions, such as the milling shape, machine rigidity, tool holder rigidity, and work holding force.
2. If you are unable to raise the speed and feed rate higher than those indicated in the table above, lower the speed and feed rate using the same ratio.
3. If the workpiece gets chipped or if the operation requires a higher level of milling precision, lower the feed rate as necessary.
4. Depending on the shape, if the workpiece chatters, lower the speed and feed rate using the same ratio.
5. To mill graphite, use a dedicated milling machine. To prevent inhalation of dust, use a dust collector and a dust mask when working around graphite.
6. During milling, keep the runout at the tip of the end mill to be less than 0.01 mm.
7. To achieve efficient finishing, the feed rate may be adjusted as high as triple the rate.
8. For high-efficiency machining, lower the feed rate as far down as 30% for high-load operations such as slotting. This can minimize the amount of cutting remnants resulting from the flexing of the tool.
9. If gouging occurs while milling a flat area, raise the speed.
10. If a cut involves the shaping of a corner, use the corner radius process of the program, or adjust the speed so that it would not cause chattering, and reduce the speed at the corner at the same time (by approximately 60%).

1. Regolare l'avanzamento e la profonditàdi taglio secondo le attuali condizioni di taglio.
2. Se non non è possibile incrementare velocità e avanzamento come indicate in tabella3. Se il pezzo tende a scheggiare o se la lavorazione richiede alta precisione di fresatura, ridurre l'avanzamento secondo necessità.
4. A seconda della sagoma, se il pezzo vibra, ridurre simultaneamente velocità e avanzamento.
5. Per fresare Grafite utilizzare macchine dedicate. Per prevenire inalazioni di polveri, utilizzare un aspiratore e mascherina quando si lavora grafite.
6. Durante la fresatura, tenere la concentricità sulla punta della fresa sotto i 0.01mm.
7. Per raggiungere elevate finiture, l'avanzamento deve essere regolato tanto quanto il triplo del rapporto.
8. Per lavorazioni ad alta efficienza, ridurre l'avanzamento fino al 30% per operazioni ad alto caric come cave. Questo può ridurre il materiale residuo dovuto alla flessione dell'utensile.
9. Se si verificano scanalatura fresando una superficie piana, aumentare la velocità.
10. Se si lavorano angoli di raccordo, utilizzare programmi adeguati oppure regolare la velocità per non causare scheggiature e ridurre contemporaneamente l'avanzamento negli angoli (circa del 60%)

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6. Die Rundlaufgenauigkeit des Werkzeugs beim fräsen muß kleiner 0.01mm liegen
7. Um effizientes Ergebnis zu bekommen kann der Vorschub teilweise um das 3 fache erhöht werden
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6. Lors de l'usinage, garder la non-balance de l'outil inférieur à 0,01 mm
7. Pour une finition éfficace, l'avance peut être augmenter avec un facteur de 3
8. Pour des machines de haute éfficacité, réduiser l'avance à 30% pour des usinages de grande puissance comme le rainurage. Ceci peur réduire le montant des pannes due à la flextion de l'outil
9. En cas de sons impropriè pendant le fraisage des plans plats, augmenter la vitesse
10. Quand le fraisage require l'usiange d'un coin, utilser la procédure "faire rayon" du programme ou ajuster la vitesse pour ne causer des vibrations et réduiser la vitesse dans le coin au même moment avec une valeur de approx. 60%

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6. Ved fræsning, sørg for at rundløbet ved spidsen af fræseren er under 0,01mm.
7. For at opnå mere effektiv sletbearbejdning, kan tilspændingen øges med faktor 3.
8. For at bearbejde "high-load" operationer såsom sporfræsning effektivt, reducér da tilspændingen helt ned til 30%. Dette kan reducere restbearbejdningen forårsaget af udbøjning på fræseren.
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5. Para fresar grafito use un maquina en exclusiva y adaptada para la extracción de polvo y humos
6. Durante el fresado mantenga el salto de fresa en la punta dentro de 0,01 mm
7. Eficiente para lograr el acabado, la velocidad de avance puede ajustarse tan alto como el triple
8. Para mecanizado de alta eficiencia en operaciones de sobrecarga que fuerzan a la flexión como ranurado, reduzca el avance un 30%.
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9. Om där blir spår vid fräsning av en plan yta, öka varvtalet.
10. Om det blir fula ytor i ett hörn, använd hörn radie programmering i maskinen eller ändra varvtal så där inte uppstår vibrationer, dessutom reducera matningen i hörnorna (ungefär med 60 %)

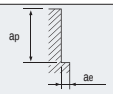
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7. Чтобы обеспечить эффективную финишную обработку, подача может быть установлена в три раза выше, чем указано.
8. Для высокопроизводительной обработки, понизьте подачу на 30 % при работе с большой нагрузкой
9. Если выдалбливание происходит, при обработки плоской области, увеличьте скорость.
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UP-PHS

Side milling - Konturfräsen - Conturnatura - Contournage
Sidefræsning -Valsfräsning - Contorneado - Боковое фрезерование



	C≤0,2% - GG S55C ■ SS400 ■ FC250 ~750 N/mm²		SCM - SKD SKT ■ SKD ■ SKS ■ SCM ~30 HRC		30~38 HRC NAK55 ■ HPM1 ■ SKT ■ SKD 30~38 HRC		38~45 HRC-SUS SUS304 ■ SKD 38~45 HRC		45~55 HRC - Tiall 45~55 N/mm²	
	100 (m/min)		78 (m/min)		66 (m/min)		62 (m/min)		60 (m/min)	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
3	10.600	1.170	8.300	900	7.000	650	6.600	670	6.350	580
4	7.950	1.200	6.200	980	5.250	650	4.950	700	4.750	620
5	6.350	1.260	4.950	1.000	4.200	700	3.950	750	3.800	640
6	5.300	1.500	3.100	1.100	2.650	790	2.450	770	2.400	660
8	4.000	1.500	3.100	1.100	2.650	790	2.450	770	2.400	660
10	3.200	1.320	2.500	1.000	2.100	720	1.950	700	1.900	630
12	2.650	1.320	2.050	1.000	1.750	680	1.650	650	1.600	570

Max cutting depth		ap	ae	ap	ae	ap	ae
		1.5D	0.2D	1.5D	0.1D	1D	0.05D

1. Use a rigid and precise machine and holder.
2. Adjust speed and feed when cutting depth is large or when machining with low rigidity tooling.
3. Use a suitable cutting fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.

1. Usare un mandrino portautensile preciso e rigido
2. Regolare la velocità e l'avanzamento se si aumenta la profondità di passata e se utilizzata su macchine non rigide.
3. Si consiglia di usare emulsione a scarsa emissione di fumi.
4. Per fresatura a secco utilizzare aria.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Vorschub und Geschwindigkeit der Schnittiefe und Machinen-Starrheit anpassen.
3. Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen.
4. Vorschub und Geschwindigkeit der Schnittiefe und Maschinen-Starrheit anpassen.

1. Utiliser une machine et un attachement précis et rigide.
2. Ajuster la vitesse et l'avance en cas de profondeur de coupe importante ou en utilisant un machine non-rigide.
3. Utiliser un liquide de refroidissement adéquat.
4. En cas d'usinage à sec, utiliser de l'air comprimé pour l'évacuation des copeaux de l'aire d'usinage et pour éviter une agglomération des Copeaux.

1.Anvend stabil maskine og værktøjsholder
2.Justér omdrejninger og tilspænding ved stor skæredybde eller en ustabil maskine bruges
3.Anvend en passende skærevæske
4.Under tørbearbejdning anvend lufttryk for at bortskaffe spåner

1.Use maquina y portaherramientas rigidos y precisos
2.Ajustar el avance cuando la profundidad de corte es grande o cuando se se utilizan máquinas de poca rigidez
3.Use fluido de corte adecuado con retardador de humos
4.Fresado en seco (sin líquido), por favor, utilice el aire soplado para eliminar la viruta de la zona de corte

1.Använd en stabil maskin och verktygshållare
2.Justera skärdatan efter detaljens utformning och maskinens stabilitet.
3.Använd anpassad skärvätska
4Vid torrbearbetning använd tryckluft för att transportera bort spånor

1.Используйте жесткие и точные станки и фрезерные патроны
2.Пожалуйста отрегулируйте обороты шпинделя и подачу, когда глубина резания велика или при использовании станков с низкой жесткостью
3.Используйте соответствующую СОЖ с высокой устойчивостью к возникновению дыма
4.При сухом (без СОЖ) фрезеровании, используйте воздушную струю для удаления стружки и предотвращения спрессовывания стружки

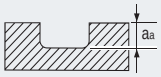
CARBIDE

UP-PHS

Slotting - Nutenfräsen - Per scanalature profonde - Rainurage
Skæredata - Skärdata - Ranurado - Фрезерование пазов



	C≤0,2% - GG S55C ■ SS400 ■ FC250 ~750 N/mm²		SCM - SKD SKT ■ SKD ■ SKS ■ SCM ~30 HRC		30~38 HRC NAK55 ■ HPMI ■ SKT ■ SKD 30~38 HRC		38~45 HRC-SUS SUS304 ■ SKD 38~45 HRC		45~55 HRC - Tiall 45~55 N/mm²	
	72 (m/min)		54 (m/min)		41 (m/min)		47 (m/min)		42 (m/min)	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
3	7.600	570	5.700	480	4.400	315	4.950	360	4.450	380
4	5.700	570	4.300	480	3.300	315	3.750	400	3.350	430
5	4.600	650	3.400	500	2.600	330	2.950	430	2.650	460
6	3.800	650	2.900	500	2.200	350	2.500	450	2.250	480
8	2.900	660	2.200	520	1.650	380	1.850	465	1.650	480
10	2.300	610	1.700	480	1.300	330	1.500	430	1.350	450
12	1.900	610	1.400	430	1.100	315	1.200	400	1.100	420

Max cutting depth		ap = 1D	ap = 0.2D

WXS-HS-CRE/WXS-CRE

Regular milling - Normale Bearbeitung - Parametri di taglio - Fraisage regular
Almindelig fræsning - Konventionell fräsning - Fresado regular - Нормальное фрезерование



Ø	GG S (min⁻¹)	GG F (mm/min)	30~38 HRC NAK55 ■ HPM1 ■ SKT ■ SKD 30~38 HRC S (min⁻¹)	30~38 HRC F (mm/min)	38~45 HRC SUS304 ■ SKD ■ HPM50 NAK80 38~45 HRC S (min⁻¹)	38~45 HRC F (mm/min)	45~55 HRC 45~55 HRC S (min⁻¹)	45~55 HRC F (mm/min)	55~60 HRC 55~60 HRC S (min⁻¹)	55~60 HRC F (mm/min)	60~ HRC 60~ HRC S (min⁻¹)	60~ HRC F (mm/min)
2 x R 0,5	16.000	5.250	12.500	3.800	11.000	3.350	7.950	2.150	4.750	860	4.270	615
3 X R 0,75	10.500	6.250	8.500	4.500	7.450	3.900	5.300	2.600	3.200	995	2.850	715
4 X R 1	7.950	6.600	6.350	4.800	5.550	4.200	4.000	2.750	2.400	1.050	2.150	755
6 X R 1,5	5.300	7.000	4.250	5.100	3.700	4.450	2.650	2.850	1.600	1.150	1.400	825
8 X R 2	4.000	7.000	3.200	5.100	2.800	4.450	2.000	2.850	1.200	1.150	1.050	825
10 X R 2	3.200	7.000	2.550	5.100	2.250	4.450	1.600	2.850	955	1.150	860	825

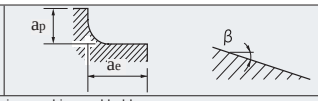
WXS-CRE/WXS-HS-CRE

High speed side milling - HSC Konturfräsen - Sgrossatura e contornatura alta velocità - Contournage UGV
High speed sidefræsning - High speed valsfräsning - Contorneado a alta velocidad - Высокоскоростное контурное фрезерование



Ø	GG S (min⁻¹)	GG F (mm/min)	30~38 HRC NAK55 ■ HPM1 ■ SKT ■ SKD 30~38 HRC S (min⁻¹)	30~38 HRC F (mm/min)	38~45 HRC SUS304 ■ SKD ■ HPM50 NAK80 38~45 HRC S (min⁻¹)	38~45 HRC F (mm/min)	45~55 HRC 45~55 HRC S (min⁻¹)	45~55 HRC F (mm/min)	55~60 HRC 55~60 HRC S (min⁻¹)	55~60 HRC F (mm/min)	60~ HRC 60~ HRC S (min⁻¹)	60~ HRC F (mm/min)
2 x R 0,5	31.850	10.500	32.000	9.550	24.000	7.150	24000	6.450	16.000	2.850	14.400	2.050
3 X R 0,75	21.000	12.500	21.000	12.000	16.000	8.400	16.000	7.850	10.500	3.300	9.450	2.370
4 X R 1	16.000	13.000	16.000	12.000	12.000	9.000	12.000	8.200	7.950	3.550	7.150	2.550
6 X R 1,5	10.600	14.000	10.600	12.700	7.950	9.550	7.950	8.600	5.300	3.800	5.300	3.800
8 X R 2	7.950	14.000	7.950	12.700	5.950	9.550	5.950	8.600	4.000	3.800	4.000	3.800
10 X R 2	6.350	14.000	6.350	12.700	4.750	9.550	4.750	8.600	3.200	3.800	3.200	3.800

Max cutting depth



	ap	ae
	0, 1xR	0, 3D

	ap	ae
R≦2	0, 1 x R	0, 3D
2＜R	0, 2 mm	0, 3D

	ap	ae
R≦2	0, 05 x R	0, 3D
2＜R	0, 1 mm	0, 3D

1. Use a rigid and precise machine and holder.
2. These milling conditions are based on milling with circular interpolation at corners.For milling without circular interpolation uch as right angle corners), reduce the speed to 50-70% and the cutting depth to 50-80% of the above conditions.
3. We suggest using air blow or MQL (mist).
4. Please adjust the speed, feed and cutting depth according to actual cutting conditions.
5. When WX(S)-CRE enters in Z axis, reduce the feed speed to 30-60% of the above conditions with machining incline angle ß < 2°
6. These milling conditions are for a tool extension length: less than 4 x D.
   For a longer tool extension, reduce the speed, feed rate, and the cutting depth in accordance with the respective coefficients, to prevent chattering.

1. Utilizzare una macchina ed un mandrino di elevato rigidità e di alta precisione
2. Queste condizioni di fresatura si referiscono a un'interpolazione circolare. Per una fresatura senza interpolazione circolare ridurre la velocità al 50-70 % e la profondità di taglio al 50-80 % rispetto alle condizioni sopra esposte.
3. Suggeriamo l'utilizzo di aria compressa o lubrificazione minimale (misto olio).
4. Regolare l'avanzamento e la profonditàdi taglio secondo le attuali condizioni di taglio.
5. Quando la FXS-CRE entra nell'asse Z ridurre l'avanzamento al 30-60 % con un'inclinazione
6. Queste condizioni di fresatura sono da intendersi per una sporgenza dell'utensile dal mandrino inferiore a 4 x diametro. Per sporgenze maggiori ridurre l'avanzamento

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel
2. Diese Schnittdaten basieren auf Fräsern mit cirkularer Ecken Interpolation. Bei Bearbeitungen ohne, reduzieren Sie den Vorschub auf 50-70 %, die Schnittiefe auf 50-80 % der oben genannten Schnittdaten
3. Wir empfehlen Luft- oder Minimalmengen Kühlung.
4. Bitte regulieren Sie Schnittgeschwidigkeit, Vorschub und Spanntiefe entsprechend Ihrer aktuellen Zerspanungsbedigungen.
5. Wenn in der Z-Aschse gearbeitet wird, muß der Vorschub auf 30-50 % reduziert werden Neigungswinkel (ß)<2°
6. Die Schnittwerde sind für eine max. Auskraglänge von 4xD. Bei großeren Auskraglängen müssen mit den jeweiligen Koeffizienten verändert werdenSchnittgeschwidigkeit, Vorschub und Schnittiefe zur Vermeidung von Vibrationen

1. Utiliser une machine et un porte-outil de grande rigidité et de haute précision
2. Les conditions de coupe sont basées sur du fraisage en interpolation circulairedes angles. Pour l'usinage sans interpolation circulaire (angle droit), réduire la vitesse de 50 à 70% et la profondeur des passes de 50 à 80%.
3. Utiliser de l'arrosage en brouillard (mist).
4.Ajuster le vitesse, avances et la profondeur de coupe
5. Quand WX-CRE entre en mouvement axe Z, réduire avance de 30 à 60% pour l'usinage
6. Les conditions de coupe sont applicable pour des outils avec un lg. < 4 x D. Pour des outils plus longues réduire vitesse, avances et profondeur de coupe pour éviter bourrage

1. Anvend stabil maskine og værktøjsholder
2. De anførte skæredata er baseret på fræsning med cirkulær interpolation i hjørnerne. Ved fræsning uden cirkulær interpolation, reducér hastigheden til 50-70% og skæredybden til 50-80% af ovenstående skæredata
3. Vi anbefaler Lufttryk eller minimal smøring (MQL)
4. Venligst justér hastighed, tilspænding og skæredybde i forhold til de aktuelle forhold
5. Når WX-CRE går i indgreb i Z aksen, reducér tilspændingen til 30-60% af ovenstående skæredata med incline vinkel β ≤ 2°
6. Disse skæredata er til brug ved et udhæng under 4xD. Ved et længere udhæng reducér hastighed, tilspænding og skæredybde overensstemmelse med de respektive koeffitienter for at undgå afflisning

1. Use maquina y portaherramientas rigidos y precisos
2. Condiciones basadas en interpolación circular de los rincones. Para fresado sin interpolación circular (como rincones en ángulo recto), reducir la velocidad a 50 - 70%, y la profundidad de corte a 50 - 80% de las anteriores condiciones
3. Recomendamos aire soplado o MQL (niebla)
4. Ajustar la velocidad, profundidad de corte y avance conforme a las condiciones reales de corte
5. Cuando WX-CRE entra en el eje Z, reducir el avance a 30 - 60% de las anteriores condiciones de mecanizado dadas para rampa β <2 °
6. Estas condiciones son para el fresado con vuelo de herramienta inferior a 4 x D. Para herramienta de más vuelo, reducir la velocidad, el avance y profundidad de corte

1. Använd en stabil maskin och verktygshållare
2. Denna särdata är baserad på fräsning med cirkulär interpolering i hörnorna. Vid fräsning utan cirkulär interpolering, reducera hastigheten med 50-70% och skärdjupen med50-80% av ovanstående skärdata
3. Tyckluft rekommenderas.
4. Vänligen justera varvtal, matning och skärdjup i förhållande till de aktuella föhållanderna
5. När WX-CRE går i ingrepp i Z axeln, reducera matningen till 30-60% af ovanstående skärdata med flankvinkel ≤ 2°
6. Dessa särdata är till för uthäng under 4xDVid längre uthäng reducera varvtal, matning och skärdjup med de respektive koefficienter för att undgå avflisning

1. Используйте жесткие и точные станки и фрезерные патроны.
2. Указанные режимы резания действительны при прохождении углов по радиусу плавное изменение направления фрезерования). При резком изменении направления фрезерования в углах, уменьшите скорость и подачу до 50-70% от указанных, а глубину резания до 50-80%.
3. Мы рекомендуем использовать обдув воздухом или MQL (масляный туман) 4. Пожалуйста установите скорость резания, подачу и глубину резания в соответствии с действительными условиями обработки.
5. Если в процессе резания необходимо врезание по оси Z, уменьшите скорость и подачу до 30-60% от указанных, при угле врезания ß < 2°!
6. Указанные режимы резания для длины инструмента (вылета из патрона) меньше чем 4xD. Для выЕсли необходимо обработать углы, используйте радиусную траекторию при прохождении углов или снизьте скорость и подачу так, чтобы не возникало вибраций (примерно на 60%)лета больше, чем 4xD установите скорость, подачу и глубину резания в соответствии с указанными коэффициентами, для предотвращения вибраций

WXS-EMS

Side milling - Konturfräsen - Fresatura contornatura - Fraisage contournage
Sidefræsning - Valsfräsning - Contorneado - Боковое фрезерование



Ø	C≤0,2% - GG NAK55 ■ HPM1 ■ SKT ~750 N/mm²		SCM - SKD NAK80 ■ SKD11 ■ SKD61 ~30 HRC		45~55 HRC 45~55 HRC		55~60 HRC 55~60 HRC		60~65 HRC 60~65 HRC		65~70 HRC 65~70 HRC	
	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
1	20.000	800	20.000	800	20.000	800	20.000	560	20.000	480	16.000	335
2	20.000	1.600	20.000	1.600	16.000	1.250	12.000	670	11.000	535	7.950	335
3	15.000	1.800	13.500	1.600	10.500	1.250	7.950	670	7.450	535	5.300	335
4	11.000	1.800	9.950	1.600	7.950	1.250	5.950	670	5.550	535	4.000	335
5	8.900	1.800	7.950	1.600	6.350	1.250	4.800	670	4.450	535	3.200	335
6	7.450	2.650	6.650	2.400	5.300	1.900	4.000	1.000	3.700	800	2.650	505
8	5.550	2.650	4.950	2.400	4.000	1.900	3.000	1.000	2.800	800	2.000	505
10	4.450	2.650	4.000	2.400	3.200	1.900	2.400	1.000	2.250	800	1.600	505
12	3.700	2.650	3.300	2.400	2.650	1.900	2.000	1.000	1.850	800	1.350	505
14	3.100	2.500	2.800	2.250	2.250	1.800	1.700	1.000	1.550	800	1.100	505
15	2.850	2.400	2.600	2.200	2.100	1.750	1.550	950	1.450	800	1.050	505
16	2.700	2.400	2.400	2.100	1.950	1.700	1.450	930	1.350	800	995	505
18	2.400	2.250	2.200	2.000	1.750	1.600	1.300	895	1.200	800	885	505
20	2.200	2.150	1.950	1.900	1.550	1.500	1.150	845	1.100	695	800	505
25	1.700	2.450	1.550	2.100	1.250	1.500	955	915	890	750	635	505
30	1.400	2.300	1.300	1.750	1.050	1.250	795	760	740	620	620	430

Max cutting depth



	ap	ae
D≤Ø1,5	1,5D	0,02D
Ø1,5<D≤Ø2,5	1,5D	0,05D
Ø2,5<D	1,5D	0,10D

aeMax=1mm

ap	ae
1,5D	0,05D

aeMax=1mm

ap	ae
1,5D	0,03D

aeMax=0,5mm

ap	ae
1D	0,02D

aeMax=0,5mm

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.

1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. In caso di vibrazione, ridurre simultaneamente la velocità di taglio e l'avanzamento.
3. Utilizare dei lubrificanti di taglio adequati, dotati di une elevato coefficiente di rallentamento di emessione del fumo.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindigkeit reduzieren.
3. Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen.

1. Uitiliser une machine et un porte-outil de grande rigidité et de haute précision.
2. En cas de vibrations, réduisez, simultanément, la vitesse de coupe et l'avance.
3. Utiliser des fluides de coupes de haute qualité avec un coef, élevé de ralentissement d'emission de fumée.

1.Anvend stabil maskine og værktøjsholder
2.Ved vibrationer reducér omdrejninger og tilspænding simultant
3.Anvend en passende skærevæske

1.Use maquina y portaherramientas rigidos y precisos
2.En caso de vibración reduzca velocidad y avance simultaneamente
3.Use fluido de corte adecuado con retardador de humos

1.Använd en stabil maskin och verktygshållare
2.Vid vibrationer sänk varvtal och matning med samma simultant
3.Använd anpassad skärvätska

1.Используйте жесткие и точные станки и фрезерные патроны
2.При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя
3.Используйте качественную СОЖ с высокой устойчивостью к возникновению дыма

CARBIDE

WXS-EMS

High speed side milling - HSC Konturfräsen - Fresatura alta velocità contornatura - Fraisage UGV contournage
High speed sidefræsning - High speed valsfräsning -Contorneado a alta velocidad - Высокоскоростное контурное фрезерование



Ø	~ 40 HRC NAK55 ■ HPM1 ■ SKT ~750 N/mm²		40 ~ 45 HRC NAK80 ■ SKD11 ■ SKD61 ~30 HRC		45~55 HRC 45~55 HRC		55~60 HRC 55~60 HRC		60~65 HRC 60~65 HRC		65~70 HRC 65~70 HRC	
	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
1	50.000	1.600	50.000	2.000	50.000	2.000	50.000	1.600	47.500	1.350	32.000	715
2	47.500	3.250	47.500	3.800	40.000	3.200	25.500	1.650	24.000	1.350	16.000	800
3	32.000	3.450	32.000	3.800	26.500	3.200	17.000	1.650	16.000	1.350	10.500	800
4	24.000	3.900	24.000	3.800	20.000	3.200	12.500	1.650	12.000	1.350	7.950	800
5	19.000	4.100	19.000	3.800	16.000	3.200	10.000	1.650	9.550	1.350	6.350	800
6	16.000	5.750	12.000	5.750	9.950	4.800	6.350	2.450	5.950	2.000	4.000	1.200
8	12.000	5.750	12.000	5.750	9.950	4.800	6.350	2.450	5.950	2.000	4.000	1.200
10	9.550	5.750	9.550	5.750	7.950	4.800	5.100	2.450	4.800	2.000	3.200	1.200
12	7.950	5.750	7.950	5.750	6.650	4.800	4.250	2.450	4.000	2.000	2.650	1.200
14	6.800	5.400	6.800	5.400	5.650	4.500	3.600	2.400	3.400	2.000	2.250	1.200
15	6.350	5.300	6.350	5.300	5.250	4.350	3.350	2.300	3.150	1.950	2.100	1.200
16	5.950	5.150	5.950	5.150	4950	4.250	3.150	2.250	2.950	1.850	1.950	1.200
18	5.300	4.850	5.300	4.850	4.400	4.050	2.800	2.200	2.650	1.750	1.750	1.200
20	4.750	4.600	4.750	4.600	3.950	3.650	2.500	2.050	2.350	1.550	1.550	1.100
25	3.800	5.350	3.800	5.050	3.150	3.800	2.000	2.000	1.900	1.250	1.250	1.050
30	3.150	4.950	3.150	4.250	2.650	3.150	1.650	1.800	1.550	1.050	1.050	1.000

Max cutting depth



ap	ae
1D	0,05D

ae Max=0,5mm

ap	ae
1D	0,03D

ae Max=0,5mm

ap	ae
1D	0,02D

ae Max=0,2mm

ap	ae
1D	0,01D

ae Max=0,2mm

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.

1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. In caso di vibrazione, ridurre simultaneamente la velocità di taglio e l'avanzamento.
3. Utilizare dei lubrificanti di taglio adequati, dotati di une elevato coefficiente di rallentamento di emessione del fumo.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindigkeit reduzieren.
3. Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen.

1. Uitiliser une machine et un porte-outil de grande rigidité et de haute précision.
2. En cas de vibrations, réduisez, simultanément, la vitesse de coupe et l'avance.
3. Utiliser des fluides de coupes de haute qualité avec un coef, élevé de ralentissement d'emission de fumée.

1.Anvend stabil maskine og værktøjsholder
2.Ved vibrationer reducér omdrejninger og tilspænding simultant
3.Anvend en passende skærevæske

1.Use maquina y portaherramientas rigidos y precisos
2.En caso de vibración reduzca velocidad y avance simultaneamente
3.Use fluido de corte adecuado con retardador de humos

1.Använd en stabil maskin och verktygshållare
2.Vid vibrationer sänk varvtal och matning med samma simultant
3.Använd anpassad skärvätska

1.Используйте жесткие и точные станки и фрезерные патроны
2.При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя
3.Используйте качественную СОЖ с высокой устойчивостью к возникновению дыма

WXS-EBD/WXS-HS-EBD

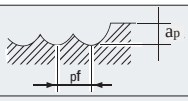
High speed light milling - HSC Schnichtfräsen - Fresatura alta velocità - Fraisage UGV
High speed bearbejdning (HSM) - Höghastighets maskinering (HSM) - Fresado ligero a alta velocidad - Высокоскоростное «легкое»фрезерование



Ø	Tool Steel Hardened Steel NAK80 ■ HPM50 ■ SKD ~45 HRC		45~55 HRC Hardened Steel ~30 HRC		55~60 HRC Hardened Steel 55~60 HRC		60~65 HRC Hardened Steel 60~65 HRC		65~70 HRC 65~70 HRC	
	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
R 0,5 X 1	50.000	3.700	50.000	3.700	50.000	3.100	50.000	2.600	47.500	2.400
R 1,0 X 2	50.000	5.600	47.500	5.350	40.000	3.650	32.000	2.800	24.000	2.100
R 1,5 X 3	41.500	6.200	32.000	4.800	26.500	3.350	21.000	2.550	16.000	1.900
R 2,0 X 4	31.000	5.700	24.000	4.400	20.000	3.200	16.000	2.400	12.000	1.800
R 2,5 X 5	25.000	5.450	19.000	4.000	16.000	2.850	13.000	2.150	9.550	1.600
R 3,0 X 6	20.500	5.200	16.000	3.450	13.500	2.550	10.500	2.050	7.950	1.550
R 4,0 X 8	15.500	4.450	12.000	3.050	9.950	2.250	7.950	1.800	5.950	1.350
R 5,0 X 10	12.500	3.950	9.550	2.650	7.950	1.900	6.350	1.550	4.800	1.150
R 6,0 X 12	10.500	3.700	7.950	2.500	6.650	1.600	5.300	1.350	4.000	995

Max cutting depth

a_p = 0,02D
pf = 0,05D



	a_p	pf
R ≤ 8	0,02D	0,05D
8 ≤ R	0,32D	0,05D

1. Use a rigid and precise machine and holder.
2. We suggest using air blow or MQL (mist).
3. These milling conditions are for end mill where the tool extension length is 4 times the diameter of the end mill. When length of the tool extension from the machine is long, reduce the speed and feed and milling depth.
4. The above condition shows an approximate standard for contouring operation (side milling) with a low machining load. If abnormal cutting sounds, vibrationor chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holdeing condition, etc.., please adjust the speed, feed and the depth of cut.
   ● As a guideline in selecting end mills.

To increase the depth of cut, use the FX Heavy Cutting Strong Ball Series (FX-HS-EBDS).
To increase the feed rate, use the FX Multiple Flute Ball Series (FX-EBT, FXS-EBM).

1. Utilizzare una macchina ed un mandrino di elevato rigidità e di alta precisione
2. Suggeriamo l'utilizzo di aria compressa o lubrificazione minimale (misto olio).
3. Queste condizioni di fresatura sono da intendersi per una sporgenza dell'utensile dal mandrino inferiore a 4 x diametro. Per sporgenze maggiori ridurre l'avanzamento
4. La presente tabella si riferisce a parametri approssimativi di operazioni di contornatura. Eventuali vibrazioni o rumore anomalo di taglio dipendono dal tipo di macchina, rigidezza e profondità di passata. Regolare velocità, avanzamento e passata di taglio

Se si desidera incrementare la profondità di taglio, utilizzare frese sferiche della serie FX ad elevata capacità di taglio. (FX-HS-EBDS)
Se si desidera incrementare l'avanzamento, utilizzare frese sferiche della serie FX ad elevata capacità di taglio. (FX-EBT, FXS-EBM)

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel
2. Wir empfehlen Luft- oder Minimalmengen Kühlung.
3. Die Schnittwerde sind für eine max. Auskraglänge von 4xD. Bei großeren Auskraglängen müssen mit den jeweiligen Koeffizienten verändert werden Schnittgeschwidigkeit, Vorschub und Schnittiefe zur Vermeidung von Vibrationen
4. Die oben angegeben Schnittwerte sind für regular 3D fräsen. Entnehmen Sie die Schnittdaten entsprechend Ihrer aktuellen Bearbeitungsaufgabe aus der oben gezeigten Tabelle

To increase the depth of cut, use the FX Heavy Cutting Strong Ball Series (FX-HS-EBDS).
To increase the feed rate, use the FX Multiple Flute Ball Series (FX-EBT, FXS-EBM).

1.Utiliser une machine et un porte-outil de grande rigidité et de haute précision
2.Utiliser de l'arrosage en brouillard (mist).
3.Les conditions de coupe sont applicable pour des outils avec un lg. < 4 x D. Pour des outils plus longues réduire vitesse, avances et profondeur de coupe pour éviter bourrag
4.Les conditions ci-dessus sont des standards approx. pour des opérations de contournage avec un charge machine réduite. En cas des bruits d'usinage anormoux et/ou des vibrations dépendants de la géométrie de la pièce, conditions de coupe, rigidité de la machine et/ou clamage, etc. ..., ajustez la vitesse, l'avance et/ou la profondeur de coupe

Pour augmenter la profondeur de coupe, utiliser les fraises à boule (FX-HS-EBDS).
Pour augmenter l'avance uiliser les fraises à boule (FX-EBT, FXS-EBM)

1. Anvend stabil maskine og værktøjsholder
2. Vi anbefaler Lufttryk eller minimal smøring (MQL)
3. Disse skæredata er til brug ved et udhæng under 4xD. Ved et længere udhæng reducér hastighed, tilspænding og skæredybde overensstemmelse med de respektive koefftienter for at undgå afflisning
4. Ovenstående skæredata viser en ca. standard for sidefræsning ved lav maskinbelastning. Hvis unormale lyde eller vibrationer opstår, justér omdrejninger, tilspænding og skæredybde under hensyntagen til maskine og værktøjsholder samt bearbejdningskontur.

For at øge skæredybden, brug da FX Radius serien (FX-HS-EBDS)
For at øge tilspænding, brug da FX Radius serien (FX-EBT, FXS-EBM)

1. Use maquina y portaherramientas rigidos y precisos
2. Recomendamos aire soplado o MQL (niebla)
3. Estas condiciones son para el fresado con vuelo de herramienta inferior a 4 x D. Para herramienta de más vuelo, reducir la velocidad, el avance y profundidad de corte
4. Lo anterior muestra condiciones estándar aproximadas para la operación de contorneado con baja carga de maquina. En caso de sonidos, vibraciones o vibraciones anormales por la forma de mecanizado, sección de corte, la rigidez de la máquina o fijación de la pieza, condiciones, etc. ..., ajuste la velocidad, avance y la profundidad de corte

Para aumentar la profundidad de corte, utilice la (FX-HS-EBDS)
Para aumentar lavanca, utilice la (FX-EBT, FXS-EBM)

1.Använd stabil maskin och verktygshållare.
2.Vi rekommenderar luft eller minimalsmörjning.
3. Dessa skäredata är för pinnfräsar med uthäng på 4D. Om uthänget är längre, reducera då varvtal, matning och fräsdnup.
4. Ovanstående data är ungefärliga skäredata för valsfräsning med låg belastning. Om unormala ljud, vibrationer eller avflisning uppstår, justéra då varvtal, matning och skäredjup.
- Som en guideline för val av verktyg.

För att öka skärdjupet, använd FX serien (FX-HS-EBDS)
För att öka matningen använd FX serien (FX-EBT, FXS-EBM)

1. Используйте жесткие и точные станки и фрезерные патроны.
2. Мы рекомендуем использовать обдув воздухом или MQL (масляный туман)
3. Указанные режимы резания для длины инструмента (вылета из патрона) не более чем 4xD. Если вылет фрезы больше, чем 4xD, уменьшите скорость, подачу и глубину резания.
4.Упомянутые выше условия показывают приблизительные параметры для контурного фрезерования с низкими нагрузками резания. При возникновении ненормальных звуков при резании или вибраций, в зависимости от обрабатываемой детали, условий ее закрепления и жесткости станка, пожалуйста уменьшите скорость, подачу и глубину резания.

*При выборе фрез следуйте следующим рекомендациям:
Для увеличения глубины резания, используйте серию FX-HS-EBDS, предназначенную для тяжелого фрезерования.
Для увеличения подачи, используйте многозубые серии FX-EBT и FXS-EBM.

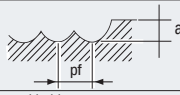
WXS-EBD/WXS-HS-EBD

Standard milling - Normale Bearbeitung - Parametri di taglio - Fraisage regular
Almindelig fræsning - Konventionell fräsning - Fresado regular - Нормальное фрезерование



Ø	C≤0,2% - GG NAK80 ■ HPM50 ■ SKD ~750 N/mm²		45~55 HRC 45~55 HRC		55~60 HRC NAK55 ■ HPMI ■ SKT 55~60 HRC		60~65 HRC 60~65 HRC		65~70 HRC 65~70 HRC	
	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
R 0,50	32.000	2.350	32.000	2.350	32.000	2.000	32.000	1.600	32.000	1450
R 0,75	32.000	3.050	32.000	3.050	32.000	2.500	26.500	1.900	21.000	1400
R 1,00	32.000	3.600	32.000	3.550	24.000	2.200	2.000	1.750	16.000	1250
R 1,50	26.500	4.000	21.000	3.200	16.000	2.000	13.500	1.600	10.500	1200
R 2,00	20.000	3.650	16.000	2.950	12.000	1.900	9.950	1.500	7.950	1150
R 2,50	16.000	3.500	12.500	2.650	9.550	1.700	7.950	1.350	6.350	1000
R 3,00	13.500	3.350	10.500	2.300	7.950	1.550	6.650	1.250	5.300	955
R 4,00	9.950	2.850	7.950	2.050	5.950	1.350	4.950	1.050	4.000	830
R 5,00	7.950	2.550	6.350	1.800	4.800	1.150	4.000	875	3.200	700
R 6,00	6.650	2.400	5.300	1.650	4.000	955	3.300	795	2.650	635
R 8,00	4.950	1.800	4.000	1.250	3.000	775	2.500	595	2.000	475
R 10,00	4.000	1.450	3.200	1.000	2.400	620	2.000	475	1.600	380
R 12,50	3.200	1.150	2.550	815	1.900	495	1.600	380	1.250	305

Max cutting depth



ap	pf
0,05D	0,1D

apMax=0,6mm

ap	pf
0,03D	0,1D

apMax=0,5mm

ap	pf
0,02D	0,05D

apMax=0,3mm

1. Use a rigid and precise machine and holder.
2. We suggest using air blow or MQL (mist).
3. These milling conditions are for end mill where the tool extension length is 4 times the diameter of the end mill. When length of the tool extension from the machine is long, reduce the speed and feed and milling depth.
4. The above condition shows an approximate standard for contouring operation (side milling) with a low machining load. If abnormal cutting sounds, vibrationor chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holdeing condition, etc.., please adjust the speed, feed and the depth of cut.
   ● As a guideline in selecting end mills.

To increase the depth of cut, use the FX Heavy Cutting Strong Ball Series (FX-HS-EBDS).
To increase the feed rate, use the FX Multiple Flute Ball Series (FX-EBT, FXS-EBM).

1. Utilizzare una macchina ed un mandrino di elevato rigidità e di alta precisione
2. Suggeriamo l'utilizzo di aria compressa o lubrificazione minimale (misto olio).
3. Queste condizioni di fresatura sono da intendersi per una sporgenza dell'utensile dal mandrino inferiore a 4 x diametro. Per sporgenze maggiori ridurre l'avanzamento
4. La presente tabella si riferisce a parametri approssimativi di operazioni di contornatura. Eventuali vibrazioni o rumore anomalo di taglio dipendono dal tipo di macchina, rigidezza e profondità di passata. Regolare velocità, avanzamento e passata di taglio

Se si desidera incrementare la profondità di taglio, utilizzare frese sferiche della serie FX ad elevata capacità di taglio. (FX-HS-EBDS)
Se si desidera incrementare l'avanzamento, utilizzare frese sferiche della serie FX ad elevata capacità di taglio. (FX-EBT, FXS-EBM)

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel
2. Wir empfehlen Luft- oder Minimalmengen Kühlung.
3. Die Schnittwerde sind für eine max. Auskraglänge von 4xD. Bei großeren Auskraglängen müssen mit den jeweiligen Koeffizienten verändert werden Schnittgeschwidigkeit, Vorschub und Schnittiefe zur Vermeidung von Vibrationen
4. Die oben angegeben Schnittwerte sind für regular 3D fräsen. Entnehmen Sie die Schnittdaten entsprechend Ihrer aktuellen Bearbeitungsaufgabe aus der oben gezeigten Tabelle

To increase the depth of cut, use the FX Heavy Cutting Strong Ball Series (FX-HS-EBDS).
To increase the feed rate, use the FX Multiple Flute Ball Series (FX-EBT, FXS-EBM).

1.Utiliser une machine et un porte-outil de grande rigidité et de haute précision
2.Utiliser de l'arrosage en brouillard (mist).
3.Les conditions de coupe sont applicable pour des outils avec un lg. < 4 x D. Pour des outils plus longues réduire vitesse, avances et profondeur de coupe pour éviter bourrag
4.Les conditions ci-dessus sont des standards approx. pour des opérations de contournage avec un charge machine réduite. En cas des bruits d'usinage anormoux et/ou des vibrations dépendants de la géométrie de la pièce, conditions de coupe, rigidité de la machine et/ou clamage, etc. ..., ajustez la vitesse, l'avance et/ou la profondeur de coupe

Pour augmenter la profondeur de coupe, uiliser les fraises à boule (FX-HS-EBDS).
Pour augmenter l'avance uiliser les fraises à boule (FX-EBT, FXS-EBM)

1. Anvend stabil maskine og værktøjsholder
2. Vi anbefaler Lufttryk eller minimal smøring (MQL)
3. Disse skæredata er til brug ved et udhæng under 4xD. Ved et længere udhæng reducér hastighed, tilspænding og skæredybde overensstemmelse med de respektive koefftitienter for at undgå afflisning
4. Ovenstående skæredata viser en ca. standard for sidefræsning ved lav maskinbelastning. Hvis unormale lyde eller vibrationer opstår, justér omdrejninger, tilspænding og skæredybde under hensyntagen til maskine og værktøjsholder samt bearbejdningskontur.

For at øge skæredybden, brug da FX Radius serien (FX-HS-EBDS)
For at øge tilspænding, brug da FX Radius serien (FX-EBT, FXS-EBM)

1. Use maquina y portaherramientas rigidos y precisos
2. Recomendamos aire soplado o MQL (niebla)
3. Estas condiciones son para el fresado con vuelo de herramienta inferior a 4 x D. Para herramienta de más vuelo, reducir la velocidad, el avance y profundidad de corte
4. Lo anterior muestra condiciones estándar aproximadas para la operación de contorneado con baja carga de maquina. En caso de sonidos, vibraciones o vibraciones anormales por la forma de mecanizado, sección de corte, la rigidez de la máquina o fijación de la pieza, condiciones, etc. ..., ajuste la velocidad, avance y la profundidad de corte

Para aumentar la profundidad de corte, utilice la (FX-HS-EBDS)
Para aumentar lavanca, utilice la (FX-EBT, FXS-EBM)

1.Använd stabil maskin och verktygshållare.
2.Vi rekommenderar luft eller minimalsmörjning.
3. Dessa skäredata är för pinnfräsar med uthäng på 4D. Om uthänget är längre, reducera då varvtal, matning och fräsdnup.
4. Ovanstående data är ungefärliga skäredata för valsfräsning med låg belastning. Om unormala ljud, vibrationer eller avflisning uppstår, justéra då varvtal, matning och skäredjup.
- Som en guideline för val av verktyg.

För att öka skärdjupet, använd FX serien (FX-HS-EBDS)
För att öka matningen använd FX serien (FX-EBT, FXS-EBM)

1. Используйте жесткие и точные станки и фрезерные патроны.
2. Мы рекомендуем использовать обдув воздухом или MQL (масляный туман)
3. Указанные режимы резания для длины инструмента (вылета из патрона) не более чем 4xD. Если вылет фрезы больше, чем 4xD, уменьшите скорость, подачу и глубину резания.
4.Упомянутые выше условия показывают приблизительные параметры для контурного фрезерования с низкими нагрузками резания. При возникновении ненормальных звуков при резании или вибраций, в зависимости от обрабатываемой детали, условий ее закрепления и жесткости станка, пожалуйста уменьшите скорость, подачу и глубину резания.

*При выборе фрез следуйте следующим рекомендациям:
Для увеличения глубины резания, используйте серию FX-HS-EBDS, предназначенную для тяжелого фрезерования.
Для увеличения подачи, используйте многозубые серии FX-EBT и FXS-EBM.

WX-EBD

High speed milling - HSC Schlichtfräsen - Fresatura alta velocità - Fraisage UGV
High speed fræsning - High Speed Milling - Fresado a alta velocidad HSM - Высокоскоростное фрезерование

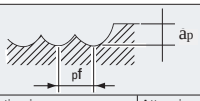


	C≤0,2% - GG SKD ■ NAK80 ■ HPM50 ~45 HRC		SCM - SKD SKD ■ SKS ■ SNCM ~30 HRC		30~38 HRC NAK55 ■ HPM1 ■ SKT 30~38 HRC		38~45 HRC-SUS SUS304 ■ X210CR12 ■ X40CRMOV51 38~45 HRC		45~55 HRC-HRS 45~55 HRC		55~60 HRC 55~60 HRC	
	350~500 (m/min)		300~450 (m/min)		250~400 (m/min)		150~300 (m/min)		120~220 (m/min)		80~150 (m/min)	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
R 0,5 X 1	50.000	2.800	50.000	2.800	50.000	2.500	47.500	2.250	32.000	1.450	25.000	1.000
R 1,0 X 2	31.500	3.500	25.000	2.800	24.500	2.500	23.500	2.250	17.000	1.550	12.500	1.000
R 1,5 X 3	21.000	3.500	16.500	2.800	16.000	2.500	15.500	2.250	11.000	1.550	8.450	1.000
R 2,0 X 4	18.000	3.700	15.500	3.400	15.000	2.750	13.500	2.450	11.000	1.900	7.950	1.100
R 2,5 X 5	15.500	4.000	15.000	4.050	14.000	2.900	11.000	2.300	10.000	2.100	7.600	1.200
R 3,0 X 6	15.000	4.800	13.500	4.300	11.500	2.750	9.500	2.250	9.500	2.250	6.600	1.150
R 4,0 X 8	11.500	3.650	10.000	3.200	8.950	2.100	7.150	1.700	7.150	1.700	4.950	890
R 5,0 X 10	9.500	3.000	8.250	2.600	7.150	1.700	5.700	1.350	5.700	1.350	3.950	710
R 6,0 X 12	7.950	2.500	6.850	2.150	5.950	1.400	4.750	1.100	4.750	1.100	3.300	590
R 7,0 X 14	6.800	2.150	5.900	1.850	5.100	1.200	4.050	970	4.050	970	2.800	500
R 8,0 X 16	5.950	1.900	5.150	1.600	4.450	1.050	3.550	850	3.550	850	2.450	440
R 9,0 X 18	5.300	1.650	4.550	1.450	3.950	945	3.150	755	3.150	755	2.200	395
R 10,0 X 20	4.750	1.500	4.100	1.300	3.550	850	2.850	680	2.850	680	1.950	350
R 12,5 X 25	3.800	1.200	3.300	1.050	2.850	680	2.250	540	2.250	540	1.550	275
R 15,0 X 30	3.150	1.000	2.750	880	2.350	560	1.900	455	1.900	455	1.300	230

Max cutting depth

WX-EBD

ap	pf
0,02D	0,05D



	ap	pf
R ≤ 8	0,02D	0,05D
8 < R	0,5 mm	0,05D

Attention : sparks and/or flames can cause coolant fire. Be sure adequate fire prevention is available.
1. Speeds and feeds are designed to be used in conjunction with small passes on a high speed & precision machine set-up.
2. Do not use inflammable coolant. Using worn tools may generate sparks.
3. Use compresed air or a high quality coolant with a low co-efficient of smoke emmision.

Attenzione: le scintille prodotto durante l'operazione o il calore causato dalla rottura dell'utensile possono infiammare il lubrificante. Assicurasi che siano applicate delle adeguate misure di prevenzione.
1. Queste velocità e questi avanzamenti sono indicati per fresatura di piccole passate ad alta velocità e centri di lavorazione di alta precisione.
2. Non utillizare lubrificanti da taglio infiammabili; gli utensili troppo usurati possono produrre scintille.
3. Utilizzare un getto di aria compressa. Se la vostra scelta ricade su dei liquidi da taglio, sceglieteli di alta qualità, dotati di un coefficiente elevato di rallentamento d'emissione del fumo.

Achtung: Funken und/oder Flammen können den Kühlschmierstoff entzünden. stellen Sie einen ausreichenden Brandschutz sicher.
1. Die Schnittdaten sind ausgelegt für geringe Zustellungen in Verbindung mit HSC tauglichen Maschinen und Spannmittel.
2. Bitte gegeignetes Kühlmittel mit rauchhemmenden Zusätzen verwenden.
3. Benutzen Sie Druckluft oder Kühlmittel mit rauchhemmenden Zusätzen..

Attention : étincelles et/ou chaleur peuvent enflammer le lubrifiant. S'assurer que des mesures de prévention adéquates sont appliquées.
1. Les vitesses et avances sont indiquées pour le fraisage de petites passes à haute vitesse / centres d'usinage de haute précision.
2. Ne pas utiliser de lubrifiants de coupe inflammables, les outils fortement usés peuvent produire des étincelles.
3. Utilisez un jet d'air comprimé ou des fluides de coupe de haute qualité avec un coef. élevé de ralentissement d'émission de fumée

Pas på: gnister kan antænde kølevæsken. Sørg for brandslukningsmateriel er inden for rækkevidde
1. Skæredata er designet til brug i samarbejde med små bearbejdninger i et præcisions setup på et højhastigheds bearbejdningscenter
2. Brug ikke brændbare kølevæsker. Brugte værktøjer kan resultere i gnister
3. Brug lufttryk eller kølevæske af høj kvalitet med lav røgudvikling.

Atención, Las chispas pueden causar el incendio del refirgerante. Asegurese que una adecuada prevencion de incendios está disponible
1. Velocidades y avances establecidos junto a pasadas ligeras en maquinas de lata velocidad y gran precisión
2. No utilizar refrigerante inflamable. Las herramientas calientes pueden generar chispas
3. Utilizar aire comprimido o un refrigerante con un bajo coeficiente de emisión de humo

Observera: Gnistor kan antända kylvätskan. Se till att ha en bra brandsläckningsutrustning
1. Skärdatan är designat för små ingrepp vid precisions bearbetning i höghastighetsmaskiner
2. Använd inte brandfarliga kylvätskor. Fräsar kan vara mycket varma eter ingrepp
3. Använd tryckluft eller kylvätska med hög kvalitet och låg rökutveckling

Внимание! Искры и пламя могут воспламенить СОЖ. Примите меры противопожарной безопасности.
1. Указанные режимы резания предназначены для точных высокоскоростных станков и жесткого закрепления обрабатываемой детали.
2. Не используйте легко воспламеняемую СОЖ. При использовании изношенных фрез возможно возникновение искр.
3. Используйте сжатый воздух или качественную СОЖ с высокой устойчивостью к возникновению дыма.

WXS-LN-EBD

High speed milling - HSC Schlichtfräsen - Fresatura alta velocità - Fraisage UGV
High speed fræsning - High Speed Milling - Fresado a alta velocidad HSM - Высокоскоростное фрезерование



		C≤0,2% - GG E24 ■ XC48 ■ FT25 ■ 75 MPA					SCM - SKD 35NCD16 ■ 40CMD8 ~30 HRC					30~38 HRC 35NCD16 30~38 HRC				
		120 (m/min)					110 (m/min)					100 (m/min)				
Ø	Lg (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	Pf (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	Pf (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	Pf (mm)
0,2	0,5	50.000	400	0,004	0,004	0,060	50.000	360	0,004	0,004	0,054	50.000	320	0,003	0,016	0,048
0,2	1	50.000	400	0,004	0,004	0,024	50.000	360	0,004	0,004	0,022	50.000	320	0,003	0,008	0,019
0,2	1,5	50.000	400	0,004	0,004	0,010	50.000	360	0,004	0,004	0,009	50.000	320	0,003	0,006	0,008
0,3	1	50.000	600	0,006	0,006	0,063	50.000	540	0,005	0,005	0,057	50.000	480	0,005	0,016	0,050
0,3	1,5	50.000	600	0,006	0,006	0,040	50.000	540	0,005	0,005	0,036	50.000	480	0,005	0,012	0,032
0,3	2	50.000	600	0,006	0,006	0,036	50.000	540	0,005	0,005	0,032	50.000	480	0,005	0,010	0,029
0,4	1	50.000	900	0,009	0,009	0,120	50.000	810	0,008	0,008	0,108	50.000	720	0,007	0,032	0,096
0,4	1,5	50.000	900	0,009	0,009	0,100	50.000	810	0,008	0,008	0,090	50.000	720	0,007	0,016	0,080
0,4	2	50.000	900	0,009	0,009	0,060	50.000	810	0,008	0,008	0,054	50.000	720	0,007	0,016	0,048
0,4	2,5	50.000	800	0,008	0,008	0,050	50.000	720	0,007	0,007	0,045	50.000	640	0,006	0,016	0,040
0,4	3	50.000	800	0,008	0,008	0,048	50.000	720	0,007	0,007	0,043	50.000	640	0,006	0,016	0,038
0,5	2	50.000	1.500	0,015	0,015	0,070	50.000	1.350	0,014	0,014	0,063	40.000	960	0,012	0,016	0,056
0,5	3	50.000	1.200	0,012	0,012	0,065	50.000	1.080	0,011	0,011	0,059	40.000	768	0,010	0,016	0,052
0,5	4	50.000	1.100	0,011	0,011	0,060	50.000	990	0,010	0,010	0,054	40.000	704	0,009	0,016	0,048
0,5	5	50.000	1.100	0,011	0,011	0,050	40.000	792	0,010	0,010	0,045	40.000	704	0,009	0,016	0,040
0,5	6	50.000	1.100	0,011	0,011	0,039	40.000	792	0,010	0,010	0,035	40.000	704	0,009	0,010	0,031
0,5	8	50.000	900	0,009	0,009	0,030	40.000	648	0,008	0,008	0,027	40.000	576	0,007	0,008	0,024
0,6	2	40.000	1.280	0,016	0,016	0,100	40.000	1.152	0,014	0,014	0,090	40.000	1.024	0,013	0,024	0,080
0,6	3	40.000	1.200	0,015	0,015	0,100	40.000	1.080	0,014	0,014	0,090	40.000	960	0,012	0,024	0,080
0,6	4	40.000	1.040	0,013	0,013	0,100	40.000	936	0,012	0,012	0,090	40.000	832	0,010	0,024	0,080
0,6	5	40.000	960	0,012	0,012	0,100	40.000	864	0,011	0,011	0,090	40.000	768	0,010	0,024	0,080
0,6	6	40.000	880	0,011	0,011	0,100	40.000	792	0,010	0,010	0,090	40.000	704	0,009	0,024	0,080
0,6	8	40.000	880	0,011	0,011	0,100	40.000	792	0,010	0,010	0,090	40.000	704	0,009	0,014	0,080
0,8	2	40.000	1.440	0,018	0,018	0,150	40.000	1.296	0,016	0,016	0,135	40.000	1.152	0,014	0,040	0,120
0,8	4	40.000	1.440	0,018	0,018	0,100	40.000	1.296	0,016	0,016	0,090	40.000	1.152	0,014	0,032	0,080
0,8	5	40.000	1.440	0,018	0,018	0,100	40.000	1.296	0,016	0,016	0,090	40.000	1.152	0,014	0,032	0,080
0,8	6	40.000	1.440	0,018	0,018	0,100	40.000	1.296	0,016	0,016	0,090	40.000	1.152	0,014	0,028	0,080
0,8	7	40.000	1.360	0,017	0,017	0,009	40.000	1.224	0,015	0,015	0,008	40.000	1.088	0,014	0,024	0,007
0,8	8	40.000	1.200	0,015	0,015	0,070	40.000	1.080	0,014	0,014	0,063	40.000	960	0,012	0,024	0,056
0,8	10	40.000	1.200	0,015	0,015	0,060	40.000	1.080	0,014	0,014	0,054	40.000	960	0,012	0,016	0,048
1,0	3	40.000	2.000	0,025	0,025	0,200	40.000	1.800	0,023	0,023	0,180	40.000	1.600	0,020	0,080	0,160
1,0	4	40.000	1.760	0,022	0,022	0,200	40.000	1.584	0,020	0,020	0,180	40.000	1.408	0,018	0,056	0,160
1,0	5	40.000	1.760	0,022	0,022	0,200	40.000	1.584	0,020	0,020	0,180	40.000	1.408	0,018	0,040	0,160
1,0	6	40.000	1.760	0,022	0,022	0,200	40.000	1.584	0,020	0,020	0,180	40.000	1.408	0,018	0,040	0,160
1,0	7	40.000	1.600	0,020	0,020	0,150	40.000	1.440	0,018	0,018	0,135	40.000	1.280	0,016	0,040	0,120
1,0	8	40.000	1.600	0,020	0,020	0,150	40.000	1.440	0,018	0,018	0,135	40.000	1.280	0,016	0,032	0,120
1,0	9	40.000	1.600	0,020	0,020	0,150	40.000	1.440	0,018	0,018	0,135	40.000	1.280	0,016	0,032	0,120
1,0	10	40.000	1.600	0,020	0,020	0,100	40.000	1.440	0,018	0,018	0,090	40.000	1.280	0,016	0,024	0,080
1,0	12	40.000	1.200	0,015	0,030	0,100	40.000	1.080	0,014	0,027	0,090	40.000	960	0,012	0,024	0,080
1,0	14	40.000	1.200	0,015	0,030	0,100	40.000	1.080	0,014	0,027	0,090	40.000	960	0,012	0,024	0,080
1,0	16	40.000	1.200	0,015	0,025	0,100	40.000	1.080	0,014	0,023	0,090	40.000	960	0,012	0,020	0,080
1,0	20	40.000	1.200	0,015	0,020	0,080	40.000	1.080	0,014	0,018	0,072	40.000	960	0,012	0,016	0,064
1,2	6	31.847	1.911	0,030	0,050	0,120	29.193	1.576	0,027	0,045	0,108	26.539	1.274	0,024	0,040	0,096
1,2	8	31.847	1.656	0,026	0,040	0,120	29.193	1.366	0,023	0,036	0,108	26.539	1.104	0,021	0,032	0,096
1,2	10	31.847	1.401	0,022	0,030	0,090	29.193	1.156	0,020	0,027	0,081	26.539	934	0,018	0,024	0,072
1,2	12	31.847	1.274	0,020	0,020	0,090	29.193	1.051	0,018	0,018	0,081	26.539	849	0,016	0,016	0,072
1,4	8	27.298	1.638	0,030	0,060	0,200	25.023	1.351	0,027	0,054	0,180	22.748	1.092	0,024	0,048	0,160
1,4	12	27.298	1.638	0,030	0,050	0,180	25.023	1.351	0,027	0,045	0,162	22.748	1.092	0,024	0,040	0,144
1,4	16	27.298	1.638	0,030	0,040	0,140	25.023	1.351	0,027	0,036	0,126	22.748	1.092	0,024	0,032	0,112
1,5	8	25.478	1.682	0,033	0,070	0,180	23.355	1.387	0,030	0,063	0,162	21.231	1.121	0,026	0,056	0,144
1,5	12	25.478	1.682	0,033	0,070	0,180	23.355	1.387	0,030	0,063	0,162	21.231	1.121	0,026	0,056	0,144
1,5	16	25.478	1.427	0,028	0,050	0,140	23.355	1.177	0,025	0,045	0,126	21.231	951	0,022	0,040	0,112
1,5	20	25.478	1.274	0,025	0,040	0,120	23.355	1.051	0,023	0,036	0,108	21.231	849	0,020	0,032	0,096
1,6	8	23.885	1.672	0,035	0,070	0,200	21.895	1.379	0,032	0,063	0,180	19.904	1.115	0,028	0,056	0,160
1,6	12	23.885	1.529	0,032	0,070	0,200	21.895	1.261	0,029	0,063	0,180	19.904	1.019	0,026	0,056	0,160
1,6	16	23.885	1.433	0,030	0,050	0,150	21.895	1.182	0,027	0,045	0,135	19.904	955	0,024	0,040	0,120
1,6	20	23.885	1.194	0,025	0,040	0,120	21.895	985	0,023	0,036	0,108	19.904	796	0,020	0,032	0,096
1,8	8	21.231	1.741	0,041	0,080	0,250	19.462	1.436	0,037	0,072	0,225	17.693	1.161	0,033	0,064	0,200
1,8	12	21.231	1.486	0,035	0,080	0,200	19.462	1.226	0,032	0,072	0,180	17.693	991	0,028	0,064	0,160
1,8	16	21.231	1.274	0,030	0,060	0,150	19.462	1.051	0,027	0,054	0,135	17.693	849	0,024	0,048	0,120
1,8	20	21.231	1.146	0,027	0,050	0,135	19.462	946	0,024	0,045	0,122	17.693	764	0,022	0,040	0,108
1,6	8	23.885	1.672	0,035	0,070	0,200	21.895	1.379	0,032	0,063	0,180	19.904	1.115	0,028	0,056	0,160
1,6	12	23.885	1.529	0,032	0,070	0,200	21.895	1.261	0,029	0,063	0,180	19.904	1.019	0,026	0,056	0,160
1,6	16	23.885	1.433	0,030	0,050	0,150	21.895	1.182	0,027	0,045	0,135	19.904	955	0,024	0,040	0,120
1,6	20	23.885	1.194	0,025	0,040	0,120	21.895	985	0,023	0,036	0,108	19.904	796	0,020	0,032	0,096
1,8	8	21.231	1.741	0,041	0,080	0,250	19.462	1.436	0,037	0,072	0,225	17.693	1.161	0,033	0,064	0,200
1,8	12	21.231	1.486	0,035	0,080	0,200	19.462	1.226	0,032	0,072	0,180	17.693	991	0,028	0,064	0,160
1,8	16	21.231	1.274	0,030	0,060	0,150	19.462	1.051	0,027	0,054	0,135	17.693	849	0,024	0,048	0,120
1,8	20	21.231	1.146	0,027	0,050	0,135	19.462	946	0,024	0,045	0,122	17.693	764	0,022	0,040	0,108
2,0	4	19.108	1.911	0,050	0,180	0,500	17.516	1.576	0,045	0,162	0,450	15.924	1.274	0,040	0,144	0,400
2,0	6	19.108	1.720	0,045	0,150	0,500	17.516	1.419	0,041	0,135	0,450	15.924	1.146	0,036	0,120	0,400
2,0	8	19.108	1.643	0,043	0,150	0,400	17.516	1.356	0,039	0,135	0,360	15.924	1.096	0,034	0,120	0,320
2,0	10	19.108	1.911	0,050	0,150	0,400	17.516	1.576	0,045	0,135	0,360	15.924	1.274	0,040	0,120	0,320
2,0	12	19.108	1.796	0,047	0,120	0,350	17.516	1.482	0,042	0,108	0,315	15.924	1.197	0,038	0,096	0,280
2,0	14	19.108	1.529	0,040	0,100	0,350	17.516	1.261	0,036	0,090	0,315	15.924	1.019	0,032	0,080	0,280
2,0	16	19.108	1.338	0,035	0,100	0,300	17.516	1.104	0,032	0,090	0,270	15.924	892	0,028	0,080	0,240
2,0	18	19.108	1.146	0,030	0,100	0,250	17.516	946	0,027	0,090	0,225	15.924	764	0,024	0,080	0,200
2,0	20	19.108	1.146	0,030	0,070	0,250	17.516	946	0,027	0,063	0,225	15.924	764	0,024	0,056	0,200
2,0	22	19.108	1.032	0,027	0,050	0,200	17.516	851	0,024	0,045	0,180	15.924	688	0,022	0,040	0,160
2,0	25	19.108	1.032	0,027	0,050	0,150	17.516	851	0,024	0,045	0,135	15.924	688	0,022	0,040	0,120
2,0	30	19.108	955	0,025	0,040	0,100	17.516	788	0,023	0,036	0,090	15.924	637	0,020	0,032	0,080
3,0	8	12.739	2.038	0,080	0,200	0,600	11.677	1.682	0,072	0,180	0,540	10.616	1.359	0,064	0,160	0,480
3,0	10	12.739	2.038	0,080	0,200	0,500	11.677	1.682	0,072	0,180	0,450	10.616	1.359	0,064	0,160	0,400
3,0	16	12.739	1.783	0,070	0,150	0,500	11.677	1.471	0,063	0,135	0,450	10.616	1.189	0,056	0,120	0,400
3,0	20	12.739	1.656	0,065	0,150	0,400	11.677	1.366	0,059	0,135	0,360	10.616	1.104	0,052	0,120	0,320

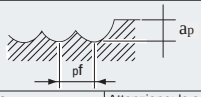
WXS-LN-EBD

High speed milling - HSC Schlichtfräsen - Fresatura alta velocità - Fraisage UGV
High speed fræsning - High Speed Milling - Fresado a alta velocidad HSM - Высокоскоростное фрезерование



	C≤0,2% - GG E24 ■ XC48 ■ FT25 ■ 75 MPA						SCM - SKD 35NCD16 ■ 40CMD8 ~30 HRC						30~38 HRC 35NCD16 30~38 HRC				
		120 (m/min)					110 (m/min)						100 (m/min)				
Ø	Lg (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	Pf (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	Pf (mm)		S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	Pf (mm)
3,0	25	12.739	1.529	0,060	0,130	0,300	11.677	1.261	0,054	0,117	0,270		10.616	1.019	0,048	0,104	0,240
3,0	30	12.739	1.452	0,057	0,100	0,250	11.677	1.198	0,051	0,090	0,225		10.616	968	0,046	0,080	0,200
3,0	35	12.739	1.401	0,055	0,080	0,250	11.677	1.156	0,050	0,072	0,225		10.616	934	0,044	0,064	0,200
4,0	10	9.554	2.293	0,120	0,200	0,800	8.758	1.892	0,108	0,180	0,720		7.962	1.529	0,096	0,160	0,640
4,0	16	9.554	1.911	0,100	0,200	0,600	8.758	1.576	0,090	0,180	0,540		7.962	1.274	0,080	0,160	0,480
4,0	20	9.554	1.911	0,100	0,200	0,600	8.758	1.576	0,090	0,180	0,540		7.962	1.274	0,080	0,160	0,480
4,0	25	9.554	1.720	0,090	0,200	0,500	8.758	1.419	0,081	0,180	0,450		7.962	1.146	0,072	0,160	0,400
4,0	30	9.554	1.529	0,080	0,200	0,400	8.758	1.261	0,072	0,180	0,360		7.962	1.019	0,064	0,160	0,320
4,0	35	9.554	1.338	0,070	0,150	0,400	8.758	1.104	0,063	0,135	0,360		7.962	892	0,056	0,120	0,320
4,0	40	9.554	1.146	0,060	0,150	0,400	8.758	946	0,054	0,135	0,360		7.962	764	0,048	0,120	0,320
4,0	45	9.554	1.146	0,060	0,100	0,300	8.758	946	0,054	0,090	0,270		7.962	764	0,048	0,080	0,240
4,0	50	9.554	955	0,050	0,100	0,300	8.758	788	0,045	0,090	0,270		7.962	637	0,040	0,080	0,240
5,0	20	7.643	1.987	0,130	0,250	1,000	7.006	1.639	0,117	0,225	0,900		6.369	1.325	0,104	0,200	0,800
5,0	25	7.643	1.834	0,120	0,250	0,900	7.006	1.513	0,108	0,225	0,810		6.369	1.223	0,096	0,200	0,720
5,0	30	7.643	1.529	0,100	0,250	0,800	7.006	1.261	0,090	0,225	0,720		6.369	1.019	0,080	0,200	0,640
5,0	35	7.643	1.529	0,100	0,250	0,600	7.006	1.261	0,090	0,225	0,540		6.369	1.019	0,080	0,200	0,480
6,0	30	6.369	1.783	0,140	0,420	1,300	5.839	1.471	0,126	0,378	1,170		5.308	1.189	0,112	0,336	1,040
6,0	50	6.369	1.401	0,110	0,200	0,500	5.839	1.156	0,099	0,180	0,450		5.308	934	0,088	0,160	0,400

Max cutting depth



Attention : sparks and/or flames can cause coolant fire. Be sure adequate fire prevention is available.
1. Speeds and feeds are designed to be used in conjunction with small passes on a high speed & precision machine set-up.
2. Do not use inflammable coolant. Using worn tools may generate sparks.
3. Use compresed air or a high quality coolant with a low co-efficient of smoke emmision.
* Modified parameters

Attenzione: le scintille prodotto durante l'operazione o il calore causato dalla rottura dell'utensile possono infiammare il lubrificante. Assicurasi che siano applicate delle adeguate misure di prevenzione.
1. Queste velocità e questi avanzamenti sono indicati per fresatura di piccole passate ad alta velocità e centri di lavorazione di alta precisione.
2. Non utillizare lubrificanti da taglio infiammabili; gli utensili troppo usurati possono produrre scintille.
3. Utilizzare un getto di aria compressa. Se la vostra scelta ricade su dei liquidi da taglio, sceglieteli di alta qualità, dotati di un coefficiente elevato di rallentamento d'emissione del fumo.
* Parameto modificato

Achtung: Funken und/oder Flammen können den Kühlschmierstoff entzünden. stellen Sie einen ausreichenden Brandschutz sicher.
1. Die Schnittdaten sind ausgelegt für geringe Zustellungen in Verbindung mit HSC tauglichen Maschinen und Spannmittel.
2. Bitte gegeignetes Kühlmittel mit rauchhemmenden Zusätzen verwenden.
3. Benutzen Sie Druckluft oder Kühlmittel mit rauchhemmenden Zusätzen..
* Modifizierten Parameters

Attention : étincelles et/ou chaleur peuvent enflammer le lubrifiant. S'assurer que des mesures de prévention adéquates sont appliquées.
1. Les vitesses et avances sont indiquées pour le fraisage de petites passes à haute vitesse / centres d'usinage de haute précision.
2. Ne pas utiliser de lubrifiants de coupe inflammables, les outils fortement usés peuvent produire des étincelles.
3. Utilisez un jet d'air comprimé ou des fluides de coupe de haute qualité avec un coef. élevé de ralentissement d'émission de fumée
* Paramètres modifiés

Pas på: gnister kan antænde kølevæsken. Sørg for brandslukningsmateriel er inden for rækkevidde
1. Skæredata er designet til brug i samarbejde med små bearbejdninger i et præcisions setup på et højhastigheds bearbejdningscenter
2. Brug ikke brændbare kølevæsker. Brugte værktøjer kan resultere i gnister
3. Brug lufttryk eller kølevæske af høj kvalitet med lav røgudvikling.
*Modificerede parametre

Atención, Las chispas pueden causar el incendio del refirgerante. Asegurese que una adecuada prevencion de incendios está disponible
1. Velocidades y avances establecidos junto a pasadas ligeras en maquinas de lata velocidad y gran precisión
2. No utilizar refrigerante inflamable. Las herramientas calientes pueden generar chispas
3. Utilizar aire comprimido o un refrigerante con un bajo coeficiente de emisión de humo
*Parámetros modificados

Observera: Gnistor kan antända kylvätskan. Se till att ha en bra brandsläckningsutrustning
1. Skärdatan är designat för små ingrepp vid precisions bearbetning i höghastighetsmaskiner
2. Använd inte brandfarliga kylvätskor. Fräsar kan vara mycket varma eter ingrepp
3. Använd tryckluft eller kylvätska med hög kvalitet och låg rökutveckling
*Modifierade parametrar

Внимание! Искры и пламя могут воспламенить СОЖ. Примите меры противопожарной безопасности.
1. Указанные режимы резания предназначены для точных высокоскоростных станков и жесткого закрепления обрабатываемой детали.
2. Не используйте легко воспламеняемую СОЖ. При использовании изношенных фрез возможно возникновение искр.
3. Используйте сжатый воздух или качественную СОЖ с высокой устойчивостью к возникновению дыма.
*Измененные параметры

WXS-LN-EBD

High speed milling - HSC Schlichtfräsen - Fresatura alta velocità - Fraisage UGV
High speed fræsning - High Speed Milling - Fresado a alta velocidad HSM - Высокоскоростное фрезерование



		38~45 HRC - SUS 35NCD16 38~45 HRC					45~55 HRC Z38CDV5 45~55 HRC					55~60 HRC Z160CDV12 55~60 HRC				
		100 (m/min)					70 (m/min)					50 (m/min)				
Ø	Lg (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	Pf (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	Pf (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	Pf (mm)
0,2	0,5	50.000	320	0,003	0,016	0,048	50.000	300	0,003	0,014	0,043	50.000	240	0,002	0,010	0,030
0,2	1	50.000	320	0,003	0,008	0,019	50.000	300	0,003	0,007	0,017	50.000	240	0,002	0,005	0,012
0,2	1,5	50.000	320	0,003	0,006	0,008	50.000	300	0,003	0,006	0,007	50.000	240	0,002	0,004	0,005
0,3	1	50.000	480	0,005	0,016	0,050	50.000	450	0,005	0,014	0,045	50.000	360	0,004	0,010	0,032
0,3	1,5	50.000	480	0,005	0,012	0,032	50.000	450	0,005	0,011	0,029	50.000	360	0,004	0,008	0,020
0,3	2	50.000	480	0,005	0,010	0,029	50.000	450	0,005	0,009	0,026	50.000	360	0,004	0,006	0,018
0,4	1	50.000	720	0,007	0,032	0,096	40.000	540	0,007	0,029	0,086	40.000	432	0,005	0,020	0,060
0,4	1,5	50.000	720	0,007	0,016	0,080	40.000	540	0,007	0,014	0,071	40.000	432	0,005	0,010	0,050
0,4	2	50.000	720	0,007	0,016	0,048	40.000	540	0,007	0,014	0,043	40.000	432	0,005	0,010	0,030
0,4	2,5	50.000	640	0,006	0,016	0,040	40.000	480	0,006	0,014	0,036	40.000	384	0,005	0,010	0,025
0,4	3	50.000	640	0,006	0,016	0,038	40.000	480	0,006	0,014	0,034	39.809	382	0,005	0,010	0,024
0,5	2	40.000	960	0,012	0,016	0,056	40.000	900	0,011	0,014	0,050	31.847	573	0,009	0,010	0,035
0,5	3	40.000	768	0,010	0,016	0,052	40.000	720	0,009	0,014	0,046	31.847	459	0,007	0,010	0,033
0,5	4	40.000	704	0,009	0,016	0,048	40.000	660	0,008	0,014	0,043	31.847	420	0,007	0,010	0,030
0,5	5	40.000	704	0,009	0,016	0,040	40.000	660	0,008	0,014	0,036	31.847	420	0,007	0,010	0,025
0,5	6	40.000	704	0,009	0,010	0,031	40.000	660	0,008	0,009	0,028	31.847	420	0,007	0,007	0,020
0,5	8	40.000	576	0,007	0,008	0,024	40.000	540	0,007	0,007	0,021	31.847	344	0,005	0,005	0,015
0,6	2	40.000	1.024	0,013	0,024	0,080	40.000	960	0,012	0,021	0,071	26.539	510	0,010	0,015	0,050
0,6	3	40.000	960	0,012	0,024	0,080	40.000	900	0,011	0,021	0,071	26.539	478	0,009	0,015	0,050
0,6	4	40.000	832	0,010	0,024	0,080	40.000	780	0,010	0,021	0,071	26.539	414	0,008	0,015	0,050
0,6	5	40.000	768	0,010	0,024	0,080	40.000	720	0,009	0,021	0,071	26.539	382	0,007	0,015	0,050
0,6	6	40.000	704	0,009	0,024	0,080	40.000	660	0,008	0,021	0,071	26.539	350	0,007	0,015	0,050
0,6	8	40.000	704	0,009	0,014	0,080	37.155	613	0,008	0,012	0,071	26.539	350	0,007	0,009	0,050
0,8	2	40.000	1.152	0,014	0,040	0,120	27.866	752	0,014	0,036	0,107	19.904	430	0,011	0,025	0,075
0,8	4	40.000	1.152	0,014	0,032	0,080	27.866	752	0,014	0,029	0,071	19.904	430	0,011	0,020	0,050
0,8	5	40.000	1.152	0,014	0,032	0,080	27.866	752	0,014	0,029	0,071	19.904	430	0,011	0,020	0,050
0,8	6	40.000	1.152	0,014	0,028	0,080	27.866	752	0,014	0,025	0,071	19.904	430	0,011	0,018	0,050
0,8	7	40.000	1.088	0,014	0,024	0,007	27.866	711	0,013	0,021	0,006	19.904	406	0,010	0,015	0,005
0,8	8	40.000	960	0,012	0,024	0,056	27.866	627	0,011	0,021	0,050	19.904	358	0,009	0,015	0,035
0,8	10	40.000	960	0,012	0,016	0,048	27.866	627	0,011	0,014	0,043	19.904	358	0,009	0,010	0,030
1,0	3	40.000	1.600	0,020	0,080	0,160	22.293	836	0,019	0,071	0,143	15.924	478	0,015	0,050	0,100
1,0	4	40.000	1.408	0,018	0,056	0,160	22.293	736	0,017	0,050	0,143	15.924	420	0,013	0,035	0,100
1,0	5	40.000	1.408	0,018	0,040	0,160	22.293	736	0,017	0,036	0,143	15.924	420	0,013	0,025	0,100
1,0	6	40.000	1.408	0,018	0,040	0,160	22.293	736	0,017	0,036	0,143	15.924	420	0,013	0,025	0,100
1,0	7	40.000	1.280	0,016	0,040	0,120	22.293	669	0,015	0,036	0,107	15.924	382	0,012	0,025	0,075
1,0	8	40.000	1.280	0,016	0,032	0,120	22.293	669	0,015	0,029	0,107	15.924	382	0,012	0,020	0,075
1,0	9	40.000	1.280	0,016	0,032	0,120	22.293	669	0,015	0,029	0,107	15.924	382	0,012	0,020	0,075
1,0	10	40.000	1.280	0,016	0,024	0,080	22.293	669	0,015	0,021	0,071	15.924	382	0,012	0,015	0,050
1,0	12	40.000	960	0,012	0,024	0,080	22.293	502	0,011	0,021	0,071	15.924	287	0,009	0,015	0,050
1,0	14	40.000	960	0,012	0,024	0,080	22.293	502	0,011	0,021	0,071	15.924	287	0,009	0,015	0,050
1,0	16	40.000	960	0,012	0,020	0,080	22.293	502	0,011	0,018	0,071	15.924	287	0,009	0,013	0,050
1,0	20	40.000	960	0,012	0,016	0,064	22.293	502	0,011	0,014	0,057	15.924	287	0,009	0,010	0,040
1,2	6	26.539	1.274	0,024	0,040	0,096	18.577	836	0,023	0,036	0,086	13.270	478	0,018	0,025	0,060
1,2	8	26.539	1.104	0,021	0,032	0,096	18.577	725	0,020	0,029	0,086	13.270	414	0,016	0,020	0,060
1,2	10	26.539	934	0,018	0,024	0,072	18.577	613	0,017	0,021	0,064	13.270	350	0,013	0,015	0,045
1,2	12	26.539	849	0,016	0,016	0,072	18.577	557	0,015	0,014	0,064	13.270	318	0,012	0,010	0,045
1,4	8	22.748	1.092	0,024	0,048	0,160	15.924	717	0,023	0,043	0,143	11.374	409	0,018	0,030	0,100
1,4	12	22.748	1.092	0,024	0,040	0,144	15.924	717	0,023	0,036	0,129	11.374	409	0,018	0,025	0,090
1,4	16	22.748	1.092	0,024	0,032	0,112	15.924	717	0,023	0,029	0,100	11.374	409	0,018	0,020	0,070
1,5	8	21.231	1.121	0,026	0,056	0,144	14.862	736	0,025	0,050	0,129	10.616	420	0,020	0,035	0,090
1,5	12	21.231	1.121	0,026	0,056	0,144	14.862	736	0,025	0,050	0,129	10.616	420	0,020	0,035	0,090
1,5	16	21.231	951	0,022	0,040	0,112	14.862	624	0,021	0,036	0,100	10.616	357	0,017	0,025	0,070
1,5	20	21.231	849	0,020	0,032	0,096	14.862	557	0,019	0,029	0,086	10.616	318	0,015	0,020	0,060
1,6	8	19.904	1.115	0,028	0,056	0,160	13.933	731	0,026	0,050	0,143	9.952	418	0,021	0,035	0,100
1,6	12	19.904	1.019	0,026	0,056	0,160	13.933	669	0,024	0,050	0,143	9.952	382	0,019	0,035	0,100
1,6	16	19.904	955	0,024	0,040	0,120	13.933	627	0,023	0,036	0,107	9.952	358	0,018	0,025	0,075
1,6	20	19.904	796	0,020	0,032	0,096	13.933	522	0,019	0,029	0,086	9.952	299	0,015	0,020	0,060
1,8	8	17.693	1.161	0,033	0,064	0,200	12.385	762	0,031	0,057	0,179	8.846	435	0,025	0,040	0,125
1,8	12	17.693	991	0,028	0,064	0,160	12.385	650	0,026	0,057	0,143	8.846	372	0,021	0,040	0,100
1,8	16	17.693	849	0,024	0,048	0,120	12.385	557	0,023	0,043	0,107	8.846	318	0,018	0,030	0,075
1,8	20	17.693	764	0,022	0,040	0,108	12.385	502	0,020	0,036	0,096	8.846	287	0,016	0,025	0,068
2,0	4	15.924	1.274	0,040	0,144	0,400	11.146	836	0,038	0,129	0,357	7.962	478	0,030	0,090	0,250
2,0	6	15.924	1.146	0,036	0,120	0,400	11.146	752	0,034	0,107	0,357	7.962	430	0,027	0,075	0,250
2,0	8	15.924	1.096	0,034	0,120	0,320	11.146	719	0,032	0,107	0,286	7.962	411	0,026	0,075	0,200
2,0	10	15.924	1.274	0,040	0,120	0,320	11.146	836	0,038	0,107	0,286	7.962	478	0,030	0,075	0,200
2,0	12	15.924	1.197	0,038	0,096	0,280	11.146	786	0,035	0,086	0,250	7.962	449	0,028	0,060	0,175
2,0	14	15.924	1.019	0,032	0,080	0,280	11.146	669	0,030	0,071	0,250	7.962	382	0,024	0,050	0,175
2,0	16	15.924	892	0,028	0,080	0,240	11.146	585	0,026	0,071	0,214	7.962	334	0,021	0,050	0,150
2,0	18	15.924	764	0,024	0,080	0,200	11.146	502	0,023	0,071	0,179	7.962	287	0,018	0,050	0,125
2,0	20	15.924	764	0,024	0,056	0,200	11.146	502	0,023	0,050	0,179	7.962	287	0,018	0,035	0,125
2,0	22	15.924	688	0,022	0,040	0,160	11.146	451	0,020	0,036	0,143	7.962	258	0,016	0,025	0,100
2,0	25	15.924	688	0,022	0,040	0,120	11.146	451	0,020	0,036	0,107	7.962	258	0,016	0,025	0,075
2,0	30	15.924	637	0,020	0,032	0,080	11.146	418	0,019	0,029	0,071	7.962	239	0,015	0,020	0,050
3,0	8	10.616	1.359	0,064	0,160	0,480	7.431	892	0,060	0,143	0,429	5.308	510	0,048	0,100	0,300
3,0	10	10.616	1.359	0,064	0,160	0,400	7.431	892	0,060	0,143	0,357	5.308	510	0,048	0,100	0,250
3,0	16	10.616	1.189	0,056	0,120	0,400	7.431	780	0,053	0,107	0,357	5.308	446	0,042	0,075	0,250
3,0	20	10.616	1.104	0,052	0,120	0,320	7.431	725	0,049	0,107	0,286	5.308	414	0,039	0,075	0,200
3,0	25	10.616	1.019	0,048	0,104	0,240	7.431	669	0,045	0,093	0,214	5.308	382	0,036	0,065	0,150
3,0	30	10.616	968	0,046	0,080	0,200	7.431	635	0,043	0,071	0,179	5.308	363	0,034	0,050	0,125
3,0	35	10.616	934	0,044	0,064	0,200	7.431	613	0,041	0,057	0,179	5.308	350	0,033	0,040	0,125
4,0	10	7.962	1.529	0,096	0,160	0,640	5.573	1.003	0,090	0,143	0,571	3.981	573	0,072	0,100	0,400
4,0	16	7.962	1.274	0,080	0,160	0,480	5.573	836	0,075	0,143	0,429	3.981	478	0,060	0,100	0,300
4,0	20	7.962	1.274	0,080	0,160	0,480	5.573	836	0,075	0,143	0,429	3.981	478	0,060	0,100	0,300
4,0	25	7.962	1.146	0,072	0,160	0,400	5.573	752	0,068	0,143	0,357	3.981	430	0,054	0,100	0,250
4,0	30	7.962	1.019	0,064	0,160	0,320	5.573	669	0,060	0,143	0,286	3.981	382	0,048	0,100	0,200

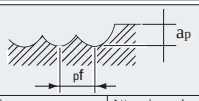
WXS-LN-EBD

High speed milling - HSC Schlichtfräsen - Fresatura alta velocità - Fraisage UGV
High speed fræsning - High Speed Milling - Fresado a alta velocidad HSM - Высокоскоростное фрезерование



	38~45 HRC - SUS 35NCD16 38~45 HRC						45~55 HRC Z38CDV5 45~55 HRC					55~60 HRC Z160CDV12 55~60 HRC				
	100 (m/min)						70 (m/min)					50 (m/min)				
Ø	Lg (mm)	S (min-1)	F (mm/min)	AZ (mm)	ap (mm)	Pf (mm)	S (min-1)	F (mm/min)	AZ (mm)	ap (mm)	Pf (mm)	S (min-1)	F (mm/min)	AZ (mm)	ap (mm)	Pf (mm)
4	35	7.962	892	0,056	0,120	0,320	5.573	585	0,053	0,107	0,286	3.981	334	0,042	0,075	0,200
4	40	7.962	764	0,048	0,120	0,320	5.573	502	0,045	0,107	0,286	3.981	287	0,036	0,075	0,200
4	45	7.962	764	0,048	0,080	0,240	5.573	502	0,045	0,071	0,214	3.981	287	0,036	0,050	0,150
4	50	7.962	637	0,040	0,080	0,240	5.573	418	0,038	0,071	0,214	3.981	239	0,030	0,050	0,150
5	20	6.369	1.325	0,104	0,200	0,800	4.459	869	0,098	0,179	0,714	3.185	497	0,078	0,125	0,500
5	25	6.369	1.223	0,096	0,200	0,720	4.459	803	0,090	0,179	0,643	3.185	459	0,072	0,125	0,450
5	30	6.369	1.019	0,080	0,200	0,640	4.459	669	0,075	0,179	0,571	3.185	382	0,060	0,125	0,400
5	35	6.369	1.019	0,080	0,200	0,480	4.459	669	0,075	0,179	0,429	3.185	382	0,060	0,125	0,300
6	30	5.308	1.189	0,112	0,336	1,040	3.715	780	0,105	0,300	0,929	2.654	446	0,084	0,210	0,650
6	50	5.308	934	0,088	0,160	0,400	3.715	613	0,083	0,143	0,357	2.654	350	0,066	0,100	0,250

Max cutting depth



Attention : sparks and/or flames can cause coolant fire. Be sure adequate fire prevention is available.
1. Speeds and feeds are designed to be used in conjunction with small passes on a high speed & precision machine set-up.
2. Do not use inflammable coolant. Using worn tools may generate sparks.
3. Use compresed air or a high quality coolant with a low co-efficient of smoke emmision.
* Modified parameters

Attenzione: le scintille prodotto durante l'operazione o il calore causato dalla rottura dell'utensile possono infiammare il lubrificante. Assicurasi che siano applicate delle adeguate misure di prevenzione.
1. Queste velocità e questi avanzamenti sono indicati per fresatura di piccole passate ad alta velocità e centri di lavorazione di alta precisione.
2. Non utillizare lubrificanti da taglio infiammabili; gli utensili troppo usurati possono produrre scintille.
3. Utilizzare un getto di aria compressa. Se la vostra scelta ricade su dei liquidi da taglio, sceglieteli di alta qualità, dotati di un coefficiente elevato di rallentamento d'emissione del fumo.
* Parameto modificato

Achtung: Funken und/oder Flammen können den Kühlschmierstoff entzünden. stellen Sie einen ausreichenden Brandschutz sicher.
1. Die Schnittdaten sind ausgelegt für geringe Zustellungen in Verbindung mit HSC tauglichen Maschinen und Spannmittel.
2. Bitte gegeignetes Kühlmittel mit rauchhemmenden Zusätzen verwenden.
3. Benutzen Sie Druckluft oder Kühlmittel mit rauchhemmenden Zusätzen..
* Modifizierten Parameters

Attention : étincelles et/ou chaleur peuvent enflammer le lubrifiant. S'assurer que des mesures de prévention adéquates sont appliquées.
1. Les vitesses et avances sont indiquées pour le fraisage de petites passes à haute vitesse / centres d'usinage de haute précision.
2. Ne pas utiliser de lubrifiants de coupe inflammables, les outils fortement usés peuvent produire des étincelles.
3. Utilisez un jet d'air comprimé ou des fluides de coupe de haute qualité avec un coef. élevé de ralentissement d'émission de fumée
* Paramètres modifiés

Pas på: gnister kan antænde kølevæsken. Sørg for brandslukningsmateriel er inden for rækkevidde
1. Skæredata er designet til brug i samarbejde med små bearbejdninger i et præcisions setup på et højhastigheds bearbejdningscenter
2. Brug ikke brændbare kølevæsker. Brugte værktøjer kan resultere i gnister
3. Brug lufttryk eller kølevæske af høj kvalitet med lav røgudvikling.
*Modificerede parametre

Atención, Las chispas pueden causar el incendio del refirgerante. Asegurese que una adecuada prevencion de incendios está disponible
1. Velocidades y avances establecidos junto a pasadas ligeras en maquinas de lata velocidad y gran precisión
2. No utilizar refrigerante inflamable. Las herramientas calientes pueden generar chispas
3. Utilizar aire comprimido o un refrigerante con un bajo coeficiente de emisión de humo
*Parámetros modificados

Observera: Gnistor kan antända kylvätskan. Se till att ha en bra brandsläckningsutrustning
1. Skärdatan är designat för små ingrepp vid precisions bearbetning i höghastighetsmaskiner
2. Använd inte brandfarliga kylvätskor. Fräsar kan vara mycket varma eter ingrepp
3. Använd tryckluft eller kylvätska med hög kvalitet och låg rökutveckling
*Modifierade parametrar

Внимание! Искры и пламя могут воспламенить СОЖ. Примите меры противопожарной безопасности.
1. Указанные режимы резания предназначены для точных высокоскоростных станков и жесткого закрепления обрабатываемой детали.
2. Не используйте легко воспламеняемую СОЖ. При использовании изношенных фрез возможно возникновение искр.
3. Используйте сжатый воздух или качественную СОЖ с высокой устойчивостью к возникновению дыма.
*Измененные параметры

WXS-CPR

Regular milling - Normale Bearbeitung - Parametri di taglio - Fraisage regular
Almindelig fræsning - Konventionell fräsning - Fresado regular - Нормальное фрезерование



D	α°	L1	Max. cutting depth ap R0,1	ap R0,2	ap R0,3	ap R0,5	ap R1	ae	Work Material: ~45 HRC SKD61 ■ NAK55 ■ NAK80 ■ HPMI ~45 HRC ap = 120% S (min⁻¹)	ae = 120% F (mm/min)	45~55 HRC SKD61 ■ STAVAX ■ HPM38 45~55 HRC ap = 100% S (min⁻¹)	ae = 120% F (mm/min)	55~65 HRC 55~65 HRC ap = 60% S (min⁻¹)	ae = 80% F (mm/min)
0,4	0°	1	-	-	-	-	-	0,120	29.500	750	26.000	580	24.500	470
0,4	0°	1,5	-	-	-	-	-	0,120	29.500	750	26.000	580	24.500	470
0,4	0°	2	-	-	-	-	-	0,102	27.500	675	24.500	520	23.000	420
0,4	0°	3	-	-	-	-	-	0,075	23.000	470	20.000	360	19.000	290
0,4	0°	4	-	-	-	-	-	0,036	21.000	380	18.500	290	17.500	235
0,4	1°	3	-	-	-	-	-	0,120	31.000	755	27.000	580	25.500	470
0,4	1°	4	-	-	-	-	-	0,108	29.500	680	26.000	520	24.500	420
0,4	3°	3	-	-	-	-	-	0,120	31.000	795	27.000	610	25.500	495
0,4	3°	4	-	-	-	-	-	0,120	29.500	750	26.000	580	24.500	470
0,4	5°	3	-	-	-	-	-	0,120	31.000	795	27.000	610	25.500	495
0,4	5°	4	-	-	-	-	-	0,120	29.500	750	26.000	580	24.500	470
0,5	0°	1	0,020	-	-	-	-	0,150	29.000	820	26.000	670	26.000	620
0,5	0°	2	0,020	-	-	-	-	0,150	29.000	820	26.000	670	26.000	620
0,5	0°	3	0,010	-	-	-	-	0,105	27.500	695	24.500	570	24.500	525
0,5	0°	4	0,006	-	-	-	-	0,090	22.500	510	20.000	420	20.000	385
0,5	0°	5	0,004	-	-	-	-	0,045	21.000	415	18.500	340	18.500	315
0,5	0°	6	0,003	-	-	-	-	0,030	19.500	360	17.000	295	17.000	270
0,5	1°	3	0,020	-	-	-	-	0,150	32.500	910	28.500	745	28.500	690
0,5	1°	5	0,015	-	-	-	-	0,150	29.000	735	26.000	605	26.000	560
0,5	1°	8	0,009	-	-	-	-	0,052	25.500	560	22.500	460	22.500	425
0,5	1°	10	0,006	-	-	-	-	0,022	22.500	475	20.000	390	20.000	360
0,5	1°	12	0,005	-	-	-	-	0,016	21.000	415	18.500	410	15.500	315
0,5	3°	3	0,020	-	-	-	-	0,150	32.500	910	28.500	745	28.500	690
0,5	3°	5	0,020	-	-	-	-	0,150	29.000	820	26.000	670	26.000	620
0,5	3°	8	0,018	-	-	-	-	0,067	25.500	710	22.500	580	22.500	535
0,5	3°	10	0,005	-	-	-	-	0,037	22.500	575	20.000	470	20.000	435
0,5	3°	12	0,004	-	-	-	-	0,031	21.000	475	18.500	390	18.500	360
0,5	5°	3	0,020	-	-	-	-	0,150	32.500	910	28.500	745	28.500	690
0,5	5°	5	0,020	-	-	-	-	0,150	29.000	820	26.000	670	26.000	620
0,5	5°	8	0,018	-	-	-	-	0,142	25.500	710	22.500	580	22.500	535
0,5	5°	10	0,015	-	-	-	-	0,112	22.500	635	20.000	520	20.000	480
0,6	0°	2	0,020	-	-	-	-	0,180	29.000	980	26.000	805	21.500	620
0,6	0°	4	0,009	-	-	-	-	0,122	24.500	695	21.500	570	18.000	440
0,6	0°	6	0,004	-	-	-	-	0,054	21.000	495	18.500	410	15.500	315
0,8	0°	4	0,016	0,032	-	-	-	0,240	23.500	1.000	20.500	800	17.000	565
0,8	0°	6	0,007	0,014	-	-	-	0,240	19.500	700	16.500	555	14.000	390
0,8	0°	8	0,004	0,008	-	-	-	0,216	18.000	570	15.500	450	13.000	320
0,8	1°	5	0,020	0,040	-	-	-	0,240	26.500	1.150	26.500	1.050	26.500	905
0,8	1°	8	0,015	0,030	-	-	-	0,240	25.000	1.000	25.000	940	25.000	795
0,8	3°	5	0,020	0,040	-	-	-	0,240	26.500	1.200	26.500	1.100	26.500	940
0,8	3°	8	0,020	0,040	-	-	-	0,240	25.000	1.100	25.000	1.050	25.000	880
1,0	0°	4	0,020	0,040	0,060	-	-	0,300	23.000	1.300	20.000	1.050	17.000	755
1,0	0°	6	0,010	0,020	0,030	-	-	0,210	20.500	1.050	18.000	835	15.500	605
1,0	0°	8	0,006	0,012	0,018	-	-	0,180	18.000	780	15.500	650	13.500	470
1,0	0°	10	0,004	0,008	0,012	-	-	0,090	16.500	650	14.500	530	12.500	380
1,0	0°	12	0,003	0,006	0,009	-	-	0,060	15.500	565	13.500	460	11.500	335
1,0	0°	16	0,002	0,004	0,006	-	-	0,030	12.000	400	10.500	325	9.150	235
1,0	0°	20	0,001	0,003	0,004	-	-	0,024	10.000	285	800	230	7.650	170
1,0	1°	6	0,020	0,040	0,060	-	-	0,300	25.500	1.250	22.500	1.150	19.000	840
1,0	1°	10	0,015	0,030	0,045	-	-	0,270	23.000	1.150	20.000	940	17.000	680
1,0	1°	15	0,010	0,020	0,030	-	-	0,120	20.500	915	18.000	740	15.500	540
1,0	1°	20	0,006	0,012	0,018	-	-	0,045	18.000	750	15.500	610	13.500	440
1,0	1°	25	0,002	0,004	0,006	-	-	0,030	16.500	650	14.500	530	12.500	380
1,0	1°	30	0,001	0,002	0,004	-	-	0,021	12.500	465	11.000	380	9.550	275
1,0	1°	35	0,001	0,002	0,003	-	-	0,015	11.500	385	10.000	315	8.600	230
1,0	3°	6	0,020	0,040	0,060	-	-	0,300	25.500	1.450	22.500	1.150	19.000	840
1,0	3°	10	0,020	0,040	0,060	-	-	0,300	23.000	1.300	20.000	1.050	17.000	755
1,2	0°	6	-	0,032	0,048	-	-	0,360	19.000	1.200	18.000	1.050	14.500	735
1,2	0°	8	-	0,018	0,027	-	-	0,252	17.000	965	16.000	845	13.000	580
1,2	0°	10	-	0,011	0,016	-	-	0,216	16.000	850	15.000	740	12.000	510
1,5	0°	6	0,020	0,040	0,060	-	-	0,450	17.000	1.450	16.000	1.250	13.500	880
1,5	0°	8	0,013	0,026	0,039	-	-	0,382	16.000	1.250	15.500	1.100	12.500	750
1,5	0°	10	0,009	0,018	0,027	-	-	0,292	14.500	1.000	13.500	900	11.000	625
1,5	0°	12	0,006	0,012	0,018	-	-	0,270	13.500	900	12.500	790	10.500	550
1,5	0°	16	0,003	0,007	0,010	-	-	0,112	9.150	525	8.650	460	7.150	320
1,5	1°	10	0,019	0,039	0,049	-	-	0,450	18.500	1.500	17.500	1.300	14.500	905
1,5	1°	15	0,015	0,030	0,037	-	-	0,405	17.000	1.150	16.000	1.000	13.500	705
1,5	1°	20	0,010	0,020	0,025	-	-	0,270	15.500	1.100	15.000	970	12.000	675
1,5	1°	25	0,008	0,008	0,010	-	-	0,135	14.500	950	13.500	835	11.500	580
1,5	1°	30	0,003	0,006	0,075	-	-	0,067	13.500	840	12.500	740	10.500	515
1,5	3°	10	0,020	0,040	0,050	-	-	0,450	18.500	1.550	17.500	1.350	14.500	940
1,5	3°	15	0,020	0,040	0,050	-	-	0,450	17.000	1.450	16.000	1.250	13.500	880
2,0	0°	8	0,020	0,040	0,060	0,075	-	0,600	13.000	1.450	13.000	1.300	11.500	1.000
2,0	0°	10	0,016	0,032	0,048	0,060	-	0,510	12.000	1.300	12.000	1.150	11.000	905
2,0	0°	12	0,010	0,020	0,030	0,037	-	0,420	11.500	1.150	11.500	1.050	10.000	810
2,0	0°	16	0,006	0,012	0,018	0,022	-	0,360	10.000	900	10.000	800	8.900	630
2,0	0°	20	0,004	0,008	0,012	0,015	-	0,180	9.300	730	9.300	650	8.250	510
2,0	0°	25	0,002	0,004	0,007	0,009	-	0,120	8.600	625	8.600	560	7.650	440
2,0	1°	15	0,018	0,036	0,460	0,064	-	0,600	13.500	1.450	13.500	1.300	12.000	1,000
2,0	1°	20	0,015	0,030	0,037	0,052	-	0,540	13.000	1.300	13.000	1.150	11.500	910
2,0	1°	25	0,012	0,024	0,030	0,040	-	0,390	12.000	1.150	12.000	1.050	11.000	810
2,0	1°	30	0,010	0,020	0,025	0,030	-	0,240	11.500	1.050	11.500	920	10.000	720
2,0	1°	40	0,006	0,012	0,015	0,020	-	0,090	10.000	840	10.000	750	8.900	590
2,0	1°	50	0,005	0,010	0,015	0,010	-	0,060	9.300	730	9.300	650	8.250	510
2,0	3°	15	0,020	0,040	0,060	0,075	-	0,600	13.500	1.500	13.500	1.350	12.000	1,050
2,0	3°	20	0,020	0,040	0,060	0,075	-	0,600	13.000	1.450	13..000	1.300	11.500	1.000
2,5	0°	10	-	0,040	-	0,075	-	0,750	11.500	1.600	10.500	1.200	9.150	1.000

WXS-CPR

Regular milling - Normale Bearbeitung - Parametri di taglio - Fraisage regular
Almindelig fræsning - Konventionell fräsning - Fresado regular - Нормальное фрезерование

Max. cutting depth



D	α°	L1	ap					ae	Work Material: ~45 HRC SKD61 ■ NAK55 ■ NAK80 ■ HPMI ~45 HRC		Work Material: 45~55 HRC SKD61 ■ STAVAX ■ HPM38 45~55 HRC		Work Material: 55~65 HRC 55~65 HRC	
									ap = 120%	ae = 120%	ap = 100%	ae = 120%	ap = 60%	ae = 80%
			R0,1	R0,2	R0,3	R0,5	R1		S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)
2,5	0°	20	-	0,020	-	0,037	-	0,450	8.900	1.000	8.000	740	7.150	630
2,5	0°	30	-	0,006	-	0,011	-	0,150	7.650	700	6.850	520	6.100	445
3,0	0°	8	-	0,040	0,060	0,075	0,100	0,900	9.550	1.500	8.600	1.150	7.650	825
3,0	0°	12	-	0,040	0,060	0,075	0,100	0,900	9.550	1.500	8.600	1.150	7.650	825
3,0	0°	16	-	0,028	0,042	0,052	0,070	0,720	8.500	1.200	7.650	910	6.800	660
3,0	0°	20	-	0,018	0,027	0,033	0,045	0,612	7.400	985	6.700	750	5.950	545
3,0	0°	25	-	0,012	0,018	0,022	0,030	0,540	7.100	830	6.400	635	5.700	460
3,0	0°	30	-	0,008	0,012	0,015	0,020	0,270	6.900	755	6.200	575	5.500	420
3,0	0°	35	-	0,006	0,009	0,011	0,015	0,180	6.350	655	5.700	500	5.100	365
3,0	1°	15	-	0,040	0,060	0,075	0,100	0,900	10.500	1.650	9.550	1.250	8.500	920
3,0	1°	20	-	0,039	0,058	0,070	0,080	0,900	9.950	1.500	8.950	1.150	7.950	830
3,0	1°	30	-	0,030	0,045	0,050	0,070	0,810	9.550	1.350	8.600	1.000	7.650	745
3,0	1°	40	-	0,022	0,033	0,040	0,050	0,522	8.900	1.150	8.000	890	7.150	650
3,0	1°	50	-	0,016	0,024	0,030	0,040	0,297	8.050	980	7.250	750	6.450	545
3,0	1°	60	-	0,012	0,018	0,020	0,020	0,135	7.400	870	6.700	660	5.950	480
4,0	0°	16	-	0,040	0,060	0,075	0,120	1,200	7.150	2.050	6.450	1.550	5.000	965
4,0	0°	20	-	0,032	0,048	0,060	0,20	1,020	6.750	1.950	6.100	1.450	4.750	910
4,0	0°	25	-	0,020	0,030	0,037	0,060	0,816	5.950	1.700	5.350	1.300	4.150	800
4,0	0°	30	-	0,014	0,021	0,026	0,040	0,744	5.550	1.600	5.000	1.200	3.900	750
4,0	0°	40	-	0,008	0,012	0,015	0,024	0,360	5.150	1.500	4.650	1.100	3.600	695
4,0	0°	50	-	0,004	0,007	0,009	0,014	0,216	4.550	1.300	4.100	980	3.150	610

CARBIDE

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication / mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation (side milling) with a low machining load. If abnormal cutting sounds, vibration or chattering ocuur depending on the machine shape, cutting amount, rigidity of the machine or work holding condition etc., please adjust the speed, feed and the depth of cut.
4. Adjust the speed, feed rate, and depth of cut if chattering, vibration or abnormal grinding sounds occur.
5. Helical or ramp milling is recommanded during the approach of a Z cut.
6. Adjust the speed, feed rate, and the depth of the cut according to the shape of the work, rigidity of the machine, and how the work is held.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Wir empfehlen Luft-oder Minimalen Külhung für die Bearbeitung von Kohlenstoffstahl und Gehärteter Stahl.
3. Die oben angegeben Schnittwerte sind für Konturoperationen mit optimalen Aufmaßen. Bei abnormalen Geräuschen, Vibrationen die sich durch die Kontur ergeben, zu hohes Aufmaß, Stabilität der Aufspannung, Werkstück oder der Maschine müssen die Drehzahlen und der Vorschub oder Aufmaß entsprechend korrigiert werden.
4. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindligkeit reduzieren.
5. Axiale Z-Zustellung sollte im Helixverfahren oder im Ramping durchgeführt werden.
6. Schnittdaten und Zustelltiefe bitte nach gewünschter Oberflächengüte, Stabilität der Maschine und Stabilität der Werkstückklemmung auswählen bzw. verändern.

1. Anvend stabil maskine og værktøjsholder
2. Minimalsmøring tilrådes ved bearbejdning af legeret stål eller hærdet stål
3. Ovenstående skæredata viser en ca. standard for sidefræsning ved lav maskinbelastning. Hvis unormale lyde eller vibrationer opstår, justér omdrejninger, tilspænding og skæredybde under hensyntagen til maskine og værktøjsholder samt bearbejdningskontur.
4. Justér hastighed, tilspænding og skæredybde hvis der opstår vibrationer eller unormale lyde
5. Ved bearbejdning i z aksen benyttes rampe fræsning eller cirkel interpolation
6. Justér hastighed, tilspænding og skæredybde i forhold til emnets udformning maskinens stabilitet og emnets opspænding

1. Använd en stabil maskin och verktygshållare
2. Minimalsmörjning rekommenderas vid bearbetning i legerat och härdat stål
3. Ovanstående skärdata visar en ungefärlig standard för valsfräsning Vid låg maskinbelastning. Om onormala ljud och vibrationer uppstår, justera varvtal och matning
4. Justera varvtal, matning och skärdjup om vibrationer eller onormala ljud uppstår
5. Vid bearbetning i Z axeln använd rampning eller cikulärinterpolering
6. Justera varvtal, matning och skärdjup i förhållande till applikationens utformning och maskinens stabilitet

1. Utilizzare su macchine e mandrini ad alta precisione e rigidezza.
2. È consigliabile utilizzare lubrificazione minimale (MQL).
3. La presente tabella si riferisce a parametri approssimativi di operazioni di contornatura. Eventuali vibrazioni o rumore anomalo di taglio dipendono dal tipo di macchina, rigidezza e profondità di passata. Regolare velocità, avanzamento e passata di taglio.
4. Ridurre velocità, avanzamento e passata di taglio se si innesano vibrazioni.
5. Si consiglia di iniziare la lavorazione con un'entrata in rampa.
6. Regolare velocità e l'avanzamento in funzione del tipo di lavorazione e del tipo di macchina.

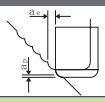
1. Utilisez une machine et un attachement rigide et précis.
2. Pour l'usinage des arciers au carbone et des aciers trempé, l'utilisation de MQL (Pulvérisation) est recommandée.
3. Les conditions ci-dessus sont des standards approx. pour des opérations de contournage avec un charge machine réduite. En cas des bruits d'usinage anormoux et/ou des vibrations dépendants de la géométrie de la pièce, conditions de coupe, rigidité de la machine et/ou clamage, etc. …, ajustez la vitesse, l'avance et/ou la profondeur de coupe.
4. Ajustez la vitesse, avance et/ou profondeur de coupe en cas de vibrations et/ou bruits d'usinage anormaux.
5. Le fraisage hélicoïdale ou fraisage en pente est recommandé pendant l'approche en Z.
6. Ajustez la vitesse, avance et profondeur de coupe en concordance avec la forme de la pièce, la rigidité de la machine et les conditions de clamage.

1. Use maquina y portaherramientas rigidos y precisos
2. En mecanizado de aceros al carbono o de acero endurecido, recomendable MQL (cantidad mínima lubrificación / niebla refrigerante).
3. Lo anterior muestra condiciones estándar aproximadas para la operación de contorneado con baja carga de maquina
4. Ajuste la velocidad, el avance y la profundidad de pasada en caso de vibraciones o sonidos anormales
5. Recomendable rampa o interpolación helicoidal en la aproximación a un avance en Z
6. Ajustar la velocidad, el avance y la profundidad de corte de acuerdo a la forma de mecanizado, la rigidez de la máquina y la fijación de pieza

1. Используйте жесткие и точные станки и фрезерные патроны.
2. При обработке углеродистой стали или закаленной стали, рекомендуется использовать MQL (масляный туман).
3. Упомянутые выше условия показывают приблизительные параметры для контурного фрезерования с низкими нагрузками резания.
4. Отрегулируйте обороты шпинделя, подачу и глубину резания при появлении вибраций и ненормального звука при резании.
5. Для врезания по оси Z используйте фрезерование по спирали или наклонное врезание.
6. Установите обороты шпинделя, подачу и глубину резания в соответствии с формой детали, жесткости станка и условий закрепления детали.

WXS-CPR

Side milling (Contour line finish) - Schlichten - Finatura in contornatura - Contournage (Finition)
Sidefræsning (sletfræsning) - Valsfräsning fin - Contorneado - Боковое фрезерование



D	α°	L1	Max. cutting depth ap					ae	Work Material ~45 HRC SKD61 ■ NAK55 ■ NAK80 ■ HPMI ~45 HRC		45~55 HRC SKD61 ■ STAVAX ■ HPM38 45~55 HRC		55~65 HRC 55~65 HRC	
									ap = 120%	ae = 120%	ap = 100%	ae = 120%	ap = 60%	ae = 80%
			R0,1	R0,2	R0,3	R0,5	R1		S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
0,4	0°	1	-	-	-	-	-	0,012	39.500	1.000	32.000	775	28.500	550
0,4	0°	1,5	-	-	-	-	-	0,012	39.500	1.000	32.000	775	28.500	550
0,4	0°	2	-	-	-	-	-	0,012	37.000	905	30.500	695	27.000	495
0,4	0°	3	-	-	-	-	-	0,008	30.500	630	25.500	480	22.500	340
0,4	0°	4	-	-	-	-	-	0,006	28.500	510	23.500	390	20.500	280
0,4	1°	3	-	-	-	-	-	0,012	41.500	1.000	34.000	775	30.000	550
0,4	1°	4	-	-	-	-	-	0,012	39.500	910	32.000	695	28.500	495
0,4	3°	3	-	-	-	-	-	0,012	41.500	1.050	34.000	815	30.000	580
0,4	3°	4	-	-	-	-	-	0,012	39.500	1.000	32.000	775	28.500	550
0,4	5°	3	-	-	-	-	-	0,012	41.500	1.050	34.000	815	30.000	580
0,4	5°	4	-	-	-	-	-	0,012	39.500	1.000	32.000	775	28.500	550
0,5	0°	1	0,015	-	-	-	-	0,015	34.500	965	28.500	775	24.000	580
0,5	0°	2	0,015	-	-	-	-	0,015	34.500	965	28.500	775	24.000	580
0,5	0°	3	0,015	-	-	-	-	0,013	32.500	820	27.000	660	22.500	490
0,5	0°	4	0,009	-	-	-	-	0,010	26.500	600	22.500	480	18.500	360
0,5	0°	5	0,006	-	-	-	-	0,007	25.000	490	20.500	390	17.500	290
0,5	0°	6	0,004	-	-	-	-	0,006	23.000	425	19.000	340	16.000	255
0,5	1°	3	0,015	-	-	-	-	0,015	38.000	1.050	32.000	860	26.500	640
0,5	1°	5	0,015	-	-	-	-	0,015	34.500	865	28.500	695	24.000	520
0,5	1°	8	0,010	-	-	-	-	0,010	30.000	660	25.000	530	21.000	395
0,5	1°	10	0,007	-	-	-	-	0,009	26.500	560	22.500	450	18.500	340
0,5	1°	12	0,006	-	-	-	-	0,006	25.000	490	20.500	390	17.500	290
0,5	3°	3	0,015	-	-	-	-	0,015	38.000	1.050	32.000	860	26.500	640
05	3°	5	0,015	-	-	-	-	0,015	34.500	965	28.500	775	24.000	580
05	3°	8	0,012	-	-	-	-	0,015	30.000	835	25.000	670	21.000	500
0,5	3°	10	0,007	-	-	-	-	0,012	26.500	675	22.500	540	18.500	400
0,5	3°	12	0,006	-	-	-	-	0,010	25.000	555	20.500	450	17.500	335
0,5	5°	3	0,015	-	-	-	-	0,015	38.000	1.050	32.000	860	26.500	640
0,5	5°	5	0,015	-	-	-	-	0,015	34.500	965	28.500	775	24.000	580
0,5	5°	8	0,015	-	-	-	-	0,015	30.000	835	25.000	670	21.000	500
0,5	5°	10	0,012	-	-	-	-	0,012	26.500	750	22.500	600	18.500	450
0,6	0°	2	0,015	-	-	-	-	0,018	31.000	1.050	26.500	850	24.000	690
0,6	0°	4	0,012	-	-	-	-	0,012	26.000	740	22.000	600	20.000	490
0,6	0°	6	0,006	-	-	-	-	0,009	22.500	530	19.000	430	17.000	350
0,8	0°	4	0,015	0,020	-	-	-	0,020	29.000	1.200	25.500	1.050	23.500	790
0,8	0°	6	0,012	0,016	-	-	-	0,014	23.500	850	21.000	720	19.500	550
0,8	0°	8	0,006	0,008	-	-	-	0,010	22.000	690	19.500	590	18.000	445
0,8	1°	5	0,015	0,020	-	-	-	0,020	26.500	1.150	26.500	1.100	26.500	905
0,8	1°	8	0,015	0,020	-	-	-	0,020	25.000	1.000	25.000	975	25.000	795
0,8	3°	5	0,015	0,020	-	-	-	0,020	26.500	1.200	26.500	1.150	26.500	940
0,8	3°	8	0,015	0,020	-	-	-	0,020	25.000	1.100	25.000	1.100	25.000	880
1,0	0°	4	0,015	0,020	0,030	-	-	0,030	27.000	1.500	24.500	1.250	22.500	995
1,0	0°	6	0,015	0,020	0,030	-	-	0,027	24.000	1.200	21.500	1.000	20.000	800
1,0	0°	8	0,009	0,012	0,018	-	-	0,021	21.000	950	19.000	790	17.500	620
1,0	0°	10	0,006	0,008	0,012	-	-	0,015	19.500	770	17.500	640	16.500	505
1,0	0°	12	0,004	0,006	0,009	-	-	0,013	18.000	670	16.000	560	15.000	440
1,0	0°	16	0,003	0,004	0,006	-	-	0,010	14.500	470	13.000	390	12.000	310
1,0	0°	20	0,003	0,003	0,004	-	-	0,009	12.000	340	11.000	280	10.000	220
1,0	1°	6	0,015	0,020	0,030	-	-	0,030	30.000	1.700	27.000	1.400	25.000	1.100
1,0	1°	10	0,015	0,020	0,030	-	-	0,030	27.000	1.350	24.500	1.150	22.500	895
1,0	1°	15	0,010	0,014	0,021	-	-	0,021	24.000	1.100	21.500	900	20.000	710
1,0	1°	20	0,007	0,010	0,015	-	-	0,018	21.000	890	19.000	740	17.500	580
1,0	1°	25	0,006	0,008	0,012	-	-	0,012	19.500	770	17.500	640	16.500	505
1,0	1°	30	0,003	0,004	0,006	-	-	0,009	15.000	550	13.500	460	12.500	360
1,0	1°	35	0,001	0,002	0,003	-	-	0,007	13.500	460	12.000	380	11.500	300
1,0	3°	6	0,015	0,020	0,030	-	-	0,300	30.000	1.700	27.000	1.400	25.000	1.100
1,0	3°	10	0,006	0,008	0,012	-	-	0,015	27.000	1.500	24.500	1.250	22.500	995
1,2	0°	6	-	0,016	0,024	-	-	0,036	22.500	1.450	21.000	1.250	19.000	960
1,2	0°	8	-	0,009	0,013	-	-	0,028	20.000	1.150	18.500	980	17.000	760
1,2	0°	10	-	0,005	0,008	-	-	0,021	18.500	1.000	17.500	860	16.000	670
1,5	0°	6	0,015	0,020	0,030	-	-	0,045	21.000	1.750	18.500	1.450	16.000	1.050
1,5	0°	8	0,015	0,020	0,030	-	-	0,045	20.000	1.500	17.500	1.250	15.500	910
1,5	0°	10	0,013	0,018	0,027	-	-	0,036	17.500	1.250	15.500	1.050	13.500	760
1,5	0°	12	0,009	0,012	0,018	-	-	0,031	16.500	1.100	14.500	910	12.500	670
1,5	0°	16	0,006	0,008	0,012	-	-	0,022	11.000	640	10.000	530	8.650	390
1,5	1°	10	0,015	0,020	0,030	-	-	0,045	22.500	1.800	20.000	1.500	17.500	1.100
1,5	1°	15	0,015	0,020	0,030	-	-	0,045	21.000	1.400	18.500	1.150	16.000	860
1,5	1°	20	0,012	0,016	0,024	-	-	0,036	19.000	1.300	17.000	1.100	15.000	820
1,5	1°	25	0,010	0,014	0,021	-	-	0,031	17.500	1.150	16.000	960	13.500	705
1,5	1°	30	0,007	0,010	0,015	-	-	0,027	16.500	1.050	14.500	850	12.500	625
1,5	3°	10	0,015	0,020	0,030	-	-	0,045	22.500	1.900	20.000	1.550	17.500	1.150
1,5	3°	15	0,006	0,008	0,012	-	-	0,045	21.000	1.750	18.500	1.450	16.000	1.050
2,0	0°	8	0,015	0,020	0,030	0,05	-	0,060	16.500	1.850	16.000	1.600	15.000	1.350
2,0	0°	10	0,015	0,020	0,030	0,05	-	0,060	15.500	1.650	15.500	1.450	14.500	1.200
2,0	0°	12	0,015	0,020	0,030	0,05	-	0,054	14.500	1.500	14.500	1.300	13.500	1.050
2,0	0°	16	0,009	0,012	0,018	0,03	-	0,042	13.000	1.150	12.500	1.000	12.000	830
2,0	0°	20	0,006	0,008	0,012	0,020	-	0,030	12.000	935	11.500	820	11.000	675
2,0	0°	25	0,004	0,006	0,009	0,015	-	0,027	11.000	800	11.000	700	10.000	580
2,0	1°	15	0,015	0,020	0,030	0,050	-	0,060	17.500	1.850	17.000	1.600	16.000	1.350
2,0	1°	20	0,015	0,020	0,030	0,050	-	0,060	16.500	1.650	16.000	1.450	15.000	1.200
2,0	1°	25	0,012	0,017	0,025	0,042	-	0,054	15.500	1.500	15.500	1.300	14.500	1.050
2,0	1°	30	0,012	0,016	0,024	0,040	-	0,048	14.500	1.300	14.500	1.150	13.500	950
2,0	1°	40	0,007	0,010	0,015	0,025	-	0,036	13.000	1.100	12.500	945	12.000	780
2,0	1°	50	0,006	0,008	0,012	0,020	-	0,024	12.000	935	11.500	820	11.000	675
2,0	3°	15	0,015	0,020	0,030	0,050	-	0,060	17.500	1.950	17.000	1.700	16.000	1.400
2,0	3°	20	0,006	0,008	0,012	0,003	-	0,060	16.500	1.850	16..000	1.600	15.000	1.350
2.5	0°	10	-	0,020	-	0,050	-	0,075	13.000	1.850	13.000	1.400	12.000	1.350

WXS-CPR

Side milling (Contour line finish) - Schlichten - Finatura in contornatura - Contournage (Finition)
Sidefræsning (sletfræsning) - Valsfräsning fin - Contorneado - Боковое фрезерование

D	α°	L1	Max. cutting depth ap					ae	Work Material ~45 HRC SKD61 ■ NAK55 ■ NAK80 ■ HPMI ~45 HRC		45~55 HRC SKD61 ■ STAVAX ■ HPM38 45~55 HRC		55~65 HRC 55~65 HRC	
									ap = 120%	ae = 120%	ap = 100%	ae = 120%	ap = 60%	ae = 80%
			R0,1	R0,2	R0,3	R0,5	R1		S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
2.5	0°	20	-	0,012	-	0,003	-	0,052	10.000	1.150	10.000	885	9.450	830
2.5	0°	30	-	0,006	-	0,015	-	0,033	8.800	800	8.650	630	8.100	590
3,0	0°	8	-	0,020	0,030	0,050	0,080	0,080	12.000	2.000	11.000	1.400	10.000	1.100
3,0	0°	12	-	0,020	0,030	0,050	0,080	0,080	12.000	2.000	11.000	1.400	10.000	1.100
3,0	0°	16	-	0,020	0,030	0,050	0,080	0,080	10.500	1.600	9.600	1.150	9.000	875
3,0	0°	20	-	0,020	0,030	0,050	0,080	0,064	9.300	1.350	8.400	940	7.850	725
3,0	0°	25	-	0,012	0,018	0,030	0,048	0,048	8.900	1.100	8.050	795	7.550	610
3,0	0°	30	-	0,008	0,012	0,020	0,032	0,040	8.600	1.000	7.800	720	7.300	555
3,0	0°	35	-	0,006	0,009	0,015	0,024	0,036	7.950	880	7.200	630	6.750	480
3,0	1°	15	-	0,020	0,030	0,050	0,080	0,080	13.500	2.250	12.000	1.600	11.000	1.200
3,0	1°	20	-	0,020	0,030	0,050	0,080	0,080	12.500	2.000	11.500	1.450	10.500	1.100
3,0	1°	30	-	0,020	0,030	0,050	0,080	0,080	12.000	1.800	11.000	1.300	10.000	985
3,0	1°	40	-	0,018	0,027	0,045	0,072	0,064	11.000	1.550	10.000	1.100	9.450	860
3,0	1°	50	-	0,014	0,021	0,035	0,056	0,056	10.000	1.300	9.100	940	8.550	720
3,0	1°	60	-	0,010	0,015	0,025	0,040	0,048	9.300	1.150	8.400	830	7.850	640
4,0	0°	16	-	0,020	0,030	0,050	0,080	0,080	7.900	2.500	7.150	2.050	6.450	1.450
4,0	0°	20	-	0,020	0,030	0,050	0,080	0,080	7.450	2.400	6.750	1.950	6.100	1.350
4,0	0°	25	-	0,020	0,030	0,050	0,080	0,072	6.550	2.000	5.950	1.650	5.350	1.150
4,0	0°	30	-	0,014	0,021	0,035	0,056	0,056	6.100	1.650	5.550	1.350	5.000	955
4,0	0°	40	-	0,008	0,012	0,020	0,032	0,040	5.700	1.300	5.150	1.050	4.650	730
4,0	0°	50	-	0,006	0,009	0,015	0,024	0,036	5.000	960	4.450	785	4.100	550

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication / mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation (side milling) with a low machining load. If abnormal cutting sounds, vibration or chattering ocuur depending on the machine shape, cutting amount, rigidity of the machine or work holding condition etc., please adjust the speed, feed and the depth of cut.
4. Adjust the speed, feed rate, and depth of cut if chattering, vibration or abnormal grinding sounds occur.
5. Helical or ramp milling is recommanded during the approach of a Z cut.
6. Adjust the speed, feed rate, and the depth of the cut according to the shape of the work, rigidity of the machine, and how the work is held.

1. Utilizzare su macchine e mandrini ad alta precisione e rigidezza.
2. È consigliabile utilizzare lubrificazione minimale (MQL).
3. La presente tabella si riferisce a parametri approssimativi di operazioni di contornatura. Eventuali vibrazioni o rumore anomalo di taglio dipendono dal tipo di macchina, rigidezza e profondità di passata. Regolare velocità, avanzamento e passata di taglio.
4. Ridurre velocità, avanzamento e passata di taglio se si innesano vibrazioni.
5. Si consiglia di iniziare la lavorazione con un'entrata in rampa.
6. Regolare velocità e l'avanzamento in funzione del tipo di lavorazione e del tipo di macchina.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Wir empfehlen Luft-oder Minimalen Külhung für die Bearbeitung von Kohlenstoffstahl und Gehärteter Stahl.
3. Die oben angegeben Schnittwerte sind für Konturoperationen mit optimalen Aufmaßen. Bei abnormalen Geräuschen, Vibrationen die sich durch die Kontur ergeben, zu hohes Aufmaß, Stabilität der Aufspannung, Werkstück oder der Maschine müssen die Drehzahlen und der Vorschub oder Aufmaß entsprechend korrigiert werden.
4. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindligkeit reduzieren.
5. Axiale Z-Zustellung sollte im Helixverfahren oder im Ramping durchgeführt werden.
6. Schnittdaten und Zustelltiefe bitte nach gewünschter Oberflächengüte, Stabilität der Maschine und Stabilität der Werkstückklemmung auswählen bzw. verändern.

1. Utilisez une machine et un attachement rigide et précis.
2. Pour l'usinage des arciers au carbone et des aciers trempé, l'utilisation de MQL (Pulvérisation) est recommandée.
3. Les conditions ci-dessus sont des standards approx. pour des opérations de contournage avec un charge machine réduite. En cas des bruits d'usinage anormoux et/ou des vibrations dépendants de la géométrie de la pièce, conditions de coupe, rigidité de la machine et/ou clamage, etc. …, ajustez la vitesse, l'avance et/ou la profondeur de coupe.
4. Ajustez la vitesse, avance et/ou profondeur de coupe en cas de vibrations et/ou bruits d'usinage anormaux.
5. Le fraisage hélicoïdale ou fraisage en pente est recommandé pendant l'approche en Z.
6. Ajustez la vitesse, avance et profondeur de coupe en concordance avec la forme de la pièce, la rigidité de la machine et les conditions de clamage.

1. Anvend stabil maskine og værktøjsholder
2. Minimalsmøring tilrådes ved bearbejdning af legeret stål eller hærdet stål
3. Ovenstående skæredata viser en ca. standard for sidefræsning ved lav maskinbelastning. Hvis unormale lyde eller vibrationer opstår, justér omdrejninger, tilspænding og skæredybde under hensyntagen til maskine og værktøjsholder samt bearbejdningskontur.
4. Justér hastighed, tilspænding og skæredybde hvis der opstår vibrationer eller unormale lyde
5. Ved bearbejdning i z aksen benyttes rampe fræsning eller cirkel interpolation
6. Justér hastighed, tilspænding og skæredybde i forhold til emnets udformning maskinens stabilitet og emnets opspænding

1. Use maquina y portaherramientas rigidos y precisos
2. En mecanizado de aceros al carbono o de acero endurecido, recomendable MQL (cantidad mínima lubrificación / niebla refrigerante).
3. Lo anterior muestra condiciones estándar aproximadas para la operación de contorneado con baja carga de maquina
4. Ajuste la velocidad, el avance y la profundidad de pasada en caso de vibraciones o sonidos anormales
5. Recomendable rampa o interpolación helicoidal en la aproximación a un avance en Z
6. Ajustar la velocidad, el avance y la profundidad de corte de acuerdo a la forma de mecanizado, la rigidez de la máquina y la fijación de pieza

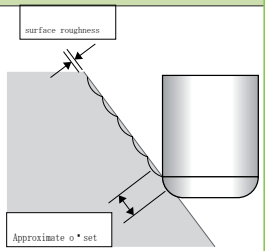
1. Använd en stabil maskin och verktygshållare
2. Minimalsmörjning rekommenderas vid bearbetning i legerat och härdat stål
3. Ovanstående skärdata visar en ungefärlig standard för valsfräsning Vid låg maskinbelastning. Om onormala ljud och vibrationer uppstår, justera varvtal och matning
4. Justera varvtal, matning och skärdjup om vibrationer eller onormala ljud uppstår
5. Vid bearbetning i Z axeln använd rampning eller cikulärinterpolering
6. Justera varvtal, matning och skärdjup i förhållande till applikationens utformning och maskinens stabilitet

1. Используйте жесткие и точные станки и фрезерные патроны.
2. При обработке углеродистой стали или закаленной стали, рекомендуется использовать MQL (масляный туман).
3. Упомянутые выше условия показывают приблизительные параметры для контурного фрезерования с низкими нагрузками резания.
4. Отрегулируйте обороты шпинделя, подачу и глубину резания при появлении вибраций и ненормального звука при резании.
5. Для врезания по оси Z используйте фрезерование по спирали или наклонное врезание.
6. Установите обороты шпинделя, подачу и глубину резания в соответствии с формой детали, жесткости станка и условий закрепления детали.

Offset

WXS-CPR

(mm)	μm													
	0,1	0,25	0,50	0,75	1,00	1,25	1,50	1,75	2,00	2,25	3,00	3,50	4,00	5,00
0,1	0,009	0,014	0,020	0,024	0,028	0,032	0,035	0,037	0,040	0,045	0,049	-	-	-
0,2	0,012	0,020	0,028	0,035	0,040	0,045	0,049	0,053	0,057	0,063	0,070	0,075	0,080	0,900
0,3	0,015	0,025	0,035	0,042	0,049	0,055	0,060	0,065	0,070	0,077	0,085	0,092	0,098	0,110
0,5	0,020	0,032	0,045	0,055	0,065	0,070	0,078	0,084	0,090	0,100	0,110	0,118	0,125	0,141
1,0	0,028	0,045	0,063	0,078	0,090	0,100	0,110	0,011	0,125	0,142	0,155	0,168	0,180	0,200



WX-G-EDSS

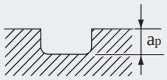
Slotting - Nutenfräsen - Per scanalature profonde - Rainurage
Sporfræsning - Spårfräsning - Ranurado - Фрезерование пазов



	C≤0,2% - GG E24 ■ XC48 ■ FT25 750 N/mm²			SCM - SKD 350NCD16 ■ 40CMD8 ~30 HRC			30~38 HRC 35NCD16 30~38 HRC			30~38 HRC 35NCD16 30~38 HRC			45~55 HRC-SUS Z38CDV5 45~55 HRC			55~60 HRC Z160CDV12 55~60 HRC		
	150 (m/min)			130 (m/min)			110 (m/min)			80 (m/min)			60 (m/min)			30 (m/min)		
Ø	S (min⁻¹)	F (mm/min)	AZ (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)
0,2	40.000	113	0,0014	40.000	113	0,0014	40.000	94	0,0012	40.000	44	0,0005	40.000	38	0,0005	40.000	40	0,0005
0,3	40.000	144	0,0018	40.000	144	0,0018	40.000	100	0,0013	40.000	69	0,0009	40.000	52	0,0007	31.847	48	0,0008
0,4	40.000	156	0,0020	40.000	156	0,0020	40.000	113	0,0014	40.000	87	0,0011	40.000	69	0,0009	23.885	48	0,0010
0,5	40.000	156	0,0020	40.000	169	0,0021	40.000	144	0,0018	40.000	109	0,0014	38.217	82	0,0011	19.108	48	0,0013
0,6	40.000	156	0,0020	40.000	204	0,0026	40.000	171	0,0021	40.000	130	0,0016	31.847	83	0,0013	15.924	47	0,0015
0,8	40.000	204	0,0026	40.000	270	0,0034	40.000	232	0,0029	31.847	153	0,0024	23.885	82	0,0017	11.943	47	0,0020
1	40.000	267	0,0033	40.000	345	0,0043	35.032	252	0,0036	25.478	151	0,0030	19.108	82	0,0021	9.554	47	0,0025
1,5	31.847	296	0,0046	27.601	329	0,0060	23.355	236	0,0051	16.985	139	0,0041	12.739	101	0,0040	6.369	45	0,0035
2	23.885	293	0,0061	20.701	308	0,0074	17.516	225	0,0064	12.739	140	0,0055	9.554	97	0,0051	4.777	43	0,0045
3	15.924	430	0,0135	13.800	326	0,0118	11.677	220	0,0094	8.493	143	0,0084	6.369	104	0,0082	3.185	48	0,0075
4	11.943	472	0,0197	10.350	391	0,0189	8.758	258	0,0147	6.369	164	0,0129	4.777	109	0,0114	2.389	46	0,0097
5	9.554	568	0,0297	8.280	453	0,0273	7.006	257	0,0183	5.096	167	0,0164	3.822	111	0,0145	1.911	46	0,0120
6	7.962	555	0,0348	6.900	450	0,0326	5.839	257	0,0220	4.246	170	0,0200	3.185	113	0,0177	1.592	38	0,0119
8	5.971	534	0,0447	5.175	450	0,0435	4.379	249	0,0284	3.185	168	0,0263	2.389	104	0,0217	1.194	38	0,0157
10	4.777	505	0,0528	4.140	443	0,0535	3.503	250	0,0357	2.548	161	0,0317	1.911	100	0,0262	955	38	0,0197
12	3.981	507	0,0636	3.450	441	0,0639	2.919	252	0,0431	2.123	161	0,0380	1.592	90	0,0283	796	30	0,0189
14	3.412	503	0,0737	2.957	424	0,0717	2.502	220	0,0440	1.820	165	0,0452	1.365	80	0,0294	682	27	0,0198
16	2.986	470	0,0788	2.588	383	0,0741	2.189	199	0,0455	1.592	142	0,0445	1.194	70	0,0294	597	24	0,0203
18	2.654	421	0,0793	2.300	345	0,0750	1.946	177	0,0455	1.415	126	0,0444	1.062	60	0,0283	531	21	0,0200
20	2.389	377	0,0788	2.070	306	0,0738	1.752	157	0,0449	1.274	109	0,0428	955	60	0,0316	478	20	0,0206
22	2.171	344	0,0792	1.882	278	0,0740	1.592	138	0,0432	1.158	101	0,0435	869	50	0,0291	434	17	0,0193
24	1.990	317	0,0795	1.725	259	0,0750	1.460	128	0,0439	1.062	92	0,0433	796	50	0,0316	398	17	0,0208
25	1.911	300	0,0786	1.656	249	0,0751	1.401	128	0,0458	1.019	92	0,0451	764	40	0,0263	382	15	0,0196
30	1.592	250	0,0787	1.380	201	0,0729	1.168	99	0,0424	849	76	0,0446	637	40	0,0317	318	15	0,0238

Max cutting depth

	ap
D ≤ Ø6	0,3D
Ø6 < D	0,5D



	ap
D ≤ Ø6	0,1D
Ø6 < D	0,2D

	ap
D ≤ Ø6	0,05D
Ø6 < D	0,10D

1. Use high precision machine set up to ensure maximum rigidity.
2. In case of vibration, reduce both feed and speed.
3. Use a coolant that has a low co-efficient of smoke emission.
* Modified parameters

1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. In caso di vibrazioni, ridurre simultaneamente la velocità di taglio e l'avanzamento.
3. Utilizzare dei lubrificanti da taglio adeguati, dotati di un coefficiente elevato di rallentamento d'emissione del fumo.
* Paramèto modificato

1. Benutzen Sie stabile und präzise Maschinen, Werkzaugaufnahmen und Spannmittel.
2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindligkeit reduzieren.
3. Kühlmittel mit niedriger Rauchentwicklung verwenden.
* Modifizierten Parameters

1. Utilisez une machine et un porte-outil de grande rigidité et de haute précision.
2. En cas de vibrations, réduisez, simultanément, la vitesse de coupe et l'avance.
3. Utilisez des lubrifiants de coupe appropriés dotés d'un coef. élevé de ralentissement d'émission de fumée.
* Paramètres modifiés

1. Benyt højt præcisions set-up for at sikre maksimum stabilitet
2. Ved vibrationer, justér både hastighed og tilspænding
3. Benyt en kølevæske med lav koefficient af røgudvikling
* Modificerede parametre

1. Use máquina de alta precisión y asegure la máxima rigidez
2. En el caso de vibraciones, reducir velocidad y avance simultaneamente
3. Use fluido de corte adecuado con retardador de humos
* Parámetros modificados

1. Använd uppsänningsanordning av hög kvalitet för bästa stabilitet
2. Vid vibrationer, justera både varvtal och matning
3. Använd kylvätska med låg koefficient av rökutveckling.
* Modifierade parametrar

1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость.
2. При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя.
3. Используйте качественную СОЖ с высокой устойчивостью к возникновению дыма
*Измененные параметры

WX-EDS

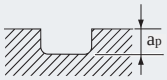
Slotting - Nutenfräsen - Per scanalature profonde - Rainurage
Sporfræsning - Spårfräsning - Ranurado - Фрезерование пазов



	C≤0,2% - GG E24 ■ XC48 ■ FT25 750 N/mm²			SCM - SKD 350NCD16 ■ 40CMD8 ~30 HRC			30~38 HRC 35NCD16 30~38 HRC			30~38 HRC 35NCD16 30~38 HRC			45~55 HRC-SUS Z38CDV5 45~55 HRC			55~60 HRC Z160CDV12 55~60 HRC		
	150 (m/min)			130 (m/min)			110 (m/min)			80 (m/min)			60 (m/min)			30 (m/min)		
Ø	S (min⁻¹)	F (mm/min)	AZ (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)
0,2	40.000	113	0,0014	40.000	113	0,0014	40.000	94	0,0012	40.000	44	0,0005	40.000	38	0,0005	40.000	40	0,0005
0,3	40.000	144	0,0018	40.000	144	0,0018	40.000	100	0,0013	40.000	69	0,0009	40.000	52	0,0007	31.847	48	0,0008
0,4	40.000	156	0,0020	40.000	156	0,0020	40.000	113	0,0014	40.000	87	0,0011	40.000	69	0,0009	23.885	48	0,0010
0,5	40.000	156	0,0020	40.000	169	0,0021	40.000	144	0,0018	40.000	109	0,0014	38.217	82	0,0011	19.108	48	0,0013
0,6	40.000	156	0,0020	40.000	204	0,0026	40.000	171	0,0021	40.000	130	0,0016	31.847	83	0,0013	15.924	47	0,0015
0,8	40.000	204	0,0026	40.000	270	0,0034	40.000	232	0,0029	31.847	153	0,0024	23.885	82	0,0017	11.943	47	0,0020
1	40.000	267	0,0033	40.000	345	0,0043	35.032	252	0,0036	25.478	151	0,0030	19.108	82	0,0021	9.554	47	0,0025
1,5	31.847	296	0,0046	27.601	329	0,0060	23.355	236	0,0051	16.985	139	0,0041	12.739	101	0,0040	6.369	45	0,0035
2	23.885	293	0,0061	20.701	308	0,0074	17.516	225	0,0064	12.739	140	0,0055	9.554	97	0,0051	4.777	43	0,0045
3	15.924	430	0,0135	13.800	326	0,0118	11.677	220	0,0094	8.493	143	0,0084	6.369	104	0,0082	3.185	48	0,0075
4	11.943	472	0,0197	10.350	391	0,0189	8.758	258	0,0147	6.369	164	0,0129	4.777	109	0,0114	2.389	46	0,0097
5	9.554	568	0,0297	8.280	453	0,0273	7.006	257	0,0183	5.096	167	0,0164	3.822	111	0,0145	1.911	46	0,0120
6	7.962	555	0,0348	6.900	450	0,0326	5.839	257	0,0220	4.246	170	0,0200	3.185	113	0,0177	1.592	38	0,0119
8	5.971	534	0,0447	5.175	450	0,0435	4.379	249	0,0284	3.185	168	0,0263	2.389	104	0,0217	1.194	38	0,0157
10	4.777	505	0,0528	4.140	443	0,0535	3.503	250	0,0357	2.548	161	0,0317	1.911	100	0,0262	955	38	0,0197
12	3.981	507	0,0636	3.450	441	0,0639	2.919	252	0,0431	2.123	161	0,0380	1.592	90	0,0283	796	30	0,0189
14	3.412	503	0,0737	2.957	424	0,0717	2.502	220	0,0440	1.820	165	0,0452	1.365	80	0,0294	682	27	0,0198
16	2.986	470	0,0788	2.588	383	0,0741	2.189	199	0,0455	1.592	142	0,0445	1.194	70	0,0294	597	24	0,0203
18	2.654	421	0,0793	2.300	345	0,0750	1.946	177	0,0455	1.415	126	0,0444	1.062	60	0,0283	531	21	0,0200
20	2.389	377	0,0788	2.070	306	0,0738	1.752	157	0,0449	1.274	109	0,0428	955	60	0,0316	478	20	0,0206
22	2.171	344	0,0792	1.882	278	0,0740	1.592	138	0,0432	1.158	101	0,0435	869	50	0,0291	434	17	0,0193
24	1.990	317	0,0795	1.725	259	0,0750	1.460	128	0,0439	1.062	92	0,0433	796	50	0,0316	398	17	0,0208
25	1.911	300	0,0786	1.656	249	0,0751	1.401	128	0,0458	1.019	92	0,0451	764	40	0,0263	382	15	0,0196
30	1.592	250	0,0787	1.380	201	0,0729	1.168	99	0,0424	849	76	0,0446	637	40	0,0317	318	15	0,0238

Max cutting depth

	ap
D < Ø1	0,1D
Ø1 ≤ D < Ø3	0,2D
Ø3 ≤ D	0,5D



	ap
D < Ø1	0,02D
Ø1 ≤ D	0,05D

	ap
D < Ø1	0,01D
Ø1 ≤ D < Ø3	0,02D
Ø3 ≤ D	0,05D

CARBIDE

1. Use high precision machine set up to ensure maximum rigidity.
2. In case of vibration, reduce both feed and speed.
3. Use a coolant that has a low co-efficient of smoke emission.
* Modified parameters

1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. In caso di vibrazioni, ridurre simultaneamente la velocità di taglio e l'avanzamento.
3. Utilizzare dei lubrificanti da taglio adeguati, dotati di un coefficiente elevato di rallentamento d'emissione del fumo.
* Paramèto modificato

1. Benutzen Sie stabile und präzise Maschinen, Werkzaugaufnahmen und Spannmittel.
2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindigkeit reduzieren.
3. Kühlmittel mit niedriger Rauchentwicklung verwenden.
* Modifizierten Parameters

1. Utilisez une machine et un porte-outil de grande rigidité et de haute précision.
2. En cas de vibrations, réduisez, simultanément, la vitesse de coupe et l'avance.
3. Utilisez des lubrifiants de coupe appropriés dotés d'un coef. élevé de ralentissement d'émission de fumée.
* Paramètres modifiés

1. Benyt højt præcisions set-up for at sikre maksimum stabilitet
2. Ved vibrationer, justér både hastighed og tilspænding
3. Benyt en kølevæske med lav koefficient af røgudvikling
* Modificerede parametre

1. Use máquina de alta precisión y asegure la máxima rigidez
2. En el caso de vibraciones, reducir velocidad y avance simultaneamente
3. Use fluido de corte adecuado con retardador de humos
* Parámetros modificados

1. Använd uppsänningsanordning av hög kvalitet för bästa stabilitet
2. Vid vibrationer, justera både varvtal och matning
3. Använd kylvätska med låg koefficient av rökutveckling.
* Modifierade parametrar

1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость.
2. При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя.
3. Используйте качественную СОЖ с высокой устойчивостью к возникновению дыма
*Измененные параметры

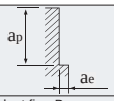
WX-G-ETSS

Side milling - Konturfräsen - Conturnatura - Contournage
Sidefræsning - Valsfräsning - Contorneado - Боковое фрезерование



Ø	C≤0,2% - GG E24 ■ XC48 ■ GG25 750 N/mm²			SCM - SKD 350NCD16 ■ 40CMD8 ~30 HRC			SUS 316 ■ 304 800 N/mm²			30~38 HRC Z38CDV5 ■ Z40CDV5 30~38 HRC			45~55 HRC Z38CDV5 45~55 HRC			55~60 HRC Z160CDV12 55~60 HRC		
	100 (m/min)			80 (m/min)			60 (m/min)			150 (m/min)			150 (m/min)			100 (m/min)		
	S (min⁻¹)	F (mm/min)	AZ (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)
3	10.610	589	0,027	8.488	458	0,018	6.366	267	0,014	6.366	344	0,018	6.366	210	0,011	3.183	105	0,011
4	7.958	907	0,038	6.366	477	0,025	4.775	272	0,019	4.775	358	0,025	4.775	229	0,016	2.387	107	0,015
5	6.366	955	0,050	5.093	519	0,034	3.820	298	0,026	3.820	390	0,034	3.820	241	0,021	1.910	115	0,020
6	5.305	987	0,062	4.244	547	0,043	3.183	306	0,032	3.183	411	0,043	3.183	248	0,026	1.592	119	0,025
8	3.979	883	0,074	3.183	535	0,056	2.387	272	0,038	2.387	401	0,056	2.387	222	0,031	1.194	107	0,030
10	3.183	793	0,083	2.546	519	0,068	1.910	241	0,042	1.910	390	0,068	1.910	195	0,034	955	95	0,033
12	2.653	796	0,100	2.122	497	0,078	1.592	239	0,050	1.592	372	0,078	1.592	196	0,041	796	95	0,040
16	1.989	657	0,110	1.592	525	0,110	1.194	286	0,080	1.194	394	0,110	1.194	190	0,053	597	90	0,050

Max cutting depth



	ap	ae
D < Ø6	1,5D	0,02D
Ø6 ≤ D	1,5D	0,05D

ap	ae
1,5D	0,02D

arMax=0,5mm

ap	ae
1D	0,02D

arMax=0,5mm

Attention : sparks and/or flames can cause coolant fire. Be sure adequate fire prevention is available.
1. Speeds and feeds are designed to be used in conjunction with small passes on a high speed & precision machine set-up.
2. Do not use inflammable coolant. Using worn tools may generate sparks.
3. Use compresed air or a high quality coolant with a low co-efficient of smoke emmision.

Attenzione: le scintille prodotto durante l'operazione o il calore causato dalla rottura dell'utensile possono infiammare il lubrificante. Assicurasi che siano applicate delle adeguate misure di prevenzione.
1. Queste velocità e questi avanzamenti sono indicati per fresatura di piccole passate ad alta velocità e centri di lavorazione di alta precisione.
2. Non utillizare lubrificanti da taglio infiammabili; gli utensili troppo usurati possono produrre scintille.
3. Utilizzare un getto di aria compressa. Se la vostra scelta ricade su dei liquidi da taglio, sceglieteli di alta qualità, dotati di un coefficiente elevato di rallentamento d'emissione del fumo.

Achtung: Funken und/oder Flammen können den Kühlschmierstoff entzünden. stellen Sie einen ausreichenden Brandschutz sicher.
1. Die Schnittdaten sind ausgelegt für geringe Zustellungen in Verbindung mit HSC tauglichen Maschinen und Spannmittel.
2. Bitte gegeignetes Kühlmittel mit rauchhemmenden Zusätzen verwenden.
3. Benutzen Sie Druckluft ofer Kühlmittel mit rauchhemdenden Zusätzen.

Attention : étincelles et/ou chaleur peuvent enflammer le lubrifiant. S'assurer que des mesures de prévention adéquates sont appliquées.
1. Les vitesses et avances sont indiquées pour le fraisage de petites passes à haute vitesse / centres d'usinage de haute précision.
2. Ne pas utiliser de lubrifiants de coupe inflammables, les outils fortement usés peuvent produire des étincelles.
3. Utilisez un jet d'air comprimé ou des fluides de coupe de haute qualité avec un coef. élevé de ralentissement d'émission de fumée.

Pas på: gnister kan antænde kølevæsken. Sørg for brandslukningsmateriel er inden for rækkevidde
1. Skæredata er designet til brug i samarbejde med små bearbejdninger i et præcisions setup på et højhastigheds bearbejdningscenter
2. Brug ikke brændbare kølevæsker. Brugte værktøjer kan resultere i gnister
3. Brug lufttryk eller kølevæske af høj kvalitet med lav rågudviklingg

Atención, Las chispas pueden causar el incendio del refirgerante. Asegurese que una adecuada prevencion de incendios está disponible
1. Velocidades y avances establecidos junto a pasadas ligeras en maquinas de lata velocidad y gran precisión
2. No utilizar refrigerante inflamable. Las herramientas calientes pueden generar chispas
3. Utilizar aire comprimido o un refrigerante con un bajo coeficiente de emisión de humo

Observera: Gnistor kan antända kylvätskan. Se till att ha en bra brandsläckningsutrustning
1. Skärdatan är designat för små ingrepp vid precisions bearbetning i höghastighetsmaskiner
2. Använd inte brandfarliga kylvätskor. Fräsar kan vara mycket varma eter ingrepp
3. Använd tryckluft eller kylvätska med hög kvalitet och låg rökutveckling

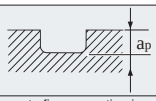
Внимание! Искры и пламя могут воспламенить СОЖ. Примите меры противопожарной безопасности.
1. Указанные режимы резания предназначены для точных высокоскоростных станков и жесткого закрепления обрабатываемой детали.
2. Не используйте легко воспламеняемую СОЖ. При использовании изношенных фрез возможно возникновение искр.
3. Используйте сжатый воздух или качественную СОЖ с высокой устойчивостью к возникновению дыма.

WX-G-ETSS

Slotting - Nutenfräsen - Per scanalature profonde - Rainurage
Skæredata - Skärdata - Ranurado - Фрезерование пазов



Ø	C≤0,2% - GG E24 ■ XC48 ■ GG25 750 N/mm²			SCM - SKD 350NCD16 ■ 40CMD8 ~30 HRC			SUS 316 ■ 304 800 N/mm²			30~38 HRC Z38CDV5 ■ Z40CDV5 30~38 HRC			45~55 HRC Z38CDV5 45~55 HRC			55~60 HRC Z160CDV12 55~60 HRC		
	80 (m/min)			65 (m/min)			50 (m/min)			55 (m/min)			45 (m/min)			20 (m/min)		
	S (min⁻¹)	F (mm/min)	AZ (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)
3	8.488	688	0,027	6.897	372	0,018	5.305	223	0,014	5.836	245	0,014	4.775	158	0,011	2.122	70	0.011
4	6.366	726	0,038	5.173	388	0,025	3.979	227	0,019	4.377	249	0,019	3.581	172	0,016	1.592	72	0,015
5	5.093	764	0,050	4.138	422	0,034	3.183	248	0,026	3.501	273	0,026	2.865	180	0,021	1.273	76	0,020
6	4.244	789	0,062	3.448	445	0,043	2.653	255	0,032	2.918	280	0,032	2.387	186	0,026	1.061	80	0,025
8	3.183	707	0,074	2.586	434	0,056	1.989	233	0,039	2.188	256	0,039	1.790	167	0,031	796	72	0,030
10	2.546	672	0,088	2.069	422	0,068	1.592	224	0,047	1.751	247	0,047	1.432	146	0,034	637	63	0,033
12	2.122	637	0,100	1.724	403	0,078	1.326	215	0,054	1.459	236	0,054	1.194	147	0,041	531	64	0,040
16	1.592	573	0,120	1.293	388	0,100	995	239	0,080	1.094	263	0,080	895	142	0,053	398	60	0,050

Max cutting depth		a_p=0,2D

Attention : sparks and/or flames can cause coolant fire. Be sure adequate fire prevention is available.
1. Speeds and feeds are designed to be used in conjunction with small passes on a high speed & precision machine set-up.
2. Do not use inflammable coolant. Using worn tools may generate sparks.
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Attenzione: le scintille prodotto durante l'operazione o il calore causato dalla rottura dell'utensile possono infiammare il lubrificante. Assicurasi che siano applicate delle adeguate misure di prevenzione.
1. Queste velocità e questi avanzamenti sono indicati per fresatura di piccole passate ad alta velocità e centri di lavorazione di alta precisione.
2. Non utillizare lubrificanti da taglio infiammabili; gli utensili troppo usurati possono produrre scintille.
3. Utilizzare un getto di aria compressa. Se la vostra scelta ricade su dei liquidi da taglio, sceglietli di alta qualità, dotati di un coefficiente elevato di rallentamento d'emissione del fumo.

Achtung: Funken und/oder Flammen können den Kühlschmierstoff entzünden. stellen Sie einen ausreichenden Brandschutz sicher.
1. Die Schnittdaten sind ausgelegt für geringe Zustellungen in Verbindung mit HSC tauglichen Maschinen und Spannmittel.
2. Bitte gegeignetes Kühlmittel mit rauchhemmenden Zusätzen verwenden.
3. Benutzen Sie Druckluft ofer Kühlmittel mit rauchhemdenden Zusätzen.

Attention : étincelles et/ou chaleur peuvent enflammer le lubrifiant. S'assurer que des mesures de prévention adéquates sont appliquées.
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2. Ne pas utiliser de lubrifiants de coupe inflammables, les outils fortement usés peuvent produire des étincelles.
3. Utilisez un jet d'air comprimé ou des fluides de coupe de haute qualité avec un coef. élevé de ralentissement d'émission de fumée.

Pas på: gnister kan antænde kølevæsken. Sørg for brandslukningsmateriel er inden for rækkevidde
1. Skæredata er designet til brug i samarbejde med små bearbejdninger i et præcisions setup på et højhastigheds bearbejdningscenter
2. Brug ikke brændbare kølevæsker. Brugte værktøjer kan resultere i gnister
3. Brug lufttryk eller kølevæske af høj kvalitet med lav røgudviklingg

Atención, Las chispas pueden causar el incendio del refirgerante. Asegurese que una adecuada prevencion de incendios está disponible
1. Velocidades y avances establecidos junto a pasadas ligeras en maquinas de lata velocidad y gran precisión
2. No utilizar refrigerante inflamable. Las herramientas calientes pueden generar chispas
3. Utilizar aire comprimido o un refrigerante con un bajo coeficiente de emisión de humo

Observera: Gnistor kan antända kylvätskan. Se till att ha en bra brandsläckningsutrustning
1. Skärdatan är designat för små ingrepp vid precisions bearbetning i höghastighetsmaskiner
2. Använd inte brandfarliga kylvätskor. Fräsar kan vara mycket varma eter ingrepp
3. Använd tryckluft eller kylvätska med hög kvalitet och låg rökutveckling

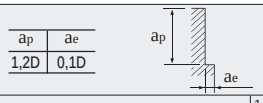
Внимание! Искры и пламя могут воспламенить СОЖ. Примите меры противопожарной безопасности.
1. Указанные режимы резания предназначены для точных высокоскоростных станков и жесткого закрепления обрабатываемой детали.
2. Не используйте легко воспламеняемую СОЖ. При использовании изношенных фрез возможно возникновение искр.
3. Используйте сжатый воздух или качественную СОЖ с высокой устойчивостью к возникновению дыма.

WX-G-EMSS

Side milling - Konturfräsen - Sgrossatura e contornatura - Contournage
Sidefræsning - Valsfräsning - Contorneado - Боковое фрезерование



Ø	GG GG-GGG		C≤0,2% S55C ■ SS400 ~750 N/mm²		SCM - SKD SKD ■ SKS ■ SNCM ~30 HRC		30~38 HRC NAK55 ■ HPMI ■ SKT 30~38 HRC		38~45 HRC SUS SUS304 ■ X210CR12 X40CRMOV51 38~45 HRC		45~55 HRC HRS 45~55 HRC		55~60 HRC 55~60 HRC	
	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
2	15.500	370	13.000	310	11.000	280	7.000	110	6.350	100	3.950	60	2.750	40
3	10.500	595	8.900	505	7.400	355	5.300	125	4.750	110	2.750	60	2.000	45
4	7.950	635	6.650	530	5.550	370	4.250	135	3.700	115	2.200	70	1.550	45
5	6.350	740	5.300	620	4.450	425	3.550	140	3.150	125	1.900	75	1.250	40
6	5.300	735	4.450	615	3.700	425	2.950	145	2.650	130	1.550	70	1.050	40
8	3.950	710	3.300	590	2.750	420	2.200	145	1.950	130	1.150	65	795	35
10	3.150	710	2.650	590	2.200	420	1.750	145	1.550	130	955	65	635	35
12	2.650	710	2.200	590	1.850	420	1.450	145	1.300	130	795	60	530	30
14	2.250	680	1.900	575	1.550	415	1.250	145	1.100	125	680	50	455	25
16	1.950	655	1.650	550	1.350	415	1.100	130	995	115	595	45	395	20
18	1.750	655	1.450	540	1.200	405	990	115	880	105	530	40	350	20
20	1.550	620	1.300	520	1.100	370	890	105	795	95	475	35	315	19
22	1.400	560	1.200	480	1.000	340	810	95	720	85	430	30	285	17
24	1.300	520	1.100	440	925	315	740	85	660	75	395	30	265	16
25	1.250	500	1.050	420	890	300	710	85	635	75	380	30	255	15
30	1.050	420	890	355	740	250	590	70	530	60	315	25	210	13

Max cutting depth		WX-G-EMSS ap: 1,2D ae: 0,05D

ap	ae
1,2D	0,1D

1. Use high precision machine set up to ensure maximum rigidity.
2. In case of vibration, reduce both feed and speed.
3. Use a coolant that has a low co-efficient of smoke emission.

1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. In caso di vibrazioni, ridurre simultaneamente la velocità di taglio e l'avanzamento.
3. Utilizzare dei lubrificanti da taglio adeguati, dotati di un coefficiente elevato di rallentamento d'emissione del fumo.

1. Benutzen Sie stabile und präzise Maschinen, Werkzaugaufnahmen und Spannmittel.
2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindligkeit reduzieren.
3. Kühlmittel mit niedriger Rauchentwicklung verwenden.

1. Utilisez une machine et un porte-outil de grande rigidité et de haute précision.
2. En cas de vibrations, réduisez, simultanément, la vitesse de coupe et l'avance.
3. Utilisez des lubrifiants de coupe appropriés dotés d'un coef. élevé de ralentissement d'émission de fumée.

1. Benyt højt præcisions set-up for at sikre maksimum stabilitet
2. Ved vibrationer, justér både hastighed og tilspænding
3. Benyt en kølevæske med lav koefficient af røgudvikling

1. Use máquina de alta precisión y asegure la máxima rigidez
2. En el caso de vibraciones, reducir velocidad y avance simultaneamente
3. Utilizar un refrigerante con un bajo coeficiente de emisión de humo

1. Använd uppsänningsanordning av hög kvalitet för bästa stabilitet.
2. Vid vibrationer, justera både varvtal och matning.
3. Använd kylvätska med låg koefficient av rökutveckling.

1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость.
2. При возникновении вибраций, снизьте скорость и подачу одновременно.
3. Используйте качественную СОЖ с высокой устойчивостью к возникновению дыма

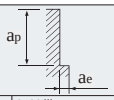
WX-EMS

Side milling - Konturfräsen - Sgrossatura e contornatura - Contournage
Sidefræsning - Valsfräsning - Contorneado - Боковое фрезерование

Ø	GG GG-GGG S (min⁻¹)	F (mm/min)	C≤0,2% S55C ■ SS400 ~750 N/mm² S (min⁻¹)	F (mm/min)	SCM - SKD SKD ■ SKS ■ SNCM ~30 HRC S (min⁻¹)	F (mm/min)	30~38 HRC NAK55 ■ HPMI ■ SKT 30~38 HRC S (min⁻¹)	F (mm/min)	38~45 HRC SUS SUS304 ■ X210CR12 X40CRMOV51 38~45 HRC S (min⁻¹)	F (mm/min)	45~55 HRC HRS 45~55 HRC S (min⁻¹)	F (mm/min)	55~60 HRC 55~60 HRC S (min⁻¹)	F (mm/min)
2	15.500	370	13.000	310	11.000	280	7.000	110	6.350	100	3.950	60	2.750	40
3	10.500	595	8.900	505	7.400	355	5.300	125	4.750	110	2.750	60	2.000	45
4	7.950	635	6.650	530	5.550	370	4.250	135	3.700	115	2.200	70	1.550	45
5	6.350	740	5.300	620	4.450	425	3.550	140	3.150	125	1.900	75	1.250	40
6	5.300	735	4.450	615	3.700	425	2.950	145	2.650	130	1.550	70	1.050	40
8	3.950	710	3.300	590	2.750	420	2.200	145	1.950	130	1.150	65	795	35
10	3.150	710	2.650	590	2.200	420	1.750	145	1.550	130	955	65	635	35
12	2.650	710	2.200	590	1.850	420	1.450	145	1.300	130	795	60	530	30
14	2.250	680	1.900	575	1.550	415	1.250	145	1.100	125	680	50	455	25
16	1.950	655	1.650	550	1.350	415	1.100	130	995	115	595	45	395	20
18	1.750	655	1.450	540	1.200	405	990	115	880	105	530	40	350	20
20	1.550	620	1.300	520	1.100	370	890	105	795	95	475	35	315	19
22	1.400	560	1.200	480	1.000	340	810	95	720	85	430	30	285	17
24	1.300	520	1.100	440	925	315	740	85	660	75	395	30	265	16
25	1.250	500	1.050	420	890	300	710	85	635	75	380	30	255	15
30	1.050	420	890	355	740	250	590	70	530	60	315	25	210	13

Max cutting depth

	ap	ae
D < Ø3	1,5D	0,05D
Ø3 ≤ D	1,5D	0,1D



ap	ae
1D	0,02D

1. Use high precision machine set up to ensure maximum rigidity.
2. In case of vibration, reduce both feed and speed.
3. Use a coolant that has a low co-efficient of smoke emission.

1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. In caso di vibrazioni, ridurre simultaneamente la velocità di taglio e l'avanzamento.
3. Utilizzare dei lubrificanti da taglio adeguati, dotati di un coefficiente elevato di rallentamento d'emissione del fumo.

1. Benutzen Sie stabile und präzise Maschinen, Werkzaugaufnahmen und Spannmittel.
2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindligkeit reduzieren.
3. Kühlmittel mit niedriger Rauchentwicklung verwenden.

1. Utilisez une machine et un porte-outil de grande rigidité et de haute précision.
2. En cas de vibrations, réduisez, simultanément, la vitesse de coupe et l'avance.
3. Utilisez des lubrifiants de coupe appropriés dotés d'un coef. élevé de ralentissement d'émission de fumée.

1. Benyt højt præcisions set-up for at sikre maksimum stabilitet
2. Ved vibrationer, justér både hastighed og tilspænding
3. Benyt en kølevæske med lav koefficient af røgudvikling

1. Use máquina de alta precisión y asegure la máxima rigidez
2. En el caso de vibraciones, reducir velocidad y avance simultaneamente
3. Utilizar un refrigerante con un bajo coeficiente de emisión de humo

1. Använd uppsänningsanordning av hög kvalitet för bästa stabilitet.
2. Vid vibrationer, justera både varvtal och matning.
3. Använd kylvätska med låg koefficient av rökutveckling.

1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость.
2. При возникновении вибраций, снизьте скорость и подачу одновременно.
3. Используйте качественную СОЖ с высокой устойчивостью к возникновению дыма

CARBIDE

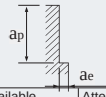
WX-EMS

Side milling - Konturfräsen - Sgrossatura e contornatura - Contournage
Sidefræsning - Valsfräsning - Contorneado - Боковое фрезерование

Ø	C≤0,2% - GG S55C ■ SS400 ■ GG25 ~750 N/mm² S (min⁻¹)	F (mm/min)	SCM - SKD SKD ■ SKS ■ SNCM ~30 HRC S (min⁻¹)	F (mm/min)	30~38 HRC NAK55 ■ HPMI ■ SKT 30~38 HRC S (min⁻¹)	F (mm/min)	38~45 HRC X210Cr12 ■ X40CrMoV51 30~38 HRC S (min⁻¹)	F (mm/min)	45~55 HRC 45~55 HRC S (min⁻¹)	F (mm/min)
6	21.000	2.450	18.500	2.150	13.000	1.500	7.950	795	4.200	420
8	15.500	2.450	13.500	2.100	9.900	1.450	5.950	795	3.150	425
10	12.500	2.500	11.000	2.100	7.950	1.450	4.750	800	2.500	420
12	10.500	2.450	9.250	2.100	6.600	1.450	3.950	790	2.100	410
14	9.050	2.350	7.950	2.000	5.650	1.350	3.400	740	1.800	390
16	7.950	2.250	6.950	1.950	4.950	1.350	2.950	715	1.550	375
18	7.050	2.250	6.150	1.900	4.400	1.300	2.650	705	1.400	375
20	6.350	2.100	5.550	1.850	3.950	1.300	2.350	665	1.250	355
22	5.750	1.950	5.050	1.700	3.600	1.200	2.150	635	1.150	325
24	5.300	1.800	4.600	1.550	3.300	1.100	1.950	575	1.050	295
25	5.050	1.700	4.450	1.500	3.150	1.050	1.900	560	1.000	280
30	4.200	1.400	3.700	1.250	2.650	890	1.550	455	845	240

Max cutting depth

	ap	ae
D ≤ Ø8	1,5D	0,01D
Ø8 < D ≤ Ø16	1,5D	0,03D
	1,5D	0,05D



	ap	ae
D ≤ Ø8	1D	0,01D
Ø8 < D	1D	0,02D

Attention : sparks and/or flames can cause coolant fire. Be sure adequate fire prevention is available.
1. Speeds and feeds are designed to be used in conjunction with small passes on a high speed & precision machine set-up.
2. Do not use inflammable coolant. Using worn tools may generate sparks.
3. Use compresed air or a high quality coolant with a low co-efficient of smoke emmision.

Attenzione: le scintille prodotto durante l'operazione o il calore causato dalla rottura dell'utensile possono infiammare il lubrificante. Assicurasi che siano applicate delle adeguate misure di prevenzione.
1. Queste velocità e questi avanzamenti sono indicati per fresatura di piccole passate ad alta velocità e centri di lavorazione di alta precisione.
2. Non utillizare lubrificanti da taglio infiammabili; gli utensili troppo usurati possono produrre scintille.
3. Utilizzare un getto di aria compressa. Se la vostra scelta ricade su dei liquidi da taglio, sceglieteli di alta qualità, dotati di un coefficiente elevato di rallentamento d'emissione del fumo.

Achtung: Funken und/oder Flammen können den Kühlschmierstoff entzünden. stellen Sie einen ausreichenden Brandschutz sicher.
1. Die Schnittdaten sind ausgelegt für geringe Zustellungen in Verbindung mit HSC tauglichen Maschinen und Spannmittel.
2. Bitte gegeignetes Kühlmittel mit rauchhemmenden Zusätzen verwenden.
3. Benutzen Sie Druckluft ofer Kühlmittel mit rauchhemdenden Zusätzen.

Attention : étincelles et/ou chaleur peuvent enflammer le lubrifiant. S'assurer que des mesures de prévention adéquates sont appliquées.
1. Les vitesses et avances sont indiquées pour le fraisage de petites passes à haute vitesse / centres d'usinage de haute précision.
2. Ne pas utiliser de lubrifiants de coupe inflammables, les outils fortement usés peuvent produire des étincelles.
3. Utilisez un jet d'air comprimé ou des fluides de coupe de haute qualité avec un coef. élevé de ralentissement d'émission de fumée.

Pas på: gnister kan antænde kølevæsken. Sørg for brandslukningsmateriel er inden for rækkevidde
1. Skæredata er designet til brug i samarbejde med små bearbejdninger i et præcisions setup på et højhastigheds bearbejdningscenter
2. Brug ikke brændbare kølevæsker. Brugte værktøjer kan resultere i gnister
3. Brug lufttryk eller kølevæske af høj kvalitet med lav røgudviklingg

Atención, Las chispas pueden causar el incendio del refirgerante. Asegurese que una adecuada prevencion de incendios está disponible
1. Velocidades y avances establecidos junto a pasadas ligeras en maquinas de lata velocidad y gran precisión
2. No utilizar refrigerante inflamable. Las herramientas calientes pueden generar chispas
3. Utilizar aire comprimido o un refrigerante con un bajo coeficiente de emisión de humo

Observera: Gnistor kan antända kylvätskan. Se till att ha en bra brandsläckningsutrustning
1. Skärdatan är designat för små ingrepp vid precisions bearbetning i höghastighetsmaskiner
2. Använd inte brandfarliga kylvätskor. Fräsar kan vara mycket varma eter ingrepp
3. Använd tryckluft eller kylvätska med hög kvalitet och låg rökutveckling

Внимание! Искры и пламя могут воспламенить СОЖ. Примите меры противопожарной безопасности.
1. Указанные режимы резания предназначены для точных высокоскоростных станков и жесткого закрепления обрабатываемой детали.
2. Не используйте легко воспламеняемую СОЖ. При использовании изношенных фрез возможно возникновение искр.
3. Используйте сжатый воздух или качественную СОЖ с высокой устойчивостью к возникновению дыма.

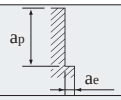
WX-PHS

Side milling - Konturfräsen - Sgrossatura e contornatura - Contournage
Sidefræsning - Valsfräsning - Contorneado - Боковое фрезерование

	C≤0,2% - GG SS400 ■ S55C ■ FC250 ~750 N/mm²		SCM - SKD SCM ■ SKT ■ SKS ■ SKD ~30 HRC		30~38 HRC SKT ■ SKD ■ NAK55 ■ HPMI 30~38 HRC		38~45 HRC - SUS SUS304 ■ SKD 38~45 HRC		45~55 HRC - Tiall 45~55 HRC		55~60 HRC - HRS 55~60 HRC	
	100 (m/min)		78 (m/min)		66 (m/min)		62 (m/min)		60 (m/min)		30 (m/min)	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
3	10.600	975	8.300	760	7.000	560	6.600	555	6.350	485	3.200	190
4	7.950	1.000	6.200	820	5.250	565	4.950	590	4.750	515	2.400	190
5	6.350	1.050	4.950	845	4.200	590	3.950	630	3.800	535	1.900	190
6	5.300	1.250	4.150	945	3.500	700	3.300	660	3.200	545	1.600	190
8	4.000	1.250	3.100	895	2.650	660	2.450	640	2.400	555	1.200	175
10	3.200	1.100	2.500	855	2.100	605	1.950	590	1.900	525	955	160
12	2.650	1.100	2.050	850	1.750	565	1.650	535	1.600	475	795	160
16	2.000	955	1.550	745	1.300	500	1.250	445	1.200	400	595	160
20	1.600	765	1.250	595	1.050	455	985	395	955	355	475	160

Max cutting depth

ap	ae
1,5D	0,2D



ap	ae
1,5D	0,1D

ap	ae
1D	0,05D

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.

1. Usare un mandrino portautensile preciso e rigido/
2. Regolare la velocità e l'avanzamento se si aumenta la profondità di passata e se utilizzata su macchine non rigide.
3. Si consiglia di usare emulsione a scarsa emissione di fumi.
4. Per fresatura a secco utilizzare aria.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Vorschub und Geschwindigkeit der Schnittiefe und Maschinen-Starrheit anpassen.
3. Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen.
4. Bei Trockenbearbeitung Druckluft zum Entfermen der Späne verwenden.

1. Utiliser une machine et un attachement précis et rigide.
2. Ajuster la vitesse et l'avance en cas de profondeur de coupe importante ou en utilisant un machine non-rigide.
3. Utiliser un liquide de refroidissement adéquat.
4. En cas d'usinage à sec, utiliser de l'air comprimé pour l'évacuation des copeaux de l'aire d'usinage et pour éviter une agglomération des copeaux.

1. Anvend stabil maskine og værktøjsholder
2. Justér omdrejninger og tilspænding ved stor skæredybde eller en ustabil maskine bruges
3. Anvend en passende skærevæske
4. Under tørbearbejdning anvend lufttryk for at bortskaffe spåner

1. Use maquina y portaherramientas rigidos y precisos
2. Ajustar el avance cuando la profundidad de corte es grande o cuando se se utilizan máquinas de poca rigidez
3. Use fluido de corte adecuado con retardador de humos
4. Fresado en seco (sin líquido), por favor, utilice el aire soplado para eliminar la viruta de la zona de corte

1. Använd en stabil maskin och verktygshållare
2. Justera varvtal och matning vid stora skärdjup eller om instabil maskin används
3. Använd anpassad skärvätska
4. Vid torrbearbetning använd tryckluft för att transportera bort spånor

1. Используйте жесткие и точные станки и фрезерные патроны.
2. Пожалуйста отрегулируйте обороты шпинделя и подачу, когда глубина резания велика или при использовании станков с низкой жесткостью.
3. Используйте соответствующую СОЖ с высокой устойчивостью к возникновению дыма.
4. При сухом (без СОЖ) фрезеровании, используйте воздушную струю для удаления стружки и предотвращения спрессовывания стружки.

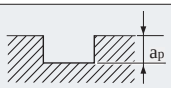
WX-PHS

Slotting - Nutenfräsen - Per scanalature profonde - Rainurage
Sporfræsning - Spårfräsning - Ranurado - Фрезерование пазов

	C≤0,2% - GG SS400 ■ S55C ■ FC250 ~750 N/mm²		SCM - SKD SCM ■ SKT ■ SKS ■ SKD ~30 HRC		30~38 HRC SKT ■ SKD ■ NAK55 ■ HPMI 30~38 HRC		38~45 HRC - SUS SUS304 ■ SKD 38~45 HRC		45~55 HRC - Tiall 45~55 HRC		55~60 HRC - HRS 55~60 HRC	
	80 (m/min)		60 (m/min)		55 (m/min)		52 (m/min)		42 (m/min)		20 (m/min)	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
3	8.500	705	6.350	595	5.850	455	5.500	400	4.450	320	2.100	110
4	6.350	705	4.750	675	4.400	455	4.150	450	3.350	360	1.600	120
5	5.100	715	3.800	660	3.500	475	3.300	475	2.650	385	1.250	125
6	4.250	715	3.200	560	2.900	500	2.750	495	2.250	400	1.050	125
8	3.200	660	2.400	550	2.200	545	2.050	515	1.650	415	795	125
10	2.550	610	1.900	535	1.750	475	1.650	470	1.350	380	635	115
12	2.100	610	1.600	475	1.450	450	1.400	440	1.100	355	530	115
16	1.600	610	1.200	430	1.100	370	1.050	370	835	300	400	88
20	1.250	510	955	380	875	350	830	330	670	265	320	89

Max cutting depth

ap
0,5D



ap
0,05D

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.

1. Usare un mandrino portautensile preciso e rigido/
2. Regolare la velocità e l'avanzamento se si aumenta la profondità di passata e se utilizzata su macchine non rigide.
3. Si consiglia di usare emulsione a scarsa emissione di fumi.
4. Per fresatura a secco utilizzare aria.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Vorschub und Geschwindigkeit der Schnittiefe und Maschinen-Starrheit anpassen.
3. Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen.
4. Bei Trockenbearbeitung Druckluft zum Entfermen der Späne verwenden.

1. Utiliser une machine et un attachement précis et rigide.
2. Ajuster la vitesse et l'avance en cas de profondeur de coupe importante ou en utilisant un machine non-rigide.
3. Utiliser un liquide de refroidissement adéquat.
4. En cas d'usinage à sec, utiliser de l'air comprimé pour l'évacuation des copeaux de l'aire d'usinage et pour éviter une agglomération des copeaux.

1. Anvend stabil maskine og værktøjsholder
2. Justér omdrejninger og tilspænding ved stor skæredybde eller en ustabil maskine bruges
3. Anvend en passende skærevæske
4. Under tørbearbejdning anvend lufttryk for at bortskaffe spåner

1. Use maquina y portaherramientas rigidos y precisos
2. Ajustar el avance cuando la profundidad de corte es grande o cuando se se utilizan máquinas de poca rigidez
3. Use fluido de corte adecuado con retardador de humos
4. Fresado en seco (sin líquido), por favor, utilice el aire soplado para eliminar la viruta de la zona de corte

1. Använd en stabil maskin och verktygshållare
2. Justera varvtal och matning vid stora skärdjup eller om instabil maskin används
3. Använd anpassad skärvätska
4. Vid torrbearbetning använd tryckluft för att transportera bort spånor

1. Используйте жесткие и точные станки и фрезерные патроны.
2. Пожалуйста отрегулируйте обороты шпинделя и подачу, когда глубина резания велика или при использовании станков с низкой жесткостью.
3. Используйте соответствующую СОЖ с высокой устойчивостью к возникновению дыма.
4. При сухом (без СОЖ) фрезеровании, используйте воздушную струю для удаления стружки и предотвращения спрессовывания стружки.

WX-PHS

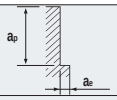
High speed side milling - HSC Konturfräsen - Sgrossatura e contornatura alta velocità - Contournage UGV
High speed sidefræsning - High speed valsfräsning - Contorneado a alta velocidad - Высокоскоростное контурное фрезерование

	C≤0,2% - GG SS400 ■ S55C ■ FC250 ~750 N/mm²		SCM - SKD SCM ■ SKT ■ SKS ■ SKD ~30 HRC		30~38 HRC SKT ■ SKD ■ NAK55 ■ HPMI 30~38 HRC		38~45 HRC - SUS SUS304 ■ SKD 38~45 HRC		45~55 HRC - Tiall 45~55 HRC		55~60 HRC - HRS 55~60 HRC	
	200 (m/min)		200 (m/min)		200 (m/min)		150 (m/min)		100 (m/min)		80 (m/min)	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
3	21.200	2.150	21.200	2.400	21.200	1.300	15.900	1.150	10.600	680	8.500	440
4	15.900	2.050	15.900	2.300	15.900	1.300	11.900	1.250	7.950	795	6.350	460
5	12.700	1.900	12.700	2.150	12.700	1.250	9.550	1.350	6.350	840	5.100	510
6	10.600	3.050	10.600	2.650	10.600	2.000	7.950	1.450	5.300	910	4.250	610
8	7.950	2.800	7.950	2.400	7.950	1.900	5.950	1.400	4.000	860	3.200	575
10	6.350	2.550	5.300	2.200	5.300	1.800	4.000	1.350	2.650	830	2.100	510
12	5.300	2.550	5.300	2.200	5.300	1.800	4.000	1.350	2.650	830	2.100	510
16	4.000	1.900	4.000	1.900	4.000	1.700	3.000	1.350	2.000	830	1.600	510
20	3.200	1.550	3.200	1.550	3.200	1.550	2.400	1.150	1.600	730	1.250	510

Max cutting depth

	ap	ae
Dc < Ø6	1,5D	0,02D
Ø6 ≤ Dc	1,5D	0,05D

ae Max=0.5mm



	ap	ae
Dc < Ø6	1,5D	0,01D
Ø6 ≤ D	1,5D	0,02D

ae Max=0.5mm

	ap	ae
D < Ø6	1D	0,01D
Ø6 ≤ D	1D	0,02D

ae Max=0.5mm

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.

1. Usare un mandrino portautensile preciso e rigido/
2. Regolare la velocità e l'avanzamento se si aumenta la profondità di passata e se utilizzata su macchine non rigide.
3. Si consiglia di usare emulsione a scarsa emissione di fumi.
4. Per fresatura a secco utilizzare aria.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Vorschub und Geschwindigkeit der Schnittiefe und Maschinen-Starrheit anpassen.
3. Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen.
4. Bei Trockenbearbeitung Druckluft zum Entfermen der Späne verwenden.

1. Utiliser une machine et un attachement précis et rigide.
2. Ajuster la vitesse et l'avance en cas de profondeur de coupe importante ou en utilisant un machine non-rigide.
3. Utiliser un liquide de refroidissement adéquat.
4. En cas d'usinage à sec, utiliser de l'air comprimé pour l'évacuation des copeaux de l'aire d'usinage et pour éviter une agglomération des copeaux.

1. Anvend stabil maskine og værktøjsholder
2. Justér omdrejninger og tilspænding ved stor skæredybde eller en ustabil maskine bruges
3. Anvend en passende skærevæske
4. Under tørbearbejdning anvend lufttryk for at bortskaffe spåner

1. Use maquina y portaherramientas rigidos y precisos
2. Ajustar el avance cuando la profundidad de corte es grande o cuando se se utilizan máquinas de poca rigidez
3. Use fluido de corte adecuado con retardador de humos
4. Fresado en seco (sin líquido), por favor, utilice el aire soplado para eliminar la viruta de la zona de corte

1. Använd en stabil maskin och verktygshållare
2. Justera varvtal och matning vid stora skärdjup eller om instabil maskin används
3. Använd anpassad skärvätska
4. Vid torrbearbetning använd tryckluft för att transportera bort spånor

1. Используйте жесткие и точные станки и фрезерные патроны.
2. Пожалуйста отрегулируйте обороты шпинделя и подачу, когда глубина резания велика или при использовании станков с низкой жесткостью.
3. Используйте соответствующую СОЖ с высокой устойчивостью к возникновению дыма.
4. При сухом (без СОЖ) фрезеровании, используйте воздушную струю для удаления стружки и предотвращения спрессовывания стружки.

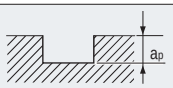
WX-PHS

High speed Slotting - HSC Nutenfräsen - Fresatura alta velocità per scanalature profonde - Fraisage UGV rainurage
High speed sporfræsning - High Speed Milling spårfräsning - Fresado en ranurado a alta velocidada - Высокоскоростное Фрезерование пазов

	C≤0,2% - GG SS400 ■ S55C ■ FC250 ~750 N/mm²		SCM - SKD SCM ■ SKT ■ SKS ■ SKD ~30 HRC		30~38 HRC SKT ■ SKD ■ NAK55 ■ HPMI 30~38 HRC		38~45 HRC - SUS SUS304 ■ SKD 38~45 HRC	
	120 (m/min)		110 (m/min)		90~100 (m/min)		60~70 (m/min)	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
3	12.700	1.050	10.600	935	9.550	745	6.350	460
4	9.550	1.150	7.950	1.000	7.150	745	5.150	560
5	7.650	1.200	7.000	1.100	6.350	865	4.150	595
6	6.350	1.550	5.850	1.150	5.300	910	3.700	670
8	4.750	1.450	4.400	1.300	4.000	985	2.800	690
10	3.800	1.400	3.500	1.200	3.200	865	2.250	635
12	3.200	1.250	2.900	1.150	2.650	815	1.850	595
16	2.400	1.050	2.200	965	2.000	675	1.400	500
20	1.900	840	1.750	770	1.600	635	1.100	445

Max cutting depth

ap
0,2D
ap Max=3mm



1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.

1. Usare un mandrino portautensile preciso e rigido/
2. Regolare la velocità e l'avanzamento se si aumenta la profondità di passata e se utilizzata su macchine non rigide.
3. Si consiglia di usare emulsione a scarsa emissione di fumi.
4. Per fresatura a secco utilizzare aria.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Vorschub und Geschwindigkeit der Schnittiefe und Maschinen-Starrheit anpassen.
3. Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen.
4. Bei Trockenbearbeitung Druckluft zum Entfermen der Späne verwenden.

1. Utiliser une machine et un attachement précis et rigide.
2. Ajuster la vitesse et l'avance en cas de profondeur de coupe importante ou en utilisant un machine non-rigide.
3. Utiliser un liquide de refroidissement adéquat.
4. En cas d'usinage à sec, utiliser de l'air comprimé pour l'évacuation des copeaux de l'aire d'usinage et pour éviter une agglomération des copeaux.

1. Anvend stabil maskine og værktøjsholder
2. Justér omdrejninger og tilspænding ved stor skæredybde eller en ustabil maskine bruges
3. Anvend en passende skærevæske
4. Under tørbearbejdning anvend lufttryk for at bortskaffe spåner

1. Use maquina y portaherramientas rigidos y precisos
2. Ajustar el avance cuando la profundidad de corte es grande o cuando se se utilizan máquinas de poca rigidez
3. Use fluido de corte adecuado con retardador de humos
4. Fresado en seco (sin líquido), por favor, utilice el aire soplado para eliminar la viruta de la zona de corte

1. Använd en stabil maskin och verktygshållare
2. Justera varvtal och matning vid stora skärdjup eller om instabil maskin används
3. Använd anpassad skärvätska
4. Vid torrbearbetning använd tryckluft för att transportera bort spånor

1. Используйте жесткие и точные станки и фрезерные патроны.
2. Пожалуйста отрегулируйте обороты шпинделя и подачу, когда глубина резания велика или при использовании станков с низкой жесткостью.
3. Используйте соответствующую СОЖ с высокой устойчивостью к возникновению дыма.
4. При сухом (без СОЖ) фрезеровании, используйте воздушную струю для удаления стружки и предотвращения спрессовывания стружки.

WX-LN-EDS

High speed milling - HSC Schlichtfräsen - Fresatura alta velocità - Fraisage UGV
High speed fræsning - High Speed Milling - Fresado a alta velocidad HSM - Высокоскоростное фрезерование



		C≤0,2% - GG E24 ■ XC48 ■ FT25 ~750 N/mm²				SCM - SKD 350NCD16 ■ 40CMD8 ~30 HRC				30~38 HRC 35NCD16 ~30 HRC				38~45 HRC - SUS 35NCD16 38~45 HRC				45~55 HRC Z38CDV5 45~55 HRC				55~60 HRC Z160CDV12 55~60 HRC			
		120 (m/min)				110 (m/min)				100 (m/min)				100 (m/min)				70 (m/min)				50 (m/min)			
Ø	Lg (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)
0,2	0,5	50.000	600	0,006	0,020	50.000	540	0,005	0,018	50.000	480	0,005	0,015	50.000	480	0,005	0,012	50.000	450	0,005	0,008	50.000	360	0,004	0,004
0,2	1	50.000	450	0,005	0,014	50.000	405	0,004	0,013	50.000	360	0,004	0,011	50.000	360	0,004	0,008	50.000	338	0,003	0,006	50.000	270	0,003	0,003
0,2	1,5	50.000	300	0,003	0,009	50.000	270	0,003	0,008	50.000	240	0,002	0,007	50.000	240	0,002	0,005	50.000	225	0,002	0,004	50.000	180	0,002	0,002
0,3	1	50.000	600	0,006	0,029	50.000	540	0,005	0,026	50.000	480	0,005	0,022	50.000	480	0,005	0,017	50.000	450	0,005	0,012	50.000	360	0,004	0,006
0,3	2	50.000	600	0,006	0,021	50.000	540	0,005	0,019	50.000	480	0,005	0,016	50.000	480	0,005	0,013	50.000	450	0,005	0,009	50.000	360	0,004	0,004
0,3	3	50.000	500	0,005	0,010	50.000	450	0,005	0,009	50.000	400	0,004	0,008	50.000	400	0,004	0,006	50.000	375	0,004	0,004	50.000	300	0,003	0,002
0,4	2	50.000	700	0,007	0,029	50.000	630	0,006	0,026	50.000	560	0,006	0,022	50.000	560	0,006	0,017	40.000	420	0,005	0,012	40.000	336	0,004	0,006
0,4	3	50.000	600	0,006	0,018	50.000	540	0,005	0,016	50.000	480	0,005	0,014	50.000	480	0,005	0,011	40.000	360	0,005	0,007	40.000	288	0,004	0,004
0,4	4	50.000	600	0,006	0,013	50.000	540	0,005	0,012	50.000	480	0,005	0,010	50.000	480	0,005	0,008	40.000	360	0,005	0,005	39.809	287	0,004	0,003
0,5	2	50.000	900	0,009	0,049	50.000	810	0,008	0,044	40.000	576	0,007	0,037	40.000	576	0,007	0,029	40.000	540	0,007	0,020	31.847	344	0,005	0,010
0,5	4	50.000	900	0,009	0,023	50.000	810	0,008	0,021	40.000	576	0,007	0,017	40.000	576	0,007	0,014	40.000	540	0,007	0,009	31.847	344	0,005	0,005
0,5	6	50.000	900	0,009	0,007	40.000	648	0,008	0,006	40.000	576	0,007	0,005	40.000	576	0,007	0,004	40.000	540	0,007	0,003	31.847	344	0,005	0,001
0,5	8	50.000	800	0,008	0,005	40.000	576	0,007	0,005	40.000	512	0,006	0,004	40.000	512	0,006	0,003	40.000	480	0,006	0,002	31.847	306	0,005	0,001
0,6	2	40.000	800	0,010	0,059	40.000	720	0,009	0,053	40.000	640	0,008	0,044	40.000	640	0,008	0,035	37.155	557	0,008	0,024	26.539	318	0,006	0,012
0,6	4	40.000	800	0,010	0,043	40.000	720	0,009	0,039	40.000	640	0,008	0,032	40.000	640	0,008	0,026	37.155	557	0,008	0,018	26.539	318	0,006	0,009
0,6	6	40.000	720	0,009	0,020	40.000	648	0,008	0,018	40.000	576	0,007	0,015	40.000	576	0,007	0,012	37.155	502	0,007	0,008	26.539	287	0,005	0,004
0,6	8	40.000	720	0,009	0,008	40.000	648	0,008	0,007	40.000	576	0,007	0,006	40.000	576	0,007	0,005	37.155	502	0,007	0,003	26.539	287	0,005	0,002
0,6	10	40.000	640	0,008	0,005	40.000	576	0,007	0,005	40.000	512	0,006	0,004	40.000	512	0,006	0,003	37.155	446	0,006	0,002	26.539	255	0,005	0,001
0,7	2	40.000	960	0,012	0,068	40.000	864	0,011	0,061	40.000	768	0,010	0,051	40.000	768	0,010	0,041	31.847	573	0,009	0,028	22.748	328	0,007	0,014
0,7	4	40.000	800	0,010	0,050	40.000	720	0,009	0,045	40.000	640	0,008	0,038	40.000	640	0,008	0,030	31.847	478	0,008	0,021	22.748	273	0,006	0,010
0,7	6	40.000	800	0,010	0,032	40.000	720	0,009	0,029	40.000	640	0,008	0,024	40.000	640	0,008	0,019	31.847	478	0,008	0,013	22.748	273	0,006	0,006
0,7	8	40.000	720	0,009	0,018	40.000	648	0,008	0,016	40.000	576	0,007	0,014	40.000	576	0,007	0,011	31.847	430	0,007	0,007	22.748	246	0,005	0,004
0,7	10	40.000	720	0,009	0,009	40.000	648	0,008	0,008	40.000	576	0,007	0,007	40.000	576	0,007	0,005	31.847	430	0,007	0,004	22.748	246	0,005	0,002
0,8	4	40.000	1.120	0,014	0,057	40.000	1.008	0,013	0,051	39.809	892	0,011	0,043	39.809	892	0,011	0,034	27.866	585	0,011	0,023	19.904	334	0,008	0,011
0,8	6	40.000	1.120	0,014	0,036	40.000	1.008	0,013	0,032	39.809	892	0,011	0,027	39.809	892	0,011	0,022	27.866	585	0,011	0,015	19.904	334	0,008	0,007
0,8	8	40.000	1.120	0,014	0,026	40.000	1.008	0,013	0,023	39.809	892	0,011	0,020	39.809	892	0,011	0,016	27.866	585	0,011	0,011	19.904	334	0,008	0,005
0,8	10	40.000	960	0,012	0,010	40.000	864	0,011	0,009	39.809	764	0,010	0,008	39.809	764	0,010	0,006	27.866	502	0,009	0,004	19.904	287	0,007	0,002
0,8	12	40.000	960	0,012	0,007	40.000	864	0,011	0,006	39.809	764	0,010	0,005	39.809	764	0,010	0,004	27.866	502	0,009	0,003	19.904	287	0,007	0,001
0,9	6	40.000	1.280	0,016	0,064	38.924	1121	0,014	0,058	35.386	906	0,013	0,048	35.386	906	0,013	0,038	24.770	594	0,012	0,026	17.693	340	0,010	0,013
0,9	8	40.000	1.280	0,016	0,041	38.924	1121	0,014	0,037	35.386	906	0,013	0,031	35.386	906	0,013	0,025	24.770	594	0,012	0,017	17.693	340	0,010	0,008
0,9	10	40.000	1.280	0,016	0,029	38.924	1121	0,014	0,026	35.386	906	0,013	0,022	35.386	906	0,013	0,017	24.770	594	0,012	0,012	17.693	340	0,010	0,006
0,9	15	40.000	1.120	0,014	0,007	38.924	981	0,013	0,006	35.386	793	0,011	0,005	35.386	793	0,011	0,004	24.770	520	0,011	0,003	17.693	297	0,008	0,001
1,0	6	38.217	1.376	0,018	0,070	35.032	1.135	0,016	0,063	31.847	917	0,014	0,053	31.847	917	0,014	0,042	22.293	602	0,014	0,029	15.924	344	0,011	0,014
1,0	8	38.217	1.376	0,018	0,050	35.032	1.135	0,016	0,045	31.847	917	0,014	0,038	31.847	917	0,014	0,030	22.293	602	0,014	0,021	15.924	344	0,011	0,010
1,0	10	38.217	1.376	0,018	0,030	35.032	1.135	0,016	0,027	31.847	917	0,014	0,023	31.847	917	0,014	0,018	22.293	602	0,014	0,012	15.924	344	0,011	0,006
1,0	12	38.217	1.376	0,018	0,020	35.032	1.135	0,016	0,018	31.847	917	0,014	0,015	31.847	917	0,014	0,012	22.293	602	0,014	0,008	15.924	344	0,011	0,004
1,0	14	38.217	1.223	0,016	0,015	35.032	1.009	0,014	0,014	31.847	815	0,013	0,011	31.847	815	0,013	0,009	22.293	535	0,012	0,006	15.924	306	0,010	0,003
1,0	16	38.217	1.223	0,016	0,010	35.032	1.009	0,014	0,009	31.847	815	0,013	0,008	31.847	815	0,013	0,006	22.293	535	0,012	0,004	15.924	306	0,010	0,002
1,2	6	31.847	1.338	0,021	0,090	29.193	1.104	0,019	0,081	26.539	892	0,017	0,068	26.539	892	0,017	0,054	18.577	585	0,016	0,037	13.270	334	0,013	0,018
1,2	8	31.847	1.338	0,021	0,070	29.193	1.104	0,019	0,063	26.539	892	0,017	0,053	26.539	892	0,017	0,042	18.577	585	0,016	0,029	13.270	334	0,013	0,014
1,2	10	31.847	1.338	0,021	0,060	29.193	1.104	0,019	0,054	26.539	892	0,017	0,045	26.539	892	0,017	0,036	18.577	585	0,016	0,025	13.270	334	0,013	0,012
1,2	12	31.847	1.338	0,021	0,040	29.193	1.104	0,019	0,036	26.539	892	0,017	0,030	26.539	892	0,017	0,024	18.577	585	0,016	0,016	13.270	334	0,013	0,008
1,4	6	27.298	1.310	0,024	0,140	25.023	1.081	0,022	0,126	22.748	874	0,019	0,105	22.748	874	0,019	0,084	15.924	573	0,018	0,058	11.374	328	0,014	0,028
1,4	8	27.298	1.310	0,024	0,100	25.023	1.081	0,022	0,090	22.748	874	0,019	0,075	22.748	874	0,019	0,060	15.924	573	0,018	0,041	11.374	328	0,014	0,020
1,4	10	27.298	1.310	0,024	0,070	25.023	1.081	0,022	0,063	22.748	874	0,019	0,053	22.748	874	0,019	0,042	15.924	573	0,018	0,029	11.374	328	0,014	0,014
1,4	12	27.298	1.310	0,024	0,060	25.023	1.081	0,022	0,054	22.748	874	0,019	0,045	22.748	874	0,019	0,036	15.924	573	0,018	0,025	11.374	328	0,014	0,012
1,4	14	27.298	1.310	0,024	0,050	25.023	1.081	0,022	0,045	22.748	874	0,019	0,038	22.748	874	0,019	0,030	15.924	573	0,018	0,021	11.374	328	0,014	0,010
1,4	16	27.298	1.201	0,022	0,030	25.023	991	0,020	0,027	22.748	801	0,018	0,023	22.748	801	0,018	0,018	15.924	525	0,017	0,012	11.374	300	0,013	0,006
1,5	6	25.478	1.325	0,026	0,150	23.355	1.093	0,023	0,135	21.231	883	0,021	0,113	21.231	883	0,021	0,090	14.862	580	0,020	0,062	10.616	331	0,016	0,030
1,5	8	25.478	1.325	0,026	0,110	23.355	1.093	0,023	0,099	21.231	883	0,021	0,083	21.231	883	0,021	0,066	14.862	580	0,020	0,045	10.616	331	0,016	0,022
1,5	10	25.478	1.325	0,026	0,090	23.355	1.093	0,023	0,081	21.231	883	0,021	0,068	21.231	883	0,021	0,054	14.862	580	0,020	0,037	10.616	331	0,016	0,018
1,5	12	25.478	1.325	0,026	0,070	23.355	1.093	0,023	0,063	21.231	883	0,021	0,053	21.231	883	0,021	0,042	14.862	580	0,020	0,029	10.616	331	0,016	0,014
1,5	14	25.478	1.325	0,026	0,060	23.355	1.093	0,023	0,054	21.231	883	0,021	0,045	21.231	883	0,021	0,036	14.862	580	0,020	0,025	10.616	331	0,016	0,012
1,5	16	25.478	1.325	0,026	0,050	23.355	1.093	0,023	0,045	21.231	883	0,021	0,038	21.231	883	0,021	0,030	14.862	580	0,020	0,021	10.616	331	0,016	0,010
1,5	18	25.478	1.325	0,026	0,030	23.355	1.093	0,023	0,027	21.231	883	0,021	0,023	21.231	883	0,021	0,018	14.862	580	0,020	0,012	10.616	331	0,016	0,006
1,5	20	25.478	1.325	0,026	0,020	23.355	1.093	0,023	0,018	21.231	883	0,021	0,015	21.231	883	0,021	0,012	14.862	580	0,020	0,008	10.616	331	0,016	0,004
1,6	6	23.885	1.338	0,028	0,170	21.895	1.104	0,025	0,153	19.904	892	0,022	0,128	19.904	892	0,022	0,102	13.933	585	0,021	0,070	9.952	334	0,017	0,034
1,6	8	23.885	1.338	0,028	0,160	21.895	1.104	0,025	0,144	19.904	892	0,022	0,120	19.904	892	0,022	0,096	13.933	585	0,021	0,066	9.952	334	0,017	0,032
1,6	10	23.885	1.338	0,028	0,110	21.895	1.104	0,025	0,099	19.904	892	0,022	0,083	19.904	892	0,022	0,066	13.933	585	0,021	0,045	9.952	334	0,017	0,022
1,6	12	23.885	1.338	0,028	0,070	21.895	1.104	0,025	0,063	19.904	892	0,022	0,053	19.904	892	0,022	0,042	13.933	585	0,021	0,029	9.952	334	0,017	0,014
1,6	14	23.885	1.338	0,028	0,060	21.895	1.104	0,025	0,054	19.904	892	0,022	0,045	19.904	892	0,022	0,036	13.933	585	0,021	0,025	9.952	334	0,017	0,012
1,6	16	23.885	1.338	0,028	0,050	21.895	1.104	0,025	0,045	19.904	892	0,022	0,038	19.904	892	0,022	0,030	13.933	585	0,021	0,021	9.952	334	0,017	0,010
1,6	18	23.885	1.338	0,028	0,040	21.895	1.104	0,025	0,036	19.904	892	0,022	0,030	19.904	892	0,022	0,024	13.933	585	0,021	0,016	9.952	334	0,017	0,008
1,6	20	23.885	1.338	0,028	0,020	21.895	1.104	0,025	0,018	19.904	892	0,022	0,015	19.904	892	0,022	0,012	13.933	585	0,021	0,008	9.952	334	0,017	0,004
1,8	6	21.231	1.316	0,031	0,230	19.462	1.086	0,028	0,207	17.693	878	0,025	0,173	17.693	878	0,025	0,138	12.385	576	0,023	0,095	8.846	329	0,019	0,046
1,8	8	21.231	1.316	0,031	0,220	19.462	1.086	0,028	0,198	17.693	878	0,025	0,165	17.693	878	0,025	0,132	12.385	576	0,023	0,091	8.846	329	0,019	0,044
1,8	10	21.231	1.316	0,031	0,130	19.462	1.086	0,028	0,117	17.693	878	0,025	0,098	17.693	878	0,025	0,078	12.385	576	0,023	0,054	8.846	329	0,019	0,026
1,8	12	21.231	1.316	0,031	0,110	19.462	1.086	0,028	0,099	17.693	878	0,025	0,083	17.693	878	0,025	0,066	12.385	576	0,023	0,045	8.846	329	0,019	0,022
1,8	14	21.231	1.316	0,031	0,080	19.462	1.086	0,028	0,072	17.693	878	0,025	0,060	17.693	878	0,025	0,048	12.385	576	0,023	0,033	8.846	329	0,019	0,016
1,8	16	21.231	1.316	0,031	0,070	19.462	1.086	0,028	0,063	17.693	878	0,025	0,053	17.693	878	0,025	0,042	12.385	576	0,023	0,029	8.846	329	0,019	0,014
1,8	18	21.231	1.316	0,031	0,060	19.462	1.086	0,028	0,054	17.693	878	0,025	0,045	17.693	878	0,025	0,036	12.385	576	0,023	0,025	8.846	329	0,019	0,012
1,8	20	21.231	1.316	0,031	0,050	19.462	1.086	0,028	0,045	17.693	878	0,025	0,038	17.693	878	0,025	0,030	12.385	576	0,023	0,021	8.846	329	0,019	0,010
2,0	6	19.108	1.299	0,034	0,340	17.516	1.072	0,031	0,306	15.924	866	0,027	0,255	15.924	866	0,027	0,204	11.146	568	0,026	0,140	7.962	325	0,020	0,068
2,0	8	19.108	1.299	0,034	0,290	17.516	1.072	0,031	0,261	15.924	866	0,027	0,218	15.924	866	0,027	0,174	11.146	568	0,026	0,119	7.962	325	0,020	0,058
2,0	10	19.108	1.299	0,034	0,260	17.516	1.072	0,031	0,234	15.924	866	0,027	0,195	15.924	866	0,027	0,156	11.146	568	0,026	0,107	7.962	325	0,020	0,052
2,0	12	19.108	1.299	0,034	0,140	17.516	1.072	0,031	0,126	15.924	866	0,027	0,105	15.924	866	0,027	0,084	11.146	568	0,026	0,058	7.962	325	0,020	0,028
2,0	14	19.108	1.299	0,034	0,100	17.516	1.072	0,031	0,090	15.924	866	0,027	0,075	15.924	866	0,027	0,060	11.146	568	0,026	0,041	7.962	325	0,020	0,020
2,0	16	19.108	1.299	0,034	0,090	17.516	1.072	0,031	0,081	15.924	866	0,027	0,068	15.924	866	0,027	0,054	11.146	568	0,026	0,037	7.962	325	0,020	0,018
2,0	18	19.108	1.299	0,034	0,080	17.516	1.072	0,031	0,072	15.924	866	0,027	0,060	15.924	866	0,027	0,048	11.146	568	0,026	0,033	7.962	325	0,020	0,016
2,0	20	19.108	1.299	0,034	0,070	17.516	1.072	0,031	0,063	15.924	866	0,027	0,053	15.924	866	0,027	0,042	11.146	568	0,026	0,029	7.962	325	0,020	0,014
2,0	25	19.108	1.299	0,034	0,030	17.516	1.072	0,031	0,027	15.924	866	0,027	0,023	15.924	866	0,027	0,018	11.146	568	0,026	0,012	7.962	325	0,020	0,006
2,0	30	19.108	1.299	0,034	0,020	17.516	1.072	0,031	0,018	15.924	866	0,027	0,015	15.924	866	0,027	0,012	11.146	568	0,026	0,008	7.962	325	0,020	0,004
2,5	8	15.287	1.834	0,060	0,420	14.013	1.513	0,054	0,378	12.739	1.223	0,048	0,315	12.739	1.223	0,048	0,252	8.917	803	0,045	0,173	6.369	459	0,036	0,084
2,5	10	15.287	1.834	0,060	0,360	14.013	1.513	0,054	0,324	12.739	1.223	0,048	0,270	12.739	1.223	0,048	0,216	8.917	803	0,045	0,148	6.369	459	0,036	0,072
2,5	12	15.287	1.834	0,060	0,240	14.013	1.513	0,054	0,216	12.739	1.223	0,048	0,180	12.739	1.223	0,048	0,144	8.917	803	0,045	0,099	6.369	459	0,036	0,048

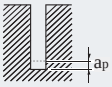
WX-LN-EDS

High speed milling - HSC Schlichtfräsen - Fresatura alta velocità - Fraisage UGV
High speed fræsning - High Speed Milling - Fresado a alta velocidad HSM - Высокоскоростное фрезерование



	C≤0,2% - GG E24 ■ XC48 ■ FT25 ~750 N/mm²					SCM - SKD 350NCD16 ■ 40CMD8 ~30 HRC					30~38 HRC 35NCD16 ~30 HRC					38~45 HRC - SUS 35NCD16 38~45 HRC					45~55 HRC Z38CDV5 45~55 HRC					55~60 HRC Z160CDV12 55~60 HRC				
	120 (m/min)					110 (m/min)					100 (m/min)					100 (m/min)					70 (m/min)					50 (m/min)				
Ø	Lg (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)
3	40	12.739	2.038	0,080	0,040	11.677	1.682	0,072	0,036	10.616	1.359	0,064	0,030	0.616	1.359	0,064	0,024	7.431	892	0,060	0,016	5.308	510	0,048	0,008
4	12	9.554	1.911	0,100	0,420	8.758	1.576	0,090	0,378	7.962	1.274	0,080	0,315	7.962	1.274	0,080	0,252	5.573	836	0,075	0,173	3.981	478	0,060	0,084
4	16	9.554	1.911	0,100	0,390	8.758	1.576	0,090	0,351	7.962	1.274	0,080	0,293	7.962	1.274	0,080	0,234	5.573	836	0,075	0,161	3.981	478	0,060	0,078
4	20	9.554	1.911	0,100	0,360	8.758	1.576	0,090	0,324	7.962	1.274	0,080	0,270	7.962	1.274	0,080	0,216	5.573	836	0,075	0,148	3.981	478	0,060	0,072
4	25	9.554	1.720	0,090	0,290	8.758	1.419	0,081	0,261	7.962	1.146	0,072	0,218	7.962	1.146	0,072	0,174	5.573	752	0,068	0,119	3.981	430	0,054	0,058
4	30	9.554	1.529	0,080	0,210	8.758	1.261	0,072	0,189	7.962	1.019	0,064	0,158	7.962	1.019	0,064	0,126	5.573	669	0,060	0,086	3.981	382	0,048	0,042
4	35	9.554	1.338	0,070	0,180	8.758	1.104	0,063	0,162	7.962	892	0,056	0,135	7.962	892	0,056	0,108	5.573	585	0,053	0,074	3.981	334	0,042	0,036
4	40	9.554	1.146	0,060	0,160	8.758	946	0,054	0,144	7.962	764	0,048	0,120	7.962	764	0,048	0,096	5.573	502	0,045	0,066	3.981	287	0,036	0,032
4	45	9.554	1.146	0,060	0,130	8.758	946	0,054	0,117	7.962	764	0,048	0,098	7.962	764	0,048	0,078	5.573	502	0,045	0,054	3.981	287	0,036	0,026
4	50	9.554	955	0,050	0,050	8.758	788	0,045	0,045	7.962	637	0,040	0,038	7.962	637	0,040	0,030	5.573	418	0,038	0,021	3.981	239	0,030	0,010
5	16	7.643	1.987	0,130	0,490	7.006	1.639	0,117	0,441	6.369	1.325	0,104	0,368	6.369	1.325	0,104	0,294	4.459	869	0,098	0,202	3.185	497	0,078	0,098
5	25	7.643	1.834	0,120	0,460	7.006	1.513	0,108	0,414	6.369	1.223	0,096	0,345	6.369	1.223	0,096	0,276	4.459	803	0,090	0,189	3.185	459	0,072	0,092
5	35	7.643	1.529	0,100	0,360	7.006	1.261	0,090	0,324	6.369	1.019	0,080	0,270	6.369	1.019	0,080	0,216	4.459	669	0,075	0,148	3.185	382	0,060	0,072
5	50	7.643	1.529	0,100	0,160	7.006	1.261	0,090	0,144	6.369	1.019	0,080	0,120	6.369	1.019	0,080	0,096	4.459	669	0,075	0,066	3.185	382	0,060	0,032

Max cutting depth



1. Speeds and feeds are designed to be used in conjunction with small passes on a high speed & precision machine set-up.
2. Do not use inflammable coolant. Using worn tools may generate sparks.
3. Use compresed air or a high quality coolant with a low co-efficient of smoke emmision.
* Modified parameters

1. Queste velocità e questi avanzamenti sono indicati per fresatura di piccole passate ad alta velocità e centri di lavorazione di alta precisione.
2. Non utillizare lubrificanti da taglio infiammabili; gli utensili troppo usurati possono produrre scintille.
3. Utilizzare un getto di aria compressa. Se la vostra scelta ricade su dei liquidi da taglio, sceglieteli di alta qualità, dotati di un coefficiente elevato di rallentamento d'emissione del fumo.
* Parameto modificato

1. Die Schnittdaten sin ausgelegt für geringe Zustellungen in Verbindung mit HSC tauglichen Maschinen und Spannmittel.
2. Bitte gegeignetes Kühlmittel mit rauchhemmenden Zusätzen verwenden.
3. Benutzen Sie Druckluft oder Kühlmittel mit rauchhemdenden Zusätzen.
* Modifizierten Parameters

1. Les vitesses et avances sont indiquées pour le fraisage de petites passes à haute vitesse / centres d'usinage de haute précision.
2. Ne pas utiliser de lubrifiants de coupe inflammables, les outils fortement usés peuvent produire des étincelles.
3. Utilisez un jet d'air comprimé ou des fluides de coupe de haute qualité avec un coef. élevé de ralentissement d'émission de fumée.
* Paramètres modifiés

1. Skæredata er designet til brug i samarbejde med små bearbejdninger i et præcisions setup på et højhastigheds bearbejdningscenter
2. Brug ikke brændbare kølevæsker. Brugte værktøjer kan resultere i gnister
3. Brug lufttryk eller kølevæske af høj kvalitet med lav røgudvikling
* Modificerede parametre

1. Velocidades y avances establecidos junto a pasadas ligeras en maquinas de lata velocidad y gran precisión
2. No utilizar refrigerante inflamable. Las herramientas calientes pueden generar chispas
3. Utilizar aire comprimido o un refrigerante con un bajo coeficiente de emisión de humo
* Parámetros modificados

1. Skärdatan är designat för små ingrepp vid precisions bearbetning i höghastighetsmaskiner
2. Använd inte brandfarliga kylvätskor. Fräsar kan vara mycket varma eter ingrepp
3. Använd tryckluft eller kylvätska med hög kvalitet och låg rökutveckling
* Modifierade parametrar

1. Указанные режимы резания предназначены для точных высокоскоростных станков и жесткого закрепления обрабатываемой детали.
2. Не используйте легко воспламеняемую СОЖ. При использовании изношенных фрез возможно возникновение искр.
3. Используйте сжатый воздух или качественную СОЖ с высокой устойчивостью к возникновению дыма.

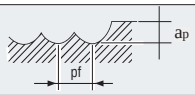
WX-EBD

Ø	GG GG-GGG		C≤0,2% S55C ■ SS400 ~700 N/mm²		SCM - SKD SKD ■ SKS ■ SNCM ~30 HRC		30~38 HRC SKT ■ NAK55 ■ HPMI 30~38 HRC		38~45 HRC - SUS SUS304 ■ X210CR12 X40CRMOV51 38~45 HRC		45~55 HRC - HRC 45~55 HRC		55~60 HRC 55~60 HRC	
	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
R 0,2 X 0,4	32.000	460	32.000	460	32.000	410	32.000	330	32.000	205	24.500	135	24.500	115
R 0,3 X 0,6	32.000	535	32.000	535	31.500	490	32.000	420	32.000	265	24.500	175	23.500	150
R 0,5 X 1,0	32.000	765	32.000	765	31.500	620	25.000	400	22.000	285	19.000	210	14.000	140
R 1,0 X 2,0	23.500	940	19.000	765	15.500	620	12.500	400	11.000	290	9.500	210	7.150	140
R 1,5 X 3,0	15.500	940	12.500	765	10.500	630	8.450	405	7.400	290	6.350	210	4.750	140
R 2,0 X 4,0	11.500	940	9.500	765	7.950	630	6.350	445	5.550	370	4.750	270	3.550	175
R 2,5 X 5,0	9.500	1.050	7.600	855	6.350	635	5.050	445	4.450	370	3.800	285	2.850	175
R 3,0 X 6,0	7.950	1.050	6.350	855	5.300	670	4.200	465	3.700	390	3.150	295	2.350	185
R 4,0 X 8,0	5.950	1.300	4.750	1.050	3.950	790	3.150	555	2.750	455	2.350	325	1.750	210
R 5,0 X 10,0	4.750	1.200	3.800	960	3.150	745	2.500	525	2.200	430	1.900	335	1.400	210
R 6,0 X 12,0	3.950	1.100	3.150	890	2.650	700	2.100	490	1.850	430	1.550	310	1.150	195
R 7,0 X 14,0	3.400	1.050	2.700	865	2.250	675	1.800	475	1.550	390	1.350	300	1.000	190
R 8,0 X 16,0	2.950	1.050	2.350	840	1.950	645	1.550	475	1.350	380	1.150	270	895	185
R 9,0 X 18,0	2.650	1.000	2.100	795	1.750	610	1.400	475	1.200	380	1.050	260	795	175
R 10,0 X 20,0	2.350	940	1.900	765	1.550	570	1.250	450	1.100	370	955	250	715	170
R 12,5 X 25,0	1.900	760	1.500	670	1.250	465	1.000	360	890	295	760	210	570	145
R 15,0 X 30,0	1.550	650	1.250	630	1.050	435	845	310	740	250	635	175	475	115

Max cutting depth

WX-EBD

	ap	ae
R ≤ 0,5	0,05D	0,2D
0,5 ≤ R	0,10D	0,2D



ap	pf
0,05D	0,1D

1. Use a rigid and precise machine and holder.
2. Please use a suitable fluid with high smoke retardant properties.

1. Usare un mandrino portautensile preciso e rigido/
2. Si consiglia di usare emulsione a scarsa emissione di fumi.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen.

1. Utiliser une machine et un attachement précis et rigide.
2. Utiliser un liquide de refroidissement adéquat.

1. Anvend stabil maskine og værktøjsholder
2. Anvend en passende skærevæske

1. Use maquina y portaherramientas rigidos y precisos
2. Use fluido de corte adecuado con retardador de humos

1. Använd en stabil maskin och verktygshållare
2. Använd anpassad skärvätska

1. Используйте жесткие и точные станки и фрезерные патроны.
2. Используйте качественную СОЖ с высокой устойчивостью к возникновению дыма.

WX-EBD

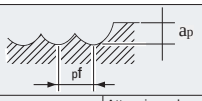
High speed milling - HSC Schlichtfräsen - Fresatura alta velocità - Fraisage UGV
High speed fræsning - High Speed Milling - Fresado a alta velocidad HSM - Высокоскоростное фрезерование

Ø	C≤0,2% - GG SKD ■ NAK80 ■ HPM50 ~45 HRC		SCM - SKD SKD ■ SKS ■ SNCM ~30 HRC		30~38 HRC NAK55 ■ HPM1 ■ SKT 30~38 HRC		38~45 HRC-SUS SUS304 ■ X210CR12 ■ X40CRMOV51 38~45 HRC		45~55 HRC-HRS 45~55 HRC		55~60 HRC 55~60 HRC	
	350~500 (m/min)		300~450 (m/min)		250~400 (m/min)		150~300 (m/min)		120~220 (m/min)		80~150 (m/min)	
	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
R 0,5 X 1	50.000	2.800	50.000	2.800	50.000	2.500	47.500	2.250	32.000	1.450	25.000	1.000
R 1,0 X 2	31.500	3.500	25.000	2.800	24.500	2.500	23.500	2.250	17.000	1.550	12.500	1.000
R 1,5 X 3	21.000	3.500	16.500	2.800	16.000	2.500	15.500	2.250	11.000	1.550	8.450	1.000
R 2,0 X 4	18.000	3.700	15.500	3.400	15.000	2.750	13.500	2.450	11.000	1.900	7.950	1.100
R 2,5 X 5	15.500	4.000	15.000	4.050	14.000	2.900	11.000	2.300	10.000	2.100	7.600	1.200
R 3,0 X 6	15.000	4.800	13.500	4.300	11.500	2.750	9.500	2.250	9.500	2.250	6.600	1.150
R 4,0 X 8	11.500	3.650	10.000	3.200	8.950	2.100	7.150	1.700	7.150	1.700	4.950	890
R 5,0 X 10	9.500	3.000	8.250	2.600	7.150	1.700	5.700	1.350	5.700	1.350	3.950	710
R 6,0 X 12	7.950	2.500	6.850	2.150	5.950	1.400	4.750	1.100	4.750	1.100	3.300	590
R 7,0 X 14	6.800	2.150	5.900	1.850	5.100	1.200	4.050	970	4.050	970	2.800	500
R 8,0 X 16	5.950	1.900	5.150	1.600	4.450	1.050	3.550	850	3.550	850	2.450	440
R 9,0 X 18	5.300	1.650	4.550	1.450	3.950	945	3.150	755	3.150	755	2.200	395
R 10,0 X 20	4.750	1.500	4.100	1.300	3.550	850	2.850	680	2.850	680	1.950	350
R 12,5 X 25	3.800	1.200	3.300	1.050	2.850	680	2.250	540	2.250	540	1.550	275
R 15,0 X 30	3.150	1.000	2.750	880	2.350	560	1.900	455	1.900	455	1.300	230

Max cutting depth

WX-EBD

ap	pf
0,02D	0,05D



	ap	pf
R ≤ 8	0,02D	0,05D
8 < R	0,5 mm	0,05D

Attention : sparks and/or flames can cause coolant fire. Be sure adequate fire prevention is available.
1. Speeds and feeds are designed to be used in conjunction with small passes on a high speed & precision machine set-up.
2. Do not use inflammable coolant. Using worn tools may generate sparks.
3. Use compresed air or a high quality coolant with a low co-efficient of smoke emmision.

Attenzione: le scintille prodotto durante l'operazione o il calore causato dalla rottura dell'utensile possono infiammare il lubrificante. Assicurasi che siano applicate delle adeguate misure di prevenzione.
1. Queste velocità e questi avanzamenti sono indicati per fresatura di piccole passate ad alta velocità e centri di lavorazione di alta precisione.
2. Non utillizare lubrificanti da taglio infiammabili; gli utensili troppo usurati possono produrre scintille.
3. Utilizzare un getto di aria compressa. Se la vostra scelta ricade su dei liquidi da taglio, sceglieteli di alta qualità, dotati di un coefficiente elevato di rallentamento d'emissione del fumo.

Achtung: Funken und/oder Flammen können den Kühlschmierstoff entzünden. stellen Sie einen ausreichenden Brandschutz sicher.
1. Die Schnittdaten sind ausgelegt für geringe Zustellungen in Verbindung mit HSC tauglichen Maschinen und Spannmittel.
2. Bitte gegeignetes Kühlmittel mit rauchhemmenden Zusätzen verwenden.
3. Benutzen Sie Druckluft oder Kühlmittel mit rauchhemmenden Zusätzen..

Attention : étincelles et/ou chaleur peuvent enflammer le lubrifiant. S'assurer que des mesures de prévention adéquates sont appliquées.
1. Les vitesses et avances sont indiquées pour le fraisage de petites passes à haute vitesse / centres d'usinage de haute précision.
2. Ne pas utiliser de lubrifiants de coupe inflammables, les outils fortement usés peuvent produire des étincelles.
3. Utilisez un jet d'air comprimé ou des fluides de coupe de haute qualité avec un coef. élevé

Pas på: gnister kan antænde kølevæsken. Sørg for brandslukningsmateriel er inden for rækkevidde
1. Skæredata er designet til brug i samarbejde med små bearbejdninger i et præcisions setup på et højhastigheds bearbejdningscenter
2. Brug ikke brændbare kølevæsker. Brugte værktøjer kan resultere i gnister
3. Brug lufttryk eller kølevæske af høj kvalitet med lav røgudvikling.

Atención, Las chispas pueden causar el incendio del refirgerante. Asegurese que una adecuada prevencion de incendios está disponible
1. Velocidades y avances establecidos junto a pasadas ligeras en maquinas de lata velocidad y gran precisión
2. No utilizar refrigerante inflamable. Las herramientas calientes pueden generar chispas
3. Utilizar aire comprimido o un refrigerante con un bajo coeficiente de emisión de humo

Observera: Gnistor kan antända kylvätskan. Se till att ha en bra brandsläckningsutrustning
1. Skärdatan är designat för små ingrepp vid precisions bearbetning i höghastighetsmaskiner
2. Använd inte brandfarliga kylvätskor. Fräsar kan vara mycket varma eter ingrepp
3. Använd tryckluft eller kylvätska med hög kvalitet och låg rökutveckling

Внимание! Искры и пламя могут воспламенить СОЖ. Примите меры противопожарной безопасности.
1. Указанные режимы резания предназначены для точных высокоскоростных станков и жесткого закрепления обрабатываемой детали.
2. Не используйте легко воспламеняемую СОЖ. При использовании изношенных фрез возможно возникновение искр.
3. Используйте сжатый воздух или качественную СОЖ с высокой устойчивостью к возникновению дыма.

WX-LN-EBD

High speed milling - HSC Schlichtfräsen - Fresatura alta velocità - Fraisage UGV
High speed fræsning - High Speed Milling - Fresado a alta velocidad HSM - Высокоскоростное фрезерование



		C≤0,2% - GG E24 ■ XC38 ■ FT25 ■ 75MPA					SCM - SKD 33NCD16 ■ 40CMD8 ~30 HRC					30~38 HRC 35NCD16 30~38 HRC				
		120 (m/min)					110 (m/min)					100 (m/min)				
Ø	Lg (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	Pf (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	Pf (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	Pf (mm)
0,2	0,5	50.000	400	0,004	0,020	0,060	50.000	360	0,004	0,018	0,054	50.000	320	0,003	0,016	0,048
0,2	1,0	50.000	400	0,004	0,010	0,024	50.000	360	0,004	0,009	0,022	50.000	320	0,003	0,008	0,019
0,2	1,5	50.000	400	0,004	0,008	0,010	50.000	360	0,004	0,007	0,009	50.000	320	0,003	0,006	0,008
0,3	1,0	50.000	600	0,006	0,020	0,063	50.000	540	0,005	0,018	0,057	50.000	480	0,005	0,016	0,050
0,3	1,5	50.000	600	0,006	0,015	0,040	50.000	540	0,005	0,014	0,036	50.000	480	0,005	0,012	0,032
0,3	2,0	50.000	600	0,006	0,012	0,036	50.000	540	0,005	0,011	0,032	50.000	480	0,005	0,010	0,029
0,4	1,0	50.000	900	0,009	0,040	0,120	50.000	810	0,008	0,036	0,108	50.000	720	0,007	0,032	0,096
0,4	1,5	50.000	900	0,009	0,020	0,100	50.000	810	0,008	0,018	0,090	50.000	720	0,007	0,016	0,080
0,4	2,0	50.000	900	0,009	0,020	0,060	50.000	810	0,008	0,018	0,054	50.000	720	0,007	0,016	0,048
0,4	2,5	50.000	800	0,008	0,020	0,050	50.000	720	0,007	0,018	0,045	50.000	640	0,006	0,016	0,040
0,4	3,0	50.000	800	0,008	0,020	0,048	50.000	720	0,007	0,018	0,043	50.000	640	0,006	0,016	0,038
0,5	2,0	50.000	1.500	0,015	0,020	0,070	50.000	1.350	0,014	0,018	0,063	40.000	960	0,012	0,016	0,056
0,5	3,0	50.000	1.200	0,012	0,020	0,065	50.000	1.080	0,011	0,018	0,059	40.000	768	0,010	0,016	0,052
0,5	4,0	50.000	1.100	0,011	0,020	0,060	50.000	990	0,010	0,018	0,054	40.000	704	0,009	0,016	0,048
0,5	5,0	50.000	1.100	0,011	0,020	0,050	40.000	792	0,010	0,018	0,045	40.000	704	0,009	0,016	0,040
0,5	6,0	50.000	1.100	0,011	0,013	0,039	40.000	792	0,010	0,012	0,035	40.000	704	0,009	0,010	0,031
0,5	8,0	50.000	900	0,009	0,010	0,030	40.000	648	0,008	0,009	0,027	40.000	576	0,007	0,008	0,024
0,6	2,0	40.000	1.280	0,016	0,030	0,100	40.000	1.152	0,014	0,027	0,090	40.000	1.024	0,013	0,024	0,080
0,6	3,0	40.000	1.200	0,015	0,030	0,100	40.000	1.080	0,014	0,027	0,090	40.000	960	0,012	0,024	0,080
0,6	4,0	40.000	1.040	0,013	0,030	0,100	40.000	936	0,012	0,027	0,090	40.000	832	0,010	0,024	0,080
0,6	5,0	40.000	960	0,012	0,030	0,100	40.000	864	0,011	0,027	0,090	40.000	768	0,010	0,024	0,080
0,6	6,0	40.000	880	0,011	0,030	0,100	40.000	792	0,010	0,027	0,090	40.000	704	0,009	0,024	0,080
0,6	8,0	40.000	880	0,011	0,017	0,100	40.000	792	0,010	0,015	0,090	40.000	704	0,009	0,014	0,080
0,8	2,0	40.000	1.440	0,018	0,050	0,150	40.000	1.296	0,016	0,045	0,135	40.000	1.152	0,014	0,040	0,120
0,8	4,0	40.000	1.440	0,018	0,040	0,100	40.000	1.296	0,016	0,036	0,090	40.000	1.152	0,014	0,032	0,080
0,8	5,0	40.000	1.440	0,018	0,040	0,100	40.000	1.296	0,016	0,036	0,090	40.000	1.152	0,014	0,032	0,080
0,8	6,0	40.000	1.440	0,018	0,035	0,100	40.000	1.296	0,016	0,032	0,090	40.000	1.152	0,014	0,028	0,080
0,8	7,0	40.000	1.360	0,017	0,030	0,009	40.000	1.224	0,015	0,027	0,008	40.000	1.088	0,014	0,024	0,007
0,8	8,0	40.000	1.200	0,015	0,030	0,070	40.000	1.080	0,014	0,027	0,063	40.000	960	0,012	0,024	0,056
0,8	10,0	40.000	1.200	0,015	0,020	0,060	40.000	1.080	0,014	0,018	0,054	40.000	960	0,012	0,016	0,048
1,0	3,0	40.000	2.000	0,025	0,100	0,200	40.000	1.800	0,023	0,090	0,180	40.000	1.600	0,020	0,080	0,160
1,0	4,0	40.000	1.760	0,022	0,070	0,200	40.000	1.584	0,020	0,063	0,180	40.000	1.408	0,018	0,056	0,160
1,0	5,0	40.000	1.760	0,022	0,050	0,200	40.000	1.584	0,020	0,045	0,180	40.000	1.408	0,018	0,040	0,160
1,0	6,0	40.000	1.760	0,022	0,050	0,200	40.000	1.584	0,020	0,045	0,180	40.000	1.408	0,018	0,040	0,160
1,0	7,0	40.000	1.600	0,020	0,050	0,150	40.000	1.440	0,018	0,045	0,135	40.000	1.280	0,016	0,040	0,120
1,0	8,0	40.000	1.600	0,020	0,040	0,150	40.000	1.440	0,018	0,036	0,135	40.000	1.280	0,016	0,032	0,120
1,0	9,0	40.000	1.600	0,020	0,040	0,150	40.000	1.440	0,018	0,036	0,135	40.000	1.280	0,016	0,032	0,120
1,0	10,0	40.000	1.600	0,020	0,030	0,100	40.000	1.440	0,018	0,027	0,090	40.000	1.280	0,016	0,024	0,080
1,0	12,0	40.000	1.200	0,015	0,030	0,100	40.000	1.080	0,014	0,027	0,090	40.000	960	0,012	0,024	0,080
1,0	14,0	40.000	1.200	0,015	0,030	0,100	40.000	1.080	0,014	0,027	0,090	40.000	960	0,012	0,024	0,080
1,0	16,0	40.000	1.200	0,015	0,025	0,100	40.000	1.080	0,014	0,023	0,090	40.000	960	0,012	0,020	0,080
1,0	20,0	40.000	1.200	0,015	0,020	0,080	40.000	1.080	0,014	0,018	0,072	40.000	960	0,012	0,016	0,064
1,2	6,0	31.847	1.911	0,030	0,050	0,120	29.193	1.576	0,027	0,045	0,108	26.539	1.274	0,024	0,040	0,096
1,2	8,0	31.847	1.656	0,026	0,040	0,120	29.193	1.366	0,023	0,036	0,108	26.539	1.104	0,021	0,032	0,096
1,2	10,0	31.847	1.401	0,022	0,030	0,090	29.193	1.156	0,020	0,027	0,081	26.539	934	0,018	0,024	0,072
1,2	12,0	31.847	1.274	0,020	0,020	0,090	29.193	1.051	0,018	0,018	0,081	26.539	849	0,016	0,016	0,072
1,4	8,0	27.298	1.638	0,030	0,060	0,200	25.023	1.351	0,027	0,054	0,180	22.748	1.092	0,024	0,048	0,160
1,4	12,0	27.298	1.638	0,030	0,050	0,180	25.023	1.351	0,027	0,045	0,162	22.748	1.092	0,024	0,040	0,144
1,4	16,0	27.298	1.638	0,030	0,040	0,140	25.023	1.351	0,027	0,036	0,126	22.748	1.092	0,024	0,032	0,112
1,5	8,0	25.478	1.682	0,033	0,070	0,180	23.355	1.387	0,030	0,063	0,162	21.231	1.121	0,026	0,056	0,144
1,5	12,0	25.478	1.682	0,033	0,070	0,180	23.355	1.387	0,030	0,063	0,162	21.231	1.121	0,026	0,056	0,144
1,5	16,0	25.478	1.427	0,028	0,050	0,140	23.355	1.177	0,025	0,045	0,126	21.231	951	0,022	0,040	0,112
1,5	20,0	25.478	1.274	0,025	0,040	0,120	23.355	1.051	0,023	0,036	0,108	21.231	849	0,020	0,032	0,096
1,6	8,0	23.885	1.672	0,035	0,070	0,200	21.895	1.379	0,032	0,063	0,180	19.904	1.115	0,028	0,056	0,160
1,6	12,0	23.885	1.529	0,032	0,070	0,200	21.895	1.261	0,029	0,063	0,180	19.904	1.019	0,026	0,056	0,160
1,6	16,0	23.885	1.433	0,030	0,050	0,150	21.895	1.182	0,027	0,045	0,135	19.904	955	0,024	0,040	0,120
1,6	20,0	23.885	1.194	0,025	0,040	0,120	21.895	985	0,023	0,036	0,108	19.904	796	0,020	0,032	0,096
1,8	8,0	21.231	1.741	0,041	0,080	0,250	19.462	1.436	0,037	0,072	0,225	17.693	1.161	0,033	0,064	0,200
1,8	12,0	21.231	1.486	0,035	0,080	0,200	19.462	1.226	0,032	0,072	0,180	17.693	991	0,028	0,064	0,160
1,8	16,0	21.231	1.274	0,030	0,060	0,150	19.462	1.051	0,027	0,054	0,135	17.693	849	0,024	0,048	0,120
1,8	20,0	21.231	1.146	0,027	0,050	0,135	19.462	946	0,024	0,045	0,122	17.693	764	0,022	0,040	0,108
1,6	8,0	23.885	1.672	0,035	0,070	0,200	21.895	1.379	0,032	0,063	0,180	19.904	1.115	0,028	0,056	0,160
1,6	12,0	23.885	1.529	0,032	0,070	0,200	21.895	1.261	0,029	0,063	0,180	19.904	1.019	0,026	0,056	0,160
1,6	16,0	23.885	1.433	0,030	0,050	0,150	21.895	1.182	0,027	0,045	0,135	19.904	955	0,024	0,040	0,120
1,6	20,0	23.885	1.194	0,025	0,040	0,120	21.895	985	0,023	0,036	0,108	19.904	796	0,020	0,032	0,096
1,8	8,0	21.231	1.741	0,041	0,080	0,250	19.462	1.436	0,037	0,072	0,225	17.693	1.161	0,033	0,064	0,200
1,8	12,0	21.231	1.486	0,035	0,080	0,200	19.462	1.226	0,032	0,072	0,180	17.693	991	0,028	0,064	0,160
1,8	16,0	21.231	1.274	0,030	0,060	0,150	19.462	1.051	0,027	0,054	0,135	17.693	849	0,024	0,048	0,120
1,8	20,0	21.231	1.146	0,027	0,050	0,135	19.462	946	0,024	0,045	0,122	17.693	764	0,022	0,040	0,108
2,0	4,0	19.108	1.911	0,050	0,180	0,500	17.516	1.576	0,045	0,162	0,450	15.924	1.274	0,040	0,144	0,400
2,0	6,0	19.108	1.720	0,045	0,150	0,500	17.516	1.419	0,041	0,135	0,450	15.924	1.146	0,036	0,120	0,400
2,0	8,0	19.108	1.643	0,043	0,150	0,400	17.516	1.356	0,039	0,135	0,360	15.924	1.096	0,034	0,120	0,320
2,0	10,0	19.108	1.911	0,050	0,150	0,400	17.516	1.576	0,045	0,135	0,360	15.924	1.274	0,040	0,120	0,320
2,0	12,0	19.108	1.796	0,047	0,120	0,350	17.516	1.482	0,042	0,108	0,315	15.924	1.197	0,038	0,096	0,280
2,0	14,0	19.108	1.529	0,040	0,100	0,350	17.516	1.261	0,036	0,090	0,315	15.924	1.019	0,032	0,080	0,280
2,0	16,0	19.108	1.338	0,035	0,100	0,300	17.516	1.104	0,032	0,090	0,270	15.924	892	0,028	0,080	0,240
2,0	18,0	19.108	1.146	0,030	0,100	0,250	17.516	946	0,027	0,090	0,225	15.924	764	0,024	0,080	0,200
2,0	20,0	19.108	1.146	0,030	0,070	0,250	17.516	946	0,027	0,063	0,225	15.924	764	0,024	0,056	0,200
2,0	22,0	19.108	1.032	0,027	0,050	0,200	17.516	851	0,024	0,045	0,180	15.924	688	0,022	0,040	0,160
2,0	25,0	19.108	1.032	0,027	0,050	0,150	17.516	851	0,024	0,045	0,135	15.924	688	0,022	0,040	0.120
2,0	30,0	19.108	955	0,025	0,040	0,100	17.516	788	0,023	0,036	0,090	15.924	637	0,020	0,032	0,080
3,0	8 ,0	12.739	2.038	0,080	0,200	0,600	11.677	1.682	0,072	0,180	0,540	10.616	1.359	0,064	0,160	0,480
3,0	10,0	12.739	2.038	0,080	0,200	0,500	11.677	1.682	0,072	0,180	0,450	10.616	1.359	0,064	0,160	0,400
3,0	16,0	12.739	1.783	0,070	0,150	0,500	11.677	1.471	0,063	0,135	0,450	10.616	1.189	0,056	0,120	0,400
3,0	20,0	12.739	1.656	0,065	0,150	0,400	11.677	1.366	0,059	0,135	0,360	10.616	1.104	0,052	0,120	0,320

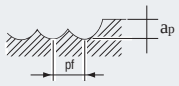
WX-LN-EBD

High speed milling - HSC Schlichtfräsen - Fresatura alta velocità - Fraisage UGV
High speed fræsning - High Speed Milling - Fresado a alta velocidad HSM - Высокоскоростное фрезерование



	C≤0,2% - GG E24 ■ XC38 ■ FT25 ■ 75MPA						SCM - SKD 33NCD16 ■ 40CMD8 ~30 HRC						30~38 HRC 35NCD16 30~38 HRC				
		120 (m/min)					110 (m/min)						100 (m/min)				
Ø	Lg (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	Pf (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	Pf (mm)		S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	Pf (mm)
3,0	25	12.739	1.529	0,060	0,130	0,300	11.677	1.261	0,054	0,117	0,270		10.616	1.019	0,048	0,104	0,240
3,0	30	12.739	1.452	0,057	0,100	0,250	11.677	1.198	0,051	0,090	0,225		10.616	968	0,046	0,080	0,200
3,0	35	12.739	1.401	0,055	0,080	0,250	11.677	1.156	0,050	0,072	0,225		10.616	934	0,044	0,064	0,200
4,0	10	9.554	2.293	0,120	0,200	0,800	8.758	1.892	0,108	0,180	0,720		7.962	1.529	0,096	0,160	0,640
4,0	16	9.554	1.911	0,100	0,200	0,600	8.758	1.576	0,090	0,180	0,540		7.962	1.274	0,080	0,160	0,480
4,0	20	9.554	1.911	0,100	0,200	0,600	8.758	1.576	0,090	0,180	0,540		7.962	1.274	0,080	0,160	0,480
4,0	25	9.554	1.720	0,090	0,200	0,500	8.758	1.419	0,081	0,180	0,450		7.962	1.146	0,072	0,160	0,400
4,0	30	9.554	1.529	0,080	0,200	0,400	8.758	1.261	0,072	0,180	0,360		7.962	1.019	0,064	0,160	0,320
4,0	35	9.554	1.338	0,070	0,150	0,400	8.758	1.104	0,063	0,135	0,360		7.962	892	0,056	0,120	0,320
4,0	40	9.554	1.146	0,060	0,150	0,400	8.758	946	0,054	0,135	0,360		7.962	764	0,048	0,120	0,320
4,0	45	9.554	1.146	0,060	0,100	0,300	8.758	946	0,054	0,090	0,270		7.962	764	0,048	0,080	0,240
4,0	50	9.554	955	0,050	0,100	0,300	8.758	788	0,045	0,090	0,270		7.962	637	0,040	0,080	0,240
5,0	20	7.643	1.987	0,130	0,250	1,000	7.006	1.639	0,117	0,225	0,900		6.369	1.325	0,104	0,200	0,800
5,0	25	7.643	1.834	0,120	0,250	0,900	7.006	1.513	0,108	0,225	0,810		6.369	1.223	0,096	0,200	0,720
5,0	30	7.643	1.529	0,100	0,250	0,800	7.006	1.261	0,090	0,225	0,720		6.369	1.019	0,080	0,200	0,640
5,0	35	7.643	1.529	0,100	0,250	0,600	7.006	1.261	0,090	0,225	0,540		6.369	1.019	0,080	0,200	0,480
6,0	30	6.369	1.783	0,140	0,420	1,300	5.839	1.471	0,126	0,378	1,170		5.308	1.189	0,112	0,336	1,040
6,0	50	6.369	1.401	0,110	0,200	0,500	5.839	1.156	0,099	0,180	0,450		5.308	934	0,088	0,160	0,400

Max cutting depth



Attention : sparks and/or flames can cause coolant fire. Be sure adequate fire prevention is available.
1. Speeds and feeds are designed to be used in conjunction with small passes on a high speed & precision machine set-up.
2. Do not use inflammable coolant. Using worn tools may generate sparks.
3. Use compresed air or a high quality coolant with a low co-efficient of smoke emmision.
* Modified parameters

Attenzione: le scintille prodotto durante l'operazione o il calore causato dalla rottura dell'utensile possono infiammare il lubrificante. Assicurasi che siano applicate delle adeguate misure di prevenzione.
1. Queste velocità e questi avanzamenti sono indicati per fresatura di piccole passate ad alta velocità e centri di lavorazione di alta precisione.
2. Non utillizare lubrificanti da taglio infiammabili; gli utensili troppo usurati possono produrre scintille.
3. Utilizzare un getto di aria compressa. Se la vostra scelta ricade su dei liquidi da taglio, sceglieteli di alta qualità, dotati di un coefficiente elevato di rallentamento d'emissione del fumo.
* Parameto modificato

Achtung: Funken und/oder Flammen können den Kühlschmierstoff entzünden. stellen Sie einen ausreichenden Brandschutz sicher.
1. Die Schnittdaten sin ausgelegt für geringe Zustellungen in Verbindung mit HSC tauglichen Maschinen und Spannmittel.
2. Bitte gegeignetes Kühlmittel mit rauchhemmenden Zusätzen verwenden.
3. Benutzen Sie Druckluft oder Kühlmittel mit rauchhemdenden Zusätzen.
* Modifizierten Parameters

Attention : étincelles et/ou chaleur peuvent enflammer le lubrifiant. S'assurer que des mesures de prévention adéquates sont appliquées.
1. Les vitesses et avances sont indiquées pour le fraisage de petites passes à haute vitesse / centres d'usinage de haute précision.
2. Ne pas utiliser de lubrifiants de coupe inflammables, les outils fortement usés peuvent produire des étincelles.
3. Utilisez un jet d'air comprimé ou des fluides de coupe de haute qualité avec un coef. élevé de ralentissement d'émission de fumée.
* Paramètres modifiés

Pas på: gnister kan antænde kølevæsken. Sørg for brandslukningsmateriel er inden for rækkevidde
1.Skæredata er designet til brug i samarbejde med små bearbejdninger i et præcisions setup på et højhastigheds bearbejdningscenter
2.Brug ikke brændbare kølevæsker. Brugte værktøjer kan resultere i gnister
3.Brug lufttryk eller kølevæske af høj kvalitet med lav røgudvikling
*Modificerede parametre

Atención: Las chispas pueden causar el incendio del refirgerante. Asegurese que una adecuada prevencion de incendios está disponible
1.Velocidades y avances establecidos junto a pasadas ligeras en maquinas de lata velocidad y gran precisión
2 No utilizar refrigerante inflamable. Las herramientas calientes pueden generar chispas
3.XUtilizar aire comprimido o un refrigerante con un bajo coeficiente de emisión de humo
*Parámetros modificados

Observera: Gnistor kan antända kylvätskan. Se till att ha en bra brandsläckningsutrustning
1.Skärdatan är designat för små ingrepp vid precisions bearbetning i höghastighetsmaskiner
2.Använd inte brandfarliga kylvätskor. Fräsar kan vara mycket varma eter ingrepp
3.Använd tryckluft eller kylvätska med hög kvalitet och låg rökutveckling
*Modifierade parametrar

Внимание! Искры и пламя могут воспламенить СОЖ. Примите меры противопожарной безопасности.
1. Указанные режимы резания предназначены для точных высокоскоростных станков и жесткого закрепления обрабатываемой детали.
2. Не используйте легко воспламеняемую СОЖ. При использовании изношенных фрез возможно возникновение искр.
3. Используйте сжатый воздух или качественную СОЖ с высокой устойчивостью к возникновению дыма.
*Измененные параметры

High speed milling - HSC Schlichtfräsen - Fresatura alta velocità - Fraisage UGV
High speed fræsning - High Speed Milling - Fresado a alta velocidad HSM - Высокоскоростное фрезерование



38~45 HRC - SUS

35NCD16+
38~45 HRC

100 (m/min)

Ø	Lg (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	Pf (mm)
0,2	0,5	50.000	320	0,003	0,016	0,048
0,2	1	50.000	320	0,003	0,008	0,019
0,2	1,5	50.000	320	0,003	0,006	0,008
0,3	1	50.000	480	0,005	0,016	0,050
0,3	1,5	50.000	480	0,005	0,012	0,032
0,3	2	50.000	480	0,005	0,010	0,029
0,4	1	50.000	720	0,007	0,032	0,096
0,4	1,5	50.000	720	0,007	0,016	0,080
0,4	2	50.000	720	0,007	0,016	0,048
0,4	2,5	50.000	640	0,006	0,016	0,040
0,4	3	50.000	640	0,006	0,016	0,038
0,5	2	40.000	960	0,012	0,016	0,056
0,5	3	40.000	768	0,010	0,016	0,052
0,5	4	40.000	704	0,009	0,016	0,048
0,5	5	40.000	704	0,009	0,016	0,040
0,5	6	40.000	704	0,009	0,010	0,031
0,5	8	40.000	576	0,007	0,008	0,024
0,6	2	40.000	1.024	0,013	0,024	0,080
0,6	3	40.000	960	0,012	0,024	0,080
0,6	4	40.000	832	0,010	0,024	0,080
0,6	5	40.000	768	0,010	0,024	0,080
0,6	6	40.000	704	0,009	0,024	0,080
0,6	8	40.000	704	0,009	0,014	0,080
0,8	2	40.000	1.152	0,014	0,040	0,120
0,8	4	40.000	1.152	0,014	0,032	0,080
0,8	5	40.000	1.152	0,014	0,032	0,080
0,8	6	40.000	1.152	0,014	0,028	0,080
0,8	7	40.000	1.088	0,014	0,024	0,007
0,8	8	40.000	960	0,012	0,024	0,056
0,8	10	40.000	960	0,012	0,016	0,048
1,0	3	40.000	1.600	0,020	0,080	0,160
1,0	4	40.000	1.408	0,018	0,056	0,160
1,0	5	40.000	1.408	0,018	0,040	0,160
1,0	6	40.000	1.408	0,018	0,040	0,160
1,0	7	40.000	1.280	0,016	0,040	0,120
1,0	8	40.000	1.280	0,016	0,032	0,120
1,0	9	40.000	1.280	0,016	0,032	0,120
1,0	10	40.000	1.280	0,016	0,024	0,080
1,0	12	40.000	960	0,012	0,024	0,080
1,0	14	40.000	960	0,012	0,024	0,080
1,0	16	40.000	960	0,012	0,020	0,080
1,0	20	40.000	960	0,012	0,016	0,064
1,2	6	26.539	1.274	0,024	0,040	0,096
1,2	8	26.539	1.104	0,021	0,032	0,096
1,2	10	26.539	934	0,018	0,024	0,072
1,2	12	26.539	849	0,016	0,016	0,072
1,4	8	22.748	1.092	0,024	0,048	0,160
1,4	12	22.748	1.092	0,024	0,040	0,144
1,4	16	22.748	1.092	0,024	0,032	0,112
1,5	8	21.231	1.121	0,026	0,056	0,144
1,5	12	21.231	1.121	0,026	0,056	0,144
1,5	16	21.231	951	0,022	0,040	0,112
1,5	20	21.231	849	0,020	0,032	0,096
1,6	8	19.904	1.115	0,028	0,056	0,160
1,6	12	19.904	1.019	0,026	0,056	0,160
1,6	16	19.904	955	0,024	0,040	0,120
1,6	20	19.904	796	0,020	0,032	0,096
1,8	8	17.693	1.161	0,033	0,064	0,200
1,8	12	17.693	991	0,028	0,064	0,160
1,8	16	17.693	849	0,024	0,048	0,120
1,8	20	17.693	764	0,022	0,040	0,108
2,0	4	15.924	1.274	0,040	0,144	0,400
2,0	6	15.924	1.146	0,036	0,120	0,400
2,0	8	15.924	1.096	0,034	0,120	0,320
2,0	10	15.924	1.274	0,040	0,120	0,320
2,0	12	15.924	1.197	0,038	0,096	0,280
2,0	14	15.924	1.019	0,032	0,080	0,280
2,0	16	15.924	892	0,028	0,080	0,240
2,0	18	15.924	764	0,024	0,080	0,200
2,0	20	15.924	764	0,024	0,056	0,200
2,0	22	15.924	688	0,022	0,040	0,160
2,0	25	15.924	688	0,022	0,040	0,120
2,0	30	15.924	637	0,020	0,032	0,080
3,0	8	10.616	1.359	0,064	0,160	0,480
3,0	10	10.616	1.359	0,064	0,160	0,400
3,0	16	10.616	1.189	0,056	0,120	0,400
3,0	20	10.616	1.104	0,052	0,120	0,320
3,0	25	10.616	1.019	0,048	0,104	0,240
3,0	30	10.616	968	0,046	0,080	0,200
3,0	35	10.616	934	0,044	0,064	0,200
4,0	10	7.962	1.529	0,096	0,160	0,640
4,0	16	7.962	1.274	0,080	0,160	0,480
4,0	20	7.962	1.274	0,080	0,160	0,480
4,0	25	7.962	1.146	0,072	0,160	0,400
4,0	30	7.962	1.019	0,064	0,160	0,320



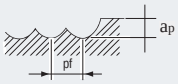
38~45 HRC - SUS

35NCD16+
38~45 HRC

100 (m/min)

Ø	Lg (mm)	S (min^{-1})	F (mm/min)	AZ (mm)	ap (mm)	Pf (mm)
4,0	**35**	7.962	892	0,056	0,120	0,320
4,0	**40**	7.962	764	0,048	0,120	0,320
4,0	**45**	7.962	764	0,048	0,080	0,240
4,0	**50**	7.962	637	0,040	0,080	0,240
5,0	**20**	6.369	1.325	0,104	0,200	0,800
5,0	**25**	6.369	1.223	0,096	0,200	0,720
5,0	**30**	6.369	1.019	0,080	0,200	0,640
5,0	**35**	6.369	1.019	0,080	0,200	0,480
6,0	**30**	5.308	1.189	0,112	0,336	1,040
6,0	**50**	5.308	934	0,088	0,160	0,400

Max cutting depth



Attention : sparks and/or flames can cause coolant fire. Be sure adequate fire prevention is available.
1. Speeds and feeds are designed to be used in conjunction with small passes on a high speed & precision machine set-up.
2. Do not use inflammable coolant. Using worn tools may generate sparks.
3. Use compresed air or a high quality coolant with a low co-efficient of smoke emmision.
* Modified parameters

Attenzione: le scintille prodotto durante l'operazione o il calore causato dalla rottura dell'utensile possono infiammare il lubrificante. Assicurasi che siano applicate delle adeguate misure di prevenzione.
1. Queste velocità e questi avanzamenti sono indicati per fresatura di piccole passate ad alta velocità e centri di lavorazione di alta precisione.
2. Non utillizare lubrificanti da taglio infiammabili; gli utensili troppo usurati possono produrre scintille.
3. Utilizzare un getto di aria compressa. Se la vostra scelta ricade su dei liquidi da taglio, sceglieteli di alta qualità, dotati di un coefficiente elevato di rallentamento d'emissione del fumo.
* Parameto modificato

Achtung: Funken und/oder Flammen können den Kühlschmierstoff entzünden. stellen Sie einen ausreichenden Brandschutz sicher.
1. Die Schnittdaten sin ausgelegt für geringe Zustellungen in Verbindung mit HSC tauglichen Maschinen und Spannmittel.
2. Bitte gegeignetes Kühlmittel mit rauchhemmenden Zusätzen verwenden.
3. Benutzen Sie Druckluft oder Kühlmittel mit rauchhemdenden Zusätzen.
* Modifizierten Parameters

Attention : étincelles et/ou chaleur peuvent enflammer le lubrifiant. S'assurer que des mesures de prévention adéquates sont appliquées.
1. Les vitesses et avances sont indiquées pour le fraisage de petites passes à haute vitesse / centres d'usinage de haute précision.
2. Ne pas utiliser de lubrifiants de coupe inflammables, les outils fortement usés peuvent produire des étincelles.
3. Utilisez un jet d'air comprimé ou des fluides de coupe de haute qualité avec un coef. élevé de ralentissement d'émission de fumée.
* Paramètres modifiés

Pas på: gnister kan antænde kølevæsken. Sørg for brandslukningsmateriel er inden for rækkevidde
1.Skæredata er designet til brug i samarbejde med små bearbejdninger i et præcisions setup på et højhastigheds bearbejdningscenter
2.Brug ikke brændbare kølevæsker. Brugte værktøjer kan resultere i gnister
3.Brug lufttryk eller kølevæske af høj kvalitet med lav røgudvikling
*Modificerede parametre

Atención: Las chispas pueden causar el incendio del refirgerante. Asegurese que una adecuada prevencion de incendios está disponible
1.Velocidades y avances establecidos junto a pasadas ligeras en maquinas de lata velocidad y gran precisión
2 No utilizar refrigerante inflamable. Las herramientas calientes pueden generar chispas
3.XUtilizar aire comprimido o un refrigerante con un bajo coeficiente de emisión de humo
*Parámetros modificados

Observera: Gnistor kan antända kylvätskan. Se till att ha en bra brandsläckningsutrustning
1.Skärdatan är designat för små ingrepp vid precisions bearbetning i höghastighetsmaskiner
2.Använd inte brandfarliga kylvätskor. Fräsar kan vara mycket varma eter ingrepp
3.Använd tryckluft eller kylvätska med hög kvalitet och låg rökutveckling
*Modifierade parametrar

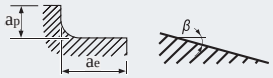
Внимание! Искры и пламя могут воспламенить СОЖ. Примите меры противопожарной безопасности.
1. Указанные режимы резания предназначены для точных высокоскоростных станков и жесткого закрепления обрабатываемой детали.
2. Не используйте легко воспламеняемую СОЖ. При использовании изношенных фрез возможно возникновение искр.
3. Используйте сжатый воздух или качественную СОЖ с высокой устойчивостью к возникновению дыма.
*Измененные параметры

WX-HS-CRE

High speed milling - HSC Schlichtfräsen - Fresatura alta velocità - Fraisage UGV
High speed fræsning - High Speed Milling - Fresado a alta velocidad HSM - Высокоскоростное фрезерование

	GG		30~38 HRC SKT ■ SKD ■ NAK55 ■ HPM50 30~38 HRC		38~45 HRC - SUS SUS304 ■ SKD ■ NAK80 ■ HPM50 38~45 HRC		45~55 HRC 45~55 HRC		55~60 HRS 55~60 HRC	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
2 X R 0,50	31.850	10.500	32.000	9.550	24.000	7.150	24.000	6.450	16.000	2.850
3 X R 0,75	21.000	12.500	21.000	12.000	16.000	8.400	16.000	7.850	10.500	3.300
4 X R 1,00	16.000	13.000	16.000	12.000	12.000	9.000	12.000	8.200	7.950	3.550
5 X R 1,20	12.500	14.000	12.500	12.500	9.550	9.550	9.550	8.600	6.350	3.800
6 X R 1,50	10.600	14.000	10.600	12.700	7.950	9.550	7.950	8.600	5.300	3.800
7 X R 1,50	9.100	12.000	9.100	10.900	6.800	8.200	6.800	7.350	4.550	3.250
8 X R 2,00	7.950	14.000	7.950	12.700	5.950	9.550	5.950	8.600	4.000	3.800
9 X R 2,00	7.050	12.400	7.050	11.300	5.300	8.500	5.300	7.650	3.550	3.400
10 X R 2,00	6.350	14.000	6.350	12.700	4.750	9.550	4.750	8.600	3.200	3.800
11 X R 2,00	5.800	12.700	5.800	11.600	4.350	8.700	4.350	7.800	2.900	3.500
12 X R 3,00	5.300	14.000	5.300	12.700	4.000	9.550	4.000	8.600	2.650	3.800
13 X R 3,00	4.900	12.900	4.900	11.800	3.650	8.800	3.650	7.950	2.450	3.550

Max cutting depth



ap	ae
0,1 x R	0,3D

	ap	ae
R ≤ 2	0,1 x R	0,3D
2 < R	0,2 mm	0,3D

	ap	ae
R ≤ 2	0,05 x R	0,3D
2 < R	0,1 mm	0,3D

Attention : sparks and/or flames can cause coolant fire. Be sure adequate fire prevention is available.
1. Use a rigid and precise machine and holder.
2. These milling conditions are based on milling with circular interpolation at corners. For milling without circular interpolation (such as right angle corners), reduce the speed to 50-70% and the cutting depth to 50-80% of the above conditions.
3. We suggest using air blow or MQL (mist).
4. Adjust the speed, feed and cutting depth according to actual cutting conditions.
5 These milling conditions are for a tool extension length : less than 4 x D. For a longer tool extension, reduce the speed, feed rate, and the cutting depth in accordance with the respective coefficients, to prevent chattering.

Attentionzione: le scintille prodotte durante l'operazione o il calore causato dalla rottura dell'utensile possono infiammare il lubrificante. Assicurasi che siano applicate delle adeguate misure di prevenzione.
1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. Queste condizioni di fresatura si referiscono a un'interpolazione circolare. Per una fresatura senza interpolazione circolare ridurre la velocità al 50-70 % e la profondità di taglio al 50-80 % rispetto alle condizioni sopra esposte.
3. Suggeriamo l'utilizzo di aria compressa o lubrificazione minimale (misto olio).
4. Regolare l'avanzamento e la profonditàdi taglio secondo le attuali condizioni di taglio.
5. Queste condizioni di fresatura sono da intendersi per una sporgenza dell'utensile dal mandrino inferiore a 4 x diametro. Per sporgenze maggiori ridurre l'avanzamento.

Achtung: Funken und/oder Flammen können den Kühlschmierstoff entzünden. Stellen sie einen ausreichenden Brandschutz sicher.
1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Diese Schnittdaten basieren auf Fräsern mit cirkularer Ecken Interpolation. Bei Bearbeitungen ohne, reduzieren Sie den Vorschub auf 50-70 %, die Schnittiefe auf 50-80 % der oben genannten Schnittdaten.
3. Wir empfehlen Luft- oder Minimalmengen Kühlung.
4. Bitte regulieren Sie Schnittgeschwidigkeit, Vorschub und Spanntiefe entsprechend Ihrer aktuellen Zerspanungsbedigungen.
5. Die Schnittwerde sind für eine max. Auskraglänge von 4xD. Bei großeren Auskraglängen müssen Schnittgeschwidigkeit, Vorschub und Schnittiefe zur Vermeidung von Vibrationen mit den jeweiligen Koeffizienten verändert werden.

Attention: étincelles et/ou chaleur peuvent enflammer le lubrifiant. S' assurer que des mesures de prévention adéquate sont appliquées
1. Utiliser une machine et un porte-outil de grande rigidité et de haute précision.
2. Les conditions de coupe sont basées sur du fraisage en interpolation circulairedes angles. Pour l'usinage sans interpolation circulaire (angle droit), réduire la vitesse de 50 à 70% et la profondeur des passes de 50 à 80%.
3. Utiliser de l'arrosage en brouillard (mist).
4. Ajuster le vitesse, avances et la profondeur de coupe.
5. Les conditions de coupe sont applicable pour des outils avec un lg. < 4 x D. Pour des outils plus longues réduire vitesse, avances et profondeur de coupe pour éviter bourrage.

Pas på: gnister kan antænde kølevæsken. Sørg for brandslukningsmateriel er inden for rækkevidde
1. Anvend stabil maskine og værktøjsholder
2. De anførte skæredata er baseret på fræsning med cirkulær interpolation i hjørnerne. Ved fræsning uden cirkulær interpolation, reducér hastigheden til 50-70% og skæredybden til 50-80% af ovenstående skæredata
3. Vi anbefaler Lufttryk eller minimal smøring (MQL)
4. Justér tilspænding og omdrejninger i forhold til skæredybde og maskin stabilitet
5. Disse skæredata er til brug ved et udhæng under 4xD. Ved et længere udhæng reducér hastighed, tilspænding og skæredybde overensstemmelse med de respektive koeffitienter for at undgå afflisning

Atención: Las chispas pueden causar el incendio del refirgerante. Asegurese que una adecuada prevencion de incendios está disponible
1. Use maquina y portaherramientas rigidos y precisos
2. Condiciones basadas en interpolación circular de los rincones. Para fresado sin interpolación circular (como rincones en ángulo recto), reducir la velocidad a 50 - 70%, y la profundidad de corte a 50 - 80% de las anteriores condiciones
3. Recomendamos aire soplado o MQL (niebla)
4. Ajustar la velocidad, profundidad de corte y avance conforme a las condiciones reales de corte
5. Estas condiciones son para el fresado con vuelo de herramienta inferior a 4 x D. Para herramienta de más vuelo, reducir la velocidad, el avance y profundidad de corte proporcionalmente

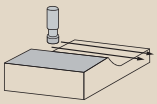
Observera: Gnistor kan antända kylvätskan. Se till att ha en bra brandsläckningsutrustning
1. Använd en stabil maskin och verktygshållare
2. Denna särdata är baserad på fräsning med cirkulär interpolering i hörnorna. Vid fräsning utan cirkulär interpolering, reducera hastigheten med 50-70% och skärdjupen med50-80% av ovanstående skärdata
3. Vi rekommenderar luft eller minimalsmörjning (MQL)
4. Justera varvtal och matning i förhållande till skärdjup och maskinens stabilitet
5. Dessa särdata är till för uthäng under 4xDVid längre uthäng reducera varvtal, matning och skärdjup med de respektive koefficienter för att undgå avflisning

Внимание! Искры и пламя могут воспламенить СОЖ. Примите меры противопожарной безопасности
1. Используйте жесткие и точные станки и фрезерные патроны.
2. Указанные режимы резания действительны при прохождении углов по радиусу (плавное изменение направления фрезерования). При резком изменении направления фрезерования в углах, уменьшите скорость и подачу до 50-70% от указанных, а глубину резания до 50-80%.
3. Мы рекомендуем использовать обдув воздухом или MQL (масляный туман) 4. Пожалуйста установите скорость резания, подачу и глубину резания в соответствии с действительными условиями обработки.
5. Если в процессе резания необходимо врезание по оси Z, уменьшите скорость и подачу до 30-60% от указанных, при угле врезания ß < 2°!
6. Указанные режимы резания для длины инструмента (вылета из патрона) меньше чем 4xD. Для вылета больше, чем 4xD установите скорость, подачу и глубину резания в соответствии с указанными коэффициентами, для предотвращения вибраций.

WX-HS-CRE

(%)Tool extension coefficients - (%) Werkzeug Ausspann Koeffizient - Coefficients lg outil %
% Værktøjs udvidelse koefficient - % Verktygs förlängnings koefficient - % herramienta largo coeficiente - % Если вылет больше коэффициент

Overhang Length	Cutting Speed	ap	Feed
L/D ≤ 4	100	100	100
L/D = 5	60~80	60~80	70~90
L/D = 6	40~60	40~60	60~80



1. When milling flat areas with a stable load, the speed and the feed rate of the high-speed conditions can be further increased to 150 - 200%.
2. The ultra-high speed conditions are for a tool extension length : less than 4 x D. If the tool extension length is over 4 x D, do not refer to it.

1. In caso di fresatura di un'area piatta con un carico stabile, la velocità e l'avanzamento in condizioni di alta velocità possono essere ulteriormente aumentati a 150-200%
2. Le condizioni di altissima velocità si riferiscono ad una lunghezza estendibile dell'utensile inferiore a 4xD. Se l'estensione dell'utensile è superiore a 4xD non bisogna farvi riferimento.

1. Für das Fräsen von geraden Bereichen mit gleichmäßiger Belastung kann die Schnittgeschwindigkeit und der Vorschub gegenüber den angegeben HSC - Schnittdaten auf 150-200% erhöht werden.
2. Die ultra HSC Konditionen sind ausschließlich für eine Ausspannlänge, kleiner als 4D geeignet.

1. Pour du fraisage des surfaces planes avec une charge stable les avances peuvent être augmentées de 150 à 200%
2. Ces conditions de fraisage ultra UGV sont applicables pour des longueur d'outils inférieur à 4 x D. Pour des longueur d'outils supérieur à 4 x D ces conditions ne sont pas applicables.

1.Ved fræsning af fladt areal med stabil belastning, kan high speed skæredata øges yderligere til 150-200%
2. Disse skæredata er til brug ved et udhæng under 4xD. Ved et længere udhæng

1. Vid fräsning av plana ytor med stabila förhållande , kan varvtal och matning ökas med ytterliggare 150 - 200%.
2. Ultra-high speed skäredata användsnär uthänget är mindre än 4 x D. Om uthänget är större än 4 x D används inte denna tabell.

1. Vid fräsning av plana ytor med stabila förhållande , kan varvtal och matning ökas med ytterliggare 150 - 200%.
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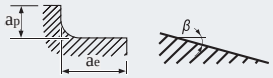
1.При обработки плоскостей со стабильной нагрузкой, обороты шпинделя и подачу указанные для высокоскоростной обработки можно увеличить до 150-200%
2.Ультра высокоскоростные условия для вылета фрезы менее 4 x D. Если вылет больше 4 x D эти условия применять нельзя

WX-HS-CRE

Low speed, high feed milling - Fräsen mit niedrige Geschwindigkeit, hohe Vorschub -
Fresatura bassa velocità, alta avanzamento - Fraisage vitesse basse, avance élevée - Fræsning lav hastighed,
høj tilspænding- High Speed Milling - Fresado a alta velocidad HSM - Высокоскоростное фрезер

Ø	GG S (min-1)	GG F (mm/min)	30~38 HRC SKT ■ SKD ■ NAK55 ■ HPM50 30~38 HRC S (min-1)	30~38 HRC F (mm/min)	38~45 HRC - SUS SUS304 ■ SKD ■ NAK80 ■ HPM50 38~45 HRC S (min-1)	38~45 HRC - SUS F (mm/min)	45~55 HRC 45~55 HRC S (min-1)	45~55 HRC F (mm/min)	55~60 HRS 55~60 HRC S (min-1)	55~60 HRS F (mm/min)
2 X R 0,50	16.000	5.250	12.500	3.800	11.000	3.350	7.950	2.150	4.750	860
3 X R 0,75	10.500	6.250	8.500	4.500	7.450	3.900	5.300	2.600	3.200	995
4 X R 1,00	7.950	6.600	6.350	4.800	5.550	4.200	4.000	2.750	2.400	1.050
5 X R 1,20	6.350	7.000	5.100	5.100	4.450	4.450	3.200	2.850	1.900	1.150
6 X R 1,50	5.300	7.000	4.250	5.100	3.700	4.450	2.650	2.850	1.600	1.150
7 X R 1,50	4.550	6.000	3.650	4.350	3.200	3.800	2.250	2.450	1.350	980
8 X R 2,00	4.000	7.000	3.200	5.100	2.800	4.450	2.000	2.850	1.200	1.150
9 X R 2,00	3.550	6.200	2.850	4.550	2.500	3.950	1.750	2.550	1.050	1.000
10 X R 2,00	3.200	7.000	2.550	5.100	2.250	4.450	1.600	2.850	955	1.150
11 X R 2,00	2.900	6.350	2.300	4.650	2.050	4.050	1.450	2.600	870	1.050
12 X R 3,00	2.650	7.000	2.100	5.100	1.850	4.450	1.350	2.850	795	1.150
13 X R 3,00	2.450	6.450	1.950	4.700	1.700	4.100	1.200	2.650	735	1.050

Max cutting depth



	ap	ae
	0,1 x R	0,3D

	ap	ae
R ≤ 2	0,1 x R	0,3D
2 < R	0,2 mm	0,3D

	ap	ae
R ≤ 2	0,05 x R	0,3D
2 < R	0,1 mm	0,3D

Attention : sparks and/or flames can cause coolant fire. Be sure adequate fire prevention is available.
1. Use a rigid and precise machine and holder.
2. These milling conditions are based on milling with circular interpolation at corners. For milling without circular interpolation (such as right angle corners), reduce the speed to 50-70% and the cutting depth to 50-80% of the above conditions.
3. We suggest using air blow or MQL (mist).
4. Adjust the speed, feed and cutting depth according to actual cutting conditions.
5 These milling conditions are for a tool extension length : less than 4 x D. For a longer tool extension, reduce the speed, feed rate, and the cutting depth in accordance with the respective coefficients, to prevent chattering.

Attentionzione: le scintille prodotte durante l'operazione o il calore causato dalla rottura dell'utensile possono infiammare il lubrificante. Assicurasi che siano applicate delle adeguate misure di prevenzione.
1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. Queste condizioni di fresatura si referiscono a un'interpolazione circolare. Per una fresatura senza interpolazione circolare ridurre la velocità al 50-70 % e la profondità di taglio al 50-80 % rispetto alle condizioni sopra esposte.
3. Suggeriamo l'utilizzo di aria compressa o lubrificazione minimale (misto olio).
4. Regolare l'avanzamento e la profonditàdi taglio secondo le attuali condizioni di taglio.
5. Queste condizioni di fresatura sono da intendersi per una sporgenza dell'utensile dal mandrino inferiore a 4 x diametro. Per sporgenze maggiori ridurre l'avanzamento.

Achtung: Funken und/oder Flammen können den Kühlschmierstoff entzünden. Stellen sie einen ausreichenden Brandschutz sicher.
1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Diese Schnittdaten basieren auf Fräsern mit cirkularer Ecken Interpolation. Bei Bearbeitungen ohne, reduzieren Sie den Vorschub auf 50-70 %, die Schnittiefe auf 50-80 % der oben genannten Schnittdaten.
3. Wir empfehlen Luft- oder Minimalmengen Kühlung.
4. Bitte regulieren Sie Schnittgeschwidigkeit, Vorschub und Spanntiefe entsprechend Ihrer aktuellen Zerspanungsbedigungen.
5. Die Schnittwerde sind für eine max. Auskraglänge von 4xD. Bei großeren Auskraglängen müssen Schnittgeschwidigkeit, Vorschub und Schnittiefe zur Vermeidung von Vibrationen mit den jeweiligen Koeffizienten verändert werden.

Attention: étincelles et/ou chaleur peuvent enflammer le lubrifiant. S' assurer que des mesures de prévention adéquate sont appliquées
1. Utiliser une machine et un porte-outil de grande rigidité et de haute précision.
2. Les conditions de coupe sont basées sur du fraisage en interpolation circulairedes angles. Pour l'usinage sans interpolation circulaire (angle droit), réduire la vitesse de 50 à 70% et la profondeur des passes de 50 à 80%.
3. Utiliser de l'arrosage en brouillard (mist).
4. Ajuster le vitesse, avances et la profondeur de coupe.
5. Les conditions de coupe sont applicable pour des outils avec un lg. < 4 x D. Pour des outils plus longues réduire vitesse, avances et profondeur de coupe pour éviter bourrage.

Pas på: gnister kan antænde kølevæsken. Sørg for brandslukningsmateriel er inden for rækkevidde
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Atención: Las chispas pueden causar el incendio del refirgerante. Asegurese que una adecuada prevencion de incendios está disponible
1. Use maquina y portaherramientas rigidos y precisos
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3. Recomendamos aire soplado o MQL (niebla)
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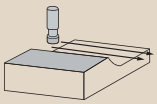
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6. Указанные режимы резания для длины инструмента (вылета из патрона) меньше чем 4xD. Для вылета больше, чем 4xD установите скорость, подачу и глубину резания в соответствии с указанными коэффициентами, для предотвращения вибраций.

WX-HS-CRE

(%)Tool extension coefficients - (%) Werkzeug Ausspann Koeffizient - Coefficients lg outil %
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Overhang Length	Cutting Speed	ap	Feed
L/D ≤ 4	100	100	100
L/D = 5	60~80	60~80	70~90
L/D = 6	40~60	40~60	60~80



1. When milling flat areas with a stable load, the speed and the feed rate of the high-speed conditions can be further increased to 150 - 200%.
2. The ultra-high speed conditions are for a tool extension length : less than 4 x D. If the tool extension length is over 4 x D, do not refer to it.

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1. Für das Fräsen von geraden Bereichen mit gleichmäßiger Belastung kann die Schnittgeschwindigkeit und der Vorschub gegenüber den angegeben HSC - Schnittdaten auf 150-200% erhöht werden.
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1. Vid fräsning av plana ytor med stabila förhållande , kan varvtal och matning ökas med ytterliggare 150 - 200%.
2. Ultra-high speed skäredata användsnär uthänget är mindre än 4 x D. Om uthänget är större än 4 x D används inte denna tabell.

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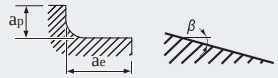
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WX-CRE

High speed milling - HSC Schlichtfräsen - Fresatura alta velocità - Fraisage UGV
High speed fræsning - High Speed Milling - Fresado a alta velocidad HSM - Высокоскоростное фрезерование

	GG		30~38 HRC SKT ■ SKD ■ NAK55 ■ HPM50 30~38 HRC		38~45 HRC - SUS SUS304 ■ SKD ■ NAK80 ■ HPM50 38~45 HRC		45~55 HRC 45~55 HRC		55~60 HRS 55~60 HRC	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
2 X R 0,50	31.850	10.500	32.000	9.550	24.000	7.150	24.000	6.450	16.000	2.850
3 X R 0,75	21.000	12.500	21.000	12.000	16.000	8.400	16.000	7.850	10.500	3.300
4 X R 1,00	16.000	13.000	16.000	12.000	12.000	9.000	12.000	8.200	7.950	3.550
5 X R 1,20	12.500	14.000	12.500	12.500	9.550	9.550	9.550	8.600	6.350	3.800
6 X R 1,50	10.600	14.000	10.600	12.700	7.950	9.550	7.950	8.600	5.300	3.800
7 X R 1,50	9.100	12.000	9.100	10.900	6.800	8.200	6.800	7.350	4.550	3.250
8 X R 2,00	7.950	14.000	7.950	12.700	5.950	9.550	5.950	8.600	4.000	3.800
9 X R 2,00	7.050	12.400	7.050	11.300	5.300	8.500	5.300	7.650	3.550	3.400
10 X R 2,00	6.350	14.000	6.350	12.700	4.750	9.550	4.750	8.600	3.200	3.800
11 X R 2,00	5.800	12.700	5.800	11.600	4.350	8.700	4.350	7.800	2.900	3.500
12 X R 3,00	5.300	14.000	5.300	12.700	4.000	9.550	4.000	8.600	2.650	3.800
13 X R 3,00	4.900	12.900	4.900	11.800	3.650	8.800	3.650	7.950	2.450	3.550

Max cutting depth



	ap	ae
	0,1 x R	0,3D

	ap	ae
R ≤ 2	0,1 x R	0,3D
2 < R	0,2 mm	0,3D

	ap	ae
R ≤ 2	0,05 x R	0,3D
2 < R	0,1 mm	0,3D

Attention : sparks and/or flames can cause coolant fire. Be sure adequate fire prevention is available.
1. Use a rigid and precise machine and holder.
2. These milling conditions are based on milling with circular interpolation at corners. For milling without circular interpolation (such as right angle corners), reduce the speed to 50-70% and the cutting depth to 50-80% of the above conditions.
3. We suggest using air blow or MQL (mist).
4. Adjust the speed, feed and cutting depth according to actual cutting conditions.
5 These milling conditions are for a tool extension length : less than 4 x D. For a longer tool extension, reduce the speed, feed rate, and the cutting depth in accordance with the respective coefficients, to prevent chattering.

Attentionzione: le scintille prodotte durante l'operazione o il calore causato dalla rottura dell'utensile possono infiammare il lubrificante. Assicurasi che siano applicate delle adeguate misure di prevenzione.
1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. Queste condizioni di fresatura si referiscono a un'interpolazione circolare. Per una fresatura senza interpolazione circolare ridurre la velocità al 50-70 % e la profondità di taglio al 50-80 % rispetto alle condizioni sopra esposte.
3. Suggeriamo l'utilizzo di aria compressa o lubrificazione minimale (misto olio).
4. Regolare l'avanzamento e la profonditàdi taglio secondo le attuali condizioni di taglio.
5. Queste condizioni di fresatura sono da intendersi per una sporgenza dell'utensile dal mandrino inferiore a 4 x diametro. Per sporgenze maggiori ridurre l'avanzamento.

Achtung: Funken und/oder Flammen können den Kühlschmierstoff entzünden. Stellen sie einen ausreichenden Brandschutz sicher.
1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Diese Schnittdaten basieren auf Fräsern mit cirkularer Ecken Interpolation. Bei Bearbeitungen ohne, reduzieren Sie den Vorschub auf 50-70 %, die Schnittiefe auf 50-80 % der oben genannten Schnittdaten.
3. Wir empfehlen Luft- oder Minimalmengen Kühlung.
4. Bitte regulieren Sie Schnittgeschwidigkeit, Vorschub und Spanntiefe entsprechend Ihrer aktuellen Zerspanungsbedigungen.
5. Die Schnittwerde sind für eine max. Auskraglänge von 4xD. Bei großeren Auskraglängen müssen Schnittgeschwidigkeit, Vorschub und Schnittiefe zur Vermeidung von Vibrationen mit den jeweiligen Koeffizienten verändert werden.

Attention: étincelles et/ou chaleur peuvent enflammer le lubrifiant. S' assurer que des mesures de prévention adéquate sont appliquées
1. Utiliser une machine et un porte-outil de grande rigidité et de haute précision.
2. Les conditions de coupe sont basées sur du fraisage en interpolation circulairedes angles. Pour l'usinage sans interpolation circulaire (angle droit), réduire la vitesse de 50 à 70% et la profondeur des passes de 50 à 80%.
3. Utiliser de l'arrosage en brouillard (mist).
4. Ajuster le vitesse, avances et la profondeur de coupe.
5. Les conditions de coupe sont applicable pour des outils avec un lg. < 4 x D. Pour des outils plus longues réduire vitesse, avances et profondeur de coupe pour éviter bourrage.

Pas på: gnister kan antænde kølevæsken. Sørg for brandslukningsmateriel er inden for rækkevidde
1. Anvend stabil maskine og værktøjsholder
2. De anførte skæredata er baseret på fræsning med cirkulær interpolation i hjørnerne. Ved fræsning uden cirkulær interpolation, reducér hastigheden til 50-70% og skæredybden til 50-80% af ovenstående skæredata
3. Vi anbefaler Lufttryk eller minimal smøring (MQL)
4. Justér tilspænding og omdrejninger i forhold til skæredybde og maskin stabilitet
5. Disse skæredata er til brug ved et udhæng under 4xD. Ved et længere udhæng reducér hastighed, tilspænding og skæredybde overensstemmelse med de respektive koeffitienter for at undgå afflisning

Atención: Las chispas pueden causar el incendio del refirgerante. Asegurese que una adecuada prevencion de incendios está disponible
1. Use maquina y portaherramientas rigidos y precisos
2. Condiciones basadas en interpolación circular de los rincones. Para fresado sin interpolación circular (como rincones en ángulo recto), reducir la velocidad a 50 - 70%, y la profundidad de corte a 50 - 80% de las anteriores condiciones
3. Recomendamos aire soplado o MQL (niebla)
4. Ajustar la velocidad, profundidad de corte y avance conforme a las condiciones reales de corte
5. Estas condiciones son para el fresado con vuelo de herramienta inferior a 4 x D. Para herramienta de más vuelo, reducir la velocidad, el avance y profundidad de corte proporcionalmente

Observera: Gnistor kan antända kylvätskan. Se till att ha en bra brandsläckningsutrustning
1. Använd en stabil maskin och verktygshållare
2. Denna särdata är baserad på fräsning med cirkulär interpolering i hörnorna. Vid fräsning utan cirkulär interpolering, reducera hastigheten med 50-70% och skärdjupen med50-80% av ovanstående skärdata
3. Vi rekommenderar luft eller minimalsmörjning (MQL)
4. Justera varvtal och matning i förhållande till skärdjup och maskinens stabilitet
5. Dessa särdata är till för uthäng under 4xDVid längre uthäng reducera varvtal, matning och skärdjup med de respektive koefficienter för att undgå avflisning

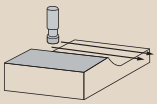
Внимание! Искры и пламя могут воспламенить СОЖ. Примите меры противопожарной безопасности
1. Используйте жесткие и точные станки и фрезерные патроны.
2. Указанные режимы резания действительны при прохождении углов по радиусу (плавное изменение направления фрезерования). При резком изменении направления фрезерования в углах, уменьшите скорость и подачу до 50-70% от указанных, а глубину резания до 50-80%.
3. Мы рекомендуем использовать обдув воздухом или MQL (масляный туман) 4. Пожалуйста установите скорость резания, подачу и глубину резания в соответствии с действительными условиями обработки.
5. Если в процессе резания необходимо врезание по оси Z, уменьшите скорость и подачу до 30-60% от указанных, при угле врезания ß < 2°!
6. Указанные режимы резания для длины инструмента (вылета из патрона) меньше чем 4xD. Для вылета больше, чем 4xD установите скорость, подачу и глубину резания в соответствии с указанными коэффициентами, для предотвращения вибраций.

WX-CRE

(%)Tool extension coefficients - (%) Werkzeug Ausspann Koeffizient - Coefficients lg outil %
% Værktøjs udvidelse koefficient - % Verktygs förlängnings koefficient - % herramienta largo coeficiente - % Если вылет больше коэффициент

Overhang Length	Cutting Speed	ap	Feed
L/D ≤ 4	100	100	100
L/D = 5	60~80	60~80	70~90
L/D = 6	40~60	40~60	60~80

Ultra-high speed conditions - Ultra HSC-Konditionen - Conditions Ultra UGV - Condizioni di altissima velocità
Ultra high speed skæredata - Extra höga skärhastigheter - Condiciones de ultra-alta velocidad - Ультра высокоскоростные условия



1. When milling flat areas with a stable load, the speed and the feed rate of the high-speed conditions can be further increased to 150 - 200%.
2. The ultra-high speed conditions are for a tool extension length : less than 4 x D. If the tool extension length is over 4 x D, do not refer to it.

1. In caso di fresatura di un'area piatta con un carico stabile, la velocità e l'avanzamento in condizioni di alta velocità possono essere ulteriormente aumentati a 150-200%
2. Le condizioni di altissima velocità si riferiscono ad una lunghezza estendibile dell'utensile inferiore a 4xD. Se l'estensione dell'utensile è superiore a 4xD non bisogna farvi riferimento.

1. Für das Fräsen von geraden Bereichen mit gleichmäßiger Belastung kann die Schnittgeschwindigkeit und der Vorschub gegenüber den angegeben HSC - Schnittdaten auf 150-200% erhöht werden.
2. Die ultra HSC Konditionen sind ausschließlich für eine Ausspannlänge, kleiner als 4D geeignet.

1. Pour du fraisage des surfaces planes avec une charge stable les avances peuvent être augmentées de 150 à 200%
2. Ces conditions de fraisage ultra UGV sont applicables pour des longueur d'outils inférieur à 4 x D. Pour des longueur d'outils supérieur à 4 x D ces conditions ne sont pas applicables.

1.Ved fræsning af fladt areal med stabil belastning, kan high speed skæredata øges yderligere til 150-200%
2. Disse skæredata er til brug ved et udhæng under 4xD. Ved et længere udhæng

1. Vid fräsning av plana ytor med stabila förhållande , kan varvtal och matning ökas med ytterliggare 150 - 200%.
2. Ultra-high speed skäredata användsnär uthänget är mindre än 4 x D. Om uthänget är större än 4 x D används inte denna tabell.

1. Vid fräsning av plana ytor med stabila förhållande , kan varvtal och matning ökas med ytterliggare 150 - 200%.
2. Ultra-high speed skäredata användsnär uthänget är mindre än 4 x D. Om uthänget är större än 4 x D används inte denna tabell.

1.При обработки плоскостей со стабильной нагрузкой, обороты шпинделя и подачу указанные для высокоскоростной обработки можно увеличить до 150-200%
2.Ультра высокоскоростные условия для вылета фрезы менее 4 x D. Если вылет больше 4 x D эти условия применять нельзя

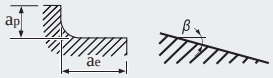
WX-CRE

Low speed, high feed milling - Fräsen mit niedrige Geschwindigkeit, hohe Vorschub -
Fresatura bassa velocità, alta avanzamento - Fraisage vitesse basse, avance élevée - Fræsning lav hastighed,
høj tilspænding- High Speed Milling - Fresado a alta velocidad HSM - Высокоскоростное фрезер



Ø	GG S (min-1)	GG F (mm/min)	30~38 HRC SKT ■ SKD ■ NAK55 ■ HPM50 30~38 HRC S (min-1)	30~38 HRC F (mm/min)	38~45 HRC - SUS SUS304 ■ SKD ■ NAK80 ■ HPM50 38~45 HRC S (min-1)	38~45 HRC - SUS F (mm/min)	45~55 HRC 45~55 HRC S (min-1)	45~55 HRC F (mm/min)	55~60 HRS 55~60 HRC S (min-1)	55~60 HRS F (mm/min)
2 X R 0,50	16.000	5.250	12.500	3.800	11.000	3.350	7.950	2.150	4.750	860
3 X R 0,75	10.500	6.250	8.500	4.500	7.450	3.900	5.300	2.600	3.200	995
4 X R 1,00	7.950	6.600	6.350	4.800	5.550	4.200	4.000	2.750	2.400	1.050
5 X R 1,20	6.350	7.000	5.100	5.100	4.450	4.450	3.200	2.850	1.900	1.150
6 X R 1,50	5.300	7.000	4.250	5.100	3.700	4.450	2.650	2.850	1.600	1.150
7 X R 1,50	4.550	6.000	3.650	4.350	3.200	3.800	2.250	2.450	1.350	980
8 X R 2,00	4.000	7.000	3.200	5.100	2.800	4.450	2.000	2.850	1.200	1.150
9 X R 2,00	3.550	6.200	2.850	4.550	2.500	3.950	1.750	2.550	1.050	1.000
10 X R 2,00	3.200	7.000	2.550	5.100	2.250	4.450	1.600	2.850	955	1.150
11 X R 2,00	2.900	6.350	2.300	4.650	2.050	4.050	1.450	2.600	870	1.050
12 X R 3,00	2.650	7.000	2.100	5.100	1.850	4.450	1.350	2.850	795	1.150
13 X R 3,00	2.450	6.450	1.950	4.700	1.700	4.100	1.200	2.650	735	1.050

Max cutting depth



	ap	ae
	0,1 x R	0,3D

	ap	ae
R ≤ 2	0,1 x R	0,3D
2 < R	0,2 mm	0,3D

	ap	ae
R ≤ 2	0,05 x R	0,3D
2 < R	0,1 mm	0,3D

Attention : sparks and/or flames can cause coolant fire. Be sure adequate fire prevention is available.
1. Use a rigid and precise machine and holder.
2. These milling conditions are based on milling with circular interpolation at corners. For milling without circular interpolation (such as right angle corners), reduce the speed to 50-70% and the cutting depth to 50-80% of the above conditions.
3. We suggest using air blow or MQL (mist).
4. Adjust the speed, feed and cutting depth according to actual cutting conditions.
5 These milling conditions are for a tool extension length : less than 4 x D. For a longer tool extension, reduce the speed, feed rate, and the cutting depth in accordance with the respective coefficients, to prevent chattering.

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1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. Queste condizioni di fresatura si referiscono a un'interpolazione circolare. Per una fresatura senza interpolazione circolare ridurre la velocità al 50-70 % e la profondità di taglio al 50-80 % rispetto alle condizioni sopra esposte.
3. Suggeriamo l'utilizzo di aria compressa o lubrificazione minimale (misto olio).
4. Regolare l'avanzamento e la profonditàdi taglio secondo le attuali condizioni di taglio.
5. Queste condizioni di fresatura sono da intendersi per una sporgenza dell'utensile dal mandrino inferiore a 4 x diametro. Per sporgenze maggiori ridurre l'avanzamento.

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2. Diese Schnittdaten basieren auf Fräsern mit cirkularer Ecken Interpolation. Bei Bearbeitungen ohne, reduzieren Sie den Vorschub auf 50-70 %, die Schnittiefe auf 50-80 % der oben genannten Schnittdaten.
3. Wir empfehlen Luft- oder Minimalmengen Kühlung.
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5. Die Schnittwerde sind für eine max. Auskraglänge von 4xD. Bei großeren Auskraglängen müssen Schnittgeschwidigkeit, Vorschub und Schnittiefe zur Vermeidung von Vibrationen mit den jeweiligen Koeffizienten verändert werden.

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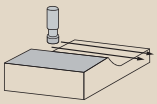
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WX-CRE

(%)Tool extension coefficients - (%) Werkzeug Ausspann Koeffizient - Coefficients lg outil %
% Værktøjs udvidelse koefficient - % Verktygs förlängnings koefficient - % herramienta largo coeficiente - % Если вылет больше коэффициент

Overhang Length	Cutting Speed	ap	Feed
L/D ≤ 4	100	100	100
L/D = 5	60~80	60~80	70~90
L/D = 6	40~60	40~60	60~80

Ultra-high speed conditions - Ultra HSC-Konditionen - Conditions Ultra UGV - Condizioni di altissima velocità
Ultra high speed skæredata - Extra höga skärhastigheter - Condiciones de ultra-alta velocidad - Ультра высокоскоростные условия



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1. Vid fräsning av plana ytor med stabila förhållande , kan varvtal och matning ökas med ytterliggare 150 - 200%.
2. Ultra-high speed skäredata användsnär uthänget är mindre än 4 x D. Om uthänget är större än 4 x D används inte denna tabell.

1. Vid fräsning av plana ytor med stabila förhållande , kan varvtal och matning ökas med ytterliggare 150 - 200%.
2. Ultra-high speed skäredata användsnär uthänget är mindre än 4 x D. Om uthänget är större än 4 x D används inte denna tabell.

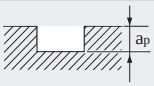
1.При обработки плоскостей со стабильной нагрузкой, обороты шпинделя и подачу указанные для высокоскоростной обработки можно увеличить до 150-200%
2.Ультра высокоскоростные условия для вылета фрезы менее 4 x D. Если вылет больше 4 x D эти условия применять нельзя

WX-CR-PHS

Slotting - Nutenfräsen - Per scanalature profonde - Rainurage
Skæredata - Skärdata - Ranurado - Фрезерование пазов



	C≤0,2% - GG SS400 ■ S55C0 ■ FC250 ~750 N/mm²		SCM - SKD SKD ■ SKS ■ SKT ■ SCM ~30 HRC		30~38 HRC NAK55 ■ HPM1 ■ SKT ■ SK 30~38 HRC		38~45 HRC-SUS SUS304 ■ SKD ■ NAK80 HPM80 38~45 HRC		45~55 HRC 45~55 HRC		55~60 HRC 55~60 HRC	
	100 (m/min)		80 (m/min)		70 (m/min)		60 (m/min)		60 (m/min)		30 (m/min)	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
3	8.488	781	6.366	586	5.836	490	5.517	463	4.456	374	2.122	110
4	6.366	891	4.775	668	4.377	490	4.138	463	3.342	374	1.592	127
5	5.093	876	3.820	657	3.501	490	3.310	463	2.674	374	1.273	127
6	4.244	849	3.183	637	2.918	490	2.759	463	2.674	374	1.273	127
8	3.183	764	2.387	573	2.188	455	2.069	430	1.671	348	796	127
10	2.546	713	1.910	535	1.751	420	1.655	397	1.337	321	637	127
12	2.122	637	1.592	477	1.459	438	1.379	414	1.114	334	531	117
16	1.592	637	1.194	477	1.094	394	1.035	414	836	334	398	95
20	1.273	560	955	420	875	385	828	364	668	321	318	89

Max cutting depth	a_p=**0,5D** 	a_p =**0,05D**

1. Use high precision machine set up to ensure maximum rigidity.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a coolant that has a low co-efficient of smoke emission.

1. Utilizzare una macchina e un mandrino di elevata rigidità e di alta precisione.
2. In caso di vibrazione, ridurre simultaneamente la velocità di taglio e l'avanzamento.
3. Utilizzare dei lubrificanti di taglio adeguati, dotati di un elevato coefficiente di rallentamento di emissione del fumo.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindigkeit reduzieren.
3. Bitte geeignetes Kühlmedium mit rauchhemmenden Zusätzen verwenden.

1. Utilisez une machine et un porte-outil de grande rigidité et de haute précision.
2. En cas de vibrations, réduisez, simultanément, la vitesse de coupe et l'avance.
3. Utiliser des lubrifiants de coupe adéquats, dotés d'un coef. élevé de ralentissement d'émission de fumée.

1. Benyt højt præcisions set-up for at sikre maksimum stabilitet
2. Ved vibrationer reducér omdrejninger og tilspænding simultant
3. Benyt en kølevæske med lav koefficient af røgudvikling

1. Use máquina de alta precisión y asegure la máxima rigidez
2. En caso de vibración reduzca velocidad y avance simultaneamente
3. Utilizar un refrigerante con un bajo coeficiente de emisión de humo

1. Använd uppsänningsanordning av hög kvalitet för bästa stabilitet
2. Vid vibrationer sänk varvtal och matning med samma simultant
3. Använd skärvätska med låg rökutvecklingskoefficient.

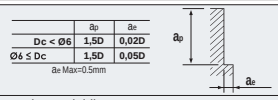
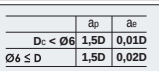
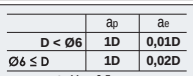
1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость.
2. При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя.
3. Используйте качественную СОЖ с высокой устойчивостью к возникновению дыма.

CARBIDE

WX-CR-PHS

Side milling - Konturfräsen - Fresatura contornatura - Fraisage contournage
Sidefræsning - Valsfräsning - Contorneado - Боковое фрезерование

	C≤0,2% - GG SS400 ■ S55C0 ■ FC250 ~750 N/mm²		SCM - SKD SKD ■ SKS ■ SKT ■ SCM ~30 HRC		30~38 HRC NAK55 ■ HPM1 ■ SKT ■ SK 30~38 HRC		38~45 HRC-SUS SUS304 ■ SKD ■ NAK80 HPM80 38~45 HRC		45~55 HRC 45~55 HRC		55~60 HRC 55~60 HRC	
	100 (m/min)		80 (m/min)		70 (m/min)		60 (m/min)		60 (m/min)		30 (m/min)	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
3	10.610	976	8.488	781	7.427	594	6.366	509	6.366	458	3.183	191
4	7.958	1.019	6.366	815	5.570	597	4.775	477	4.775	477	2.987	191
5	6.366	1.044	5.093	832	4.456	606	3.820	489	3.820	489	1.910	199
6	5.305	1.252	4.244	1.002	3.714	713	3.183	586	3.183	586	1.592	210
8	3.979	1.257	3.183	1.006	2.785	668	2.387	544	2.387	544	1.194	181
10	3.183	1.108	2.546	886	2.228	624	1.910	512	1.910	512	955	172
12	2.653	1.061	2.122	849	1.857	743	1.592	554	1.592	477	796	169
16	1.989	915	1.592	732	1.393	641	1.194	454	1.194	430	597	167
20	1.592	764	1.273	611	1.114	535	955	420	955	382	477	166

Max cutting depth			

1. Use high precision machine set up to ensure maximum rigidity.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a coolant that has a low co-efficient of smoke emission.

1. Utilizzare una macchina e un mandrino di elevata rigidità e di alta precisione.
2. In caso di vibrazione, ridurre simultaneamente la velocità di taglio e l'avanzamento.
3. Utilizzare dei lubrificanti di taglio adeguati, dotati di un elevato coefficiente di rallentamento di emissione del fumo.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindigkeit reduzieren.
3. Bitte geeignetes Kühlmedium mit rauchhemmenden Zusätzen verwenden.

1. Utilisez une machine et un porte-outil de grande rigidité et de haute précision.
2. En cas de vibrations, réduisez, simultanément, la vitesse de coupe et l'avance.
3. Utiliser des lubrifiants de coupe adéquats, dotés d'un coef. élevé de ralentissement d'émission de fumée.

1. Benyt højt præcisions set-up for at sikre maksimum stabilitet
2. Ved vibrationer reducér omdrejninger og tilspænding simultant
3. Benyt en kølevæske med lav koefficient af røgudvikling

1. Use máquina de alta precisión y asegure la máxima rigidez
2. En caso de vibración reduzca velocidad y avance simultaneamente
3. Utilizar un refrigerante con un bajo coeficiente de emisión de humo

1. Använd uppsänningsanordning av hög kvalitet för bästa stabilitet
2. Vid vibrationer sänk varvtal och matning med samma simultant
3. Använd skärvätska med låg rökutvecklingskoefficient.

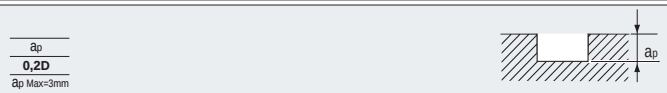
1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость.
2. При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя.
3. Используйте качественную СОЖ с высокой устойчивостью к возникновению дыма.

WX-CR-PHS

High speed Slotting - HSC Nutenfräsen - Fresatura alta velocità per scanalature profonde - Fraisage UGV rainurage
High speed sporfræsning - High Speed Milling spårfräsning - Fresado en ranurado a alta velocidada - Высокоскоростное Фрезерование пазов

	C≤0,2% - GG SS400 ■ S55C0 ■ FC250 ~750 N/mm²		SCM - SKD SKD ■ SKS ■ SKT ■ SCM ~30 HRC		30~38 HRC NAK55 ■ HPM1 ■ SKT ■ SK 30~38 HRC		38~45 HRC SUS304 ■ SKD 38~45 HRC	
	120 (m/min)		110 (m/min)		90~100 (m/min)		60~70 (m/min)	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
3	12.700	1.050	10.600	935	9.550	745	6.350	460
4	9.550	1.150	7.950	1.000	7.150	745	5.150	560
5	7.650	1.200	7.000	1.100	6.350	865	4.150	595
6	6.350	1.550	5.850	1.150	5.300	910	3.700	670
8	4.750	1.450	4.400	1.300	4.000	985	2.800	690
10	3.800	1.400	3.500	1.200	3.200	865	2.250	635
12	3.200	1.250	2.900	1.150	2.650	815	1.850	595
16	2.400	1.050	2.200	965	2.000	675	1.400	500
20	1.900	840	1.750	770	1.600	635	1.100	445

Max cutting depth



1. Use a rigid and precise machine and holder.
2. Adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.

1. Usare un mandrino portautensile preciso e rigido/
2. Regolare la velocità e l'avanzamento se si aumenta la profondità di passata e se utilizzata su macchine non rigide.
3. Si consiglia di usare emulsione a scarsa emissione di fumi.
4. Per fresatura a secco utilizzare aria.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Vorschub und Geschwindigkeit der Schnittiefe und Maschinen-Starrheit anpassen.
3. Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen.
4. Bei Trockenbearbeitung Druckluft zum Entfermen der Späne verwenden.

1. Utiliser une machine et un attachement précis et rigide.
2. Ajuster la vitesse et l'avance en cas de profondeur de coupe importante ou en utilisant un machine non-rigide.
3. Utiliser un liquide de refroidissement adéquat.
4. En cas d'usinage à sec, utiliser de l'air comprimé pour l'évacuation des copeaux de l'aire d'usinage et pour éviter une agglomération des copeaux.

1. Anvend stabil maskine og værktøjsholder
2. Justér omdrejninger og tilspænding ved stor skæredybde eller en ustabil maskine bruges
3. Anvend en passende skærevæske
4. Under tørbearbejdning anvend lufttryk for at bortskaffe spåner

1. Use maquina y portaherramientas rigidos y precisos
2. Ajustar el avance cuando la profundidad de corte es grande o cuando se se utilizan máquinas de poca rigidez
3. Use fluido de corte adecuado con retardador de humos
4. Fresado en seco (sin líquido), por favor, utilice el aire soplado para eliminar la viruta de la zona de corte

1. Använd en stabil maskin och verktygshållare
2. Justera varvtal och matning vid stora skärdjup eller om instabil maskin används
3. Använd anpassad skärvätska
4. Vid torrbearbetning använd tryckluft för att transportera bort spånor

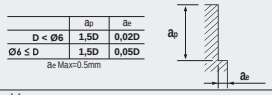
1.Используйте жесткие и точные станки и фрезерные патроны
2.Пожалуйста отрегулируйте обороты шпинделя и подачу, когда глубина резания велика или при использовании станков с низкой жесткостью
3.используйте соответствующую СОЖ с высокой устойчивостью к возникновению дыма
4.При сухом (без СОЖ) фрезеровании, используйте воздушную струю для удаления стружки и предотвращения спрессовывания стружки

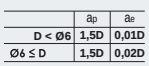
WX-CR-PHS

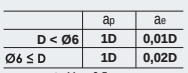
High speed side milling - HSC Konturfräsen - Sgrossatura e contornatura alta velocità - Contournage UGV
High speed sidefræsning - High speed valsfräsning - Contorneado a alta velocidad - Высокоскоростное контурное фрезерование

	C≤0,2% - GG SS400 ■ S55C0 ■ FC250 ~750 N/mm²		SCM - SKD SKD ■ SKS ■ SKT ■ SCM ~30 HRC		30~38 HRC NAK55 ■ HPM1 ■ SKT ■ SK 30~38 HRC		38~45 HRC-SUS SUS304 ■ SKD ■ NAK80 HPM80 38~45 HRC		45~55 HRC 45~55 HRC		55~60 HRC 55~60 HRC	
	200 (m/min)		200 (m/min)		200 (m/min)		150 (m/min)		100 (m/min)		80 (m/min)	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
3	21.200	2.150	21.200	2.400	21.200	1.300	15.900	1.150	10.600	680	8.500	440
4	15.900	2.050	15.900	2.300	15.900	1.300	11.900	1.250	7.950	795	6.350	460
5	12.700	1.900	12.700	2.150	12.700	1.250	9.550	1.350	6.350	840	5.100	510
6	10.600	3.050	10.600	2.650	10.600	2.000	7.950	1.450	5.300	910	4.250	610
8	7.950	2.800	7.950	2.400	7.950	1.900	5.950	1.400	4.000	860	3.200	575
10	6.350	2.550	6.350	2.200	6.350	1.850	4.750	1.350	3.200	830	2.550	510
12	5.300	2.550	5.300	2.200	5.300	1.800	4.000	1.350	2.650	830	2.100	510
16	4.000	1.900	4.000	1.900	4.000	1.700	3.000	1.350	2.000	830	1.600	510
20	3.200	1.550	3.200	1.550	3.200	1.550	2.400	1.150	1.600	730	1.250	510

Max cutting depth







1. Use a rigid and precise machine and holder.
2. Adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.

1. Usare un mandrino portautensile preciso e rigido/
2. Regolare la velocità e l'avanzamento se si aumenta la profondità di passata e se utilizzata su macchine non rigide.
3. Si consiglia di usare emulsione a scarsa emissione di fumi.
4. Per fresatura a secco utilizzare aria.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Vorschub und Geschwindigkeit der Schnittiefe und Maschinen-Starrheit anpassen.
3. Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen.
4. Bei Trockenbearbeitung Druckluft zum Entfermen der Späne verwenden.

1. Utiliser une machine et un attachement précis et rigide.
2. Ajuster la vitesse et l'avance en cas de profondeur de coupe importante ou en utilisant un machine non-rigide.
3. Utiliser un liquide de refroidissement adéquat.
4. En cas d'usinage à sec, utiliser de l'air comprimé pour l'évacuation des copeaux de l'aire d'usinage et pour éviter une agglomération des copeaux.

1. Anvend stabil maskine og værktøjsholder
2. Justér omdrejninger og tilspænding ved stor skæredybde eller en ustabil maskine bruges
3. Anvend en passende skærevæske
4. Under tørbearbejdning anvend lufttryk for at bortskaffe spåner

1. Use maquina y portaherramientas rigidos y precisos
2. Ajustar el avance cuando la profundidad de corte es grande o cuando se se utilizan máquinas de poca rigidez
3. Use fluido de corte adecuado con retardador de humos
4. Fresado en seco (sin líquido), por favor, utilice el aire soplado para eliminar la viruta de la zona de corte

1. Använd en stabil maskin och verktygshållare
2. Justera varvtal och matning vid stora skärdjup eller om instabil maskin används
3. Använd anpassad skärvätska
4. Vid torrbearbetning använd tryckluft för att transportera bort spånor

1.Используйте жесткие и точные станки и фрезерные патроны
2.Пожалуйста отрегулируйте обороты шпинделя и подачу, когда глубина резания велика или при использовании станков с низкой жесткостью
3.используйте соответствующую СОЖ с высокой устойчивостью к возникновению дыма
4.При сухом (без СОЖ) фрезеровании, используйте воздушную струю для удаления стружки и предотвращения спрессовывания стружки

FX-MG-EDS

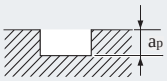
Slotting - Nutenfräsen - Per scanalature profonde - Rainurage
Sporfræsning - Spårfräsning - Ranurado - Фрезерование пазов



	C≤0,2% - GG E24 ■ XC48 ■ FT25 750 N/mm²			SCM - SKD 35NCD16 ■ 40CMD8 ~30 HRC			30~38 HRC 35NCD16 30~38 HRC			30~38 HRC 35NCD16 30~38 HRC			45~55 HRC-SUS Z38CDV5 45~55 HRC			55~60 HRC Z160CDV12 55~60 HRC		
	150 (m/min)			130 (m/min)			110 (m/min)			80 (m/min)			60 (m/min)			30 (m/min)		
Ø	S (min⁻¹)	F (mm/min)	AZ (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)
0,2	40.000	113	0,0014	40.000	113	0,0014	40.000	94	0,0012	40.000	44	0,0005	40.000	38	0,0005	40.000	40	0,0005
0,3	40.000	144	0,0018	40.000	144	0,0018	40.000	100	0,0013	40.000	69	0,0009	40.000	52	0,0007	31.847	48	0,0008
0,4	40.000	156	0,0020	40.000	156	0,0020	40.000	113	0,0014	40.000	87	0,0011	40.000	69	0,0009	23.885	48	0,0010
0,5	40.000	156	0,0020	40.000	169	0,0021	40.000	144	0,0018	40.000	109	0,0014	38.217	82	0,0011	19.108	48	0,0013
0,6	40.000	156	0,0020	40.000	204	0,0026	40.000	171	0,0021	40.000	130	0,0016	31.847	83	0,0013	15.924	47	0,0015
0,8	40.000	204	0,0026	40.000	270	0,0034	40.000	232	0,0029	31.847	153	0,0024	23.885	82	0,0017	11.943	47	0,0020
1	40.000	267	0,0033	40.000	345	0,0043	35.032	252	0,0036	25.478	151	0,0030	19.108	82	0,0021	9.554	47	0,0025
1,5	31.847	296	0,0046	27.601	329	0,0060	23.355	236	0,0051	16.985	139	0,0041	12.739	101	0,0040	6.369	45	0,0035
2	23.885	293	0,0061	20.701	308	0,0074	17.516	225	0,0064	12.739	140	0,0055	9.554	97	0,0051	4.777	43	0,0045
3	15.924	430	0,0135	13.800	326	0,0118	11.677	220	0,0094	8.493	143	0,0084	6.369	104	0,0082	3.185	48	0,0075
4	11.943	472	0,0197	10.350	391	0,0189	8.758	258	0,0147	6.369	164	0,0129	4.777	109	0,0114	2.389	46	0,0097
5	9.554	568	0,0297	8.280	453	0,0273	7.006	257	0,0183	5.096	167	0,0164	3.822	111	0,0145	1.911	46	0,0120
6	7.962	555	0,0348	6.900	450	0,0326	5.839	257	0,0220	4.246	170	0,0200	3.185	113	0,0177	1.592	38	0,0119
8	5.971	534	0,0447	5.175	450	0,0435	4.379	249	0,0284	3.185	168	0,0263	2.389	104	0,0217	1.194	38	0,0157
10	4.777	505	0,0528	4.140	443	0,0535	3.503	250	0,0357	2.548	161	0,0317	1.911	100	0,0262	955	38	0,0197
12	3.981	507	0,0636	3.450	441	0,0639	2.919	252	0,0431	2.123	161	0,0380	1.592	90	0,0283	796	30	0,0189
14	3.412	503	0,0737	2.957	424	0,0717	2.502	220	0,0440	1.820	165	0,0452	1.365	80	0,0294	682	27	0,0198
16	2.986	470	0,0788	2.588	383	0,0741	2.189	199	0,0455	1.592	142	0,0445	1.194	70	0,0294	597	24	0,0203
18	2.654	421	0,0793	2.300	345	0,0750	1.946	177	0,0455	1.415	126	0,0444	1.062	60	0,0283	531	21	0,0200
20	2.389	377	0,0788	2.070	306	0,0738	1.752	157	0,0449	1.274	109	0,0428	955	60	0,0316	478	20	0,0206
22	2.171	344	0,0792	1.882	278	0,0740	1.592	138	0,0432	1.158	101	0,0435	869	50	0,0291	434	17	0,0193
24	1.990	317	0,0795	1.725	259	0,0750	1.460	128	0,0439	1.062	92	0,0433	796	50	0,0316	398	17	0,0208
25	1.911	300	0,0786	1.656	249	0,0751	1.401	128	0,0458	1.019	92	0,0451	764	40	0,0263	382	15	0,0196
30	1.592	250	0,0787	1.380	201	0,0729	1.168	99	0,0424	849	76	0,0446	637	40	0,0317	318	15	0,0238

Max cutting depth

	ap
D < Ø1	0,1D
Ø1≤D < Ø3	0,3D
Ø3 ≤ D	0.5D



	ap
D < Ø1	0,02D
Ø1 < D	0,05D

	ap
D ≤ Ø6	0,05D
Ø6 < D	0,10D

1. Use high precision machine set up to ensure maximum rigidity.
2. In case of vibration, reduce both feed and speed.
3. Use a coolant that has a low co-efficient of smoke emission.
* Modified parameters

1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. In caso di vibrazioni, ridurre simultaneamente la velocità di taglio e l'avanzamento.
3. Utilizzare dei lubrificanti da taglio adeguati, dotati di un coefficiente elevato di rallentamento d'emissione del fumo.
* Paramètо modificato

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindigkeit reduzieren.
3. Kuhlmittel mit niedriger Rauchentwicklung verwenden.
* Modifizierten Parameters

1. Utilisez une machine et un porte-outil de grande rigidité et de haute précision.
2. En cas de vibrations, réduisez, simultanément, la vitesse de coupe et l'avance.
3. Utilisez des lubrifiants de coupe appropriés dotés d'un coef. élevé de ralentissement d'émission de fumée.
* Paramètres modifiés

1. Benyt højt præcisions set-up for at sikre maksimum stabilitet
2. Ved vibrationer, justér både hastighed og tilspænding
3. Benyt en kølevæske med lav koefficient af røgudvikling
* Modificerede parametre

1. Use máquina de alta precisión y asegure la máxima rigidez
2. En el caso de vibraciones, reducir velocidad y avance simultaneamente
3. Utilizar un refrigerante con un bajo coeficiente de emisión de humo
* Parámetros modificados

1. Använd uppsänningsanordning av hög kvalitet för bästa stabilitet
2. Vid vibrationer, justera både varvtal och matning
3. Använd skärvätska med låg rökutvecklingskoefficient.
* Modifierad parameter

1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость.
2. При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя.
3. Используйте качественную СОЖ с высокой
*устойчивостью к возникновению дыма

FX-SS-EDS

Slotting - Nutenfräsen - Per scanalature profonde - Rainurage
Sporfræsning - Spårfräsning - Ranurado - Фрезерование пазов



	C≤0,2% - GG E24 ■ XC48 ■ FT25 750 N/mm²			SCM - SKD 35NCD16 ■ 40CMD8 ~30 HRC			30~38 HRC 35NCD16 30~38 HRC			30~38 HRC 35NCD16 30~38 HRC			45~55 HRC-SUS Z38CDV5 45~55 HRC			55~60 HRC Z160CDV12 55~60 HRC		
	150 (m/min)			130 (m/min)			110 (m/min)			80 (m/min)			60 (m/min)			30 (m/min)		
Ø	S (min⁻¹)	F (mm/min)	AZ (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)
0,2	40.000	113	0,0014	40.000	113	0,0014	40.000	94	0,0012	40.000	44	44	40.000	38	0,0005	40.000	40	0,0005
0,3	40.000	144	0,0018	40.000	144	0,0018	40.000	100	0,0013	40.000	69	69	40.000	52	0,0007	31.847	48	0,0008
0,4	40.000	156	0,0020	40.000	156	0,0020	40.000	113	0,0014	40.000	87	87	40.000	69	0,0009	23.885	48	0,0010
0,5	40.000	156	0,0020	40.000	169	0,0021	40.000	144	0,0018	40.000	109	109	38.217	82	0,0011	19.108	48	0,0013
0,6	40.000	156	0,0020	40.000	204	0,0026	40.000	171	0,0021	40.000	130	130	31.847	83	0,0013	15.924	47	0,0015
0,8	40.000	204	0,0026	40.000	270	0,0034	40.000	232	0,0029	31.847	153	153	23.885	82	0,0017	11.943	47	0,0020
1	40.000	267	0,0033	40.000	345	0,0043	35.032	252	0,0036	25.478	151	151	19.108	82	0,0021	9.554	47	0,0025
1,5	31.847	296	0,0046	27.601	329	0,0060	23.355	236	0,0051	16.985	139	139	12.739	101	0,0040	6.369	45	0,0035
2	23.885	293	0,0061	20.701	308	0,0074	17.516	225	0,0064	12.739	140	140	9.554	97	0,0051	4.777	43	0,0045
3	15.924	430	0,0135	13.800	326	0,0118	11.677	220	0,0094	8.493	143	143	6.369	104	0,0082	3.185	48	0,0075
4	11.943	472	0,0197	10.350	391	0,0189	8.758	258	0,0147	6.369	164	164	4.777	109	0,0114	2.389	46	0,0097
5	9.554	568	0,0297	8.280	453	0,0273	7.006	257	0,0183	5.096	167	167	3.822	111	0,0145	1.911	46	0,0120
6	7.962	555	0,0348	6.900	450	0,0326	5.839	257	0,0220	4.246	170	170	3.185	113	0,0177	1.592	38	0,0119
8	5.971	534	0,0447	5.175	450	0,0435	4.379	249	0,0284	3.185	168	168	2.389	104	0,0217	1.194	38	0,0157
10	4.777	505	0,0528	4.140	443	0,0535	3.503	250	0,0357	2.548	161	161	1.911	100	0,0262	955	38	0,0197
12	3.981	507	0,0636	3.450	441	0,0639	2.919	252	0,0431	2.123	161	161	1.592	90	0,0283	796	30	0,0189
14	3.412	503	0,0737	2.957	424	0,0717	2.502	220	0,0440	1.820	165	165	1.365	80	0,0294	682	27	0,0198
16	2.986	470	0,0788	2.588	383	0,0741	2.189	199	0,0455	1.592	142	142	1.194	70	0,0294	597	24	0,0203
18	2.654	421	0,0793	2.300	345	0,0750	1.946	177	0,0455	1.415	126	126	1.062	60	0,0283	531	21	0,0200
20	2.389	377	0,0788	2.070	306	0,0738	1.752	157	0,0449	1.274	109	109	955	60	0,0316	478	20	0,0206
22	2.171	344	0,0792	1.882	278	0,0740	1.592	138	0,0432	1.158	101	101	869	50	0,0291	434	17	0,0193
24	1.990	317	0,0795	1.725	259	0,0750	1.460	128	0,0439	1.062	92	92	796	50	0,0316	398	17	0,0208
25	1.911	300	0,0786	1.656	249	0,0751	1.401	128	0,0458	1.019	92	92	764	40	0,0263	382	15	0,0196
30	1.592	250	0,0787	1.380	201	0,0729	1.168	99	0,0424	849	76	76	637	40	0,0317	318	15	0,0238

Max cutting depth				
	ap		ap	ap
	D < Ø1 | 0,1D		D < Ø1 | 0,02D	D < Ø1 | 0,01D
	Ø1≤D < Ø3 | 0,3D		Ø1 < D | 0,05D	Ø1 ≤ D < Ø3 | 0,02D
	Ø3 ≤ D | 0.5D			Ø3 ≤ D | 0,05D

1. Use high precision machine set up to ensure maximum rigidity.
2. In case of vibration, reduce both feed and speed.
3. Use a coolant that has a low co-efficient of smoke emission.
* Modified parameters

1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. In caso di vibrazioni, ridurre simultaneamente la velocità di taglio e l'avanzamento.
3. Utilizzare dei lubrificanti da taglio adeguati, dotati di un coefficiente elevato di rallentamento d'emissione del fumo.
* Paramèto modificato

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindigkeit reduzieren.
3. Kuhlmittel mit niedriger Rauchentwicklung verwenden.
* Modifizierten Parameters

1. Utilisez une machine et un porte-outil de grande rigidité et de haute précision.
2. En cas de vibrations, réduisez, simultanément, la vitesse de coupe et l'avance.
3. Utilisez des lubrifiants de coupe appropriés dotés d'un coef. élevé de ralentissement d'émission de fumée.
* Paramètres modifiés

1. Benyt højt præcisions set-up for at sikre maksimum stabilitet
2. Ved vibrationer, justér både hastighed og tilspænding
3. Benyt en kølevæske med lav koefficient af røgudvikling
* Modificerede parametre

1. Use máquina de alta precisión y asegure la máxima rigidez
2. En el caso de vibraciones, reducir velocidad y avance simultaneamente
3. Utilizar un refrigerante con un bajo coeficiente de emisión de humo
* Parámetros modificados

1. Använd uppsänningsanordning av hög kvalitet för bästa stabilitet
2. Vid vibrationer, justera både varvtal och matning
3. Använd skärvätska med låg rökutvecklingskoefficient.
* Modifierad parameter

1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость.
2. При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя.
3. Используйте качественную СОЖ с высокой
*устойчивостью к возникновению дыма

FX-LN-EDS-6

High speed milling - HSC Schlichtfräsen - Fresatura alta velocità - Fraisage UGV
High speed fræsning - High Speed Milling - Fresado a alta velocidad HSM - Высокоскоростное фрезерование



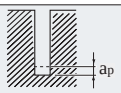
		C≤0,2% - GG E24 ■ XC48 ■ FT25 750 N/mm²				SCM - SKD 35NCD16 ■ 40CMD8 ~30 HRC				30~38 HRC 35NCD16 ~30 HRC				38~45 HRC SUS 35NCD16 38~45 HRC				45~55 HRC-SUS Z38CDV5 45~55 HRC				55~60 HRC Z160CDV12 55~60 HRC			
		120 (m/min)				110 (m/min)				100 (m/min)				100 (m/min)				70 (m/min)				50 (m/min)			
Ø	Lg (mm)	S (min-1)	F (mm/min)	AZ (mm)	ap (mm)	S (min-1)	F (mm/min)	AZ (mm)	ap (mm)	S (min-1)	F (mm/min)	AZ (mm)	ap (mm)	S (min-1)	F (mm/min)	AZ (mm)	ap (mm)	S (min-1)	F (mm/min)	AZ (mm)	ap (mm)	S (min-1)	F (mm/min)	AZ (mm)	ap (mm)
0,2	0.5	50.000	600	0.006	0.020	50.000	540	0.005	0.018	50.000	480	0.005	0.015	50.000	480	0.005	0.012	50.000	450	0.005	0.008	50.000	360	0.004	0.004
0,2	1	50.000	450	0.005	0.014	50.000	405	0.004	0.013	50.000	360	0.004	0.011	50.000	360	0.004	0.008	50.000	338	0.003	0.006	50.000	270	0.003	0.003
0,2	1.5	50.000	300	0.003	0.009	50.000	270	0.003	0.008	50.000	240	0.002	0.007	50.000	240	0.002	0.005	50.000	225	0.002	0.004	50.000	180	0.002	0.002
0,3	1	50.000	600	0.006	0.029	50.000	540	0.005	0.026	50.000	480	0.005	0.022	50.000	480	0.005	0.017	50.000	450	0.005	0.012	50.000	360	0.004	0.006
0,3	2	50.000	600	0.006	0.021	50.000	540	0.005	0.019	50.000	480	0.005	0.016	50.000	480	0.005	0.013	50.000	450	0.005	0.009	50.000	360	0.004	0.004
0,3	3	50.000	500	0.005	0.010	50.000	450	0.005	0.009	50.000	400	0.004	0.008	50.000	400	0.004	0.006	50.000	375	0.004	0.004	50.000	300	0.003	0.002
0,4	2	50.000	700	0.007	0.029	50.000	630	0.006	0.026	50.000	560	0.006	0.022	50.000	560	0.006	0.017	40.000	420	0.005	0.012	40.000	336	0.004	0.006
0,4	3	50.000	600	0.006	0.018	50.000	540	0.005	0.016	50.000	480	0.005	0.014	50.000	480	0.005	0.011	40.000	360	0.005	0.007	40.000	288	0.004	0.004
0,4	4	50.000	600	0.006	0.013	50.000	540	0.005	0.012	50.000	480	0.005	0.010	50.000	480	0.005	0.008	40.000	360	0.005	0.005	39.809	287	0.004	0.003
0,5	2	50.000	900	0.009	0.049	50.000	810	0.008	0.044	40.000	576	0.007	0.037	40.000	576	0.007	0.029	40.000	540	0.007	0.020	31.847	344	0.005	0.010
0,5	4	50.000	900	0.009	0.023	50.000	810	0.008	0.021	40.000	576	0.007	0.017	40.000	576	0.007	0.014	40.000	540	0.007	0.009	31.847	344	0.005	0.005
0,5	6	50.000	900	0.009	0.007	40.000	648	0.008	0.006	40.000	576	0.007	0.005	40.000	576	0.007	0.004	40.000	540	0.007	0.003	31.847	344	0.005	0.001
0,5	8	50.000	800	0.008	0.005	40.000	576	0.007	0.005	40.000	512	0.006	0.004	40.000	512	0.006	0.003	40.000	480	0.006	0.002	31.847	306	0.005	0.001
0,6	2	40.000	800	0.010	0.059	40.000	720	0.009	0.053	40.000	640	0.008	0.044	40.000	640	0.008	0.035	37.155	557	0.008	0.024	26.539	318	0.006	0.012
0,6	4	40.000	800	0.010	0.043	40.000	720	0.009	0.039	40.000	640	0.008	0.032	40.000	640	0.008	0.026	37.155	557	0.008	0.018	26.539	318	0.006	0.009
0,6	6	40.000	720	0.009	0.020	40.000	648	0.008	0.018	40.000	576	0.007	0.015	40.000	576	0.007	0.012	37.155	502	0.007	0.008	26.539	287	0.005	0.004
0,6	8	40.000	720	0.009	0.008	40.000	648	0.008	0.007	40.000	576	0.007	0.006	40.000	576	0.007	0.005	37.155	502	0.007	0.003	26.539	287	0.005	0.002
0,6	10	40.000	640	0.008	0.005	40.000	576	0.007	0.005	40.000	512	0.006	0.004	40.000	512	0.006	0.003	37.155	446	0.006	0.002	26.539	255	0.005	0.001
0,7	2	40.000	960	0.012	0.068	40.000	864	0.011	0.061	40.000	768	0.010	0.051	40.000	768	0.010	0.041	31.847	573	0.009	0.028	22.748	328	0.007	0.014
0,7	4	40.000	800	0.010	0.050	40.000	720	0.009	0.045	40.000	640	0.008	0.038	40.000	640	0.008	0.030	31.847	478	0.008	0.021	22.748	273	0.006	0.010
0,7	6	40.000	800	0.010	0.032	40.000	720	0.009	0.029	40.000	640	0.008	0.024	40.000	640	0.008	0.019	31.847	478	0.008	0.013	22.748	273	0.006	0.006
0,7	8	40.000	720	0.009	0.018	40.000	648	0.008	0.016	40.000	576	0.007	0.014	40.000	576	0.007	0.011	31.847	430	0.007	0.007	22.748	246	0.005	0.004
0,7	10	40.000	720	0.009	0.009	40.000	648	0.008	0.008	40.000	576	0.007	0.007	40.000	576	0.007	0.005	31.847	430	0.007	0.004	22.748	246	0.005	0.002
0,8	4	40.000	1.120	0.014	0.057	40.000	1.008	0.013	0.051	39.809	892	0.011	0.043	39.809	892	0.011	0.034	27.866	585	0.011	0.023	19.904	334	0.008	0.011
0,8	6	40.000	1.120	0.014	0.036	40.000	1.008	0.013	0.032	39.809	892	0.011	0.027	39.809	892	0.011	0.022	27.866	585	0.011	0.015	19.904	334	0.008	0.007
0,8	8	40.000	1.120	0.014	0.026	40.000	1.008	0.013	0.023	39.809	892	0.011	0.020	39.809	892	0.011	0.016	27.866	585	0.011	0.011	19.904	334	0.008	0.005
0,8	10	40.000	960	0.012	0.010	40.000	864	0.011	0.009	39.809	764	0.010	0.008	39.809	764	0.010	0.006	27.866	502	0.009	0.004	19.904	287	0.007	0.002
0,8	12	40.000	960	0.012	0.007	40.000	864	0.011	0.006	39.809	764	0.010	0.005	39.809	764	0.010	0.004	27.866	502	0.009	0.003	19.904	287	0.007	0.001
0,9	6	40.000	1.280	0.016	0.064	38.924	1121	0.014	0.058	35.386	906	0.013	0.048	35.386	906	0.013	0.038	24.770	594	0.012	0.026	17.693	340	0.010	0.013
0,9	8	40.000	1.280	0.016	0.041	38.924	1121	0.014	0.037	35.386	906	0.013	0.031	35.386	906	0.013	0.025	24.770	594	0.012	0.017	17.693	340	0.010	0.008
0,9	10	40.000	1.280	0.016	0.029	38.924	1121	0.014	0.026	35.386	906	0.013	0.022	35.386	906	0.013	0.017	24.770	594	0.012	0.012	17.693	340	0.010	0.006
0,9	15	40.000	1.120	0.014	0.007	38.924	981	0.013	0.006	35.386	793	0.011	0.005	35.386	793	0.011	0.004	24.770	520	0.011	0.003	17.693	297	0.008	0.001
1	6	38.217	1.376	0.018	0.070	35.032	1.135	0.016	0.063	31.847	917	0.014	0.053	31.847	917	0.014	0.042	22.293	602	0.014	0.029	15.924	344	0.011	0.014
1	8	38.217	1.376	0.018	0.050	35.032	1.135	0.016	0.045	31.847	917	0.014	0.038	31.847	917	0.014	0.030	22.293	602	0.014	0.021	15.924	344	0.011	0.010
1	10	38.217	1.376	0.018	0.030	35.032	1.135	0.016	0.027	31.847	917	0.014	0.023	31.847	917	0.014	0.018	22.293	602	0.014	0.012	15.924	344	0.011	0.006
1	12	38.217	1.376	0.018	0.020	35.032	1.135	0.016	0.018	31.847	917	0.014	0.015	31.847	917	0.014	0.012	22.293	602	0.014	0.008	15.924	344	0.011	0.004
1	14	38.217	1.223	0.016	0.015	35.032	1.009	0.014	0.014	31.847	815	0.013	0.011	31.847	815	0.013	0.009	22.293	535	0.012	0.006	15.924	306	0.010	0.003
1	16	38.217	1.223	0.016	0.010	35.032	1.009	0.014	0.009	31.847	815	0.013	0.008	31.847	815	0.013	0.006	22.293	535	0.012	0.004	15.924	306	0.010	0.002
1,2	6	31.847	1.338	0.021	0.090	29.193	1.104	0.019	0.081	26.539	892	0.017	0.068	26.539	892	0.017	0.054	8.577	585	0.016	0.037	13.270	334	0.013	0.018
1,2	8	31.847	1.338	0.021	0.070	29.193	1.104	0.019	0.063	26.539	892	0.017	0.053	26.539	892	0.017	0.042	18.577	585	0.016	0.029	13.270	334	0.013	0.014
1,2	10	31.847	1.338	0.021	0.060	29.193	1.104	0.019	0.054	26.539	892	0.017	0.045	26.539	892	0.017	0.036	18.577	585	0.016	0.025	13.270	334	0.013	0.012
1,2	12	31.847	1.338	0.021	0.040	29.193	1.104	0.019	0.036	26.539	892	0.017	0.030	26.539	892	0.017	0.024	18.577	585	0.016	0.016	13.270	334	0.013	0.008
1,4	6	27.298	1.310	0.024	0.140	25.023	1.081	0.022	0.126	22.748	874	0.019	0.105	22.748	874	0.019	0.084	15.924	573	0.018	0.058	11.374	328	0.014	0.028
1,4	8	27.298	1.310	0.024	0.100	25.023	1.081	0.022	0.090	22.748	874	0.019	0.075	22.748	874	0.019	0.060	15.924	573	0.018	0.041	11.374	328	0.014	0.020
1,4	10	27.298	1.310	0.024	0.070	25.023	1.081	0.022	0.063	22.748	874	0.019	0.053	22.748	874	0.019	0.042	15.924	573	0.018	0.029	11.374	328	0.014	0.014
1,4	12	27.298	1.310	0.024	0.060	25.023	1.081	0.022	0.054	22.748	874	0.019	0.045	22.748	874	0.019	0.036	15.924	573	0.018	0.025	11.374	328	0.014	0.012
1,4	14	27.298	1.310	0.024	0.050	25.023	1.081	0.022	0.045	22.748	874	0.019	0.038	22.748	874	0.019	0.030	15.924	573	0.018	0.021	11.374	328	0.014	0.010
1,4	16	27.298	1.201	0.022	0.030	25.023	991	0.020	0.027	22.748	801	0.018	0.023	22.748	801	0.018	0.018	15.924	525	0.017	0.012	11.374	300	0.013	0.006
1,5	6	25.478	1.325	0.026	0.150	23.355	1.093	0.023	0.135	21.231	883	0.021	0.113	21.231	883	0.021	0.090	14.862	580	0.020	0.062	10.616	331	0.016	0.030
1,5	8	25.478	1.325	0.026	0.110	23.355	1.093	0.023	0.099	21.231	883	0.021	0.083	21.231	883	0.021	0.066	14.862	580	0.020	0.045	10.616	331	0.016	0.022
1,5	10	25.478	1.325	0.026	0.090	23.355	1.093	0.023	0.081	21.231	883	0.021	0.068	21.231	883	0.021	0.054	14.862	580	0.020	0.037	10.616	331	0.016	0.018
1,5	12	25.478	1.325	0.026	0.070	23.355	1.093	0.023	0.063	21.231	883	0.021	0.053	21.231	883	0.021	0.042	14.862	580	0.020	0.029	10.616	331	0.016	0.014
1,5	14	25.478	1.325	0.026	0.060	23.355	1.093	0.023	0.054	21.231	883	0.021	0.045	21.231	883	0.021	0.036	14.862	580	0.020	0.025	10.616	331	0.016	0.012
1,5	16	25.478	1.325	0.026	0.050	23.355	1.093	0.023	0.045	21.231	883	0.021	0.038	21.231	883	0.021	0.030	14.862	580	0.020	0.021	10.616	331	0.016	0.010
1,5	18	25.478	1.325	0.026	0.030	23.355	1.093	0.023	0.027	21.231	883	0.021	0.023	21.231	883	0.021	0.018	14.862	580	0.020	0.012	10.616	331	0.016	0.006
1,5	20	25.478	1.325	0.026	0.020	23.355	1.093	0.023	0.018	21.231	883	0.021	0.015	21.231	883	0.021	0.012	14.862	580	0.020	0.008	10.616	331	0.016	0.004
1,6	6	23.885	1.338	0.028	0.170	21.895	1.104	0.025	0.153	19.904	892	0.022	0.128	19.904	892	0.022	0.102	13.933	585	0.021	0.070	9.952	334	0.017	0.034
1,6	8	23.885	1.338	0.028	0.160	21.895	1.104	0.025	0.144	19.904	892	0.022	0.120	19.904	892	0.022	0.096	13.933	585	0.021	0.066	9.952	334	0.017	0.032
1,6	10	23.885	1.338	0.028	0.110	21.895	1.104	0.025	0.099	19.904	892	0.022	0.083	19.904	892	0.022	0.066	13.933	585	0.021	0.045	9.952	334	0.017	0.022
1,6	12	23.885	1.338	0.028	0.070	21.895	1.104	0.025	0.063	19.904	892	0.022	0.053	19.904	892	0.022	0.042	13.933	585	0.021	0.029	9.952	334	0.017	0.014
1,6	14	23.885	1.338	0.028	0.060	21.895	1.104	0.025	0.054	19.904	892	0.022	0.045	19.904	892	0.022	0.036	13.933	585	0.021	0.025	9.952	334	0.017	0.012
1,6	16	23.885	1.338	0.028	0.050	21.895	1.104	0.025	0.045	19.904	892	0.022	0.038	19.904	892	0.022	0.030	13.933	585	0.021	0.021	9.952	334	0.017	0.010
1,6	18	23.885	1.338	0.028	0.040	21.895	1.104	0.025	0.036	19.904	892	0.022	0.030	19.904	892	0.022	0.024	13.933	585	0.021	0.016	9.952	334	0.017	0.008
1,6	20	23.885	1.338	0.028	0.020	21.895	1.104	0.025	0.018	19.904	892	0.022	0.015	19.904	892	0.022	0.012	13.933	585	0.021	0.008	9.952	334	0.017	0.004
1,8	6	21.231	1.316	0.031	0.230	19.462	1.086	0.028	0.207	17.693	878	0.025	0.173	17.693	878	0.025	0.138	12.385	576	0.023	0.095	8.846	329	0.019	0.046
1,8	8	21.231	1.316	0.031	0.220	19.462	1.086	0.028	0.198	17.693	878	0.025	0.165	17.693	878	0.025	0.132	12.385	576	0.023	0.091	8.846	329	0.019	0.044
1,8	10	21.231	1.316	0.031	0.130	19.462	1.086	0.028	0.117	17.693	878	0.025	0.098	17.693	878	0.025	0.078	12.385	576	0.023	0.054	8.846	329	0.019	0.026
1,8	12	21.231	1.316	0.031	0.110	19.462	1.086	0.028	0.099	17.693	878	0.025	0.083	17.693	878	0.025	0.066	12.385	576	0.023	0.045	8.846	329	0.019	0.022
1,8	14	21.231	1.316	0.031	0.080	19.462	1.086	0.028	0.072	17.693	878	0.025	0.060	17.693	878	0.025	0.048	12.385	576	0.023	0.033	8.846	329	0.019	0.016
1,8	16	21.231	1.316	0.031	0.070	19.462	1.086	0.028	0.063	17.693	878	0.025	0.053	17.693	878	0.025	0.042	12.385	576	0.023	0.029	8.846	329	0.019	0.014
1,8	18	21.231	1.316	0.031	0.060	19.462	1.086	0.028	0.054	17.693	878	0.025	0.045	17.693	878	0.025	0.036	12.385	576	0.023	0.025	8.846	329	0.019	0.012
1,8	20	21.231	1.316	0.031	0.050	19.462	1.086	0.028	0.045	17.693	878	0.025	0.038	17.693	878	0.025	0.030	12.385	576	0.023	0.021	8.846	329	0.019	0.010
2	6	19.108	1.299	0.034	0.340	17.516	1.072	0.031	0.306	15.924	866	0.027	0.255	15.924	866	0.027	0.204	11.146	568	0.026	0.140	7.962	325	0.020	0.068
2	8	19.108	1.299	0.034	0.290	17.516	1.072	0.031	0.261	15.924	866	0.027	0.218	15.924	866	0.027	0.174	11.146	568	0.026	0.119	7.962	325	0.020	0.058
2	10	19.108	1.299	0.034	0.260	17.516	1.072	0.031	0.234	15.924	866	0.027	0.195	15.924	866	0.027	0.156	11.146	568	0.026	0.107	7.962	325	0.020	0.052
2	12	19.108	1.299	0.034	0.140	17.516	1.072	0.031	0.126	15.924	866	0.027	0.105	15.924	866	0.027	0.084	11.146	568	0.026	0.058	7.962	325	0.020	0.028
2	14	19.108	1.299	0.034	0.100	17.516	1.072	0.031	0.090	15.924	866	0.027	0.075	15.924	866	0.027	0.060	11.146	568	0.026	0.041	7.962	325	0.020	0.020
2	16	19.108	1.299	0.034	0.090	17.516	1.072	0.031	0.081	15.924	866	0.027	0.068	15.924	866	0.027	0.054	11.146	568	0.026	0.037	7.962	325	0.020	0.018
2	18	19.108	1.299	0.034	0.080	17.516	1.072	0.031	0.072	15.924	866	0.027	0.060	15.924	866	0.027	0.048	11.146	568	0.026	0.033	7.962	325	0.020	0.016
2	20	19.108	1.299	0.034	0.070	17.516	1.072	0.031	0.063	15.924	866	0.027	0.053	15.924	866	0.027	0.042	11.146	568	0.026	0.029	7.962	325	0.020	0.014
2	25	19.108	1.299	0.034	0.030	17.516	1.072	0.031	0.027	15.924	866	0.027	0.023	15.924	866	0.027	0.018	11.146	568	0.026	0.012	7.962	325	0.020	0.006
2	30	19.108	1.299	0.034	0.020	17.516	1.072	0.031	0.018	15.924	866	0.027	0.015	15.924	866	0.027	0.012	11.146	568	0.026	0.008	7.962	325	0.020	0.004
2,5	8	15.287	1.834	0,060	0,420	14.013	1.513	0,054	0,378	12.739	1.223	0,048	0,315	12.739	1.223	0,048	0,252	8.917	803	0,045	0,173	6.369	459	0,036	0,084
2,5	10	15.287	1.834	0,060	0,360	14.013	1.513	0,054	0,324	12.739	1.223	0,048	0,270	12.739	1.223	0,048	0,216	8.917	803	0,045	0,148	6.369	459	0,036	0,072
2,5	12	15.287	1.834	0,060	0,240	14.013	1.513	0,054	0,216	12.739	1.223	0,048	0,180	12.739	1.223	0,048	0,144	8.917	803	0,045	0,099	6.369	459	0,036	0,048

FX-LN-EDS-6

High speed milling - HSC Schlichtfräsen - Fresatura alta velocità - Fraisage UGV
High speed fræsning - High Speed Milling - Fresado a alta velocidad HSM - Высокоскоростное фрезерование

	C≤0,2% - GG E24 ■ XC48 ■ FT25 750 N/mm²					SCM - SKD 35NCD16 ■ 40CMD8 ~30 HRC				30~38 HRC 35NCD16 ~30 HRC				38~45 HRC SUS 35NCD16 38~45 HRC				45~55 HRC-SUS Z38CDV5 45~55 HRC				55~60 HRC Z160CDV12 55~60 HRC			
		120 (m/min)				110 (m/min)				100 (m/min)				100 (m/min)				70 (m/min)				50 (m/min)			
Ø	Lg (mm)	S (min-1)	F (mm/min)	AZ (mm)	ap (mm)	S (min-1)	F (mm/min)	AZ (mm)	ap (mm)	S (min-1)	F (mm/min)	AZ (mm)	ap (mm)	S (min-1)	F (mm/min)	AZ (mm)	ap (mm)	S (min-1)	F (mm/min)	AZ (mm)	ap (mm)	S (min-1)	F (mm/min)	AZ (mm)	ap (mm)
2,5	14	15.287	1.834	0,060	0,180	14.013	1.513	0,054	0,162	12.739	1.223	0,048	0,135	12.739	1.223	0,048	0,108	8.917	803	0,045	0,074	6.369	459	0,036	0,036
2,5	16	15.287	1.834	0,060	0,130	14.013	1.513	0,054	0,117	12.739	1.223	0,048	0,098	12.739	1.223	0,048	0,078	8.917	803	0,045	0,054	6.369	459	0,036	0,026
2,5	18	15.287	1.834	0,060	0,110	14.013	1.513	0,054	0,099	12.739	1.223	0,048	0,083	12.739	1.223	0,048	0,066	8.917	803	0,045	0,045	6.369	459	0,036	0,022
2,5	20	15.287	1.834	0,060	0,100	14.013	1.513	0,054	0,090	12.739	1.223	0,048	0,075	12.739	1.223	0,048	0,060	8.917	803	0,045	0,041	6.369	459	0,036	0,020
2,5	25	15.287	1.834	0,060	0,080	14.013	1.513	0,054	0,072	12.739	1.223	0,048	0,060	12.739	1.223	0,048	0,048	8.917	803	0,045	0,033	6.369	459	0,036	0,016
2,5	30	15.287	1.834	0,060	0,030	14.013	1.513	0,054	0,027	12.739	1.223	0,048	0,023	12.739	1.223	0,048	0,018	8.917	803	0,045	0,012	6.369	459	0,036	0,006
3	8	12.739	2.038	0,080	0,390	11.677	1.682	0,072	0,351	10.616	1.359	0,064	0,293	10.616	1.359	0,064	0,234	7.431	892	0,060	0,161	5.308	510	0,048	0,078
3	10	12.739	2.038	0,080	0,310	11.677	1.682	0,072	0,279	10.616	1.359	0,064	0,233	10.616	1.359	0,064	0,186	7.431	892	0,060	0,128	5.308	510	0,048	0,062
3	12	12.739	2.038	0,080	0,290	11.677	1.682	0,072	0,261	10.616	1.359	0,064	0,218	10.616	1.359	0,064	0,174	7.431	892	0,060	0,119	5.308	510	0,048	0,058
3	14	12.739	2.038	0,080	0,270	11.677	1.682	0,072	0,243	10.616	1.359	0,064	0,203	10.616	1.359	0,064	0,162	7.431	892	0,060	0,111	5.308	510	0,048	0,054
3	16	12.739	2.038	0,080	0,220	11.677	1.682	0,072	0,198	10.616	1.359	0,064	0,165	10.616	1.359	0,064	0,132	7.431	892	0,060	0,091	5.308	510	0,048	0,044
3	18	12.739	2.038	0,080	0,160	11.677	1.682	0,072	0,144	10.616	1.359	0,064	0,120	10.616	1.359	0,064	0,096	7.431	892	0,060	0,066	5.308	510	0,048	0,032
3	20	12.739	2.038	0,080	0,140	11.677	1.682	0,072	0,126	10.616	1.359	0,064	0,105	10.616	1.359	0,064	0,084	7.431	892	0,060	0,058	5.308	510	0,048	0,028
3	25	12.739	2.038	0,080	0,130	11.677	1.682	0,072	0,117	10.616	1.359	0,064	0,098	10.616	1.359	0,064	0,078	7.431	892	0,060	0,054	5.308	510	0,048	0,026
3	30	12.739	2.038	0,080	0,100	11.677	1.682	0,072	0,090	10.616	1.359	0,064	0,075	10.616	1.359	0,064	0,060	7.431	892	0,060	0,041	5.308	510	0,048	0,020
3	35	12.739	2.038	0,080	0,080	11.677	1.682	0,072	0,072	10.616	1.359	0,064	0,060	10.616	1.359	0,064	0,048	7.431	892	0,060	0,033	5.308	510	0,048	0,016
3	40	12.739	2.038	0,080	0,040	11.677	1.682	0,072	0,036	10.616	1.359	0,064	0,030	10.616	1.359	0,064	0,024	7.431	892	0,060	0,016	5.308	510	0,048	0,008
4	12	9.554	1.911	0,100	0,420	8.758	1.576	0,090	0,378	7.962	1.274	0,080	0,315	7.962	1.274	0,080	0,252	5.573	836	0,075	0,173	3.981	478	0,060	0,084
4	16	9.554	1.911	0,100	0,390	8.758	1.576	0,090	0,351	7.962	1.274	0,080	0,293	7.962	1.274	0,080	0,234	5.573	836	0,075	0,161	3.981	478	0,060	0,078
4	20	9.554	1.911	0,100	0,360	8.758	1.576	0,090	0,324	7.962	1.274	0,080	0,270	7.962	1.274	0,080	0,216	5.573	836	0,075	0,148	3.981	478	0,060	0,072
4	25	9.554	1.720	0,090	0,290	8.758	1.419	0,081	0,261	7.962	1.146	0,072	0,218	7.962	1.146	0,072	0,174	5.573	752	0,068	0,119	3.981	430	0,054	0,058
4	30	9.554	1.529	0,080	0,210	8.758	1.261	0,072	0,189	7.962	1.019	0,064	0,158	7.962	1.019	0,064	0,126	5.573	669	0,060	0,086	3.981	382	0,048	0,042
4	35	9.554	1.338	0,070	0,180	8.758	1.104	0,063	0,162	7.962	892	0,056	0,135	7.962	892	0,056	0,108	5.573	585	0,053	0,074	3.981	334	0,042	0,036
4	40	9.554	1.146	0,060	0,160	8.758	946	0,054	0,144	7.962	764	0,048	0,120	7.962	764	0,048	0,096	5.573	502	0,045	0,066	3.981	287	0,036	0,032
4	45	9.554	1.146	0,060	0,130	8.758	946	0,054	0,117	7.962	764	0,048	0,098	7.962	764	0,048	0,078	5.573	502	0,045	0,054	3.981	287	0,036	0,026
4	50	9.554	955	0,050	0,050	8.758	788	0,045	0,045	7.962	637	0,040	0,038	7.962	637	0,040	0,030	5.573	418	0,038	0,021	3.981	239	0,030	0,010
5	16	7.643	1.987	0,130	0,490	7.006	1.639	0,117	0,441	6.369	1.325	0,104	0,368	6.369	1.325	0,104	0,294	4.459	869	0,098	0,202	3.185	497	0,078	0,098
5	25	7.643	1.834	0,120	0,460	7.006	1.513	0,108	0,414	6.369	1.223	0,096	0,345	6.369	1.223	0,096	0,276	4.459	803	0,090	0,189	3.185	459	0,072	0,092
5	35	7.643	1.529	0,100	0,360	7.006	1.261	0,090	0,324	6.369	1.019	0,080	0,270	6.369	1.019	0,080	0,216	4.459	669	0,075	0,148	3.185	382	0,060	0,072
5	50	7.643	1.529	0,100	0,160	7.006	1.261	0,090	0,144	6.369	1.019	0,080	0,120	6.369	1.019	0,080	0,096	4.459	669	0,075	0,066	3.185	382	0,060	0,032
3	3	12.739	2.038	0,080	0,040	11.677	1.682	0,072	0,036	10.616	1.359	0,064	0,030	10.616	1.359	0,064	0,024	7.431	892	0,060	0,016	5.308	510	0,048	0,008
4	4	9.554	1.911	0,100	0,420	8.758	1.576	0,090	0,378	7.962	1.274	0,080	0,315	7.962	1.274	0,080	0,252	5.573	836	0,075	0,173	3.981	478	0,060	0,084
4	4	9.554	1.911	0,100	0,390	8.758	1.576	0,090	0,351	7.962	1.274	0,080	0,293	7.962	1.274	0,080	0,234	5.573	836	0,075	0,161	3.981	478	0,060	0,078
4	4	9.554	1.911	0,100	0,360	8.758	1.576	0,090	0,324	7.962	1.274	0,080	0,270	7.962	1.274	0,080	0,216	5.573	836	0,075	0,148	3.981	478	0,060	0,072
4	4	9.554	1.720	0,090	0,290	8.758	1.419	0,081	0,261	7.962	1.146	0,072	0,218	7.962	1.146	0,072	0,174	5.573	752	0,068	0,119	3.981	430	0,054	0,058
4	4	9.554	1.529	0,080	0,210	8.758	1.261	0,072	0,189	7.962	1.019	0,064	0,158	7.962	1.019	0,064	0,126	5.573	669	0,060	0,086	3.981	382	0,048	0,042
4	4	9.554	1.338	0,070	0,180	8.758	1.104	0,063	0,162	7.962	892	0,056	0,135	7.962	892	0,056	0,108	5.573	585	0,053	0,074	3.981	334	0,042	0,036
4	4	9.554	1.146	0,060	0,160	8.758	946	0,054	0,144	7.962	764	0,048	0,120	7.962	764	0,048	0,096	5.573	502	0,045	0,066	3.981	287	0,036	0,032
4	4	9.554	1.146	0,060	0,130	8.758	946	0,054	0,117	7.962	764	0,048	0,098	7.962	764	0,048	0,078	5.573	502	0,045	0,054	3.981	287	0,036	0,026
4	4	9.554	955	0,050	0,050	8.758	788	0,045	0,045	7.962	637	0,040	0,038	7.962	637	0,040	0,030	5.573	418	0,038	0,021	3.981	239	0,030	0,010
5	5	7.643	1.987	0,130	0,490	7.006	1.639	0,117	0,441	6.369	1.325	0,104	0,368	6.369	1.325	0,104	0,294	4.459	869	0,098	0,202	3.185	497	0,078	0,098
5	5	7.643	1.834	0,120	0,460	7.006	1.513	0,108	0,414	6.369	1.223	0,096	0,345	6.369	1.223	0,096	0,276	4.459	803	0,090	0,189	3.185	459	0,072	0,092
5	5	7.643	1.529	0,100	0,360	7.006	1.261	0,090	0,324	6.369	1.019	0,080	0,270	6.369	1.019	0,080	0,216	4.459	669	0,075	0,148	3.185	382	0,060	0,072
5	5	7.643	1.529	0,100	0,160	7.006	1.261	0,090	0,144	6.369	1.019	0,080	0,120	6.369	1.019	0,080	0,096	4.459	669	0,075	0,066	3.185	382	0,060	0,032

Max cutting depth



1. Speeds and feeds are designed to be used in conjunction with small passes on a high speed & precision machine set-up.
2. Do not use inflammable coolant. Using worn tools may generate sparks.
3. Use compresed air or a high quality coolant with a low co-efficient of smoke emmision.
* Modified parameters

1. Queste velocità e questi avanzamenti sono indicati per fresatura di piccole passate ad alta velocità e centri di lavorazione di alta precisione.
2. Non utillizare lubrificanti da taglio infiammabili; gli utensili troppo usurati possono produrre scintille.
3. Utilizzare un getto di aria compressa. Se la vostra scelta ricade su dei liquidi da taglio, sceglieteli di alta qualità, dotati di un coefficiente elevato di rallentamento d'emissione del fumo.
* Parameto modificato

1. Die Schnittdaten sind ausgelegt für geringe Zustellungen in Verbindung mit HSC tauglichen Maschinen und Spannmittel.
2. Bitte gegeignetes Kühlmittel mit rauchhemmenden Zusätzen verwenden.
3. Benutzen Sie Druckluft oder Kühlmittel mit rauchhemmenden Zusätzen.
* Modifizierten Parameters

1. Les vitesses et avances sont indiquées pour le fraisage de petites passes à haute vitesse / centres d'usinage de haute précision.
2. Ne pas utiliser de lubrifiants de coupe inflammables, les outils fortement usés peuvent produire des étincelles.
3. Utilisez un jet d'air comprimé ou des fluides de coupe de haute qualité avec un coef. élevé de ralentissement d'émission de fumée.
* Paramètres modifiés

1. Skæredata er designet til brug i samarbejde med små bearbejdninger i et præcisions setup på et højhastigheds bearbejdningscenter
2. Brug ikke brændbare kølevæsker. Brugte værktøjer kan resultere i gnister
3. Brug lufttryk eller kølevæske af høj kvalitet med lav røgudvikling
* Modificerede parametre

1. Velocidades y avances establecidos junto a pasadas ligeras en maquinas de lata velocidad y gran precisión
2. No utilizar refrigerante inflamable. Las herramientas calientes pueden generar chispas
3. Utilizar aire comprimido o un refrigerante con un bajo coeficiente de emisión de humo
* Parámetros modificados

1. Skärdatan är designat för små ingrepp vid precisions bearbetning i höghastighetsmaskiner
2. Använd inte brandfarliga kylvätskor. Fräsar kan vara mycket varma eter ingrepp
3. Använd tryckluft eller kylvätska med hög kvalitet och låg rökutveckling
* Modifierade parametrar

1. Указанные режимы резания предназначены для точных высокоскоростных станков и жесткого закрепления обрабатываемой детали.
2. Не используйте легко воспламеняемую СОЖ. При использовании изношенных фрез возможно возникновение искр.
3. Используйте сжатый воздух или качественную СОЖ с высокой *устойчивостью к возникновению дыма.

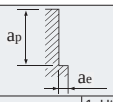
FX-MG-EMS

Side milling - Konturfräsen - Sgrossatura e contornatura - Contournage
Sidefræsning - Valsfräsning - Contorneado - Боковое фрезерование

Ø	GG GG-GGG		C≤0,2% S55C ■ SS400 ~750 N/mm²		SCM - SKD SKD ■ SKS ■ SNCM ~30 HRC		30~38 HRC NAK55 ■ HPMI ■ SKT 30~38 HRC		38~45 HRC SUS SUS304 ■ X210CR12 X40CRMOV51 38~45 HRC		45~55 HRC HRS 45~55 HRC		55~60 HRC 55~60 HRC	
	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
2	15.500	370	13.000	310	11.000	280	7.000	110	6.350	100	3.950	60	2.750	40
3	10.500	595	8.900	505	7.400	355	5.300	125	4.750	110	2.750	60	2.000	45
4	7.950	635	6.650	530	5.550	370	4.250	135	3.700	115	2.200	70	1.550	45
5	6.350	740	5.300	620	4.450	425	3.550	140	3.150	125	1.900	75	1.250	40
6	5.300	735	4.450	615	3.700	425	2.950	145	2.650	130	1.550	70	1.050	40
8	3.950	710	3.300	590	2.750	420	2.200	145	1.950	130	1.150	65	795	35
10	3.150	710	2.650	590	2.200	420	1.750	145	1.550	130	955	65	635	35
12	2.650	710	2.200	590	1.850	420	1.450	145	1.300	130	795	60	530	30
14	2.250	680	1.900	575	1.550	415	1.250	145	1.100	125	680	50	455	25
16	1.950	655	1.650	550	1.350	415	1.100	130	995	115	595	45	395	20
18	1.750	655	1.450	540	1.200	405	990	115	880	105	530	40	350	20
20	1.550	620	1.300	520	1.100	370	890	105	795	95	475	35	315	19
22	1.400	560	1.200	480	1.000	340	810	95	720	85	430	30	285	17
24	1.300	520	1.100	440	925	315	740	85	660	75	395	30	265	16
25	1.250	500	1.050	420	890	300	710	85	635	75	380	30	255	15
30	1.050	420	890	355	740	250	590	70	530	60	315	25	210	13

Max cutting depth

	ap	ae
D < Ø3	1,5D	0,05D
Ø3 ≤ D	1,5D	0,10D



ap	ae
1D	0,02D

1. Use high precision machine set up to ensure maximum rigidity.
2. In case of vibration, reduce both feed and speed.
3. Use a coolant that has a low co-efficient of smoke emission.

1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. In caso di vibrazioni, ridurre simultaneamente la velocità di taglio e l'avanzamento.
3. Utilizzare dei lubrificanti da taglio adeguati, dotati di un coefficiente elevato di rallentamento d'emissione del fumo.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindigkeit reduzieren.
3. Kuhlmittel mit niedriger Rauchentwicklung verwenden.

1. Utilisez une machine et un porte-outil de grande rigidité et de haute précision.
2. En cas de vibrations, réduisez, simultanément, la vitesse de coupe et l'avance.
3. Utilisez des lubrifiants de coupe appropriés dotés d'un coef. élevé de ralentissement d'émission de fumée.

1. Benyt højt præcisions set-up for at sikre maksimum stabilitet
2. Ved vibrationer, justér både hastighed og tilspænding
3. Benyt en kølevæske med lav koefficient af røgudvikling

1. Use máquina de alta precisión y asegure la máxima rigidez
2. En el caso de vibraciones, reducir velocidad y avance simultaneamente
3. Utilizar un refrigerante con un bajo coeficiente de emisión de humo

1. Använd uppsänningsanordning av hög kvalitet för bästa stabilitet
2. Vid vibrationer, justera både varvtal och matning
3. Använd skärvätska med låg rökutvecklingskoefficient.

1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость.
2. При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя.
3. Используйте качественную СОЖ с высокой

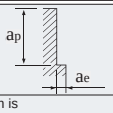
FX-MG-EMS

High speed side milling - HSC Konturfräsen - Fresatura alta velocità contornatura- Fraisage UGV contournage
Højhastigheds sidefræsning - High speed valsfräsning - Contorneado a alta velocidad - Высокоскоростное контурное фрезерование

Ø	C≤0,2% S55C ■ SS400 ■ GG25 ~750 N/mm²		SCM - SKD SKD ■ SKS ■ SNCM ~30 HRC		30~38 HRC NAK55 ■ HPMI ■ SKT 30~38 HRC		38~45 HRC X210Cr12 ■ X40CrMoV51 38~45 HRC		45~55 HRC 45~55 HRC	
	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
6	21.000	2.450	18.500	2.150	13.000	1.500	7.950	795	4.200	420
8	15.500	2.450	13.500	2.100	9.900	1.450	5.950	795	3.150	425
10	12.500	2.500	11.000	2.100	7.950	1.450	4.750	800	2.500	420
12	10.500	2.450	9.250	2.100	6.600	1.450	3.950	790	2.100	410
14	9.050	2.350	7.950	2.000	5.650	1.350	3.400	740	1.800	390
16	7.950	2.250	6.950	1.950	4.950	1.350	2.950	715	1.550	375
18	7.050	2.250	6.150	1.900	4.400	1.300	2.650	705	1.400	375
20	6.350	2.100	5.550	1.850	3.950	1.300	2.350	665	1.250	355
22	5.750	1.950	5.050	1.700	3.600	1.200	2.150	635	1.150	325
24	5.300	1.800	4.600	1.550	3.300	1.100	1.950	575	1.050	295
25	5.050	1.700	4.450	1.500	3.150	1.050	1.900	560	1.000	280
30	4.200	1.400	3.700	1.250	2.650	890	1.550	455	845	240

Max cutting depth

	ap	ae
D ≤ Ø8	1,5D	0,01D
Ø8 < D ≤ Ø16	1,5D	0,03D
Ø16 < D	1,5D	0,05D



	ap	ae
D ≤ Ø8	1D	0,01D
Ø8 < D	1D	0,02D

Attention : sparks and/or flames can cause coolant fire. Be sure adequate fire prevention is available.
1. Speeds and feeds are designed to be used in conjunction with small passes on a high speed & precision machine set-up.
2. Do not use inflammable coolant. Using worn tools may generate sparks.
3. Use compresed air or a high quality coolant with a low co-efficient of smoke emmision.
* Modified parameters

Attenzione: le scintille prodotto durante l'operazione o il calore causato dalla rottura dell'utensile possono infiammare il lubrificante. Assicurasi che siano applicate delle adeguate misure di prevenzione.
1. Queste velocità e questi avanzamenti sono indicati per fresatura di piccole passate ad alta velocità e centri di lavorazione di alta precisione.
2. Non utillizare lubrificanti da taglio infiammabili; gli utensili troppo usurati possono produrre scintille.
3. Utilizzare un getto di aria compressa. Se la vostra scelta ricade su dei liquidi da taglio, sceglieteli di alta qualità, dotati di un coefficiente elevato di rallentamento d'emissione del fumo.
* Parameto modificato

Achtung: Funken und/oder Flammen können den Kühlschmierstoff entzünden. stellen Sie einen ausgereichenden Brandschutz sicher.
1. Die Schnittdaten sin ausgelegt für geringe Zustellungen in Verbindung mit HSC tauglichen Maschinen und Spannmittel.
2. Bitte gegeignetes Kühlmittel mit rauchhemmenden Zusätzen verwenden.
3. Benutzen Sie Druckluft ofer Kühlmittel mit rauchhemmenden Zusätzen.
* Modifizierten Parameters

Attention : étincelles et/ou chaleur peuvent enflammer le lubrifiant. S'assurer que des mesures de prévention adéquates sont appliquées.
1. Les vitesses et avances sont indiquées pour le fraisage de petites passes à haute vitesse / centres d'usinage de haute précision.
2. Ne pas utiliser de lubrifiants de coupe inflammables, les outils fortement usés peuvent produire des étincelles.
3. Utilisez un jet d'air comprimé ou des fluides de coupe de haute qualité avec un coef. élevé de ralentissement d'émission de fumée. * Paramètres modifiés

Pas på: gnister kan antænde kølevæsken. Sørg for brandslukningsmateriel er inden for rækkevidde
1. Skæredata er designet til brug i samarbejde med små bearbejdninger i et præcisions setup på et højhastigheds bearbejdningscenter
2. Brug ikke brændbare kølevæsker. Brugte værktøjer kan resultere i gnister
3. Brug lufttryk eller kølevæske af høj kvalitet med lav røgudvikling
* Modificerede parametre

Atención: Las chispas pueden causar el incendio del refrigerante. Asegurese que una adecuada prevencion de incendios está disponible
1. Velocidades y avances establecidos junto a pasadas ligeras en maquinas de lata velocidad y gran precisión
2. No utilizar refrigerante inflamable. Las herramientas calientes pueden generar chispas
3. Utilizar aire comprimido o un refrigerante con un bajo coeficiente de emisión de humo
* Parámetros modificados

Observera: Gnistor kan antända kylvätskan. Se till att ha en bra brandsläckningsutrustning
1. Skärdatan är designat för små ingrepp vid precisions bearbetning i höghastighetsmaskiner
2. Använd inte brandfarliga kylvätskor. Fräsar kan vara mycket varma eter ingrepp
3. Använd skärvätska med låg rökutvecklingskoefficient.
* Modifierade parametrar

Внимание! Искры и пламя могут воспламенить СОЖ. Примите меры противопожарной безопасности
1. Указанные режимы резания предназначены для точных высокоскоростных станков и жесткого закрепления обрабатываемой детали.
2. Не используйте легко воспламеняемую СОЖ. При использовании изношенных фрез возможно возникновение искр.
3. Используйте сжатый воздух или качественную СОЖ с высокой устойчивостью к возникновению дыма.

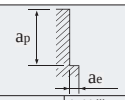
FX-SS-EMS

Side milling - Konturfräsen - Sgrossatura e contornatura - Contournage
Sidefræsning - Valsfräsning - Contorneado - Боковое фрезерование

Ø	GG GG-GGG		C≤0,2% S55C ■ SS400 ~750 N/mm²		SCM - SKD SKD ■ SKS ■ SNCM ~30 HRC		30~38 HRC NAK55 ■ HPMI ■ SKT 30~38 HRC		38~45 HRC SUS SUS304 ■ X210CR12 X40CRMOV51 38~45 HRC		45~55 HRC HRS 45~55 HRC		55~60 HRC 55~60 HRC	
	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
2	15.500	370	13.000	310	11.000	280	7.000	110	6.350	100	3.950	60	2.750	40
3	10.500	595	8.900	505	7.400	355	5.300	125	4.750	110	2.750	60	2.000	45
4	7.950	635	6.650	530	5.550	370	4.250	135	3.700	115	2.200	70	1.550	45
5	6.350	740	5.300	620	4.450	425	3.550	140	3.150	125	1.900	75	1.250	40
6	5.300	735	4.450	615	3.700	425	2.950	145	2.650	130	1.550	70	1.050	40
8	3.950	710	3.300	590	2.750	420	2.200	145	1.950	130	1.150	65	795	35
10	3.150	710	2.650	590	2.200	420	1.750	145	1.550	130	955	65	635	35
12	2.650	710	2.200	590	1.850	420	1.450	145	1.300	130	795	60	530	30
14	2.250	680	1.900	575	1.550	415	1.250	145	1.100	125	680	50	455	25
16	1.950	655	1.650	550	1.350	415	1.100	130	995	115	595	45	395	20
18	1.750	655	1.450	540	1.200	405	990	115	880	105	530	40	350	20
20	1.550	620	1.300	520	1.100	370	890	105	795	95	475	35	315	19
22	1.400	560	1.200	480	1.000	340	810	95	720	85	430	30	285	17
24	1.300	520	1.100	440	925	315	740	85	660	75	395	30	265	16
25	1.250	500	1.050	420	890	300	710	85	635	75	380	30	255	15
30	1.050	420	890	355	740	250	590	70	530	60	315	25	210	13

Max cutting depth

	ap	ae
D < Ø3	1,5D	0,05D
Ø3 ≤ D	1,5D	0,10D



ap	ae
1D	0,02D

1. Use high precision machine set up to ensure maximum rigidity.
2. In case of vibration, reduce both feed and speed.
3. Use a coolant that has a low co-efficient of smoke emission.

1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. In caso di vibrazioni, ridurre simultaneamente la velocità di taglio e l'avanzamento.
3. Utilizzare dei lubrificanti da taglio adeguati, dotati di un coefficiente elevato di rallentamento d'emissione del fumo.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindigkeit reduzieren.
3. Kuhlmittel mit niedriger Rauchentwicklung verwenden.

1. Utilisez une machine et un porte-outil de grande rigidité et de haute précision.
2. En cas de vibrations, réduisez, simultanément, la vitesse de coupe et l'avance.
3. Utilisez des lubrifiants de coupe appropriés dotés d'un coef. élevé de ralentissement d'émission de fumée.

1. Benyt højt præcisions set-up for at sikre maksimum stabilitet
2. Ved vibrationer, justér både hastighed og tilspænding
3. Benyt en kølevæske med lav koefficient af røgudvikling

1. Use máquina de alta precisión y asegure la máxima rigidez
2. En el caso de vibraciones, reducir velocidad y avance simultaneamente
3. Utilizar un refrigerante con un bajo coeficiente de emisión de humo

1. Använd uppsänningsanordning av hög kvalitet för bästa stabilitet
2. Vid vibrationer, justera både varvtal och matning
3. Använd skärvätska med låg rökutvecklingskoefficient.

1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость.
2. При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя.
3. Используйте качественную СОЖ с высокой

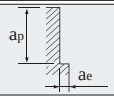
FX-SS-EMS

High speed side milling - HSC Konturfräsen - Fresatura alta velocità contornatura- Fraisage UGV contournage
Højhastigheds sidefræsning - High speed valsfräsning - Contorneado a alta velocidad - Высокоскоростное контурное фрезерование

Ø	C≤0,2% S55C ■ SS400 ■ GG25 ~750 N/mm²		SCM - SKD SKD ■ SKS ■ SNCM ~30 HRC		30~38 HRC NAK55 ■ HPMI ■ SKT 30~38 HRC		38~45 HRC X210Cr12 ■ X40CrMoV51 38~45 HRC		45~55 HRC 45~55 HRC	
	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
6	21.000	2.450	18.500	2.150	13.000	1.500	7.950	795	4.200	420
8	15.500	2.450	13.500	2.100	9.900	1.450	5.950	795	3.150	425
10	12.500	2.500	11.000	2.100	7.950	1.450	4.750	800	2.500	420
12	10.500	2.450	9.250	2.100	6.600	1.450	3.950	790	2.100	410
14	9.050	2.350	7.950	2.000	5.650	1.350	3.400	740	1.800	390
16	7.950	2.250	6.950	1.950	4.950	1.350	2.950	715	1.550	375
18	7.050	2.250	6.150	1.900	4.400	1.300	2.650	705	1.400	375
20	6.350	2.100	5.550	1.850	3.950	1.300	2.350	665	1.250	355
22	5.750	1.950	5.050	1.700	3.600	1.200	2.150	635	1.150	325
24	5.300	1.800	4.600	1.550	3.300	1.100	1.950	575	1.050	295
25	5.050	1.700	4.450	1.500	3.150	1.050	1.900	560	1.000	280
30	4.200	1.400	3.700	1.250	2.650	890	1.550	455	845	240

Max cutting depth

	ap	ae
D ≤ Ø8	1,5D	0,01D
Ø8 < D ≤ Ø16	1,5D	0,03D
Ø16 < D	1,5D	0,05D



	ap	ae
D ≤ Ø8	1D	0,01D
Ø8 < D	1D	0,02D

Attention : sparks and/or flames can cause coolant fire. Be sure adequate fire prevention is available.
1. Speeds and feeds are designed to be used in conjunction with small passes on a high speed & precision machine set-up.
2. Do not use inflammable coolant. Using worn tools may generate sparks.
3. Use compresed air or a high quality coolant with a low co-efficient of smoke emmision.
* Modified parameters

Attenzione: le scintille prodotto durante l'operazione o il calore causato dalla rottura dell'utensile possono infiammare il lubrificante. Assicurasi che siano applicate delle adeguate misure di prevenzione.
1. Queste velocità e questi avanzamenti sono indicati per fresatura di piccole passate ad alta velocità e centri di lavorazione di alta precisione.
2. Non utillizare lubrificanti da taglio infiammabili; gli utensili troppo usurati possono produrre scintille.
3. Utilizzare un getto di aria compressa. Se la vostra scelta ricade su dei liquidi da taglio, sceglieteli di alta qualità, dotati di un coefficiente elevato di rallentamento d'emissione del fumo.
* Parameto modificato

Achtung: Funken und/oder Flammen können den Kühlschmierstoff entzünden. stellen Sie einen ausgereichenden Brandschutz sicher.
1. Die Schnittdaten sin ausgelegt für geringe Zustellungen in Verbindung mit HSC tauglichen Maschinen und Spannmittel.
2. Bitte gegeignetes Kühlmittel mit rauchhemmenden Zusätzen verwenden.
3. Benutzen Sie Druckluft ofer Kühlmittel mit rauchhemmenden Zusätzen.
* Modifizierten Parameters

Attention : étincelles et/ou chaleur peuvent enflammer le lubrifiant. S'assurer que des mesures de prévention adéquates sont appliquées.
1. Les vitesses et avances sont indiquées pour le fraisage de petites passes à haute vitesse / centres d'usinage de haute précision.
2. Ne pas utiliser de lubrifiants de coupe inflammables, les outils fortement usés peuvent produire des étincelles.
3. Utilisez un jet d'air comprimé ou des fluides de coupe de haute qualité avec un coef. élevé de ralentissement d'émission de fumée. * Paramètres modifiés

Pas på: gnister kan antænde kølevæsken. Sørg for brandslukningsmateriel er inden for rækkevidde
1. Skæredata er designet til brug i samarbejde med små bearbejdninger i et præcisions setup på et højhastigheds bearbejdningscenter
2. Brug ikke brændbare kølevæsker. Brugte værktøjer kan resultere i gnister
3. Brug lufttryk eller kølevæske af høj kvalitet med lav røgudvikling
* Modificerede parametre

Atención: Las chispas pueden causar el incendio del refrigerante. Asegurese que una adecuada prevencion de incendios está disponible
1. Velocidades y avances establecidos junto a pasadas ligeras en maquinas de lata velocidad y gran precisión
2. No utilizar refrigerante inflamable. Las herramientas calientes pueden generar chispas
3. Utilizar aire comprimido o un refrigerante con un bajo coeficiente de emisión de humo
* Parámetros modificados

Observera: Gnistor kan antända kylvätskan. Se till att ha en bra brandsläckningsutrustning
1. Skärdatan är designat för små ingrepp vid precisions bearbetning i höghastighetsmaskiner
2. Använd inte brandfarliga kylvätskor. Fräsar kan vara mycket varma eter ingrepp
3. Använd skärvätska med låg rökutvecklingskoefficient.
* Modifierade parametrar

Внимание! Искры и пламя могут воспламенить СОЖ. Примите меры противопожарной безопасности
1. Указанные режимы резания предназначены для точных высокоскоростных станков и жесткого закрепления обрабатываемой детали.
2. Не используйте легко воспламеняемую СОЖ. При использовании изношенных фрез возможно возникновение искр.
3. Используйте сжатый воздух или качественную СОЖ с высокой устойчивостью к возникновению дыма.

FX-LN-EMS-6

Side milling - Konturfräsen - Conturnatura - Contournage
Sidefræsning - Valsfräsning - Contorneado - Боковое фрезерование

	C≤0,2% - GG SS400 ■ S55C ■ FC250 ~750 N/mm²		SCM - SKD SCM ■ SKT ■ SKS ■ SKD ~30 HRC		30~38 HRC SKT ■ SKD ■ NAK55 ■ HPM1 30~38 HRC		38~45 HRC-SUS SUS304 ■ SKD 38~45 HRC		45~55 HRC Tiall 45~55 HRC		55~60 HRC 55~60 HRC	
	100 (m/min)		78 (m/min)		66 (m/min)		62 (m/min)		60 (m/min)		30 (m/min)	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
1	26.500	1.000	21.500	700	17.500	500	15.000	400	9.500	160	6.350	60
1,5	17.500	1.000	14.000	700	11.500	500	10.000	400	6.350	160	4.250	60
2	13.000	1.050	10.500	700	8.900	590	7.600	400	4.750	160	3.200	60
2,5	10.400	1.250	8.400	700	7.100	500	6.100	400	3.800	160	2.550	60
3	8.900	1.000	7.200	700	5.900	500	5.050	400	3.150	160	2.100	60
4	6.650	1.000	5.400	700	4.450	500	3.800	400	2.350	160	1.550	60
5	5.300	1.000	4.300	700	3.550	500	3.050	400	1.900	160	1.250	60
6	4.450	1.000	3.600	700	2.950	500	2.500	400	1.550	160	1.050	60

Max cutting depth

$a_p = 0,5D$



a_p $a_a = 0,05D$

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.

1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. In caso di vibrazione, ridurre simultaneamente la velocità di taglio e l'avanzamento.
3. Utilizare dei lubrificanti di taglio adequati, dotati di une elevato coefficiente di rallentamento di emessione del fumo.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindigkeit reduzieren.
3. Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen.

1. Uitiliser une machine et un porte-outil de grande rigidité et de haute précision.
2. Utiliser de l'arrosage en brouillard (mist).
3. Utiliser des fluides de coupes de haute qualité avec un coef, élevé de ralentissement d'emission de fumée.

1. Anvend stabil maskine og værktøjsholder
2. Ved vibrationer reducér omdrejninger og tilspænding simultant
3. Anvend en passende skærevæske

1. Use maquina y portaherramientas rigidos y precisos
2. En caso de vibración reduzca velocidad y avance simultaneamente
3. Use fluido de corte adecuado con retardador de humos

1. Använd en stabil maskin och verktygshållare
2. Vid vibrationer sänk varvtal och matning med samma simultant
3. Använd anpassad skärvätska

1. Указанные режимы резания предназначены для точных высокоскоростных станков и жесткого закрепления обрабатываемой детали.
2. При возникновении вибраций, снизьте скорость и подачу одновременно.
3. Используйте качественную СОЖ с низким коэффициентом дымления.

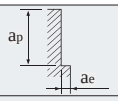
FX-MG-EHS

Side milling - Konturfräsen - Sgrossatura e contornatura - Contournage
Sidefræsning - Valsfräsning - Contorneado - Боковое фрезерование

		C≤0,2% - GG S55C ■ SS400 ■ GG25 ~750 N/mm²		SCM - SKD SKD ■ SKS ■ SNCM ~30 HRC		30~38 HRC NAK55 ■ HPMI ■ SKT 30~38 HRC		38~45 HRC SUS SUS304 ■ X210CR12 X40CRMOV51 38~45 HRC		45~55 HRC HRS 45~55 HRC		55~60 HRC 55~60 HRC	
	Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
3 flutes - 3 Schneiden - 3 denti - 3 lèvres 3 skär - 3 skär - 3 labios - 3 режущих кромки	3 X 3	8.900	665	6.650	595	5.900	350	3.800	90	3.150	55	2.000	30
	4 X 3	6.650	695	5.000	675	4.450	400	2.850	100	2.350	70	1.550	35
	5 X 3	5.300	715	4.000	660	3.550	360	2.250	105	1.900	70	1.250	35
	6 X 3	5.300	755	4.000	660	3.550	315	2.200	150	1.900	90	1.250	30
	8 X 3	3.950	700	3.000	595	2.650	205	1.650	155	1.400	100	955	35
	10 X 3	3.150	640	2.400	565	2.100	260	1.300	140	1.100	100	760	35
	12 X 3	2.650	605	2.000	515	1.750	235	1.100	125	955	85	635	30
	14 X 3	2.250	570	1.700	450	1.500	205	955	105	815	75	545	25
	16 X 3	1.950	520	1.500	415	1.300	180	835	95	715	70	475	20
	18 X 3	1.750	480	1.300	370	1.150	170	740	85	635	70	420	20
	20 X 3	1.550	445	1.200	340	1.050	160	665	80	570	70	380	20
	25 X 3	1.250	415	965	280	850	140	535	85	455	70	305	20
4 flutes - 4 Schneiden - 4 denti - 4 lèvres 4 skär - 4 skär - 4 labios - 4 режущих кромки	3 X 4	8.900	890	6.650	795	5.900	470	3.800	120	3.150	75	2.000	40
	4 X 4	6.650	930	5.000	900	4.450	530	2.850	135	2.350	90	1.550	50
	5 X 4	5.300	950	4.000	880	3.550	480	2.250	140	1.900	95	1.250	50
	6 X 4	5.300	900	4.000	800	3.550	220	2.200	175	1.900	110	1.250	50
	8 X 4	3.950	835	3.000	710	2.650	445	1.650	185	1.400	120	955	55
	10 X 4	3.150	760	2.400	680	2.100	310	1.300	165	1.100	115	760	55
	12 X 4	2.650	730	2.000	620	1.750	285	1.100	145	955	105	635	45
	14 X 4	2.250	675	1.700	550	1.500	245	955	125	815	95	545	40
	16 X 4	1.950	615	1.500	500	1.300	215	835	110	715	85	475	35
	18 X 4	1.750	580	1.300	440	1.150	195	740	100	635	85	420	35
	20 X 4	1.550	530	1.200	410	1.050	185	665	95	570	85	380	35
	25 X 4	1.250	500	965	340	850	170	535	100	455	85	305	35

Max cutting depth

a_p	a_e
1,5D	0,2D



a_p	a_e
1,5D	0,1D

a_p	a_e
1D	0,05D

1. Use high precision machine set up to ensure maximum rigidity.
2. In case of vibration, reduce both feed and speed.
3. Use a coolant that has a low co-efficient of smoke emission.
4. For stainless steels & heat resisting steels, non-water soluble coolant is highly recommended.
5. For dry milling, use compressed air to aid chip clearance.

1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. In caso di vibrazioni, ridurre simultaneamente la velocità di taglio e l'avanzamento.
3. Utilizzare dei lubrificanti da taglio adeguati, dotati di un coefficiente elevato di rallentamento d'emissione del fumo.
4. Per la fresatura di acciai inossidabili o acciai legati resistenti alle alte temperature (es. Inconel) è consigliato l'utilizzo di lubrificanti non solubili in acqua.
5. Per la lavorazione a secco, utilizzate un getto d'aria compressa per evitare un ingorgo di trucioli

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindigkeit reduzieren.
3. Kuhlmittel mit niedriger Rauchentwicklung verwenden.
4. Für VA und gehärterer Stahl, empfehlen wir keine wasserlöslichen Kühlmittel.
5. Bei Trockenbearbeiting Druckluft zum Entfernen der Späne verwenden.

1. Utilisez une machine et un porte-outil de grande rigidité et de haute précision.
2. En cas de vibrations, réduisez, simultanément, la vitesse de coupe et l'avance.
3. Utilisez des lubrifiants de coupe appropriés dotés d'un coef. élevé de ralentissement d'émission de fumée.
4. Pour le fraisage d'aciers inoxydables ou d'alliages d'acier résistant aux hautes températures (ex. Inconel) il est recommandé d'employer des lubrifiants non solubles dans l'eau.
5. Pour l'usinage à sec, utilisez un jet d'air comprimé pour éviter un bourrage de copeaux.

1. Benyt højt præcisions set-up for at sikre maksimum stabilitet
2. Ved vibrationer, justér både hastighed og tilspænding
3. Benyt en kølevæske med lav koefficient af røgudvikling
4. For rustfrit stål og varmebestandige ståltyper anbefales kølevæske der ikke er vandbaseret
5. Ved tørbearbejdning brug trykluft for bortskaffelse af spåner

1. Use máquina de alta precisión y asegure la máxima rigidez
2. En el caso de vibraciones, reducir velocidad y avance simultaneamente
3. Utilizar un refrigerante con un bajo coeficiente de emisión de humo
4. For rustfrit stål og varmebestandige ståltyper anbefales kølevæske der ikke er vandbaseret
5. Ved tørbearbejdning brug trykluft for bortskaffelse af spåner

1. Använd uppsänningsanordning av hög kvalitet för bästa stabilitet
2. Vid vibrationer, justera både varvtal och matning
3. Använd skärvätska med låg rökutvecklingskoefficient.
4. För rostfria och värmebeständiga stål rekommenderas mkylvätska som inte är vatten baserat
5. Vid torrbearbetning använd tryckluft för spån borttagning

1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость.
2. При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя.
3. Используйте качественную СОЖ с высокой
4. Для нержавеющей и жаростойкой сталей, настоятельно рекомендуем использовать не водную эмульсия в качестве СОЖ.
5. При сухом (без СОЖ) фрезеровании, используйте воздушную струю для удаления стружки и предотвращения спрессовывания стружки.

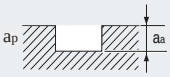
FX-MG-EHS

Slotting - Nutenfräsen - Per scanalature profonde - Rainurage
Sporfræsning - Spårfräsning - Ranurado - Фрезерование пазов

		C≤0,2% - GG S55C ■ SS400 ■ GG25 ~750 N/mm²		SCM - SKD SKD ■ SKS ■ SNCM ~30 HRC		30~38 HRC NAK55 ■ HPMI ■ SKT 30~38 HRC		38~45 HRC SUS SUS304 ■ X210CR12 X40CRMOV51 38~45 HRC		45~55 HRC HRS 45~55 HRC		55~60 HRC 55~60 HRC	
	Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
3 & 4 flutes - 3 & 4 Schneiden - 3 & 4 denti - 3 & 4 lèvres - 3, 4 skär - 3, 4 skär - 3, 4 labios - 3, 4 режущих кромки	**3**	8.900	665	6.650	595	5.900	350	3.800	90	3.150	55	2.000	30
	4	6.650	695	5.000	675	4.450	400	2.850	100	2.350	70	1.550	35
	5	5.300	715	4.000	660	3.550	360	2.250	105	1.900	70	1.250	35
	6	4.450	740	3.300	550	2.950	345	1.900	110	1.550	70	1.050	35
	8	3.300	660	2.500	500	2.200	360	1.400	115	1.150	75	795	35
	10	2.650	630	2.000	475	1.750	325	1.100	115	955	75	635	35
	12	2.200	590	1.650	440	1.450	300	955	110	795	75	530	35
	14	1.900	560	1.400	445	1.250	270	815	95	680	70	455	30
	16	1.650	525	1.250	400	1.100	245	715	85	595	65	395	25
	18	1.450	480	1.100	365	990	225	635	80	530	60	350	25
	20	1.300	450	1.000	345	890	205	570	75	475	55	315	25
	25	1.050	395	800	300	710	170	455	60	380	50	255	25

Max cutting depth

a_p $a_a = \mathbf{0,5D}$



$a_p = \mathbf{0,05D}$

1. Use high precision machine set up to ensure maximum rigidity.
2. In case of vibration, reduce both feed and speed.
3. Use a coolant that has a low co-efficient of smoke emission.
4. For stainless steels & heat resisting steels, non-water soluble coolant is highly recommended.
5. For dry milling, use compressed air to aid chip clearance.

1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. In caso di vibrazioni, ridurre simultaneamente la velocità di taglio e l'avanzamento.
3. Utilizzare dei lubrificanti da taglio adeguati, dotati di un coefficiente elevato di rallentamento d'emissione del fumo.
4. Per la fresatura di acciai inossidabili o acciai legati resistenti alle alte temperature (es. Inconel) è consigliato l'utilizzo di lubrificanti non solubili in acqua.
5. Per la lavorazione a secco, utilizzate un getto d'aria compressa per evitare un ingorgo di trucioli

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindigkeit reduzieren.
3. Kuhlmittel mit niedriger Rauchentwicklung verwenden.
4. Für VA und gehärterer Stahl, empfehlen wir keine wasserlöslichen Kühlmittel.
5. Bei Trockenbearbeiting Druckluft zum Entfernen der Späne verwenden.

1. Utilisez une machine et un porte-outil de grande rigidité et de haute précision.
2. En cas de vibrations, réduisez, simultanément, la vitesse de coupe et l'avance.
3. Utilisez des lubrifiants de coupe appropriés dotés d'un coef. élevé de ralentissement d'émission de fumée.
4. Pour le fraisage d'aciers inoxydables ou d'alliages d'acier résistant aux hautes températures (ex. Inconel) il est recommandé d'employer des lubrifiants non solubles dans l'eau.
5. Pour l'usinage à sec, utilisez un jet d'air comprimé pour éviter un bourrage de copeaux.

1. Benyt højt præcisions set-up for at sikre maksimum stabilitet
2. Ved vibrationer, justér både hastighed og tilspænding
3. Benyt en kølevæske med lav koefficient af røgudvikling
4. For rustfrit stål og varmebestandige ståltyper anbefales kølevæske der ikke er vandbaseret
5. Ved tørbearbejdning brug trykluft for bortskaffelse af spåner

1. Use máquina de alta precisión y asegure la máxima rigidez
2. En el caso de vibraciones, reducir velocidad y avance simultaneamente
3. Utilizar un refrigerante con un bajo coeficiente de emisión de humo
4. For rustfrit stål og varmebestandige ståltyper anbefales kølevæske der ikke er vandbaseret
5. Ved tørbearbejdning brug trykluft for bortskaffelse af spåner

1. Använd uppsänningsanordning av hög kvalitet för bästa stabilitet
2. Vid vibrationer, justera både varvtal och matning
3. Använd skärvätska med låg rökutvecklingskoefficient.
4. För rostfria och värmebeständiga stål rekommenderas mkylvätska som inte är vatten baserat
5. Vid torrbearbetning använd tryckluft för spån borttagning

1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость.
2. При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя.
3. Используйте качественную СОЖ с высокой
4. Для нержавеющей и жаростойкой сталей, настоятельно рекомендуем использовать не водную эмульсия в качестве СОЖ.
5. При сухом (без СОЖ) фрезеровании, используйте воздушную струю для удаления стружки и предотвращения спрессовывания стружки.

BACK BACK BACK BACK BACK BACK

HYP-HP-WRESF

Side milling - Konturfräsen - Conturnatura - Contournage
Sidefræsning - Valsfräsning - Contorneado - Боковое фрезерование



	GG GG-GGG		C≤0,2% S55C ■ SS400 ~750 N/mm²		SCM - SKD SKD ■ SKS ■ SNCM ~30 HRC		30~38 HRC NAK55 ■ HPMI ■ SKT 30~38 HRC		38~45 HRC - SUS SUS304 ■ X210CR12 ■ X40CRMOV51 38~45 HRC	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
6	4.200	585	4.200	585	3.700	370	2.900	230	2.650	210
8	3.150	565	3.150	565	2.750	350	2.150	230	1.950	210
10	2.500	500	2.500	500	2.200	350	1.750	230	1.550	210
12	2.100	500	2.100	500	1.850	330	1.450	230	1.300	210
16	1.550	400	1.550	400	1.350	320	1.050	230	995	210
20	1.250	375	1.250	375	1.100	320	875	240	795	220

HYP-HP-WRESF

Slotting - Nutenfräsen - Per scanalature profonde - Rainurage
Sporfræsning - Spårfräsning - Ranurado - Фрезерование пазов



	GG GG-GGG		C≤0,2% S55C ■ SS400 ~750 N/mm²		SCM - SKD SKD ■ SKS ■ SNCM ~30 HRC		30~38 HRC NAK55 ■ HPMI ■ SKT 30~38 HRC		38~45 HRC - SUS SUS304 ■ X210CR12 ■ X40CRMOV51 38~45 HRC	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
6	3.150	315	3.150	315	2.650	265	2.300	180	2.100	165
8	2.350	300	2.350	300	1.950	250	1.750	175	1.550	155
10	1.900	300	1.900	300	1.550	245	1.400	165	1.250	150
12	1.550	280	1.550	280	1.300	235	1.150	160	1.050	145
16	1.150	280	1.150	280	995	235	875	140	795	125
20	955	280	955	280	795	235	700	140	635	125
25	700	245	700	245	640	225	510	125	460	115

CARBIDE

HYP-CR-HI-WEMS/HYP-CR-HD-WEMS

Side milling - Konturfräsen - Conturnatura - Contournage
Sidefræsning - Valsfräsning - Contorneado - Боковое фрезерование



	Low Carbon - Alloy - Tool Steel									GG-GGG-GTW			Stainless steel			Aluminium - Mg			Titane		
	HB 150-250			HB 20-30			HRC 30-40			>HB 180			HRC 20						HRC 40-50		
	500~800 N/mm²			800~1000 N/mm²			1000~1300 N/mm²			Non - Alloyed			400~700 N/mm²			Non - Alloyed					
	160			120			100			140			50			180			65		
Ø	FZ	S=n	F=Vf	FZ	S=n	F=Vf	FZ	S=n	F=Vf	FZ	S=n	F=Vf	FZ	S=n	F=Vf	FZ	S=n	F=Vf	FZ	S=n	F=Vf
4	0,035	12.730	1.790	0,030	9.550	1.150	0,030	7.960	960	0,035	11.150	1.570	0,030	3.980	480	0,035	14.330	2.010	0,025	5.180	520
6	0,040	8.490	1.360	0,035	6.370	900	0,035	5.310	750	0,040	7.430	1.190	0,035	2.660	380	0,040	9.550	1.530	0,027	3.450	380
8	0,070	6.370	1.790	0,065	4.780	1.250	0,065	3.980	1040	0,70	5.580	1.570	0,065	1.990	520	0,070	7.170	2.010	0,031	2.590	330
10	0,100	5.090	2.040	0,080	3.820	1.230	0,080	3.190	1030	0,100	4.460	1.790	0,080	1.600	520	0,100	5.730	2.300	0,038	2.070	320
12	0,120	4.240	2.040	0,100	3.190	1.280	0,100	2.660	1070	0,120	3.720	1.790	0,100	1.330	540	0,120	4.780	2.300	0,045	1.730	320
16	0,130	3.180	1.660	0,120	2.390	1.150	0,120	1.990	960	0,130	2.790	1.460	0,120	1.000	480	0,130	3.590	1.870	0,052	1.300	280
20	0,150	2.550	1.530	0,120	1.910	920	0,120	1.600	770	0,150	2.230	1.340	0,120	800	390	0,150	2.870	1.730	0,059	1.040	250

HYP-HI-EMS/HYP-HI-WEMS

Slotting - Nutenfräsen - Per scanalature profonde - Rainurage
Sporfræsning - Spårfräsning - Ranurado - Фрезерование пазов



	Low Carbon - Alloy - Tool Steel									GG-GGG-GTW			Stainless steel			Aluminium - Mg			Titane		
	HB 150-250			HB 20-30			HRC 30-40			>HB 180			HRC 20						HRC 40-50		
	500~800 N/mm²			800~1000 N/mm²			1000~1300 N/mm²			Non - Alloyed			400~700 N/mm²			Non - Alloyed					
	160			120			100			140			50			180			65		
Ø	FZ	S=n	F=Vf	FZ	S=n	F=Vf	FZ	S=n	F=Vf	FZ	S=n	F=Vf	FZ	S=n	F=Vf	FZ	S=n	F=Vf	FZ	S=n	F=Vf
4	0,035	12.730	1.790	0,030	9.550	1.150	0,030	7.960	960	0,035	11.150	1.570	0,030	3.980	480	0,035	14.330	2.010	0,025	5.180	520
6	0,040	8.490	1.360	0,035	6.370	900	0,035	5.310	750	0,040	7.430	1.190	0,035	2.660	380	0,040	9.550	1.530	0,027	3.450	380
8	0,070	6.370	1.790	0,065	4.780	1.250	0,065	3.980	1040	0,70	5.580	1.570	0,065	1.990	520	0,070	7.170	2.010	0,031	2.590	330
10	0,100	5.090	2.040	0,080	3.820	1.230	0,080	3.190	1030	0,100	4.460	1.790	0,080	1.600	520	0,100	5.730	2.300	0,038	2.070	320
12	0,120	4.240	2.040	0,100	3.190	1.280	0,100	2.660	1070	0,120	3.720	1.790	0,100	1.330	540	0,120	4.780	2.300	0,045	1.730	320
16	0,130	3.180	1.660	0,120	2.390	1.150	0,120	1.990	960	0,130	2.790	1.460	0,120	1.000	480	0,130	3.590	1.870	0,052	1.300	280
20	0,150	2.550	1.530	0,120	1.910	920	0,120	1.600	770	0,150	2.230	1.340	0,120	800	390	0,150	2.870	1.730	0,059	1.040	250

HYP-HS-CRE

Low speed, high feed milling - Fräsen mit niedrige Geschwindigkeit, hohe Vorschub - Fresatura bassa velocità, alta avanzamento - Fraisage vitesse basse, avance élevée - Fræsning lav hastighed, høj tilspænding- High Speed Milling - Fresado a alta velocidad HSM - Высокоскоростное фрезер



	GG		30~38 HRC SKT ■ SKD ■ NAK55 ■ HPM1 30~38 HRC		38~45 HRC - SUS SUS30 ■ SKD ■ NAK80 ■ HPM50 38~450 HRC		45~55 HRC 45~55 HRC		55~60 HRC - HRS 55~60 HRC	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
6 X R 1,50	5.300	6.300	4.250	4.600	3.700	4.000	2.650	2.600	1.600	1.050
8 X R 2,00	4.000	6.300	3.200	4.600	2.800	4.000	2.000	2.600	1.200	1.050
10 X R 2,00	3.200	6.300	2.550	4.600	2.250	4.000	1.600	2.600	955	1.050
12 X R 3,00	2.650	6.300	2.100	4.600	1.850	4.000	1.350	2.600	795	1.050

Max cutting depth



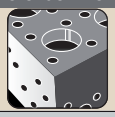
a_a	a_r
0,1xR	0,3D

	a_e	a_r
R ≤ 2	0,1 x R	0,3D
2 < R	0,2 mm	0,3D

	a_e	a_r
R ≤ 2	0,05 x R	0,3D
2 < R	0,1 mm	0,3D

HYP-SB-EBD

Center cutting - Zentrumschneidend - Taglio al centro - Coupe au centre
Borende - Borrande - Corte central - Режущий цеНТр



	Cu							30~35 HRC							35~42 HRC							42~55 HRC						
Ø	Z	Vc (m/min.)	fz (mm)	ap (mm)	ae (mm)	n (min^{-1})	F. (mm/min.)	Z	Vc (m/min.)	fz (mm)	ap (mm)	ae (mm)	n (min^{-1})	F. (mm/min.)	Z	Vc (m/min.)	fz (mm)	ap (mm)	ae (mm)	n (min^{-1})	F. (mm/min.)	Z	Vc (m/min.)	fz (mm)	ap (mm)	ae (mm)	n (min^{-1})	F. (mm/min.)
3	2	300	0,045	0,15	0,60	31.847	2866	2	280	0,045	0,15	0,60	29.724	2675	2	260	0,045	0,15	0,60	27.601	2484	2	240	0,045	0,15	0,60	25.478	2293
4	2	300	0,060	0,20	0,80	23.885	2866	2	280	0,060	0,20	0,80	22.293	2675	2	260	0,060	0,20	0,80	20.701	2484	2	240	0,060	0,20	0,80	19.108	2293
5	2	300	0,075	0,25	1,00	19.108	2866	2	280	0,075	0,25	1,00	17.834	2675	2	260	0,075	0,25	1,00	16.561	2484	2	240	0,075	0,25	1,00	15.287	2293
6	2	300	0,090	0,30	1,20	15.924	2866	2	280	0,090	0,30	1,20	14.862	2675	2	260	0,090	0,30	1,20	13.800	2484	2	240	0,090	0,30	1,20	12.739	2293
8	2	300	0,120	0,40	1,60	11.943	2866	2	280	0,120	0,40	1,60	11.146	2675	2	260	0,120	0,40	1,60	10.350	2484	2	240	0,120	0,40	1,60	9.554	2293
10	2	300	0,150	0,50	2,00	9.554	2866	2	2080	0,150	0,50	2,00	8.917	2675	2	260	0,150	0,50	2,00	8.280	2484	2	240	0,150	0,50	2,00	7.643	2293
12	2	300	0,180	0,60	2,40	7.962	2866	2	280	0,180	0,60	2,40	7.431	2675	2	260	0,180	0,60	2,40	6.900	2484	2	240	0,180	0,60	2,40	6.369	2293

FX-MG-EBD-3

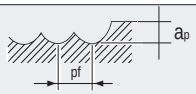
High speed milling - HSC Schlichtfräsen - Fresatura alta velocità - Fraisage UGV
High speed fræsning - High Speed Milling - Fresado a alta velocidad HSM - Высокоскоростное фрезерование



	GG GG-GGG		C≤0,2% S55C ■ SS400 ~700 N/mm²		SCM - SKD SKD ■ SKS ■ SNCM ~30 HRC		30~38 HRC SKT ■ NAK55 ■ HPMI 30~38 HRC		38~45 HRC - SUS SUS304 ■ X210CR12 X40CRMOV51 38~45 HRC		45~55 HRC - HRS 45~55 HRC		55~60 HRC 55~60 HRC	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
R 0,2 X 0,4	32.000	460	32.000	460	32.000	410	32.000	330	32.000	205	24.500	135	24.500	115
R 0,3 X 0,6	32.000	535	32.000	535	31.500	490	32.000	420	32.000	265	24.500	175	23.500	150
R 0,4 X 0,8	32.000	610	32.000	610	31.500	550	32.000	460	27.500	285	23.500	210	17.500	140
R 0,5 X 1,0	32.000	765	32.000	765	31.500	630	25.000	400	22.000	285	19.000	210	14.000	140
R 0,6 X 1,2	32.000	765	31.500	755	26.500	635	21.000	400	18.500	285	15.500	210	11.500	140
R 0,7 X 1,4	32.000	895	27.000	755	22.500	630	18.000	400	15.500	285	13.500	210	10.000	140
R 0,8 X 1,6	29.500	940	23.500	755	19.500	630	15.500	400	13.500	285	11.500	210	8.950	140
R 0,9 X 1,8	26.500	950	21.000	755	17.500	630	14.000	400	12.000	285	10.500	210	7.950	140
R 1,0 X 2,0	23.500	945	19.000	755	15.500	620	12.500	400	11.000	285	9.500	210	7.150	140
R 1,1 X 2,2	21.500	945	17.000	755	14.000	620	11.500	400	10.000	285	8.650	210	6.500	140
R 1,2 X 2,4	19.500	935	15.500	755	13.000	620	10.500	400	9.250	285	7.950	210	5.950	140
R 1,3 X 2,6	18.000	935	14.500	755	12.000	620	9.750	400	8.550	285	7.300	210	5.500	140
R 1,4 X 2,8	17.000	935	13.500	755	11.000	620	9.050	400	7.950	285	6.800	210	5.100	140
R 1,5 X 3,0	15.500	930	12.500	750	10.500	620	8.450	400	7.400	280	6.350	210	4.750	140

Max cutting depth

	ap	pf
R < 0,5	0,05D	0,2D
0,5 ≤ R	0,10D	0,2D



ap	pf
0,05D	0,1D

1. Use highest possible speed.
2. On lower speed machines, use maximum speed & feed settings.
3. Cutter mis-alignment must not exceed 10µ.
4. Always use coolant

1. Utilizza la velocità più alta possibile.
2. Quando utilizzate delle macchine di basse velocità, utilizzate la velocità più alta e regolatevi il passo di avanzamento.
3. Dopo il suo passaggio nel mandrino, la fresa non può avere un run-out superiore a 0.01 mm.
4. Utilizzare sempre dei liquidi da taglio.

1. Maximale Geschwindigkeit benützen.
2. Bei koventionelen Maschinen, maximale Drehzahl-verwenden und den Vorschub entsprechend anpassen.
3. Fräserrundlauf darf max. 0.01 mm betragen.
4. Immer Kühlmittel benutzen.

1. Utilisez la vitesse la plus élévée possible.
2. Lorque vous employez des machines de basses vitesses, utilisez la vitesse la plus haute et ajustez-y le taux d'avance.
3. Après sa fixation dans le porte-outil, la fraise ne peut avoir un faux rond supérieur à 10µ.
4. Utiliser toujours des fluides de coupe

1. Anvend højest mulige antal omdrejninger
2. På maskiner med lavt antal omdrejninger til rådighed, anvend maximum antal.
3.Nøjagtighed på opretning af fræseren må ikke overskride 10µ
4. Anvend altid kølevæske

1. Utilice velocidad más alta posible
2. Con máquina de velocidad convencional trabaje a la maxima velocidad posible y ajuste el avance en consecuencia
3. La desalineación de herramienta no debe exceder de 10 µ
4. Utilice siempre refrigerante

1. Använd högsta möjliga varvtal
2. På maskiner med lågt varvtal, använd max varvtal.
3. Rundgångsnogrannheten få ej överstiga 10µ
4. Använd alltid skärvätska

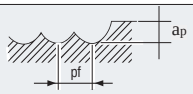
1. Используйте максимально возможную скорость вращения шпинделя.
2. На станках с низкооборотным шпинделем используйте максимальные обороты шпинделя и снизьте подачу пропорционально снижению скорости резания.
3. Биение фрезы не должно превышать 10 µ.
4. Всегда используйте СОЖ.

FX-HS-EBDS

High speed milling roughing - HSC Schlichtfräsen Schruppen - Fresatura alta velocità sgrossatura - Fraisage UGV ébauche
High speed skrubfræsning - High Speed Milling grovfräsning - Fresado en desbaste a alta velocidad - Высокоскоростное черновое фрезерование



	C≤0,2% - GG S55C ■ SS400 ■ GG25 ~750 N/mm²		30~38 HRC 30~38 HRC		38~45 HRC 38~45 HRC		45~55 HRC 45~55 HRC		55~60 HRC 55~60 HRC		60~65 HRC 60~65 HRC		65~70 HRC 65~70 HRC	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
R 1,5	33.400	4.610	32.400	4.470	31.800	3.630	26.500	2.860	20.200	1.940	18.000	1.570	12.700	1.110
R 2,0	25.100	4.410	24.300	4.270	23.900	3.530	19.900	2.710	15.100	1.870	13.500	1.520	9.550	1.070
R 2,5	20.100	4.210	19.400	4.080	19.100	3.340	15.900	2.550	12.100	1.810	10.800	1.460	7.640	1.030
R 3,0	16.700	3.810	16.180	3.690	15.900	3.250	13.300	2.390	10.100	1.690	9.020	1.410	6.370	995
R 4,0	12.500	3.710	12.100	3.590	11.900	3.150	9.950	2.310	7.560	1.630	6.760	1.350	4.770	955
R 5,0	10.000	3.610	9.710	3.500	9.550	3.060	7.960	2.230	6.050	1.570	5.410	1.300	3.820	915
R 6,6	8.360	3.340	8.090	3.240	7.960	2.670	6.630	2.070	5.040	1.450	4.510	1.080	3.180	765

Max cutting depth				
	ap 0,1D / pf 0,2D	ap 0,08D / pf 0,2D	ap 0,05D / pf 0,1D	ap 0,03D / pf 0,1D

1. Use high precision machine set up to ensure maximum rigidity.
2. Use a coolant that has a low co-efficient of smoke emission.

1. Benutzen Sie stabile und präzise Machinen, Werkzeugaufnahmen und Spannmittel.
2. Bitte geeignetes Kühlmedium mit rauchhemmenden Zusätzen verwenden.

1. Benyt højt præcisions set-up for at sikre maksimum stabilitet
2. Benyt en kølevæske med lav koefficient af røgudvikling

1. Använd uppsänningsanordning av hög kvalitet för bästa stabilitet
2. Använd skärvätska med låg rökutvecklingskoefficient.

1. Utilizzare una macchina e un mandrino di elevata rigidità e di alta precisione.
2. Utilizzare dei lubrificanti di taglio adeguati, dotati di un elevato coefficiente di rallentamento di emissione del fumo.

1. Utilisez une machine et un porte-outil de grande rigidité et de haute précision.
2. Utiliser des lubrifiants de coupe adéquats, dotés d'un coef. élevé de ralentissement

1. Use máquina de alta precisión y asegure la máxima rigidez
2. Utilizar un refrigerante con un bajo coeficiente de emisión de humo

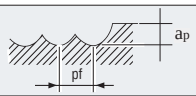
1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость
2. Используйте соответствующую СОЖ с высокой устойчивостью к возникновению дыма

FX-HS-EBDS

High speed milling finishing - HSC Schlichtfräsen schlichten - Fresatura alta velocità sgrossatura e finitura - Fraisage UGV finition
High speed sletfræsning - High Speed Milling finfräsning - Fresado en acabado a alta velocidad - Высокоскоростное чистовое фрезерование



	C≤0,2% - GG S55C ■ SS400 ■ GG25 ~750 N/mm²		30~38 HRC 30~38 HRC		38~45 HRC 38~45 HRC		45~55 HRC 45~55 HRC		55~60 HRC 55~60 HRC		60~65 HRC 60~65 HRC		65~70 HRC 65~70 HRC	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
R 1,5	36.100	5.840	34.000	5.300	32.900	4.930	27.600	4.140	22.300	3.070	20.100	2.420	13.800	1.490
R 2,0	27.100	5.410	25.500	4.890	24.700	4.540	20.700	3.810	16.700	2810	15.100	2.180	10.300	1.410
R 2,5	21.800	5.190	20.400	4.690	19.700	4.340	16.500	3.390	13.400	2.540	12.100	2.060	8.280	1.320
R 3,0	18.000	1.980	17.000	4.480	16.400	4.140	13.800	3.140	11.100	2.270	10.100	1.940	6.900	1.240
R 4,0	13.500	4.330	12.700	4.070	12.300	3.550	10.300	2.650	8.360	2.010	7.560	1.690	5.170	1.080
R 5,0	10.800	3.900	10.200	3.670	9.870	3.160	8.280	2.320	6.680	1.740	6.050	1.450	4.140	995
R 6,6	9.020	3.610	8.490	3.400	7.980	2.870	6.900	2.150	5.570	1.600	5.040	1.210	3.450	830

Max cutting depth	
	ap 0,02D / pf 0,05D

1. Use high precision machine set up to ensure maximum rigidity.
2. Use a coolant that has a low co-efficient of smoke emission.

1. Benutzen Sie stabile und präzise Machinen, Werkzeugaufnahmen und Spannmittel.
2. Bitte geeignetes Kühlmedium mit rauchhemmenden Zusätzen verwenden.

1. Benyt højt præcisions set-up for at sikre maksimum stabilitet
2. Benyt en kølevæske med lav koefficient af røgudvikling

1. Använd uppsänningsanordning av hög kvalitet för bästa stabilitet
2. Använd skärvätska med låg rökutvecklingskoefficient.

1. Utilizzare una macchina e un mandrino di elevata rigidità e di alta precisione.
2. Utilizzare dei lubrificanti di taglio adeguati, dotati di un elevato coefficiente di rallentamento di emissione del fumo.

1. Utilisez une machine et un porte-outil de grande rigidité et de haute précision.
2. Utiliser des lubrifiants de coupe adéquats, dotés d'un coef. élevé de ralentissement

1. Use máquina de alta precisión y asegure la máxima rigidez
2. Utilizar un refrigerante con un bajo coeficiente de emisión de humo

1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость
2. Используйте соответствующую СОЖ с высокой устойчивостью к возникновению дыма

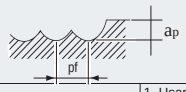
FX-MG-EBD

Regular milling - Normale Bearbeitung - Parametri di taglio - Fraisage regular
Almindelig fræsning - Konventionell fräsning - Fresado regular - Нормальное фрезерование

Ø	GG GGG-GGG		C≤0,2% S55C ■ SS400 ~750 N/mm²		SCM - SKD SKD ■ SKS ■ SNCM ~30 HRC		30~38 HRC NAK55 ■ HPMI ■ SKT 30~38 HRC		38~45 HRC SUS SUS304 ■ X210CR12 X40CRMOV51 38~45 HRC		45~55 HRC 45~55 HRC		55~60 HRC 55~60 HRC	
	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
R 0,2 X 0,4	32.000	460	32.000	460	32.000	410	32.000	330	32.000	205	24.500	135	24.500	115
R 0,3 X 0,6	32.000	535	32.000	535	31.500	490	32.000	420	32.000	265	24.500	175	23.500	150
R 0,5 X 1,0	32.000	765	32.000	765	31.500	620	25.000	400	22.000	285	19.000	210	14.000	140
R 1,0 X 2,0	23.500	940	19.000	765	15.500	620	12.500	400	11.000	290	9.500	210	7.150	140
R 1,5 X 3,0	15.500	940	12.500	765	10.500	630	8.450	405	7.400	290	6.350	210	4.750	140
R 2,0 X 4,0	11.500	940	9.500	765	7.950	630	6.350	445	5.550	370	4.750	270	3.550	175
R 2,5 X 5,0	9.500	1.050	7.600	855	6.350	635	5.050	445	4.450	370	3.800	285	2.850	175
R 3,0 X 6,0	7.950	1.050	6.350	855	5.300	670	4.200	465	3.700	390	3.150	295	2.350	185
R 4,0 X 8,0	5.950	1.300	4.750	1.050	3.950	790	3.150	555	2.750	455	2.350	325	1.750	210
R 5,0 X 10,0	4.750	1.200	3.800	960	3.150	745	2.500	525	2.200	430	1.900	335	1.400	210
R 6,0 X 12,0	3.950	1.100	3.150	890	2.650	700	2.100	490	1.850	430	1.550	310	1.150	195
R 7,0 X 14,0	3.400	1.050	2.700	865	2.250	675	1.800	475	1.550	390	1.350	300	1.000	190
R 8,0 X 16,0	2.950	1.050	2.350	840	1.950	645	1.550	475	1.350	380	1.150	270	895	185
R 9,0 X 18,0	2.650	1.000	2.100	795	1.750	610	1.400	475	1.200	380	1.050	260	795	175
R 10,0 X 20,0	2.350	940	1.900	765	1.550	570	1.250	450	1.100	370	955	250	715	170
R 12,5 X 25,0	1.900	760	1.500	670	1.250	465	1.000	360	890	295	760	210	570	145
R 15,0 X 30,0	1.550	650	1.250	630	1.050	435	845	310	740	250	635	175	475	115

Max cutting depth

ap	ae
1,2D	0,01D



ap	pf
0,05D	0,1D

1. Use a rigid and precise machine and holder.
2. Please use a suitable fluid with high smoke retardant properties.

1. Usare un mandrino portautensile preciso e rigido/
2. Si consiglia di usare emulsione a scarsa emissione di fumi.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Benutzen Sie Kühlmittel mit rauchhemmemden Zusätzen.

1. Utiliser une machine et un attachement précis et rigide.
2. Utiliser un liquide de refroidissement adéquat.

1. Benyt højt præcisions set-up for at sikre maksimum stabilitet
2. Benyt en kølevæske med lav koefficient af røgudvikling

1. Use máquina de alta precisión y asegure la máxima rigidez
2. Utilizar un refrigerante con un bajo coeficiente de emisión de humo

1. Använd uppsänningsanordning av hög kvalitet för bästa stabilitet
2. Använd skärvätska med låg rökutvecklingskoefficient.

1. Используйте жесткие и точные станки и фрезерные патроны.
2. Используйте качественную СОЖ с высокой устойчивостью к возникновению дыма.

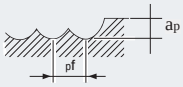
FX-MG-EBD

High speed milling - HSC Schlichtfräsen - Fresatura alta velocità - Fraisage UGV
High speed fræsning - High Speed Milling - Fresado a alta velocidad HSM - Высокоскоростное фрезерование

Ø	C≤0,2% - GG S55C ■ SS400 ■ GG25 ~750 N/mm²		SCM - SKD SKD ■ SKS ■ SNCM ~30 HRC		30~38 HRC NAK55 ■ HPMI ■ SKT 30~38 HRC		38~45 HRC SUS SUS304 ■ X210CR12 X40CRMOV51 38~45 HRC		45~55 HRC 45~55 HRC		55~60 HRC 55~60 HRC	
	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
R 0,5 X 1	50.000	2.800	50.000	2.800	50.000	2.500	47.500	2.250	32.000	1.450	25.000	1.000
R 1,0 X 2	31.500	3.500	25.000	2.800	24.500	2.500	23.500	2.250	17.000	1.550	12.500	1.000
R 1,5 X 3	21.000	3.500	16.500	2.800	16.000	2.500	15.500	2.250	11.000	1.550	8.450	1.000
R 2,0 X 4	18.000	3.700	15.500	3.400	15.000	2.750	13.500	2.450	11.000	1.900	7.950	1.100
R 2,5 X 5	15.500	4.000	15.000	4.050	14.000	2.900	11.000	2.300	10.000	2.100	7.600	1.200
R 3,0 X 6	15.000	4.800	13.500	4.300	11.500	2.750	9.500	2.250	9.500	2.250	6.600	1.150
R 4,0 X 8	11.500	3.650	10.000	3.200	8.950	2.100	7.150	1.700	7.150	1.700	4.950	890
R 5,0 X 10	9.500	3.000	8.250	2.600	7.150	1.700	5.700	1.350	5.700	1.350	3.950	710
R 6,0 X 12	7.950	2.500	6.850	2.150	5.950	1.400	4.750	1.100	4.750	1.100	3.300	590
R 7,0 X 14	6.800	2.150	5.900	1.850	5.100	1.200	4.050	970	4.050	970	2.800	500
R 8,0 X 16	5.950	1.900	5.150	1.600	4.450	1.050	3.550	850	3.550	850	2.450	440
R 9,0 X 18	5.300	1.650	4.550	1.450	3.950	945	3.150	755	3.150	755	2.200	395
R 10,0 X 20	4.750	1.500	4.100	1.300	3.550	850	2.850	680	2.850	680	1.950	350
R 12,5 X 25	3.800	1.200	3.300	1.050	2.850	680	2.250	540	2.250	540	1.550	275
R 15,0 X 30	3.150	1.000	2.750	880	2.350	560	1.900	455	1.900	455	1.300	230

Max cutting depth

	ap	pf
R ≤ 12,5	0,02D	0,2D
12,5 < R	0,50 mm	0,2D



	ap	pf
R ≤ 8	0,02D	0,05D
8 < R	0,5 mm	0,05D

Attention : sparks and/or flames can cause coolant fire. Be sure adequate fire prevention is available.
1. Speeds and feeds are designed to be used in conjunction with small passes on a high speed & precision machine set-up.
2. Do not use inflammable coolant. Using worn tools may generate sparks.
3. Use compresed air or a high quality coolant with a low co-efficient of smoke emmision.

Attenzione: le scintille prodotto durante l'operazione o il calore causato dalla rottura dell'utensile possono infiammare il lubrificante. Assicurasi che siano applicate delle adeguate misure di prevenzione.
1. Queste velocità e questi avanzamenti sono indicati per fresatura di piccole passate ad alta velocità e centri di lavorazione di alta precisione.
2. Non utillizare lubrificanti da taglio infiammabili; gli utensili troppo usurati possono produrre scintille.
3. Utilizzare un getto di aria compressa. Se la vostra scelta ricade su dei liquidi da taglio, sceglieteli di alta qualità, dotati di un coefficiente elevato di rallentamento d'emissione del fumo.

Achtung: Funken und/oder Flammen können den Kühlschmierstoff entzünden. stellen Sie einen ausgereichenden Brandschutz sicher.
1. Die Schnittdaten sin ausgelegt für geringe Zustellungen in Verbindung mit HSC tauglichen Maschinen und Spannmittel.
2. Bitte gegeignetes Kühlmittel mit rauchhemmenden Zusätzen verwenden.
3. Benutzen Sie Druckluft oder Kühlmittel mit rauchhemmenden Zusätzen..

Attention : étincelles et/ou chaleur peuvent enflammer le lubrifiant. S'assurer que des mesures de prévention adéquates sont appliquées.
1. Les vitesses et avances sont indiquées pour le fraisage de petites passes à haute vitesse / centres d'usinage de haute précision.
2. Ne pas utiliser de lubrifiants de coupe inflammables, les outils fortement usés peuvent produire des étincelles.
3. Utilisez un jet d'air comprimé ou des fluides de coupe de haute qualité avec un coef. élevé

Pas på: gnister kan antænde kølevæsken. Sørg for brandslukningsmateriel er inden for rækkevidde
1. Skæredata er designet til brug i samarbejde med små bearbejdninger i et præcisions setup på et højhastigheds bearbejdningscenter
2. Brug ikke brændbare kølevæsker. Brugte værktøjer kan resultere i gnister
3. Brug lufttryk eller kølevæske af høj kvalitet med lav røgudvikling

Atención: Las chispas pueden causar el incendio del refirgerante. Asegurese que una adecuada prevencion de incendios está disponible
1. Velocidades y avances establecidos junto a pasadas ligeras en maquinas de lata velocidad y gran precisión
2. No utilizar refrigerante inflamable. Las herramientas calientes pueden generar chispas
3. Utilizar aire comprimido o un refrigerante con un bajo coeficiente de emisión de humo

Observera: Gnistor kan antända kylvätskan. Se till att ha en bra brandsläckningsutrustning
1. Skärdatan är designat för små ingrepp vid precisions bearbetning i höghastighetsmaskiner
2. Använd inte brandfarliga kylvätskor. Fräsar kan vara mycket varma eter ingrepp
3. Använd tryckluft eller kylvätska med hög kvalitet och låg rökutveckling

Внимание! Искры и пламя могут воспламенить СОЖ. Примите меры противопожарной безопасности.
1. Указанные режимы резания предназначены для точных высокоскоростных станков и жесткого закрепления обрабатываемой детали.
2. Не используйте легко воспламеняемую СОЖ. При использовании изношенных фрез возможно возникновение искр.
3. Используйте сжатый воздух или качественную СОЖ с высокой устойчивостью к возникновению дыма.

FX-LS-MG-EBD

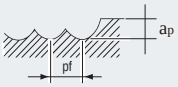
Regular milling - Normale Bearbeitung - Parametri di taglio - Fraisage regular
Almindelig fræsning - Konventionell fräsning - Fresado regular - Нормальное фрезерование



Ø	GG GG-GGG		C≤0,2% S55C ■ SS400 ~750 N/mm²		SCM - SKD SKD ■ SKS ■ SNCM ~30 HRC		30~38 HRC NAK55 ■ HPMI ■ SKT 30~38 HRC		38~45 HRC SUS SUS304 ■ X210CR12 X40CRMOV51 38~45 HRC		45~55 HRC HRS 45~55 HRC		55~60 HRC 55~60 HRC	
	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
R 0,2 X 0,4	32.000	460	32.000	460	32.000	410	32.000	330	32.000	205	24.500	135	24.500	115
R 0,3 X 0,6	32.000	535	32.000	535	31.500	490	32.000	420	32.000	265	24.500	175	23.500	150
R 0,5 X 1,0	32.000	765	32.000	765	31.500	620	25.000	400	22.000	285	19.000	210	14.000	140
R 1,0 X 2,0	23.500	940	19.000	765	15.500	620	12.500	400	11.000	290	9.500	210	7.150	140
R 1,5 X 3,0	15.500	940	12.500	765	10.500	630	8.450	405	7.400	290	6.350	210	4.750	140
R 2,0 X 4,0	11.500	940	9.500	765	7.950	630	6.350	445	5.550	370	4.750	270	3.550	175
R 2,5 X 5,0	9.500	1.050	7.600	855	6.350	635	5.050	445	4.450	370	3.800	285	2.850	175
R 3,0 X 6,0	7.950	1.050	6.350	855	5.300	670	4.200	465	3.700	390	3.150	295	2.350	185
R 4,0 X 8,0	5.950	1.300	4.750	1.050	3.950	790	3.150	555	2.750	455	2.350	325	1.750	210
R 5,0 X 10,0	4.750	1.200	3.800	960	3.150	745	2.500	525	2.200	430	1.900	335	1.400	210
R 6,0 X 12,0	3.950	1.100	3.150	890	2.650	700	2.100	490	1.850	430	1.550	310	1.150	195
R 7,0 X 14,0	3.400	1.050	2.700	865	2.250	675	1.800	475	1.550	390	1.350	300	1.000	190
R 8,0 X 16,0	2.950	1.050	2.350	840	1.950	645	1.550	475	1.350	380	1.150	270	895	185
R 9,0 X 18,0	2.650	1.000	2.100	795	1.750	610	1.400	475	1.200	380	1.050	260	795	175
R 10,0 X 20,0	2.350	940	1.900	765	1.550	570	1.250	450	1.100	370	955	250	715	170
R 12,5 X 25,0	1.900	760	1.500	670	1.250	465	1.000	360	890	295	760	210	570	145
R 15,0 X 30,0	1.550	650	1.250	630	1.050	435	845	310	740	250	635	175	475	115

Max cutting depth

ap	ae
1,2D	0,01D



ap	pf
0,05D	0,1D

1. Use a rigid and precise machine and holder. 2. Please use a suitable fluid with high smoke retardant properties.	1. Use a rigid and precise machine and holder. 2. Please use a suitable fluid with high smoke retardant properties.
1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel. 2. Benutzen Sie Kühlmittel mit rauchhemmemden Zusätzen.	1. Utiliser une machine et un attachement précis et rigide. 2. Utiliser un liquide de refroidissement adéquat.
1. Anvend stabil maskine og værktøjsholder 2. Anvend en passende skæreveske	1. Use maquina y portaherramientas rigidos y precisos 2. Use fluido de corte adecuado con retardador de humos
1. Använd en stabil maskin och verktygshållare 2. Använd anpassad skärvätska	1. Используйте жесткие и точные станки и фрезерные патроны. 2. Используйте качественную СОЖ с высокой устойчивостью к возникновению дыма.

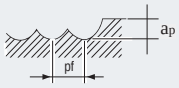
FX-SS-EBD

Regular milling - Normale Bearbeitung - Parametri di taglio - Fraisage regular
Almindelig fræsning - Konventionell fräsning - Fresado regular - Нормальное фрезерование

Ø	GG GG-GGG		C≤0,2% S55C ■ SS400 ~750 N/mm²		SCM - SKD SKD ■ SKS ■ SNCM ~30 HRC		30~38 HRC NAK55 ■ HPMI ■ SKT 30~38 HRC		38~45 HRC SUS SUS304 ■ X210CR12 X40CRMOV51 38~45 HRC		45~55 HRC HRS 45~55 HRC		55~60 HRC 55~60 HRC	
	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
R 0,2 X 0,4	32.000	460	32.000	460	32.000	410	32.000	330	32.000	205	24.500	135	24.500	115
R 0,3 X 0,6	32.000	535	32.000	535	31.500	490	32.000	420	32.000	265	24.500	175	23.500	150
R 0,5 X 1,0	32.000	765	32.000	765	31.500	620	25.000	400	22.000	285	19.000	210	14.000	140
R 1,0 X 2,0	23.500	940	19.000	765	15.500	620	12.500	400	11.000	290	9.500	210	7.150	140
R 1,5 X 3,0	15.500	940	12.500	765	10.500	630	8.450	405	7.400	290	6.350	210	4.750	140
R 2,0 X 4,0	11.500	940	9.500	765	7.950	630	6.350	445	5.550	370	4.750	270	3.550	175
R 2,5 X 5,0	9.500	1.050	7.600	855	6.350	635	5.050	445	4.450	370	3.800	285	2.850	175
R 3,0 X 6,0	7.950	1.050	6.350	855	5.300	670	4.200	465	3.700	390	3.150	295	2.350	185
R 4,0 X 8,0	5.950	1.300	4.750	1.050	3.950	790	3.150	555	2.750	455	2.350	325	1.750	210
R 5,0 X 10,0	4.750	1.200	3.800	960	3.150	745	2.500	525	2.200	430	1.900	335	1.400	210
R 6,0 X 12,0	3.950	1.100	3.150	890	2.650	700	2.100	490	1.850	430	1.550	310	1.150	195
R 7,0 X 14,0	3.400	1.050	2.700	865	2.250	675	1.800	475	1.550	390	1.350	300	1.000	190
R 8,0 X 16,0	2.950	1.050	2.350	840	1.950	645	1.550	475	1.350	380	1.150	270	895	185
R 9,0 X 18,0	2.650	1.000	2.100	795	1.750	610	1.400	475	1.200	380	1.050	260	795	175
R 10,0 X 20,0	2.350	940	1.900	765	1.550	570	1.250	450	1.100	370	955	250	715	170
R 12,5 X 25,0	1.900	760	1.500	670	1.250	465	1.000	360	890	295	760	210	570	145
R 15,0 X 30,0	1.550	650	1.250	630	1.050	435	845	310	740	250	635	175	475	115

Max cutting depth

ap	ae
1,2D	0,01D



ap	pf
0,05D	0,1D

1. Use a rigid and precise machine and holder.
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1. Utiliser une machine et un attachement précis et rigide.
2. Utiliser un liquide de refroidissement adéquat.

1. Anvend stabil maskine og værktøjsholder
2. Anvend en passende skærevæske

1. Use maquina y portaherramientas rigidos y precisos
2. Use fluido de corte adecuado con retardador de humos

1. Använd en stabil maskin och verktygshållare
2. Använd anpassad skärvätska

1. Используйте жесткие и точные станки и фрезерные патроны.
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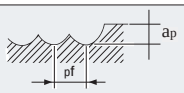
FX-EBD-6

High speed milling - HSC Schlichtfräsen - Fresatura alta velocità - Fraisage UGV
High speed fræsning - High Speed Milling - Fresado a alta velocidad HSM - Высокоскоростное фрезерование

Ø	C≤0,2% - GG S55C ■ SS400 ■ GG25 ~750 N/mm²		SCM - SKD SKD ■ SKS ■ SNCM ~30 HRC		30~38 HRC NAK55 ■ HPMI ■ SKT 30~38 HRC		38~45 HRC SUS SUS304 ■ X210CR12 X40CRMOV51 38~45 HRC		45~55 HRC HRS 45~55 HRC		55~60 HRC 55~60 HRC	
	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
R 0,10	50.000	640	50.000	560	50.000	560	50.000	480	32.000	290	32.000	290
R 0,15	50.000	930	50.000	840	50.000	720	50.000	720	32.000	440	32.000	440
R 0,20	50.000	1.200	50.000	1.100	50.000	1.100	50.000	960	32.000	585	32.000	585
R 0,25	50.000	1.450	50.000	1.400	50.000	1.400	50.000	1.200	32.000	735	32.000	735
R 0,30	50.000	1.650	50.000	1.650	50.000	1.650	50.000	1.400	32.000	880	32.000	880
R 0,40	50.000	2.200	50.000	2.200	50.000	2.000	50.000	1.900	32.000	1.150	32.000	1.150
R 0,50	50.000	2.800	50.000	2.800	50.000	2.500	50.000	2.400	38.000	1.700	32.000	1.450
R 0,75	50.000	4.200	50.000	4.200	46.500	3.450	46.500	3.300	28.500	1.700	26.500	1.800
R 1,00	44.500	4.950	41.000	4.550	35.000	3.500	35.000	3.350	25.000	2.600	19.500	1.800
R 1,50	29.500	4.950	27.500	4.600	23.000	3.500	23.000	3.350	19.000	2.600	13.000	1.800
R 2,00	22.000	4.900	20.500	4.600	17.500	3.500	17.500	3.350	14.000	2.600	9.900	1.800
R 2,50	17.500	4.900	16.500	4.600	14.000	3.500	14.000	3.350	11.000	2.600	7.950	1.800
R 3,00	14.500	4.850	13.500	4.500	11.500	3.450	11.500	3.300	9.500	2.600	6.600	1.800

Max cutting depth

ap	pf
0,02D	0,05D



Attention : sparks and/or flames can cause coolant fire. Be sure adequate fire prevention is available.
1. Speeds and feeds are designed to be used in conjunction with small passes on a high speed & precision machine set-up.
2. Do not use inflammable coolant. Using worn tools may generate sparks.
3. Use compresed air or a high quality coolant with a low co-efficient of smoke emmision.

Attenzione: le scintille prodotto durante l'operazione o il calore causato dalla rottura dell'utensile possono infiammare il lubrificante. Assicurasi che siano applicate delle adeguate misure di prevenzione.
1. Queste velocità e questi avanzamenti sono indicati per fresatura di piccole passate ad alta velocità e centri di lavorazione di alta precisione.
2. Non utillizare lubrificanti da taglio infiammabili; gli utensili troppo usurati possono produrre scintille.
3. Utilizzare un getto di aria compressa. Se la vostra scelta ricade su dei liquidi da taglio, sceglieteli di alta qualità, dotati di un coefficiente elevato di rallentamento d'emissione del fumo.

Achtung: Funken und/oder Flammen können den Kühlschmierstoff entzünden. stellen Sie einen ausgereichenden Brandschutz sicher.
1. Die Schnittdaten sin ausgelegt für geringe Zustellungen in Verbindung mit HSC tauglichen Maschinen und Spannmittel.
2. Bitte gegeignetes Kühlmittel mit rauchhemmenden Zusätzen verwenden.
3. Benutzen Sie Druckluft oder Kühlmittel mit rauchhemmenden Zusätzen..

Attention : étincelles et/ou chaleur peuvent enflammer le lubrifiant. S'assurer que des mesures de prévention adéquates sont appliquées.
1. Les vitesses et avances sont indiquées pour le fraisage de petites passes à haute vitesse / centres d'usinage de haute précision.
2. Ne pas utiliser de lubrifiants de coupe inflammables, les outils fortement usés peuvent produire des étincelles.
3. Utilisez un jet d'air comprimé ou des fluides de coupe de haute qualité avec un coef. élevé

Pas på: gnister kan antænde kølevæsken. Sørg for brandslukningsmateriel er inden for rækkevidde
1. Skæredata er designet til brug i samarbejde med små bearbejdninger i et præcisions setup på et højhastigheds bearbejdningscenter
2. Brug ikke brændbare kølevæsker. Brugte værktøjer kan resultere i gnister
3. Brug lufttryk eller kølevæske af høj kvalitet med lav røgudvikling

Atención: Las chispas pueden causar el incendio del refrigerante. Asegurese que una adecuada prevencion de incendios está disponible
1. Velocidades y avances establecidos junto a pasadas ligeras en maquinas de lata velocidad y gran precisión
2. No utilizar refrigerante inflamable. Las herramientas calientes pueden generar chispas
3. Utilizar aire comprimido o un refrigerante con un bajo coeficiente de emisión de humo

Observera: Gnistor kan antända kylvätskan. Se till att ha en bra brandsläckningsutrustning
1. Skärdatan är designat för små ingrepp vid precisions bearbetning i höghastighetsmaskiner
2. Använd inte brandfarliga kylvätskor. Fräsar kan vara mycket varma eter ingrepp
3. Använd tryckluft eller kylvätska med hög kvalitet och låg rökutveckling

Внимание! Искры и пламя могут воспламенить СОЖ. Примите меры противопожарной безопасности.
1. Указанные режимы резания предназначены для точных высокоскоростных станков и жесткого закрепления обрабатываемой детали.
2. Не используйте легко воспламеняемую СОЖ. При использовании изношенных фрез возможно возникновение искр.
3. Используйте сжатый воздух или качественную СОЖ с высокой устойчивостью к возникновению дыма.

FX-LN-EBD-6

High speed milling - HSC Schlichtfräsen - Fresatura alta velocità - Fraisage UGV
High speed fræsning - High Speed Milling - Fresado a alta velocidad HSM - Высокоскоростное фрезерование



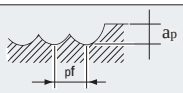
		C≤0,2% - GG E24 ■ XC48 ■ FT25 ■ 75MPA					SCM - SKD 35NCD16 ■ 40CMD8 ~30 HRC					30~38 HRC 35NCD16 30~38 HRC				
		120 (m/min)					110 (m/min)					100 (m/min)				
Ø	Lg (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	Pf (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	Pf (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	Pf (mm)
0,2	0,5	50.000	400	0,004	0,020	0,060	50.000	360	0,004	0,018	0,054	50.000	320	0,003	0,016	0,048
0,2	1	50.000	400	0,004	0,010	0,024	50.000	360	0,004	0,009	0,022	50.000	320	0,003	0,008	0,019
0,2	1,5	50.000	400	0,004	0,008	0,010	50.000	360	0,004	0,007	0,009	50.000	320	0,003	0,006	0,008
0,3	1	50.000	600	0,006	0,020	0,063	50.000	540	0,005	0,018	0,057	50.000	480	0,005	0,016	0,050
0,3	1,5	50.000	600	0,006	0,015	0,040	50.000	540	0,005	0,014	0,036	50.000	480	0,005	0,012	0,032
0,3	2	50.000	600	0,006	0,012	0,036	50.000	540	0,005	0,011	0,032	50.000	480	0,005	0,010	0,029
0,4	1	50.000	900	0,009	0,040	0,120	50.000	810	0,008	0,036	0,108	50.000	720	0,007	0,032	0,096
0,4	1,5	50.000	900	0,009	0,020	0,100	50.000	810	0,008	0,018	0,090	50.000	720	0,007	0,016	0,080
0,4	2	50.000	900	0,009	0,020	0,060	50.000	810	0,008	0,018	0,054	50.000	720	0,007	0,016	0,048
0,4	2,5	50.000	800	0,008	0,020	0,050	50.000	720	0,007	0,018	0,045	50.000	640	0,006	0,016	0,040
0,4	3	50.000	800	0,008	0,020	0,048	50.000	720	0,007	0,018	0,043	50.000	640	0,006	0,016	0,038
0,5	2	50.000	1.500	0,015	0,020	0,070	50.000	1.350	0,014	0,018	0,063	40.000	960	0,012	0,016	0,056
0,5	3	50.000	1.200	0,012	0,020	0,065	50.000	1.080	0,011	0,018	0,059	40.000	768	0,010	0,016	0,052
0,5	4	50.000	1.100	0,011	0,020	0,060	50.000	990	0,010	0,018	0,054	40.000	704	0,009	0,016	0,048
0,5	5	50.000	1.100	0,011	0,020	0,050	40.000	792	0,010	0,018	0,045	40.000	704	0,009	0,016	0,040
0,5	6	50.000	1.100	0,011	0,013	0,039	40.000	792	0,010	0,012	0,035	40.000	704	0,009	0,010	0,031
0,5	8	50.000	900	0,009	0,010	0,030	40.000	648	0,008	0,009	0,027	40.000	576	0,007	0,008	0,024
0,6	2	40.000	1.280	0,016	0,030	0,100	40.000	1.152	0,014	0,027	0,090	40.000	1.024	0,013	0,024	0,080
0,6	3	40.000	1.200	0,015	0,030	0,100	40.000	1.080	0,014	0,027	0,090	40.000	960	0,012	0,024	0,080
0,6	4	40.000	1.040	0,013	0,030	0,100	40.000	936	0,012	0,027	0,090	40.000	832	0,010	0,024	0,080
0,6	5	40.000	960	0,012	0,030	0,100	40.000	864	0,011	0,027	0,090	40.000	768	0,010	0,024	0,080
0,6	6	40.000	880	0,011	0,030	0,100	40.000	792	0,010	0,027	0,090	40.000	704	0,009	0,024	0,080
0,6	8	40.000	880	0,011	0,017	0,100	40.000	792	0,010	0,015	0,090	40.000	704	0,009	0,014	0,080
0,8	2	40.000	1.440	0,018	0,050	0,150	40.000	1.296	0,016	0,045	0,135	40.000	1.152	0,014	0,040	0,120
0,8	4	40.000	1.440	0,018	0,040	0,100	40.000	1.296	0,016	0,036	0,090	40.000	1.152	0,014	0,032	0,080
0,8	5	40.000	1.440	0,018	0,040	0,100	40.000	1.296	0,016	0,036	0,090	40.000	1.152	0,014	0,032	0,080
0,8	6	40.000	1.440	0,018	0,035	0,100	40.000	1.296	0,016	0,032	0,090	40.000	1.152	0,014	0,028	0,080
0,8	7	40.000	1.360	0,017	0,030	0,009	40.000	1.224	0,015	0,027	0,008	40.000	1.088	0,014	0,024	0,007
0,8	8	40.000	1.200	0,015	0,030	0,070	40.000	1.080	0,014	0,027	0,063	40.000	960	0,012	0,024	0,056
0,8	10	40.000	1.200	0,015	0,020	0,060	40.000	1.080	0,014	0,018	0,054	40.000	960	0,012	0,016	0,048
1,0	3	40.000	2.000	0,025	0,100	0,200	40.000	1.800	0,023	0,090	0,180	40.000	1.600	0,020	0,080	0,160
1,0	4	40.000	1.760	0,022	0,070	0,200	40.000	1.584	0,020	0,063	0,180	40.000	1.408	0,018	0,056	0,160
1,0	5	40.000	1.760	0,022	0,050	0,200	40.000	1.584	0,020	0,045	0,180	40.000	1.408	0,018	0,040	0,160
1,0	6	40.000	1.760	0,022	0,050	0,200	40.000	1.584	0,020	0,045	0,180	40.000	1.408	0,018	0,040	0,160
1,0	7	40.000	1.600	0,020	0,050	0,150	40.000	1.440	0,018	0,045	0,135	40.000	1.280	0,016	0,040	0,120
1,0	8	40.000	1.600	0,020	0,040	0,150	40.000	1.440	0,018	0,036	0,135	40.000	1.280	0,016	0,032	0,120
1,0	9	40.000	1.600	0,020	0,040	0,150	40.000	1.440	0,018	0,036	0,135	40.000	1.280	0,016	0,032	0,120
1,0	10	40.000	1.600	0,020	0,030	0,100	40.000	1.440	0,018	0,027	0,090	40.000	1.280	0,016	0,024	0,080
1,0	12	40.000	1.200	0,015	0,030	0,100	40.000	1.080	0,014	0,027	0,090	40.000	960	0,012	0,024	0,080
1,0	14	40.000	1.200	0,015	0,030	0,100	40.000	1.080	0,014	0,027	0,090	40.000	960	0,012	0,024	0,080
1,0	16	40.000	1.200	0,015	0,025	0,100	40.000	1.080	0,014	0,023	0,090	40.000	960	0,012	0,020	0,080
1,0	20	40.000	1.200	0,015	0,020	0,080	40.000	1.080	0,014	0,018	0,072	40.000	960	0,012	0,016	0,064
1,2	6	31.847	1.911	0,030	0,050	0,120	29.193	1.576	0,027	0,045	0,108	26.539	1.274	0,024	0,040	0,096
1,2	8	31.847	1.656	0,026	0,040	0,120	29.193	1.366	0,023	0,036	0,108	26.539	1.104	0,021	0,032	0,096
1,2	10	31.847	1.401	0,022	0,030	0,090	29.193	1.156	0,020	0,027	0,081	26.539	934	0,018	0,024	0,072
1,2	12	31.847	1.274	0,020	0,020	0,090	29.193	1.051	0,018	0,018	0,081	26.539	849	0,016	0,016	0,072
1,4	8	27.298	1.638	0,030	0,060	0,200	25.023	1.351	0,027	0,054	0,180	22.748	1.092	0,024	0,048	0,160
1,4	12	27.298	1.638	0,030	0,050	0,180	25.023	1.351	0,027	0,045	0,162	22.748	1.092	0,024	0,040	0,144
1,4	16	27.298	1.638	0,030	0,040	0,140	25.023	1.351	0,027	0,036	0,126	22.748	1.092	0,024	0,032	0,112
1,5	8	25.478	1.682	0,033	0,070	0,180	23.355	1.387	0,030	0,063	0,162	21.231	1.121	0,026	0,056	0,144
1,5	12	25.478	1.682	0,033	0,070	0,180	23.355	1.387	0,030	0,063	0,162	21.231	1.121	0,026	0,056	0,144
1,5	16	25.478	1.427	0,028	0,050	0,140	23.355	1.177	0,025	0,045	0,126	21.231	951	0,022	0,040	0,112
1,5	20	25.478	1.274	0,025	0,040	0,120	23.355	1.051	0,023	0,036	0,108	21.231	849	0,020	0,032	0,096
1,6	8	23.885	1.672	0,035	0,070	0,200	21.895	1.379	0,032	0,063	0,180	19.904	1.115	0,028	0,056	0,160
1,6	12	23.885	1.529	0,032	0,070	0,200	21.895	1.261	0,029	0,063	0,180	19.904	1.019	0,026	0,056	0,160
1,6	16	23.885	1.433	0,030	0,050	0,150	21.895	1.182	0,027	0,045	0,135	19.904	955	0,024	0,040	0,120
1,6	20	23.885	1.194	0,025	0,040	0,120	21.895	985	0,023	0,036	0,108	19.904	796	0,020	0,032	0,096
1,8	8	21.231	1.741	0,041	0,080	0,250	19.462	1.436	0,037	0,072	0,225	17.693	1.161	0,033	0,064	0,200
1,8	12	21.231	1.486	0,035	0,080	0,200	19.462	1.226	0,032	0,072	0,180	17.693	991	0,028	0,064	0,160
1,8	16	21.231	1.274	0,030	0,060	0,150	19.462	1.051	0,027	0,054	0,135	17.693	849	0,024	0,048	0,120
1,8	20	21.231	1.146	0,027	0,050	0,135	19.462	946	0,024	0,045	0,122	17.693	764	0,022	0,040	0,108
1,6	8	23.885	1.672	0,035	0,070	0,200	21.895	1.379	0,032	0,063	0,180	19.904	1.115	0,028	0,056	0,160
1,6	12	23.885	1.529	0,032	0,070	0,200	21.895	1.261	0,029	0,063	0,180	19.904	1.019	0,026	0,056	0,160
1,6	16	23.885	1.433	0,030	0,050	0,150	21.895	1.182	0,027	0,045	0,135	19.904	955	0,024	0,040	0,120
1,6	20	23.885	1.194	0,025	0,040	0,120	21.895	985	0,023	0,036	0,108	19.904	796	0,020	0,032	0,096
1,8	8	21.231	1.741	0,041	0,080	0,250	19.462	1.436	0,037	0,072	0,225	17.693	1.161	0,033	0,064	0,200
1,8	12	21.231	1.486	0,035	0,080	0,200	19.462	1.226	0,032	0,072	0,180	17.693	991	0,028	0,064	0,160
1,8	16	21.231	1.274	0,030	0,060	0,150	19.462	1.051	0,027	0,054	0,135	17.693	849	0,024	0,048	0,120
1,8	20	21.231	1.146	0,027	0,050	0,135	19.462	946	0,024	0,045	0,122	17.693	764	0,022	0,040	0,108
2	4	19.108	1.911	0,050	0,180	0,500	17.516	1.576	0,045	0,162	0,450	15.924	1.274	0,040	0,144	0,400
2	6	19.108	1.720	0,045	0,150	0,500	17.516	1.419	0,041	0,135	0,450	15.924	1.146	0,036	0,120	0,400
2	8	19.108	1.643	0,043	0,150	0,400	17.516	1.356	0,039	0,135	0,360	15.924	1.096	0,034	0,120	0,320
2	10	19.108	1.911	0,050	0,150	0,400	17.516	1.576	0,045	0,135	0,360	15.924	1.274	0,040	0,120	0,320
2	12	19.108	1.796	0,047	0,120	0,350	17.516	1.482	0,042	0,108	0,315	15.924	1.197	0,038	0,096	0,280
2	14	19.108	1.529	0,040	0,100	0,350	17.516	1.261	0,036	0,090	0,315	15.924	1.019	0,032	0,080	0,280
2	16	19.108	1.338	0,035	0,100	0,300	17.516	1.104	0,032	0,090	0,270	15.924	892	0,028	0,080	0,240
2	18	19.108	1.146	0,030	0,100	0,250	17.516	946	0,027	0,090	0,225	15.924	764	0,024	0,080	0,200
2	20	19.108	1.146	0,030	0,070	0,250	17.516	946	0,027	0,063	0,225	15.924	764	0,024	0,056	0,200
2	22	19.108	1.032	0,027	0,050	0,200	17.516	851	0,024	0,045	0,180	15.924	688	0,022	0,040	0,160
2	25	19.108	1.032	0,027	0,050	0,150	17.516	851	0,024	0,045	0,135	15.924	688	0,022	0,040	0,120
2	30	19.108	955	0,025	0,040	0,100	17.516	788	0,023	0,036	0,090	15.924	637	0,020	0,032	0,080
3	8	12.739	2.038	0,080	0,200	0,600	11.677	1.682	0,072	0,180	0,540	10.616	1.359	0,064	0,160	0,480
3	10	12.739	2.038	0,080	0,200	0,500	11.677	1.682	0,072	0,180	0,450	10.616	1.359	0,064	0,160	0,400
3	16	12.739	1.783	0,070	0,150	0,500	11.677	1.471	0,063	0,135	0,450	10.616	1.189	0,056	0,120	0,400
3	20	12.739	1.656	0,065	0,150	0,400	11.677	1.366	0,059	0,135	0,360	10.616	1.104	0,052	0,120	0,320

High speed milling - HSC Schlichtfräsen - Fresatura alta velocità - Fraisage UGV
High speed fræsning - High Speed Milling - Fresado a alta velocidad HSM - Высокоскоростное фрезерование



		C≤0,2% - GG E24 ■ XC48 ■ FT25 ■ 75MPA					SCM - SKD 35NCD16 ■ 40CMD8 ~30 HRC					30~38 HRC 35NCD16 30~38 HRC				
		120 (m/min)					110 (m/min)					100 (m/min)				
Ø	Lg (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	Pf (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	Pf (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	Pf (mm)
3	**25**	12.739	1.529	0,060	0,130	0,300	11.677	1.261	0,054	0,117	0,270	10.616	1.019	0,048	0,104	0,240
3	**30**	12.739	1.452	0,057	0,100	0,250	11.677	1.198	0,051	0,090	0,225	10.616	968	0,046	0,080	0,200
3	**35**	12.739	1.401	0,055	0,080	0,250	11.677	1.156	0,050	0,072	0,225	10.616	934	0,044	0,064	0,200
4	**10**	9.554	2.293	0,120	0,200	0,800	8.758	1.892	0,108	0,180	0,720	7.962	1.529	0,096	0,160	0,640
4	**16**	9.554	1.911	0,100	0,200	0,600	8.758	1.576	0,090	0,180	0,540	7.962	1.274	0,080	0,160	0,480
4	**20**	9.554	1.911	0,100	0,200	0,600	8.758	1.576	0,090	0,180	0,540	7.962	1.274	0,080	0,160	0,480
4	**25**	9.554	1.720	0,090	0,200	0,500	8.758	1.419	0,081	0,180	0,450	7.962	1.146	0,072	0,160	0,400
4	**30**	9.554	1.529	0,080	0,200	0,400	8.758	1.261	0,072	0,180	0,360	7.962	1.019	0,064	0,160	0,320
4	**35**	9.554	1.338	0,070	0,150	0,400	8.758	1.104	0,063	0,135	0,360	7.962	892	0,056	0,120	0,320
4	**40**	9.554	1.146	0,060	0,150	0,400	8.758	946	0,054	0,135	0,360	7.962	764	0,048	0,120	0,320
4	**45**	9.554	1.146	0,060	0,100	0,300	8.758	946	0,054	0,090	0,270	7.962	764	0,048	0,080	0,240
4	**50**	9.554	955	0,050	0,100	0,300	8.758	788	0,045	0,090	0,270	7.962	637	0,040	0,080	0,240
5	**20**	7.643	1.987	0,130	0,250	1,000	7.006	1.639	0,117	0,225	0,900	6.369	1.325	0,104	0,200	0,800
5	**25**	7.643	1.834	0,120	0,250	0,900	7.006	1.513	0,108	0,225	0,810	6.369	1.223	0,096	0,200	0,720
5	**30**	7.643	1.529	0,100	0,250	0,800	7.006	1.261	0,090	0,225	0,720	6.369	1.019	0,080	0,200	0,640
5	**35**	7.643	1.529	0,100	0,250	0,600	7.006	1.261	0,090	0,225	0,540	6.369	1.019	0,080	0,200	0,480
6	**30**	6.369	1.783	0,140	0,420	1,300	5.839	1.471	0,126	0,378	1,170	5.308	1.189	0,112	0,336	1,040
6	**50**	6.369	1.401	0,110	0,200	0,500	5.839	1.156	0,099	0,180	0,450	5.308	934	0,088	0,160	0,400

Max cutting depth



Attention : sparks and/or flames can cause coolant fire. Be sure adequate fire prevention is available.
1. Speeds and feeds are designed to be used in conjunction with small passes on a high speed & precision machine set-up.
2. Do not use inflammable coolant. Using worn tools may generate sparks.
3. Use compresed air or a high quality coolant with a low co-efficient of smoke emmision.

Attenzione: le scintille prodotto durante l'operazione o il calore causato dalla rottura dell'utensile possono infiammare il lubrificante. Assicurasi che siano applicate delle adeguate misure di prevenzione.
1. Queste velocità e questi avanzamenti sono indicati per fresatura di piccole passate ad alta velocità e centri di lavorazione di alta precisione.
2. Non utillizare lubrificanti da taglio infiammabili; gli utensili troppo usurati possono produrre scintille.
3. Utilizzare un getto di aria compressa. Se la vostra scelta ricade su dei liquidi da taglio, sceglieteli di alta qualità, dotati di un coefficiente elevato di rallentamento d'emissione del fumo.

Achtung: Funken und/oder Flammen können den Kühlschmierstoff entzünden. stellen Sie einen ausgereichenden Brandschutz sicher.
1. Die Schnittdaten sin ausgelegt für geringe Zustellungen in Verbindung mit HSC tauglichen Maschinen und Spannmittel.
2. Bitte gegeignetes Kühlmittel mit rauchhemmenden Zusätzen verwenden.
3. Benutzen Sie Druckluft oder Kühlmittel mit rauchhemmenden Zusätzen..

Attention : étincelles et/ou chaleur peuvent enflammer le lubrifiant. S'assurer que des mesures de prévention adéquates sont appliquées.
1. Les vitesses et avances sont indiquées pour le fraisage de petites passes à haute vitesse / centres d'usinage de haute précision.
2. Ne pas utiliser de lubrifiants de coupe inflammables, les outils fortement usés peuvent produire des étincelles.
3. Utilisez un jet d'air comprimé ou des fluides de coupe de haute qualité avec un coef. élevé

Pas på: gnister kan antænde kølevæsken. Sørg for brandslukningsmateriel er inden for rækkevidde
1. Skæredata er designet til brug i samarbejde med små bearbejdninger i et præcisions setup på et højhastigheds bearbejdningscenter
2. Brug ikke brændbare kølevæsker. Brugte værktøjer kan resultere i gnister
3. Brug lufttryk eller kølevæske af høj kvalitet med lav røgudvikling

Atención: Las chispas pueden causar el incendio del refrigerante. Asegurese que una adecuada prevencion de incendios está disponible
1. Velocidades y avances establecidos junto a pasadas ligeras en maquinas de lata velocidad y gran precisión
2. No utilizar refrigerante inflamable. Las herramientas calientes pueden generar chispas
3. Utilizar aire comprimido o un refrigerante con un bajo coeficiente de emisión de humo

Observera: Gnistor kan antända kylvätskan. Se till att ha en bra brandsläckningsutrustning
1. Skärdatan är designat för små ingrepp vid precisions bearbetning i höghastighetsmaskiner
2. Använd inte brandfarliga kylvätskor. Fräsar kan vara mycket varma eter ingrepp
3. Använd tryckluft eller kylvätska med hög kvalitet och låg rökutveckling

Внимание! Искры и пламя могут воспламенить СОЖ. Примите меры противопожарной безопасности.
1. Указанные режимы резания предназначены для точных высокоскоростных станков и жесткого закрепления обрабатываемой детали.
2. Не используйте легко воспламеняемую СОЖ. При использовании изношенных фрез возможно возникновение искр.
3. Используйте сжатый воздух или качественную СОЖ с высокой устойчивостью к возникновению дыма.

FX-LN-EBD-6

High speed milling - HSC Schlichtfräsen - Fresatura alta velocità - Fraisage UGV
High speed fræsning - High Speed Milling - Fresado a alta velocidad HSM - Высокоскоростное фрезерование



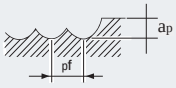
		38~45 HRC - SUS 35NCD16 38~45 HRC					45~55 HRC Z38CDV5 35~45 HRC					55~60 HRC Z160CDV12 55~60 HRC				
		100 (m/min)					70 (m/min)					50 (m/min)				
Ø	Lg (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	Pf (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	Pf (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	Pf (mm)
0,2	0,5	50.000	320	0,003	0,016	0,048	50.000	300	0,003	0,014	0,043	50.000	240	0,002	0,010	0,030
0,2	1	50.000	320	0,003	0,008	0,019	50.000	300	0,003	0,007	0,017	50.000	240	0,002	0,005	0,012
0,2	1,5	50.000	320	0,003	0,006	0,008	50.000	300	0,003	0,006	0,007	50.000	240	0,002	0,004	0,005
0,3	1	50.000	480	0,005	0,016	0,050	50.000	450	0,005	0,014	0,045	50.000	360	0,004	0,010	0,032
0,3	1,5	50.000	480	0,005	0,012	0,032	50.000	450	0,005	0,011	0,029	50.000	360	0,004	0,008	0,020
0,3	2	50.000	480	0,005	0,010	0,029	50.000	450	0,005	0,009	0,026	50.000	360	0,004	0,006	0,018
0,4	1	50.000	720	0,007	0,032	0,096	40.000	540	0,007	0,029	0,086	40.000	432	0,005	0,020	0,060
0,4	1,5	50.000	720	0,007	0,016	0,080	40.000	540	0,007	0,014	0,071	40.000	432	0,005	0,010	0,050
0,4	2	50.000	720	0,007	0,016	0,048	40.000	540	0,007	0,014	0,043	40.000	432	0,005	0,010	0,030
0,4	2,5	50.000	640	0,006	0,016	0,040	40.000	480	0,006	0,014	0,036	40.000	384	0,005	0,010	0,025
0,4	3	50.000	640	0,006	0,016	0,038	40.000	480	0,006	0,014	0,034	39.809	382	0,005	0,010	0,024
0,5	2	40.000	960	0,012	0,016	0,056	40.000	900	0,011	0,014	0,050	31.847	573	0,009	0,010	0,035
0,5	3	40.000	768	0,010	0,016	0,052	40.000	720	0,009	0,014	0,046	31.847	459	0,007	0,010	0,033
0,5	4	40.000	704	0,009	0,016	0,048	40.000	660	0,008	0,014	0,043	31.847	420	0,007	0,010	0,030
0,5	5	40.000	704	0,009	0,016	0,040	40.000	660	0,008	0,014	0,036	31.847	420	0,007	0,010	0,025
0,5	6	40.000	704	0,009	0,010	0,031	40.000	660	0,008	0,009	0,028	31.847	420	0,007	0,007	0,020
0,5	8	40.000	576	0,007	0,008	0,024	40.000	540	0,007	0,007	0,021	31.847	344	0,005	0,005	0,015
0,6	2	40.000	1.024	0,013	0,024	0,080	40.000	960	0,012	0,021	0,071	26.539	510	0,010	0,015	0,050
0,6	3	40.000	960	0,012	0,024	0,080	40.000	900	0,011	0,021	0,071	26.539	478	0,009	0,015	0,050
0,6	4	40.000	832	0,010	0,024	0,080	40.000	780	0,010	0,021	0,071	26.539	414	0,008	0,015	0,050
0,6	5	40.000	768	0,010	0,024	0,080	40.000	720	0,009	0,021	0,071	26.539	382	0,007	0,015	0,050
0,6	6	40.000	704	0,009	0,024	0,080	40.000	660	0,008	0,021	0,071	26.539	350	0,007	0,015	0,050
0,6	8	40.000	704	0,009	0,014	0,080	37.155	613	0,008	0,012	0,071	26.539	350	0,007	0,009	0,050
0,8	2	40.000	1.152	0,014	0,040	0,120	27.866	752	0,014	0,036	0,107	19.904	430	0,011	0,025	0,075
0,8	4	40.000	1.152	0,014	0,032	0,080	27.866	752	0,014	0,029	0,071	19.904	430	0,011	0,020	0,050
0,8	5	40.000	1.152	0,014	0,032	0,080	27.866	752	0,014	0,029	0,071	19.904	430	0,011	0,020	0,050
0,8	6	40.000	1.152	0,014	0,028	0,080	27.866	752	0,014	0,025	0,071	19.904	430	0,011	0,018	0,050
0,8	7	40.000	1.088	0,014	0,024	0,007	27.866	711	0,013	0,021	0,006	19.904	406	0,010	0,015	0,005
0,8	8	40.000	960	0,012	0,024	0,056	27.866	627	0,011	0,021	0,050	19.904	358	0,009	0,015	0,035
0,8	10	40.000	960	0,012	0,016	0,048	27.866	627	0,011	0,014	0,043	19.904	358	0,009	0,010	0,030
1	3	40.000	1.600	0,020	0,080	0,160	22.293	836	0,019	0,071	0,143	15.924	478	0,015	0,050	0,100
1	4	40.000	1.408	0,018	0,056	0,160	22.293	736	0,017	0,050	0,143	15.924	420	0,013	0,035	0,100
1	5	40.000	1.408	0,018	0,040	0,160	22.293	736	0,017	0,036	0,143	15.924	420	0,013	0,025	0,100
1	6	40.000	1.408	0,018	0,040	0,160	22.293	736	0,017	0,036	0,143	15.924	420	0,013	0,025	0,100
1	7	40.000	1.280	0,016	0,040	0,120	22.293	669	0,015	0,036	0,107	15.924	382	0,012	0,025	0,075
1	8	40.000	1.280	0,016	0,032	0,120	22.293	669	0,015	0,029	0,107	15.924	382	0,012	0,020	0,075
1	9	40.000	1.280	0,016	0,032	0,120	22.293	669	0,015	0,029	0,107	15.924	382	0,012	0,020	0,075
1	10	40.000	1.280	0,016	0,024	0,080	22.293	669	0,015	0,021	0,071	15.924	382	0,012	0,015	0,050
1	12	40.000	960	0,012	0,024	0,080	22.293	502	0,011	0,021	0,071	15.924	287	0,009	0,015	0,050
1	14	40.000	960	0,012	0,024	0,080	22.293	502	0,011	0,021	0,071	15.924	287	0,009	0,015	0,050
1	16	40.000	960	0,012	0,020	0,080	22.293	502	0,011	0,018	0,071	15.924	287	0,009	0,013	0,050
1	20	40.000	960	0,012	0,016	0,064	22.293	502	0,011	0,014	0,057	15.924	287	0,009	0,010	0,040
1,2	6	26.539	1.274	0,024	0,040	0,096	18.577	836	0,023	0,036	0,086	13.270	478	0,018	0,025	0,060
1,2	8	26.539	1.104	0,021	0,032	0,096	18.577	725	0,020	0,029	0,086	13.270	414	0,016	0,020	0,060
1,2	10	26.539	934	0,018	0,024	0,072	18.577	613	0,017	0,021	0,064	13.270	350	0,013	0,015	0,045
1,2	12	26.539	849	0,016	0,016	0,072	18.577	557	0,015	0,014	0,064	13.270	318	0,012	0,010	0,045
1,4	8	22.748	1.092	0,024	0,048	0,160	15.924	717	0,023	0,043	0,143	11.374	409	0,018	0,030	0,100
1,4	12	22.748	1.092	0,024	0,040	0,144	15.924	717	0,023	0,036	0,129	11.374	409	0,018	0,025	0,090
1,4	16	22.748	1.092	0,024	0,032	0,112	15.924	717	0,023	0,029	0,100	11.374	409	0,018	0,020	0,070
1,5	8	21.231	1.121	0,026	0,056	0,144	14.862	736	0,025	0,050	0,129	10.616	420	0,020	0,035	0,090
1,5	12	21.231	1.121	0,026	0,056	0,144	14.862	736	0,025	0,050	0,129	10.616	420	0,020	0,035	0,090
1,5	16	21.231	951	0,022	0,040	0,112	14.862	624	0,021	0,036	0,100	10.616	357	0,017	0,025	0,070
1,5	20	21.231	849	0,020	0,032	0,096	14.862	557	0,019	0,029	0,086	10.616	318	0,015	0,020	0,060
1,6	8	19.904	1.115	0,028	0,056	0,160	13.933	731	0,026	0,050	0,143	9.952	418	0,021	0,035	0,100
1,6	12	19.904	1.019	0,026	0,056	0,160	13.933	669	0,024	0,050	0,143	9.952	382	0,019	0,035	0,100
1,6	16	19.904	955	0,024	0,040	0,120	13.933	627	0,023	0,036	0,107	9.952	358	0,018	0,025	0,075
1,6	20	19.904	796	0,020	0,032	0,096	13.933	522	0,019	0,029	0,086	9.952	299	0,015	0,020	0,060
1,8	8	17.693	1.161	0,033	0,064	0,200	12.385	762	0,031	0,057	0,179	8.846	435	0,025	0,040	0,125
1,8	12	17.693	991	0,028	0,064	0,160	12.385	650	0,026	0,057	0,143	8.846	372	0,021	0,040	0,100
1,8	16	17.693	849	0,024	0,048	0,120	12.385	557	0,023	0,043	0,107	8.846	318	0,018	0,030	0,075
1,8	20	17.693	764	0,022	0,040	0,108	12.385	502	0,020	0,036	0,096	8.846	287	0,016	0,025	0,068
2	4	15.924	1.274	0,040	0,144	0,400	11.146	836	0,038	0,129	0,357	7.962	478	0,030	0,090	0,250
2	6	15.924	1.146	0,036	0,120	0,400	11.146	752	0,034	0,107	0,357	7.962	430	0,027	0,075	0,250
2	8	15.924	1.096	0,034	0,120	0,320	11.146	719	0,032	0,107	0,286	7.962	411	0,026	0,075	0,200
2	10	15.924	1.274	0,040	0,120	0,320	11.146	836	0,038	0,107	0,286	7.962	478	0,030	0,075	0,200
2	12	15.924	1.197	0,038	0,096	0,280	11.146	786	0,035	0,086	0,250	7.962	449	0,028	0,060	0,175
2	14	15.924	1.019	0,032	0,080	0,280	11.146	669	0,030	0,071	0,250	7.962	382	0,024	0,050	0,175
2	16	15.924	892	0,028	0,080	0,240	11.146	585	0,026	0,071	0,214	7.962	334	0,021	0,050	0,150
2	18	15.924	764	0,024	0,080	0,200	11.146	502	0,023	0,071	0,179	7.962	287	0,018	0,050	0,125
2	20	15.924	764	0,024	0,056	0,200	11.146	502	0,023	0,050	0,179	7.962	287	0,018	0,035	0,125
2	22	15.924	688	0,022	0,040	0,160	11.146	451	0,020	0,036	0,143	7.962	258	0,016	0,025	0,100
2	25	15.924	688	0,022	0,040	0,120	11.146	451	0,020	0,036	0,107	7.962	258	0,016	0,025	0,075
2	30	15.924	637	0,020	0,032	0,080	11.146	418	0,019	0,029	0,071	7.962	239	0,015	0,020	0,050
3	8	10.616	1.359	0,064	0,160	0,480	7.431	892	0,060	0,143	0,429	5.308	510	0,048	0,100	0,300
3	10	10.616	1.359	0,064	0,160	0,400	7.431	892	0,060	0,143	0,357	5.308	510	0,048	0,100	0,250
3	16	10.616	1.189	0,056	0,120	0,400	7.431	780	0,053	0,107	0,357	5.308	446	0,042	0,075	0,250
3	20	10.616	1.104	0,052	0,120	0,320	7.431	725	0,049	0,107	0,286	5.308	414	0,039	0,075	0,200
3	25	10.616	1.019	0,048	0,104	0,240	7.431	669	0,045	0,093	0,214	5.308	382	0,036	0,065	0,150
3	30	10.616	968	0,046	0,080	0,200	7.431	635	0,043	0,071	0,179	5.308	363	0,034	0,050	0,125
3	35	10.616	934	0,044	0,064	0,200	7.431	613	0,041	0,057	0,179	5.308	350	0,033	0,040	0,125
4	10	7.962	1.529	0,096	0,160	0,640	5.573	1.003	0,090	0,143	0,571	3.981	573	0,072	0,100	0,400
4	16	7.962	1.274	0,080	0,160	0,480	5.573	836	0,075	0,143	0,429	3.981	478	0,060	0,100	0,300
4	20	7.962	1.274	0,080	0,160	0,480	5.573	836	0,075	0,143	0,429	3.981	478	0,060	0,100	0,300
4	25	7.962	1.146	0,072	0,160	0,400	5.573	752	0,068	0,143	0,357	3.981	430	0,054	0,100	0,250
4	30	7.962	1.019	0,064	0,160	0,320	5.573	669	0,060	0,143	0,286	3.981	382	0,048	0,100	0,200

High speed milling - HSC Schlichtfräsen - Fresatura alta velocità - Fraisage UGV
High speed fræsning - High Speed Milling - Fresado a alta velocidad HSM - Высокоскоростное фрезерование



	38~45 HRC - SUS 35NCD16 38~45 HRC						45~55 HRC Z38CDV5 35~45 HRC						55~60 HRC Z160CDV12 55~60 HRC				
	100 (m/min)						70 (m/min)						50 (m/min)				
Ø	Lg (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	Pf (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	Pf (mm)		S (min⁻¹)	F (mm/min)	AZ (mm)	ap (mm)	Pf (mm)
4	**35**	7.962	892	0,056	0,120	0,320	5.573	585	0,053	0,107	0,286		3.981	334	0,042	0,075	0,200
4	**40**	7.962	764	0,048	0,120	0,320	5.573	502	0,045	0,107	0,286		3.981	287	0,036	0,075	0,200
4	**45**	7.962	764	0,048	0,080	0,240	5.573	502	0,045	0,071	0,214		3.981	287	0,036	0,050	0,150
4	**50**	7.962	637	0,040	0,080	0,240	5.573	418	0,038	0,071	0,214		3.981	239	0,030	0,050	0,150
5	**20**	6.369	1.325	0,104	0,200	0,800	4.459	869	0,098	0,179	0,714		3.185	497	0,078	0,125	0,500
5	**25**	6.369	1.223	0,096	0,200	0,720	4.459	803	0,090	0,179	0,643		3.185	459	0,072	0,125	0,450
5	**30**	6.369	1.019	0,080	0,200	0,640	4.459	669	0,075	0,179	0,571		3.185	382	0,060	0,125	0,400
5	**35**	6.369	1.019	0,080	0,200	0,480	4.459	669	0,075	0,179	0,429		3.185	382	0,060	0,125	0,300
6	**30**	5.308	1.189	0,112	0,336	1,040	3.715	780	0,105	0,300	0,929		2.654	446	0,084	0,210	0,650
6	**50**	5.308	934	0,088	0,160	0,400	3.715	613	0,083	0,143	0,357		2.654	350	0,066	0,100	0,250

Max cutting depth



Attention : sparks and/or flames can cause coolant fire. Be sure adequate fire prevention is available.
1. Speeds and feeds are designed to be used in conjunction with small passes on a high speed & precision machine set-up.
2. Do not use inflammable coolant. Using worn tools may generate sparks.
3. Use compresed air or a high quality coolant with a low co-efficient of smoke emmision.

Attenzione: le scintille prodotto durante l'operazione o il calore causato dalla rottura dell'utensile possono infiammare il lubrificante. Assicurasi che siano applicate delle adeguate misure di prevenzione.
1. Queste velocità e questi avanzamenti sono indicati per fresatura di piccole passate ad alta velocità e centri di lavorazione di alta precisione.
2. Non utillizare lubrificanti da taglio infiammabili; gli utensili troppo usurati possono produrre scintille.
3. Utilizzare un getto di aria compressa. Se la vostra scelta ricade su dei liquidi da taglio, sceglieteli di alta qualità, dotati di un coefficiente elevato di rallentamento d'emissione del fumo.

Achtung: Funken und/oder Flammen können den Kühlschmierstoff entzünden. stellen Sie einen ausgereichenden Brandschutz sicher.
1. Die Schnittdaten sin ausgelegt für geringe Zustellungen in Verbindung mit HSC tauglichen Maschinen und Spannmittel.
2. Bitte gegeignetes Kühlmittel mit rauchhemmenden Zusätzen verwenden.
3. Benutzen Sie Druckluft oder Kühlmittel mit rauchhemmenden Zusätzen..

Attention : étincelles et/ou chaleur peuvent enflammer le lubrifiant. S'assurer que des mesures de prévention adéquates sont appliquées.
1. Les vitesses et avances sont indiquées pour le fraisage de petites passes à haute vitesse / centres d'usinage de haute précision.
2. Ne pas utiliser de lubrifiants de coupe inflammables, les outils fortement usés peuvent produire des étincelles.
3. Utilisez un jet d'air comprimé ou des fluides de coupe de haute qualité avec un coef. élevé

Pas på: gnister kan antænde kølevæsken. Sørg for brandslukningsmateriel er inden for rækkevidde
1. Skæredata er designet til brug i samarbejde med små bearbejdninger i et præcisions setup på et højhastigheds bearbejdningscenter
2. Brug ikke brændbare kølevæsker. Brugte værktøjer kan resultere i gnister
3. Brug lufttryk eller kølevæske af høj kvalitet med lav røgudvikling

Atención: Las chispas pueden causar el incendio del refrigerante. Asegurese que una adecuada prevencion de incendios está disponible
1. Velocidades y avances establecidos junto a pasadas ligeras en maquinas de lata velocidad y gran precisión
2. No utilizar refrigerante inflamable. Las herramientas calientes pueden generar chispas
3. Utilizar aire comprimido o un refrigerante con un bajo coeficiente de emisión de humo

Observera: Gnistor kan antända kylvätskan. Se till att ha en bra brandsläckningsutrustning
1. Skärdatan är designat för små ingrepp vid precisions bearbetning i höghastighetsmaskiner
2. Använd inte brandfarliga kylvätskor. Fräsar kan vara mycket varma eter ingrepp
3. Använd tryckluft eller kylvätska med hög kvalitet och låg rökutveckling

Внимание! Искры и пламя могут воспламенить СОЖ. Примите меры противопожарной безопасности.
1. Указанные режимы резания предназначены для точных высокоскоростных станков и жесткого закрепления обрабатываемой детали.
2. Не используйте легко воспламеняемую СОЖ. При использовании изношенных фрез возможно возникновение искр.
3. Используйте сжатый воздух или качественную СОЖ с высокой устойчивостью к возникновению дыма.

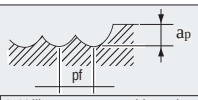
FX-PC-MG-EBD

Regular milling - Normale Bearbeitung - Parametri di taglio - Fraisage regular
Almindelig fræsning - Konventionell fräsning - Fresado regular - Нормальное фрезерование

	GG GG-GGG		C≤0,2% S55C ■ SS400 ~750 N/mm²		SCM - SKD SKD ■ SKS ■ SNCM ~30 HRC		30~38 HRC X210CR12 ■ X40CRMOV51 30~38 HRC	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
R 0,5 X 1	32.000	410~610	25.000~32.000	360~610	25.000~31.500	300~500	20.000~25.000	190~320
R 1,0 X 2	19.000~23.500	410~675	15.500~19.000	370~610	12.500~15.500	300~500	10.000~12.500	190~320
R 1,5 X 3	12.500~15.500	450~710	10.500~12.500	375~610	8.450~10.500	300~500	6.750~ 8.450	190~320
R 2,0 X 4	9.500~11.500	450~725	7.950~9.500	380~610	6.350~7.950	300~505	5.050~6.350	210~355
R 2.5 X 5	7.600~9.500	510~850	6.350~7.600	425~680	5.050~ 6350	300~505	4.050~ 5.050	215~360
R 3,0 X 6	6.350~7.950	510~850	5.300~6.350	425~680	4.200~5.300	315~535	3.350~4.200	215~365
R 4,0 X 8	4.750~5.950	640~1.050	3.950~4.750	510~820	3.150~3.950	375~630	2.500~3.150	265~445
R 5,0 X 10	3.800~4.750	575~960	3.150~3.800	475~770	2.500~3.150	355~595	2.000~2.500	250~420
R 6,0 X 12	3.150~3.950	540~900	2.650~3.150	450~710	2.100~2.650	330~ 560	1.650~2.100	230~395

Max cutting depth

ap	pf
0,1D	0,2D



1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.

1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. In caso di vibrazione, ridurre simultaneamente la velocità di taglio e l'avanzamento.
3. Utilizare dei lubrificanti di taglio adequati, dotati di une elevato coefficiente di rallentamento di emessione del fumo.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindigkeit reduzieren.
3. Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen.

1. Utiliser une machine et un porte-outil de grande rigidité et de haute précision.
2. En cas de vibrations, réduisez, simultanément, la vitesse de coupe et l'avance.
3. Utiliser des fluides de coupes de haute qualité avec un coef, élevé de ralentissement d'emission de fumée.

1. Anvend stabil maskine og værktøjsholder
2. Ved vibrationer reducér omdrejninger og tilspænding simultant
3. Anvend en passende skærevæske

1. Use maquina y portaherramientas rigidos y precisos
2. En caso de vibración reduzca velocidad y avance simultaneamente
3. Use fluido de corte adecuado con retardador de humos

1. Använd en stabil maskin och verktygshållare
2. Vid vibrationer sänk varvtal och matning med samma simultant
3. Använd anpassad skärvätska

1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость
2. При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя.
3. Используйте качественную СОЖ с высокой устойчивостью к возникновению дыма.

FX-PC-MG-EBD

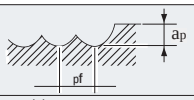
Regular milling - Normale Bearbeitung - Parametri di taglio - Fraisage regular
Almindelig fræsning - Konventionell fräsning - Fresado regular - Нормальное фрезерование

	30~38 HRC - SUS SUS304 ■ X210CR12 ■ X40CRMOV51 38~45 HRC		45~55 HRC - HRS 45~55 HRC		55~60 HRC 55~60 HRC	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
R 0,5 X 1	14.500~22.000	110~225	14.500~19.000	95~170	11.000~14.000	65~110
R 1,0 X 2	8.900~11.000	140~235	7.600~9.500	100~170	5.700~7.150	65~110
R 1,5 X 3	5.900~7.400	140~235	5.050~6.350	100~170	3.800~4.750	65~110
R 2,0 X 4	4.450~5.550	175~295	3.800~4.750	130~215	2.850~3.550	85~140
R 2.5 X 5	3.550~4.450	175~295	3.050~3.800	135~230	2.250~2.850	85~140
R 3,0 X 6	2.950~3.700	185~310	2.500~3.150	140~235	1.900~2.350	90~145
R 4,0 X 8	2.200~2.750	215~360	1.900~2.350	160~260	1.400~1.750	100~165
R 5,0 X 10	1.750~2.200	205~345	1.500~1.900	160~270	1.100~1.400	100~170
R 6,0 X 12	1.450~1.850	190~330	1.250~1.550	150~245	955~1.150	95~155

Max cutting depth

ap	pf
0,1D	0,2D

ap	pf
0,05D	0,1D



1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.

1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. In caso di vibrazione, ridurre simultaneamente la velocità di taglio e l'avanzamento.
3. Utilizare dei lubrificanti di taglio adequati, dotati di une elevato coefficiente di rallentamento di emessione del fumo.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindigkeit reduzieren.
3. Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen.

1. Utiliser une machine et un porte-outil de grande rigidité et de haute précision.
2. En cas de vibrations, réduisez, simultanément, la vitesse de coupe et l'avance.
3. Utiliser des fluides de coupes de haute qualité avec un coef, élevé de ralentissement d'emission de fumée.

1. Anvend stabil maskine og værktøjsholder
2. Ved vibrationer reducér omdrejninger og tilspænding simultant
3. Anvend en passende skærevæske

1. Use maquina y portaherramientas rigidos y precisos
2. En caso de vibración reduzca velocidad y avance simultaneamente
3. Use fluido de corte adecuado con retardador de humos

1. Använd en stabil maskin och verktygshållare
2. Vid vibrationer sänk varvtal och matning med samma simultant
3. Använd anpassad skärvätska

1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость
2. При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя.
3. Используйте качественную СОЖ с высокой устойчивостью к возникновению дыма.

FX-CR-MG-EDS

Slotting - Nutenfräsen - Per scanalature profonde - Rainurage
Sporfræsning - Spårfräsning - Ranurado - Фрезерование пазов



	C≤0,2% - GG E24 ■ XC48 ■ FT25 750 N/mm²			SCM - SKD 35NCD16 ■ 40CMD8 ~30 HRC			30~38 HRC 35NCD16 30~38 HRC			30~38 HRC 35NCD16 30~38 HRC			45~55 HRC SUS Z38CDV5 45~55 HRC			55~60 HRC Z160CDV12 55~60 HRC		
	150 (m/min)			130 (m/min)			110 (m/min)			80 (m/min)			60 (m/min)			30 (m/min)		
Ø	S (min⁻¹)	F (mm/min)	AZ (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)	S (min⁻¹)	F (mm/min)	AZ (mm)
0,2	40.000	113	0,0014	40.000	113	0,0014	40.000	94	0,0012	40.000	44	0,0005	40.000	38	0,0005	40.000	40	0,0005
0,3	40.000	144	0,0018	40.000	144	0,0018	40.000	100	0,0013	40.000	69	0,0009	40.000	52	0,0007	31.847	48	0,0008
0,4	40.000	156	0,0020	40.000	156	0,0020	40.000	113	0,0014	40.000	87	0,0011	40.000	69	0,0009	23.885	48	0,0010
0,5	40.000	156	0,0020	40.000	169	0,0021	40.000	144	0,0018	40.000	109	0,0014	38.217	82	0,0011	19.108	48	0,0013
0,6	40.000	156	0,0020	40.000	204	0,0026	40.000	171	0,0021	40.000	130	0,0016	31.847	83	0,0013	15.924	47	0,0015
0,8	40.000	204	0,0026	40.000	270	0,0034	40.000	232	0,0029	31.847	153	0,0024	23.885	82	0,0017	11.943	47	0,0020
1,0	40.000	267	0,0033	40.000	345	0,0043	35.032	252	0,0036	25.478	151	0,0030	19.108	82	0,0021	9.554	47	0,0025
1,5	31.847	296	0,0046	27.601	329	0,0060	23.355	236	0,0051	16.985	139	0,0041	12.739	101	0,0040	6.369	45	0,0035
2,0	23.885	293	0,0061	20.701	308	0,0074	17.516	225	0,0064	12.739	140	0,0055	9.554	97	0,0051	4.777	43	0,0045
3,0	15.924	430	0,0135	13.800	326	0,0118	11.677	220	0,0094	8.493	143	0,0084	6.369	104	0,0082	3.185	48	0,0075
4,0	11.943	472	0,0197	10.350	391	0,0189	8.758	258	0,0147	6.369	164	0,0129	4.777	109	0,0114	2.389	46	0,0097
5,0	9.554	568	0,0297	8.280	453	0,0273	7.006	257	0,0183	5.096	167	0,0164	3.822	111	0,0145	1.911	46	0,0120
6,0	7.962	555	0,0348	6.900	450	0,0326	5.839	257	0,0220	4.246	170	0,0200	3.185	113	0,0177	1.592	38	0,0119
8,0	5.971	534	0,0447	5.175	450	0,0435	4.379	249	0,0284	3.185	168	0,0263	2.389	104	0,0217	1.194	38	0,0157
10,0	4.777	505	0,0528	4.140	443	0,0535	3.503	250	0,0357	2.548	161	0,0317	1.911	100	0,0262	955	38	0,0197
12,0	3.981	507	0,0636	3.450	441	0,0639	2.919	252	0,0431	2.123	161	0,0380	1.592	90	0,0283	796	30	0,0189
14,0	3.412	503	0,0737	2.957	424	0,0717	2.502	220	0,0440	1.820	165	0,0452	1.365	80	0,0294	682	27	0,0198
16,0	2.986	470	0,0788	2.588	383	0,0741	2.189	199	0,0455	1.592	142	0,0445	1.194	70	0,0294	597	24	0,0203
18,0	2.654	421	0,0793	2.300	345	0,0750	1.946	177	0,0455	1.415	126	0,0444	1.062	60	0,0283	531	21	0,0200
20,0	2.389	377	0,0788	2.070	306	0,0738	1.752	157	0,0449	1.274	109	0,0428	955	60	0,0316	478	20	0,0206
22,0	2.171	344	0,0792	1.882	278	0,0740	1.592	138	0,0432	1.158	101	0,0435	869	50	0,0291	434	17	0,0193
24,0	1.990	317	0,0795	1.725	259	0,0750	1.460	128	0,0439	1.062	92	0,0433	796	50	0,0316	398	17	0,0208
25,0	1.911	300	0,0786	1.656	249	0,0751	1.401	128	0,0458	1.019	92	0,0451	764	40	0,0263	382	15	0,0196
30,0	1.592	250	0,0787	1.380	201	0,0729	1.168	99	0,0424	849	76	0,0446	637	40	0,0317	318	15	0,0238

Max cutting depth

	ap
D < Ø1	0,1D
Ø1≤D < Ø3	0,3D
Ø3 ≤ D	0.5D



	ap
D < Ø1	0,02D
Ø1 ≤ D	0,05D

	ap
D < Ø1	0,01D
Ø1 ≤ D < Ø3	0,02D
Ø3 ≤ D	0,05D

1. Use high precision machine set up to ensure maximum rigidity.
2. In case of vibration, reduce both feed and speed.
3. Use a coolant that has a low co-efficient of smoke emission.
* Modified parameters

1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. In caso di vibrazioni, ridurre simultaneamente la velocità di taglio e l'avanzamento.
3. Utilizzare dei lubrificanti da taglio adeguati, dotati di un coefficiente elevato di rallentamento d'emissione del fumo.
* Paramèto modificato

1. Benutzen Sie stabile und präzise Maschinen, Werkzaugaufnahmen und Spannmittel.
2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindligkeit reduzieren.
3. Kuhlmittel mit niedriger Rauchentwicklung verwenden.
* Modifizierten Parameters

1. Utilisez une machine et un porte-outil de grande rigidité et de haute précision.
2. En cas de vibrations, réduisez, simultanément, la vitesse de coupe et l'avance.
3. Utilisez des lubrifiants de coupe appropriés dotés d'un coef. élevé de ralentissement d'émission de fumée.
* Paramètres modifiés

1. Benyt højt præcisions set-up for at sikre maksimum stabilitet
2. Ved vibrationer, justér både hastighed og tilspænding
3. Benyt en kølevæske med lav koefficient af røgudvikling
* Modificerede parametre

1. Use máquina de alta precisión y asegure la máxima rigidez
2. En el caso de vibraciones, reducir velocidad y avance simultaneamente
3. Utilizar un refrigerante con un bajo coeficiente de emisión de humo
* Parámetros modificados

1. Använd uppsänningsanordning av hög kvalitet för bästa stabilitet
2. Vid vibrationer, justera både varvtal och matning
3. Använd kylvätska med låg koefficient av rökutveckling.
* Modifierad parameter

1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость
2. При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя.
3. Используйте качественную СОЖ с высокой устойчивостью к возникновению дыма.

FX-CR-MG-EHS

Side milling - Konturfräsen - Sgrossatura e contornatura - Contournage
Sidefræsning - Valsfräsning - Contorneado - Боковое фрезерование



	Ø	C≤0,2% - GG S55C ■ SS400 ■ GG25 ~750 N/mm²		SCM - SKD SKD ■ SKS ■ SNCM ~30 HRC		30~38 HRC NAK55 ■ HPMI ■ SKT 30~38 HRC		38~45 HRC SUS SUS304 ■ X210CR12 X40CRMOV51 38~45 HRC		45~55 HRC HRS 45~55 HRC		55~60 HRC 55~60 HRC	
		S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
3 flutes - 3 Schneiden - 3 denti - 3 lèvres 3 skär - 3 skär - 3 labios - 3 режущих кромки	3 X 3	8.900	665	6.650	595	5.900	350	3.800	90	3.150	55	2.000	30
	4 X 3	6.650	695	5.000	675	4.450	400	2.850	100	2.350	70	1.550	35
	5 X 3	5.300	715	4.000	660	3.550	360	2.250	105	1.900	70	1.250	35
	6 X 3	5.300	755	4.000	660	3.550	315	2.200	150	1.900	90	1.250	30
	8 X 3	3.950	700	3.000	595	2.650	205	1.650	155	1.400	100	955	35
	10 X 3	3.150	640	2.400	565	2.100	260	1.300	140	1.100	100	760	35
	12 X 3	2.650	605	2.000	515	1.750	235	1.100	125	955	85	635	30
	14 X 3	2.250	570	1.700	450	1.500	205	955	105	815	75	545	25
	16 X 3	1.950	520	1.500	415	1.300	180	835	95	715	70	475	20
	18 X 3	1.750	480	1.300	370	1.150	170	740	85	635	70	420	20
	20 X 3	1.550	445	1.200	340	1.050	160	665	80	570	70	380	20
	25 X 3	1.250	415	965	280	850	140	535	85	455	70	305	20
4 flutes - 4 Schneiden - 4 denti - 4 lèvres 4 skär - 4 skär - 4 labios - 4 режущих кромки	3 X 4	8.900	890	6.650	795	5.900	470	3.800	120	3.150	75	2.000	40
	4 X 4	6.650	930	5.000	900	4.450	530	2.850	135	2.350	90	1.550	50
	5 X 4	5.300	950	4.000	880	3.550	480	2.250	140	1.900	95	1.250	50
	6 X 4	5.300	900	4.000	800	3.550	220	2.200	175	1.900	110	1.250	50
	8 X 4	3.950	835	3.000	710	2.650	445	1.650	185	1.400	120	955	55
	10 X 4	3.150	760	2.400	680	2.100	310	1.300	165	1.100	115	760	55
	12 X 4	2.650	730	2.000	620	1.750	285	1.100	145	955	105	635	45
	14 X 4	2.250	675	1.700	550	1.500	245	955	125	815	95	545	40
	16 X 4	1.950	615	1.500	500	1.300	215	835	110	715	85	475	35
	18 X 4	1.750	580	1.300	440	1.150	195	740	100	635	85	420	35
	20 X 4	1.550	530	1.200	410	1.050	185	665	95	570	85	380	35
	25 X 4	1.250	500	965	340	850	170	535	100	455	85	305	35

Max cutting depth									
	ap	ae	ap	ae	ap	ae	ap	ae	
	1,5D	0,2D			1,5D	0,1D	1D	0,05D	

1. Use high precision machine set up to ensure maximum rigidity.
2. In case of vibration, reduce both feed and speed.
3. Use a coolant that has a low co-efficient of smoke emission.
4. For stainless steels & heat resisting steels, non-water soluble coolant is highly recommended.
5. For dry milling, use compressed air to aid chip clearance.

1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. In caso di vibrazioni, ridurre simultaneamente la velocità di taglio e l'avanzamento.
3. Utilizzare dei lubrificanti da taglio adeguati, dotati di un coefficiente elevato di rallentamento d'emissione del fumo.
4. Per la fresatura di acciai inossidabili o acciai legati resistenti alle alte temperature (es. Inconel) è consigliato l'utilizzo di lubrificanti non solubili in acqua.
5. Per la lavorazione a secco, utilizzate un getto d'aria compressa per evitare un ingorgo di trucioli

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindigkeit reduzieren.
3. Kuhlmittel mit niedriger Rauchentwicklung verwenden.
4. Für VA und gehärterer Stahl, empfehlen wir keine wasserlöslichen Kühlmittel.
5. Bei Trockenbearbeiting Druckluft zum Entfernen der Späne verwenden.

1. Utilisez une machine et un porte-outil de grande rigidité et de haute précision.
2. En cas de vibrations, réduisez, simultanément, la vitesse de coupe et l'avance.
3. Utilisez des lubrifiants de coupe appropriés dotés d'un coef. élevé de ralentissement d'émission de fumée.
4. Pour le fraisage d'aciers inoxydables ou d'alliages d'acier résistant aux hautes températures (ex. Inconel) il est recommandé d'employer des lubrifiants non solubles dans l'eau.
5. Pour l'usinage à sec, utilisez un jet d'air comprimé pour éviter un bourrage de copeaux.

1. Benyt højt præcisions set-up for at sikre maksimum stabilitet
2. Ved vibrationer, justér både hastighed og tilspænding
3. Benyt en kølevæske med lav koefficient af røgudvikling
4. For rustfrit stål og varmebestandige ståltyper anbefales kølevæske der ikke er vandbaseret
5. Ved tørbearbejdning brug trykluft for bortskaffelse af spåner

1. Use máquina de alta precisión y asegure la máxima rigidez
2. En el caso de vibraciones, reducir velocidad y avance simultaneamente
3. Utilizar un refrigerante con un bajo coeficiente de emisión de humo
4. For rustfrit stål og varmebestandige ståltyper anbefales kølevæske der ikke er vandbaseret
5. Ved tørbearbejdning brug trykluft for bortskaffelse af spåner

1. Använd uppsänningsanordning av hög kvalitet för bästa stabilitet
2. Vid vibrationer, justera både varvtal och matning
3. Använd skärvätska med låg rökutvecklingskoefficient.
4. För rostfria och värmebeständiga stål rekommenderas mkylvätska som inte är vatten baserat
5. Vid torrbearbetning använd tryckluft för spån borttagning

1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость.
2. При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя.
3. Используйте качественную СОЖ с высокой
4. Для нержавеющей и жаростойкой сталей, настоятельно рекомендуем использовать не водную эмульсия в качестве СОЖ.
5. При сухом (без СОЖ) фрезеровании, используйте воздушную струю для удаления стружки и предотвращения спрессовывания стружки.

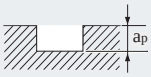
FX-CR-MG-EHS

Slotting - Nutenfräsen - Per scanalature profonde - Rainurage
Sporfræsning - Spårfräsning - Ranurado - Фрезерование пазов



	Ø	C≤0,2% - GG S55C ■ SS400 ■ GG25 ~750 N/mm²		SCM - SKD SKD ■ SKS ■ SNCM ~30 HRC		30~38 HRC NAK55 ■ HPMI ■ SKT 30~38 HRC		38~45 HRC SUS SUS304 ■ X210CR12 X40CRMOV51 38~45 HRC		45~55 HRC HRS 45~55 HRC		55~60 HRC 55~60 HRC	
		S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
3 & 4 flutes - 3 & 4 Schneiden - 3 & 4 denti - 3 & 4 levres - 3, 4 skär - 3, 4 skär - 3, 4 labios - 3, 4 режущих кромки	**3**	8.900	665	6.650	595	5.900	350	3.800	90	3.150	55	2.000	30
	4	6.650	695	5.000	675	4.450	400	2.850	100	2.350	70	1.550	35
	5	5.300	715	4.000	660	3.550	360	2.250	105	1.900	70	1.250	35
	6	4.450	740	3.300	550	2.950	345	1.900	110	1.550	70	1.050	35
	8	3.300	660	2.500	500	2.200	360	1.400	115	1.150	75	795	35
	10	2.650	630	2.000	475	1.750	325	1.100	115	955	75	635	35
	12	2.200	590	1.650	440	1.450	300	955	110	795	75	530	35
	14	1.900	560	1.400	445	1.250	270	815	95	680	70	455	30
	16	1.650	525	1.250	400	1.100	245	715	85	595	65	395	25
	18	1.450	480	1.100	365	990	225	635	80	530	60	350	25
	20	1.300	450	1.000	345	890	205	570	75	475	55	315	25
	25	1.050	395	800	300	710	170	455	60	380	50	255	25

Max cutting depth	a_p = **0,5D**	a_p = **0,05D**



1. Use high precision machine set up to ensure maximum rigidity.
2. In case of vibration, reduce both feed and speed.
3. Use a coolant that has a low co-efficient of smoke emission.
4. For stainless steels & heat resisting steels, non-water soluble coolant is highly recommended.
5. For dry milling, use compressed air to aid chip clearance.

1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. In caso di vibrazioni, ridurre simultaneamente la velocità di taglio e l'avanzamento.
3. Utilizzare dei lubrificanti da taglio adeguati, dotati di un coefficiente elevato di rallentamento d'emissione del fumo.
4. Per la fresatura di acciai inossidabili o acciai legati resistenti alle alte temperature (es. Inconel) è consigliato l'utilizzo di lubrificanti non solubili in acqua.
5. Per la lavorazione a secco, utilizzate un getto d'aria compressa per evitare un ingorgo di trucioli

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindigkeit reduzieren.
3. Kuhlmittel mit niedriger Rauchentwicklung verwenden.
4. Für VA und gehärterer Stahl, empfehlen wir keine wasserlöslichen Kühlmittel.
5. Bei Trockenbearbeiting Druckluft zum Entfernen der Späne verwenden.

1. Utilisez une machine et un porte-outil de grande rigidité et de haute précision.
2. En cas de vibrations, réduisez, simultanément, la vitesse de coupe et l'avance.
3. Utilisez des lubrifiants de coupe appropriés dotés d'un coef. élevé de ralentissement d'émission de fumée.
4. Pour le fraisage d'aciers inoxydables ou d'alliages d'acier résistant aux hautes températures (ex. Inconel) il est recommandé d'employer des lubrifiants non solubles dans l'eau.
5. Pour l'usinage à sec, utilisez un jet d'air comprimé pour éviter un bourrage de copeaux.

1. Benyt højt præcisions set-up for at sikre maksimum stabilitet
2. Ved vibrationer, justér både hastighed og tilspænding
3. Benyt en kølevæske med lav koefficient af røgudvikling
4. For rustfrit stål og varmebestandige ståltyper anbefales kølevæske der ikke er vandbaseret
5. Ved tørbearbejdning brug trykluft for bortskaffelse af spåner

1. Use máquina de alta precisión y asegure la máxima rigidez
2. En el caso de vibraciones, reducir velocidad y avance simultaneamente
3. Utilizar un refrigerante con un bajo coeficiente de emisión de humo
4. For rustfrit stål og varmebestandige ståltyper anbefales kølevæske der ikke er vandbaseret
5. Ved tørbearbejdning brug trykluft for bortskaffelse af spåner

1. Använd uppsänningsanordning av hög kvalitet för bästa stabilitet
2. Vid vibrationer, justera både varvtal och matning
3. Använd skärvätska med låg rökutvecklingskoefficient.
4. För rostfria och värmebeständiga stål rekommenderas mkylvätska som inte är vatten baserat
5. Vid torrbearbetning använd tryckluft för spån borttagning

1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость.
2. При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя.
3. Используйте качественную СОЖ с высокой
4. Для нержавеющей и жаростойкой сталей, настоятельно рекомендуем использовать не водную эмульсия в качестве СОЖ.
5. При сухом (без СОЖ) фрезеровании, используйте воздушную струю для удаления стружки и предотвращения спрессовывания стружки.

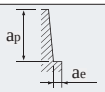
FXS-EMS

High speed milling - HSC Schlichtfräsen - Fresatura alta velocità - Fraisage UGV
High speed fræsning - High Speed Milling - Fresado a alta velocidad HSM - Высокоскоростное фрезерование

	C≤0,2% - GG S55C ■ SS400 ~750 N/mm²		SCM - SKD SKD ■ SKS ■ SNCM ~30 HRC		30~38 HRC NAK55 ■ HPMI ■ SKT 30~38 HRC		38~45 HRC SUS304 ■ X210CR12 X40CRMOV51 38~45 HRC		45~55 HRC 45~55 HRC		55~60 HRC 55~60 HRC	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
3	47.500	6.250	42.000	5.350	31.500	2.650	26.500	1.650	15.500	830	12.500	590
4	35.500	6.250	31.500	5.750	23.500	3.350	19.500	1.650	11.500	960	9.500	595
5	28.500	6.700	25.000	6.000	19.000	3.600	15.500	1.650	9.500	995	7.600	595
6	23.500	4.400	21.000	3.750	15.500	2.800	13.000	2.000	7.950	1.200	6.350	960
8	17.500	4.300	15.500	3.750	11.500	2.800	9.900	2.050	5.950	1.250	4.750	955
10	14.000	4.250	12.500	3.750	9.500	2.800	7.950	2.100	4.750	1.250	3.800	955
12	11.500	3.950	10.500	3.500	7.950	2.600	6.600	1.950	3.950	1.150	3.150	875
14	10.000	3.750	9.050	3.350	6.800	2.500	5.650	1.750	3.400	1.050	2.700	795
16	8.950	3.500	7.950	3.100	5.950	2.300	4.950	1.600	2.950	970	2.350	740
18	7.950	3.100	7.050	2.750	5.300	2.050	4.400	1.450	2.650	885	2.100	690
20	7.150	2.800	6.350	2.500	4.750	1.850	3.950	1.350	2.350	785	1.900	625
25	5.700	2.350	5.050	2.100	3.800	1.500	3.150	1.100	1.900	675	1.500	525
30	4.750	1.950	4.200	1.750	3.150	1.250	2.650	940	1.550	550	1.250	435

Max cutting depth

	ap	ae
D ≤ Ø 12	1D	0,01D
Ø 12 < D	1D	0,02D



Attention : sparks and/or flames can cause coolant fire. Be sure adequate fire prevention is available.
1. Speeds and feeds are designed to be used in conjunction with small passes on a high speed & precision machine set-up.
2. Do not use inflammable coolant. Using worn tools may generate sparks.
3. Use compresed air or a high quality coolant with a low co-efficient of smoke emmision.

Attenzione: le scintille prodotto durante l'operazione o il calore causato dalla rottura dell'utensile possono infiammare il lubrificante. Assicurasi che siano applicate delle adeguate misure di prevenzione.
1. Queste velocità e questi avanzamenti sono indicati per fresatura di piccole passate ad alta velocità e centri di lavorazione di alta precisione.
2. Non utillizare lubrificanti da taglio infiammabili; gli utensili troppo usurati possono produrre scintille.
3. Utilizzare un getto di aria compressa. Se la vostra scelta ricade su dei liquidi da taglio, sceglieteli di alta qualità, dotati di un coefficiente elevato di rallentamento d'emissione del fumo.

Achtung: Funken und/oder Flammen können den Kühlschmierstoff entzünden. stellen Sie einen ausgereichenden Brandschutz sicher.
1. Die Schnittdaten sind ausgelegt für geringe Zustellungen in Verbindung mit HSC tauglichen Maschinen und Spannmittel.
2. Bitte gegeignetes Kühlmittel mit rauchhemmenden Zusätzen verwenden.
3. Benutzen Sie Druckluft ofer Kühlmittel mit rauchhemenden Zusätzen.

Attention : étincelles et/ou chaleur peuvent enflammer le lubrifiant. S'assurer que des mesures de prévention adéquates sont appliquées.
1. Les vitesses et avances sont indiquées pour le fraisage de petites passes à haute vitesse / centres d'usinage de haute précision.
2. Ne pas utiliser de lubrifiants de coupe inflammables, les outils fortement usés peuvent produire des étincelles.
3. Utilisez un jet d'air comprimé ou des fluides de coupe de haute qualité avec un coef. élevé

Pas på: gnister kan antænde kølevæsken. Sørg for brandslukningsmateriel er inden for rækkevidde
1. Skæredata er designet til brug i samarbejde med små bearbejdninger i et præcisions setup på et højhastigheds bearbejdningscenter
2. Brug ikke brændbare kølevæsker. Brugte værktøjer kan resultere i gnister
3. Brug lufttryk eller kølevæske af høj kvalitet med lav røgudvikling

Atención: Las chispas pueden causar el incendio del refirgerante. Asegurese que una adecuada prevencion de incendios está disponible
1. Velocidades y avances establecidos junto a pasadas ligeras en maquinas de lata velocidad y gran precisión
2. No utilizar refrigerante inflamable. Las herramientas calientes pueden generar chispas
3. Utilizar aire comprimido o un refrigerante con un bajo coeficiente de emisión de humo

Observera: Gnistor kan antända kylvätskan. Se till att ha en bra brandsläckningsutrustning
1. Skärdatan är designat för små ingrepp vid precisions bearbetning i höghastighetsmaskiner
2. Använd inte brandfarliga kylvätskor. Fräsar kan vara mycket varma eter ingrepp
3.Använd tryckluft eller kylvätska med hög kvalitet och låg rökutveckling

Внимание! Искры и пламя могут воспламенить СОЖ. Примите меры противопожарной безопасности.
1. Указанные режимы резания предназначены для точных высокоскоростных станков и жесткого закрепления обрабатываемой детали.
2. Не используйте легко воспламеняемую СОЖ. При использовании изношенных фрез возможно возникновение искр.
3. Используйте сжатый воздух или качественную СОЖ с высокой устойчивостью к возникновению дыма.

FXS-HPE

Side milling - Konturfräsen - Conturnatura - Contournage
Sidefræsning - Valsfräsning - Contorneado - Боковое фрезерование

	C≤0,2% - GG S55C ■ SS400 ~750 N/mm²		SCM - SKD SKD ■ SKS ■ SNCM ~30 HRC		30~38 HRC NAK55 ■ HPMI ■ SKT 30~38 HRC		38~45 HRC SUS304 ■ X210CR12 X40CRMOV51 38~45 HRC		45~55 HRC 45~55 HRC		55~60 HRC 55~60 HRC	
	100 (m/min)		75 (m/min)		65 (m/min)		40 (m/min)		35 (m/min)		25 (m/min)	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
10	3.150	760	2.400	680	2.100	310	1.300	165	1.100	115	760	55
12	2.650	730	2.000	620	1.750	285	1.100	145	955	105	635	45
14	2.250	675	1.700	550	1.500	245	955	125	815	95	545	40
18	1.750	580	1.300	440	1.150	195	740	100	635	85	420	35
22	1.450	520	1.080	360	940	170	580	100	500	85	360	35
Max cutting depth	ap = 1,2D ae = 0,1D				ap ae				ap = **1,20D** ae = **0,05D**		ap = **1,20D** ae = **0,02D**	

1. Use high precision machine set up to ensure maximum rigidity.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a coolant that has a low co-efficient of smoke emission.

1. Utilizzare una macchina e un mandrino di elevata rigidità e di alta precisione.
2. In caso di vibrazione, ridurre simultaneamente la velocità di taglio e l'avanzamento.
3. Utilizzare dei lubrificanti di taglio adeguati, dotati di un elevato coefficiente di rallentamento di emissione del fumo.

1. Benutzen Sie stabile und präzise Machinen, Werkzeugaufnahmen und Spannmittel.
2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindigkeit reduzieren.
3. Bitte geeignetes Kühlmedium mit rauchhemmenden Zusätzen verwenden.

1. Utilisez une machine et un porte-outil de grande rigidité et de haute précision.
2. En cas de vibrations, réduisez, simultanément, la vitesse de coupe et l'avance.
3. Utiliser des lubrifiants de coupe adéquats, dotés d'un coef. élevé de ralentissement d'émission de fumée.

1. Benyt højt præcisions set-up for at sikre maksimum stabilitet
2. Ved vibrationer reducér omdrejninger og tilspænding simultant
3. Benyt en kølevæske med lav koefficient af røgudvikling

1. Use máquina de alta precisión y asegure la máxima rigidez
2. En caso de vibración reduzca velocidad y avance simultaneamente
3. Utilizar un refrigerante con un bajo coeficiente de emisión de humo

1. Använd uppsänningsanordning av hög kvalitet för bästa stabilitet
2. Vid vibrationer sänk varvtal och matning med samma simultant
3. Använd skärvätska med låg rökutvecklingskoefficient.

1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость
2. При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя.
3. Используйте качественную СОЖ с высокой устойчивостью к возникновению дыма.

FXS-HPE

Slotting - Nutenfräsen - Per scanalature profonde - Rainurage
Sporfræsning -Spårfräsning - Ranurado - Фрезерование пазов

	C≤0,2% - GG S55C ■ SS400 ~750 N/mm²		SCM - SKD SKD ■ SKS ■ SNCM ~30 HRC		30~38 HRC NAK55 ■ HPMI ■ SKT 30~38 HRC		38~45 HRC SUS304 ■ X210CR12 X40CRMOV51 38~45 HRC		45~55 HRC 45~55 HRC		55~60 HRC 55~60 HRC	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
10	2.650	630	2.000	475	1.750	1.750	1.100	115	955	75	635	35
12	2.200	590	1.650	440	1.450	1.450	955	110	795	75	530	35
14	1.900	560	1.400	445	1.250	1.250	815	95	680	70	455	30
18	1.450	480	1.100	365	990	990	635	80	530	60	350	25
22	1.150	410	860	310	790	790	500	65	430	50	290	25
Max cutting depth	ap = **0,5D**				ap				ap = **0,1D**		ap = **0,05D**	

1. Conditions to be used if slant is = 3 x dia.
   If length is 5 x dia, than reduce feed and rotation by 40 to 50% and use 1/2 of depth of passes.
   If length is 6 x dia, than reduce feed and rotation by 60 to 70% and use 1/2 of depth of passes.
2. Adjust feed en rotation in function of depth of passes or machine rigidity.
3. Use compresed air or a high quality coolant with a low co-efficient of smoke emmision.

1. Condizioni da utilizzare se la lunghezza dell'estensione dell'utensile è uguale a 3 volte il diametro.
   Se la lunghezza è di 5 volte il diametro ridurre l'avanzamento e la rotazione dal 40 al 50% ed utilizzate 1/2 della profondità di passata.
   Se la lunghezza è di 6 volte il diametro ridurre l'avanzamento e la rotazione dal 60 al 70% ed utilizzate 1/2 della profondità di passata.
2. Regolare l'avanzamento e la velocità in funzione di taglio o della rigidità della macchina.
3. Utilizzaree un getto di aria compressa. Se la vostra scelta ricade su dei liquidi da taglio, scegliteli di alta qualità, dotati di un coefficiente elevato di rallentamento di emissione del fumo.

1. Die angegebenen Schnittdaten sind für eine max. Ausspanlänge von 3 x D.
   Bei 5 x D die Schnittgeschwindigkeit und den Vorschub um 40 bis 50% reduzieren, die Schnittiefe auf ein 1/2 reduzieren.
   Bei 6 x D die Schnittgeschwindigkeit und den Vorschub um 60 bis 70% reduzieren, die Schnittiefe auf ein 1/2 reduzieren.
2. Vorschub und Geschwindigkeit der Schnittiefe und Maschine-Starrheit anpassen.
3. Benutzen Sie Druckluft oder Kühlmittel mit rauchhemmenden Zusätzen.

1. Conditions à utiliser si le porte-à-faux est = à 3 x le dia.
   Si la longueur est de 5 x le dia, veuillez réduire l'avance et la rotation de 40 à 50 % et utiliser 1/2 de la profondeur de passe.
   Si la longueur est de 6 x le dia, veuillez réduire l'avance et la rotation de 60 à 70 % et utiliser 1/2 de la profondeur de passe.
2. Ajuster l'avance et la vitesse en fonction de la profondeur de coupe ou de la rigidité de la machine.
3. Utilisez un jet d'air comprimé ou des fluides de coupe de haute qualité avec un coef. élevé de ralentissement d'émission de fumée.

1.Skæredata til brug ved udhæng = 3 x Diameter
   Hvis længden er 5 x dia, reducér tilspænding og omdrejninger med 40-50% og reducér skæredybden til det halve
   Hvis længden er 6 x dia, reducér tilspænding og omdrejninger med 60-70% og reducér skæredybden til det halve
2. Justér tilspænding og omdrejninger i forhold til skæredybde og maskin stabilitet
3. Brug lufttryk eller kølevæske af høj kvalitet med lav røgudvikling

1. Condiciones utilizables con mango = 3 D
   Si el vuelo de 5 x D, reducir avance y velocidad un 40 a 50% y la pasada a 1 / 2
   Si el vuelo de 6 x D, reducir avance y velocidad un 60 a 70% y la pasada a 1 / 2
2. Ajustar la velocidad y el avance en función de la rigidez de maquina
3. Utilizar aire comprimido o un refrigerante con un bajo coeficiente de emisión de humo

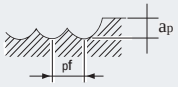
1. Skärdata vid uthäng = 3 x Diametern
   Vid uthäng är 5 x diametern, reducera varvtal och matning med 40-50% och reducera skärdjupet till 50%
   Vid uthäng är 6 x diametern, reducera varvtal och matning med 60-70% och reducera skärdjupet till 50%
2. Justera varvtal och matning i förhållande till skärdjup och maskinens stabilitet
3. Använd lufttryck eller kylvätska med låg rökutveckling

1. Режимы резания действительны при вылете фрезы = 3 D
   Если длина 5 x D, уменьшите подачу и обороты шпинделя на 40-50% и используйте ½ глубины резания.
   Если длина 6 x D, уменьшите подачу и обороты шпинделя на 60-70% и используйте ½ глубины резания.
2. Отрегулируйте обороты шпинделя, подачу в зависимости от глубины резания и жесткости станка.
3. Используйте сжатый воздух или качественную СОЖ с высокой устойчивостью к возникновению дыма.

FXS-EQD

Regular milling - Normale Bearbeitung - Parametri di taglio - Fraisage regular
Almindelig fræsning - Konventionell fräsning - Fresado regular - Нормальное фрезерование

	C≤0,2% - GG S55C ■ SS400 ~750 N/mm²		SCM - SKD SKD ■ SKS ■ SNCM ~30 HRC		30~38 HRC NAK55 ■ HPMI ■ SKT 30~38 HRC		38~45 HRC SUS SUS304 ■ X210CR12 X40CRMOV51 38~45 HRC		45~55 HRC HRS 45~55 HRC		55~60 HRC 55~60 HRC	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
R0.5	32.000	860	32.000	860	32.000	860	32.000	86	32.000	860	32.000	765
R1,0	31.500	2.250	24.000	1.350	24.000	1.350	24.000	1.350	24.000	1.350	22.000	1.200
R2,0	17.500	2.500	15.500	1.800	14.000	1.550	13.500	1.450	12.500	1.350	11.000	1.150
R3,0	11.500	2.150	10.500	1.850	9.500	1.700	9.000	1.600	8.450	1.500	7.400	1.300
R4,0	8.750	1.800	7.950	1.400	7.150	1.250	6.850	1.200	6.350	1.100	5.550	995
R5,0	7.000	1.500	6.350	1.100	5.700	1.000	5.500	980	5.050	905	4.450	800
R6,0	6.650	1.170	5.950	1.050	4.750	840	4.550	800	4.200	745	3.800	680

Max cutting depth			
	a_p = **0,05D** pf = **0,10D**		a_p = **0,02D** pf = **0,10D**

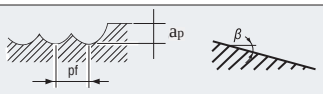
1. Use high precision machine set up to ensure maximum rigidity. 2. Set up speed & feed in accordance with with cutting conditions and and a high rigidity machine set up.	1. Utilizzare una macchina e un mandrino di elevata rigidità e di alta precisione. 2. Regolare la velocità e gli avanzamenti a seconda delle condizioni di taglio, della profondità di taglio e della rigidità della macchina.
1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel. 2. Bitte regulieren Sie Schnittgeschwindigkeit, Vorschub und Spantiefe entsprechend Ihrer aktuellen Zerspanungsbedingen.	1. Utilisez une machine et un porte-outil de grande rigidité et de haute précision. 2. Réglez les vitesses et les avances d'après les conditions de coupe, la profondeur de coupe et la rigidité de la machine.
1. Benyt højt præcisions set-up for at sikre maksimum stabilitet 2. Indstil skærehastighed og tilspænding i forhold til skæredata og en stabil opspænding	1. Use máquina de alta precisión y asegure la máxima rigidez 2. Indstil skærehastighed og tilspænding i forhold til skæredata og en stabil opspænding
1. Använd uppsänningsanordning av hög kvalitet för bästa stabilitet 2. Ställ in varvtal och matning för fräs förutsättningarna	1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость. 2. Установите параметры фрезерования в соответствии с условиями обработки и жесткостью системы.

FXS-EBT

High speed milling roughing - HSC Schlichtfräsen Schruppen - Fresatura alta velocità sgrossatura - Fraisage UGV ébauche
High speed skrubfræsning - High Speed Milling grovfräsning - Fresado en desbaste a alta velocidad - Высокоскоростное черновое фрезерование

Ø	SKD - GG S55C ■ SS400 ~750 N/mm²		30~38 HRC 30~38 HRC		38~45 HRC 38~45 HRC		45~55 HRC HRS 45~55 HRC		55~60 HRC 55~60 HRC		60~65 HRC 60~65 HRC		65~70 HRC 65~70 HRC	
	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
R 1,0	33.400	3.700	25.100	2.800	23.900	2.200	19.100	1.650	15.900	1.200	12.700	885	7.950	555
R 1,5	22.300	3.700	16.800	2.800	15.900	2.200	12.700	1.650	10.600	1.200	8.500	885	5.300	555
R 2,0	16.700	3.550	12.600	2.650	11.900	2.100	9.550	1.550	7.950	1.200	6.350	885	4.000	535
R 2,5	13.400	3.350	10.100	2.550	9.550	2.000	7.650	1.450	6.350	1.150	5.100	825	3.200	515
R 3,0	11.100	3.050	8.400	2.300	7.950	1.950	6.350	1.400	5.300	1.050	4.250	795	2.650	495
R 4,0	8.350	2.950	6.300	2.250	5.590	1.900	4.750	1.350	4.000	1.050	3.200	765	2.000	475
R 5,0	6.700	2.900	5.050	2.200	4.750	1.850	3.800	1.300	3.200	995	2.550	735	1.600	460
R 6,0	5.550	2.650	4.200	2.000	4.000	1.600	3.200	1.200	2.650	915	2.100	610	1.350	380
R 8,0	4.200	2.000	3.150	1.500	3.000	1.300	2.400	915	2.000	715	1.600	460	995	285

Max cutting depth



	ap	pf
6D < Ø	0,15D	0,2D
Ø6 ≤ D	0,10D	0,2D

aaMax=0,5mm

	ap	pf
D < Ø4	0,10D	0,1D
Ø4 ≤ D	0,05D	0,1D

aaMax=0,5mm

ap	pf
0,05D	0,1D

1. Use high precision machine set up to ensure maximum rigidity.
2. Use a coolant that has a low co-efficient of smoke emission.

1. Utilizzare una macchina e un mandrino di elevata rigidità e di alta precisione.
2. Utilizzare dei lubrificanti di taglio adeguati, dotati di un elevato coefficiente di rallentamento di emissione del fumo.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Bitte geeignetes Kühlmedium mit rauchhemmenden Zusätzen verwenden.

1. Utilisez une machine et un porte-outil de grande rigidité et de haute précision.
2. Utiliser des lubrifiants de coupe adéquats, dotés d'un coef. élevé de ralentissement

1. Benyt højt præcisions set-up for at sikre maksimum stabilitet
2. Benyt en kølevæske med lav koefficient af røgudvikling

1. Use máquina de alta precisión y asegure la máxima rigidez
2. Utilizar un refrigerante con un bajo coeficiente de emisión de humo

1. Använd uppsänningsanordning av hög kvalitet för bästa stabilitet
2. Använd skärvätska med låg rökutvecklingskoefficient.

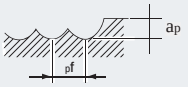
1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость.
2. Используйте качественную СОЖ с высокой устойчивостью к возникновению дыма.

FXS-EBT

High speed milling finishing - HSC Schlichtfräsen Schlichten - Fresatura alta velocità sgrossatura e finitura - Fraisage UGV finition
High speed sletfræsning - High Speed Milling finfräsning -Fresado en acabado a alta velocidad - Высокоскоростное чистовое фрезерование

Ø	SKD - GG S55C ■ SS400 ~750 N/mm²		30~38 HRC 30~38 HRC		38~45 HRC 38~45 HRC		45~55 HRC HRS 45~55 HRC		55~60 HRC 55~60 HRC		60~65 HRC 60~65 HRC		65~70 HRC 65~70 HRC	
	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
R 1,0	50.000	6.480	50.000	7.000	43.900	5.900	41.400	4.950	33.400	3.700	30.200	2.900	20.700	1.800
R 1,5	36.100	7.000	34.000	6.750	32.900	5.900	27.600	4.950	22.300	3.700	20.200	2.900	13.800	1.800
R 2,0	27.100	6.500	25.500	5.850	24.700	5.450	20.700	4.550	16.700	3.350	15.100	2.600	10.300	1.700
R 2,5	21.600	6.200	10.400	5.600	19.700	5.200	16.600	4.050	13.400	3.050	12.100	2.450	8.300	1.600
R 3,0	18.000	5.950	17.000	5.400	16.400	4.950	13.800	3.750	11.100	2.750	10.100	2.300	6.900	1.500
R 4,0	13.500	5.200	12.700	4.900	12.300	4.250	10.300	3.200	8.350	2.400	7.550	2.050	5.150	1.300
R 5,0	10.800	4.700	10.200	4.400	9.850	3.800	8.300	2.800	6.700	2.100	6.050	1.750	4.150	1.200
R 6,0	9.000	4.350	8.500	4.050	8.200	3.550	6.900	2.600	5.550	1.950	5.050	1.450	3.450	995
R 8,0	6.750	3.250	6.350	3.050	6.150	2.650	5.150	1.950	4.200	1.500	3.800	1.100	2.600	745
R 10,0	5.400	2.600	5.100	2.450	4.950	2.150	4.150	1.600	3.350	1.200	3.000	870	2.050	595

Max cutting depth



ap	pf
0,02D	0,05D

1. Use high precision machine set up to ensure maximum rigidity.
2. Use a coolant that has a low co-efficient of smoke emission.

1. Utilizzare una macchina e un mandrino di elevata rigidità e di alta precisione.
2. Utilizzare dei lubrificanti di taglio adeguati, dotati di un elevato coefficiente di rallentamento di emissione del fumo.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Bitte geeignetes Kühlmedium mit rauchhemmenden Zusätzen verwenden.

1. Utilisez une machine et un porte-outil de grande rigidité et de haute précision.
2. Utiliser des lubrifiants de coupe adéquats, dotés d'un coef. élevé de ralentissement

1. Benyt højt præcisions set-up for at sikre maksimum stabilitet
2. Benyt en kølevæske med lav koefficient af røgudvikling

1. Use máquina de alta precisión y asegure la máxima rigidez
2. Utilizar un refrigerante con un bajo coeficiente de emisión de humo

1. Använd uppsänningsanordning av hög kvalitet för bästa stabilitet
2. Använd skärvätska med låg rökutvecklingskoefficient.

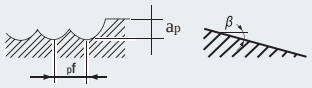
1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость.
2. Используйте качественную СОЖ с высокой устойчивостью к возникновению дыма.

FXS-HS-EBM

High speed milling roughing - HSC Schlichtfräsen Schruppen - Fresatura alta velocità sgrossatura - Fraisage UGV ébauche
High speed skrubfræsning - High Speed Milling grovfräsning - Fresado en desbaste a alta velocidad - Высокоскоростное черновое фрезерование

	SKD - GG S55C ■ SS400 ~750 N/mm²		30~38 HRC 30~38 HRC		38~45 HRC 38~45 HRC		45~55 HRC HRS 45~55 HRC		55~60 HRC 55~60 HRC		60~65 HRC 60~65 HRC		65~70 HRC 65~70 HRC	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
R 3	11.100	4.050	8.400	3.050	7.950	2.600	6.350	1.850	5.300	1.450	4.250	1.050	2.650	660
R 4	8.350	3.950	6.300	3.000	5.950	2.500	4.750	1.750	4.000	1.400	3.200	1.000	2.000	635
R 5	6.700	3.850	5.050	2.900	4.750	2.450	3.800	1.700	3.200	1.300	2.550	975	1.600	610
R 6	5.550	3.550	4.200	2.650	4.000	2.150	3.200	1.600	2.650	1.200	2.100	815	1.350	510
R 8	4.200	2.650	3.150	2.000	3.000	1.700	2.400	1.200	2.000	955	1.600	610	995	380
R 10	3.350	2.150	2.500	1.600	2.400	1.400	1.900	975	1.600	765	1.250	490	795	310

Max cutting depth



	ap	pf
6D < Ø	0,15D	0,2D
Ø6 ≤ D	0,10D	0,2D

aaMax=0,5mm

	ap	pf
D < Ø4	0,10D	0,1D
Ø4 ≤ D	0,05D	0,1D

apMax=0,5mm

ap	pf
0,05D	0,1D

aaMax=0,5mm

1. Use high precision machine set up to ensure maximum rigidity.
2. Use a coolant that has a low co-efficient of smoke emission.

1. Utilizzare una macchina e un mandrino di elevata rigidità e di alta precisione.
2. Utilizzare dei lubrificanti di taglio adeguati, dotati di un elevato coefficiente di rallentamento di emissione del fumo.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Bitte geeignetes Kühlmedium mit rauchhemmenden Zusätzen verwenden.

1. Utilisez une machine et un porte-outil de grande rigidité et de haute précision.
2. Utiliser des lubrifiants de coupe adéquats, dotés d'un coef. élevé de ralentissement

1. Benyt højt præcisions set-up for at sikre maksimum stabilitet
2. Benyt en kølevæske med lav koefficient af røgudvikling

1. Use máquina de alta precisión y asegure la máxima rigidez
2. Utilizar un refrigerante con un bajo coeficiente de emisión de humo

1. Använd uppsänningsanordning av hög kvalitet för bästa stabilitet
2. Använd skärvätska med låg rökutvecklingskoefficient.

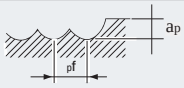
1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость.
2. Используйте качественную СОЖ с высокой устойчивостью к возникновению дыма.

FXS-HS-EBM

High speed milling finishing - HSC Schlichtfräsen Schlichten - Fresatura alta velocità sgrossatura e finitura - Fraisage UGV finition
High speed sletfræsning - High Speed Milling finfräsning -Fresado en acabado a alta velocidad - Высокоскоростное чистовое фрезерование

	SKD - GG S55C ■ SS400 ~750 N/mm²		30~38 HRC 30~38 HRC		38~45 HRC 38~45 HRC		45~55 HRC HRS 45~55 HRC		55~60 HRC 55~60 HRC		60~65 HRC 60~65 HRC		65~70 HRC 65~70 HRC	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
R 3	16.700	6.100	16.200	5.900	15.900	5.200	13.300	3.800	10.100	2.700	9.000	2.250	6.350	1.600
R 4	12.500	5.950	12.100	5.750	11.900	5.050	9.950	3.700	7.550	2.600	6.750	2.150	4.750	1.550
R 5	10.000	5.800	9.700	5.590	9.550	4.900	7.950	3.550	6.050	2.500	5.400	2.100	3.800	1.450
R 6	8.350	5.350	8.100	5.200	7.950	4.300	6.650	3.300	5.050	2.300	4.500	1.750	3.200	1.200
R 8	6.250	4.000	6.050	3.900	5.950	3.800	4.950	2.550	3.800	1.800	3.400	1.300	2.400	915
R 10	5.000	3.200	4.850	3.100	4.750	3.050	4.000	2.050	3.000	1.450	2.700	1.050	1.900	735

Max cutting depth



ap	pf
0,1D	0,2D

aaMax=1mm

ap	pf
0,08D	0,2D

aaMax=0,8mm

ap	pf
0,05D	0,1D

aaMax=0,5mm

ap	pf
0,03D	0,1D

aaMax=0,3mm

1. Use high precision machine set up to ensure maximum rigidity.
2. Use a coolant that has a low co-efficient of smoke emission.

1. Utilizzare una macchina e un mandrino di elevata rigidità e di alta precisione.
2. Utilizzare dei lubrificanti di taglio adeguati, dotati di un elevato coefficiente di rallentamento di emissione del fumo.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Bitte geeignetes Kühlmedium mit rauchhemmenden Zusätzen verwenden.

1. Utilisez une machine et un porte-outil de grande rigidité et de haute précision.
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1. Benyt højt præcisions set-up for at sikre maksimum stabilitet
2. Benyt en kølevæske med lav koefficient af røgudvikling

1. Use máquina de alta precisión y asegure la máxima rigidez
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1. Använd uppsänningsanordning av hög kvalitet för bästa stabilitet
2. Använd skärvätska med låg rökutvecklingskoefficient.

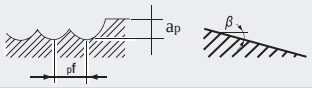
1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость.
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FXS-EBM

High speed milling roughing - HSC Schlichtfräsen Schruppen - Fresatura alta velocità sgrossatura - Fraisage UGV ébauche
High speed skrubfræsning - High Speed Milling grovfräsning - Fresado en desbaste a alta velocidad - Высокоскоростное черновое фрезерование

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	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
R 3	11.100	4.050	8.400	3.050	7.950	2.600	6.350	1.850	5.300	1.450	4.250	1.050	2.650	660
R 4	8.350	3.950	6.300	3.000	5.950	2.500	4.750	1.750	4.000	1.400	3.200	1.000	2.000	635
R 5	6.700	3.850	5.050	2.900	4.750	2.450	3.800	1.700	3.200	1.300	2.550	975	1.600	610
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R 8	4.200	2.650	3.150	2.000	3.000	1.700	2.400	1.200	2.000	955	1.600	610	995	380
R 10	3.350	2.150	2.500	1.600	2.400	1.400	1.900	975	1.600	765	1.250	490	795	310

Max cutting depth



	ap	pf
6D < Ø	0,15D	0,2D
Ø6 ≤ D	0,10D	0,2D

apMax=0,5mm

	ap	pf
D < Ø4	0,10D	0,1D
Ø4 ≤ D	0,05D	0,1D

apMax=0,5mm

ap	pf
0,05D	0,1D

apMax=0,5mm

1. Use high precision machine set up to ensure maximum rigidity.
2. Use a coolant that has a low co-efficient of smoke emission.

1. Utilizzare una macchina e un mandrino di elevata rigidità e di alta precisione.
2. Utilizzare dei lubrificanti di taglio adeguati, dotati di un elevato coefficiente di rallentamento di emissione del fumo.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Bitte geeignetes Kühlmedium mit rauchhemmenden Zusätzen verwenden.

1. Utilisez une machine et un porte-outil de grande rigidité et de haute précision.
2. Utiliser des lubrifiants de coupe adéquats, dotés d'un coef. élevé de ralentissement

1. Benyt højt præcisions set-up for at sikre maksimum stabilitet
2. Benyt en kølevæske med lav koefficient af røgudvikling

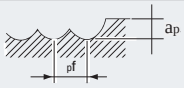
1. Use máquina de alta precisión y asegure la máxima rigidez
2. Utilizar un refrigerante con un bajo coeficiente de emisión de humo

FXS-EBM

High speed milling finishing - HSC Schlichtfräsen Schlichten - Fresatura alta velocità sgrossatura e finitura - Fraisage UGV finition
High speed sletfræsning - High Speed Milling finfräsning -Fresado en acabado a alta velocidad - Высокоскоростное чистовое фрезерование

Ø	SKD - GG S55C ■ SS400 ~750 N/mm²		30~38 HRC 30~38 HRC		38~45 HRC 38~45 HRC		45~55 HRC HRS 45~55 HRC		55~60 HRC 55~60 HRC		60~65 HRC 60~65 HRC		65~70 HRC 65~70 HRC	
	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
R 3	16.700	6.100	16.200	5.900	15.900	5.200	13.300	3.800	10.100	2.700	9.000	2.250	6.350	1.600
R 4	12.500	5.950	12.100	5.750	11.900	5.050	9.950	3.700	7.550	2.600	6.750	2.150	4.750	1.550
R 5	10.000	5.800	9.700	5.590	9.550	4.900	7.950	3.550	6.050	2.500	5.400	2.100	3.800	1.450
R 6	8.350	5.350	8.100	5.200	7.950	4.300	6.650	3.300	5.050	2.300	4.500	1.750	3.200	1.200
R 8	6.250	4.000	6.050	3.900	5.950	3.800	4.950	2.550	3.800	1.800	3.400	1.300	2.400	915
R 10	5.000	3.200	4.850	3.100	4.750	3.050	4.000	2.050	3.000	1.450	2.700	1.050	1.900	735

Max cutting depth



ap	pf
0,1D	0,2D

apMax=1mm

ap	pf
0,08D	0,2D

apMax=0,8mm

ap	pf
0,05D	0,1D

apMax=0,5mm

ap	pf
0,03D	0,1D

apMax=0,3mm

1. Use high precision machine set up to ensure maximum rigidity.
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1. Utilizzare una macchina e un mandrino di elevata rigidità e di alta precisione.
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2. Benyt en kølevæske med lav koefficient af røgudvikling

1. Use máquina de alta precisión y asegure la máxima rigidez
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1. Använd uppsänningsanordning av hög kvalitet för bästa stabilitet
2. Använd skärvätska med låg rökutvecklingskoefficient.

1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость.
2. Используйте качественную СОЖ с высокой устойчивостью к возникновению дыма.

FXS-PKE

Side milling - HSC Konturfräsen - Fresatura alta velocità contornatura - Fraisage UGV contournage
High speed sidefræsning - High speed valsfräsning - Contorneado a alta velocidad - Высокоскоростное контурное фрезерование



	C≤0,2% - GG S55C ■ SS400 ■ FC250 ~750 N/mm²		SCM - SKD SKD ■ SKS ■ SNCM ~30 HRC		30~38 HRC NAK55 ■ HPMI ■ SKT 30~38 HRC		38~45 HRC SUS SUS304 ■ X210CR12 X40CRMOV51 38~45 HRC		45~55 HRC HRS 45~55 HRC		55~60 HRC 55~60 HRC	
	100 (m/min)		75 (m/min)		65 (m/min)		50 (m/min)		40 (m/min)		25 (m/min)	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
3	8.900	890	6.650	795	5.900	470	3.800	120	3.400	80	2.000	40
4	6.650	930	5.000	900	4.450	530	2.850	135	2.650	100	1.550	50
5	5.300	950	4.000	880	3.550	480	2.250	140	2.150	110	1.250	50
6	5.300	900	4.000	800	3.550	220	2.200	175	2.100	130	1.250	50
8	3.950	835	3.000	710	2.650	445	1.650	185	1.600	140	955	55
10	3.150	760	2.400	680	2.100	310	1.300	165	1.300	135	760	55
12	2.650	730	2.000	620	1.750	285	1.100	145	1.000	125	635	45
16	1.700	680	1.500	600	1.300	310	840	170	800	135	477	55
20	1.350	540	1.200	480	1.050	310	670	170	640	135	382	55

Max cutting depth



1. Conditions to be used if slant is = 3 x dia.
   If length is 5 x dia, than reduce feed and rotation by 30 to 40% and use 1/2 of depth of passes.
   If length is 6 x dia, than reduce feed and rotation by 40 to 60% and use 1/4 of depth of passes.
2. Reduce speed to avoid distortion from deep passes or low rigidity
3. Use compresed air or a high quality coolant with a low co-efficient of smoke emmision.

1. Condizioni da utilizzare se la lunghezza dell'estensione dell'utensile è uguale a 3 volte il diametro.
   Se la lunghezza è di 5 volte il diametro ridurre l'avanzamento e la rotazione dal 30 al 40%
   ed utilizzate 1/2 della profondità di passata.
   Se la lunghezza è di 6 volte il diametro ridurre l'avanzamento e la rotazione dal 40 al 60%
   ed utilizzate 1/4 della profondità di passata.
2. Regolare l'avanzamento e la velocità in funzione di taglio o della rigidità della macchina.
3. Utilizzaree un getto di aria compressa. Se la vostra scelta ricade su dei liquidi da taglio,
   sceglieteli di alta qualità, dotati di un coefficiente elevato di rallentamento di emissione del fumo.

1. Die angegebenen Schnittdaten sind für eine max. Ausspanlänge von 3 x D.
   Bei 5 x D die Schnittgeschwindigkeit und den Vorschub um 30 bis 40% reduzieren, die
   Schnittiefe auf ein 1/2 reduzieren.
   Bei 6 x D die Schnittgeschwindigkeit und den Vorschub um 40 bis 60% reduzieren, die
   Schnittiefe auf ein 1/4 reduzieren.
2. Vorschub und Geschwindigkeit der Schnittiefe und Maschinen-Starrheit anpassen.
3. Benutzen Sie Druckluft oder Kühlmittel mit rauchhemmenden Zusätzen.

1. Die angegebenen Schnittdaten sind für eine max. Ausspanlänge von 3 x D.
   Bei 5 x D die Schnittgeschwindigkeit und den Vorschub um 30 bis 40% reduzieren, die
   Schnittiefe auf ein 1/2 reduzieren.
   Bei 6 x D die Schnittgeschwindigkeit und den Vorschub um 40 bis 60% reduzieren, die
   Schnittiefe auf ein 1/4 reduzieren.
2. Vorschub und Geschwindigkeit der Schnittiefe und Maschinen-Starrheit anpassen.
3. Benutzen Sie Druckluft oder Kühlmittel mit rauchhemmenden Zusätzen.

1. Skæredata til brug ved udhæng = 3 x Diameter
   Hvis længden er 5 x dia, reducér tilspænding og omdrejninger med 30-40% og reducér
   skæredybden til det halve
   Hvis længden er 6 x dia, reducér tilspænding og omdrejninger med 40-60% og reducér
   skæredybden til det 3/4
2. Reducér hastigheden for at undgå forvrængninger fra dybe passager eller lav stbilitet
3. Brug lufttryk eller kølevæske af høj kvalitet med lav røgudvikling

1. Condiciones utilizables con mango = 3 D
   Si el vuelo de 5 x D, reducir avance y velocidad un 30 a 40% y la pasada a 1/2
   Si el vuelo de 6 x D, reducir avance y velocidad un 40 a 60% y la pasada a 3/4
2. Reduzca velocidad para evitar distorsión entre pasadas profundas y baja rigidez
3. Utilizar aire comprimido o un refrigerante con un bajo coeficiente de emisión de humo

1. Skärdata vid uthäng = 3 x Diametern
   Vid uthäng är 5 x diametern, reducera varvtal och matning med 30-40% och reducera
   skärdjupet till 50%
   Vid uthäng är 6 x diametern, reducera varvtal och matning med 40-60% och reducera
   skärdjupet till 75%
2. Reducera varvtal för att undgå vibrationer i djupa kaviteter eller vid allmän låg
   stabilitet.områder eller lav stabilitet
3. Använd lufttryck eller kylvätska med låg rökutveckling

1. Режимы резания действительны при вылете фрезы = 3 D
   Если длина 5 x D, уменьшите подачу и обороты шпинделя на 40-50% и используйте ½
   глубины резания.
   Если длина 6 x D, уменьшите подачу и обороты шпинделя на 60-70% и используйте ½
   глубины резания.
2. Отрегулируйте обороты шпинделя, подачу в зависимости от глубины резания и
   жесткости станка.
3. Используйте сжатый воздух или качественную СОЖ с высокой устойчивостью к
   возникновению дыма.

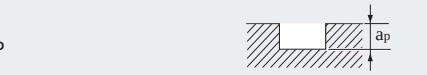
FXS-PKE

Slotting milling - HSC Nutenfräsen - Fresatura alta velocità, per scanalature profonde - Fraisage UGV rainurage
High speed sporfræsning - High Speed Milling spårfräsning - Fresado en ranurado a alta velocidad - Высокоскоростное Фрезерование пазов



	C≤0,2% - GG S55C ■ SS400 ■ FC250 ~750 N/mm²		SCM - SKD SKD ■ SKS ■ SNCM ~30 HRC		30~38 HRC NAK55 ■ HPMI ■ SKT 30~38 HRC		38~45 HRC SUS SUS304 ■ X210CR12 X40CRMOV51 38~45 HRC		45~55 HRC HRS 45~55 HRC		55~60 HRC 55~60 HRC	
	80 (m/min)		60 (m/min)		50 (m/min)		40 (m/min)		30 (m/min)		20 (m/min)	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
3	8.900	665	6.650	595	5.900	350	3.800	90	3.150	55	2.000	30
4	6.650	695	5.000	675	4.450	400	2.850	100	2.350	70	1.550	35
5	5.300	715	4.000	660	3.550	360	2.250	105	1.900	70	1.250	35
6	4.450	740	3.300	550	2.950	345	1.900	110	1.600	90	1.050	35
8	3.300	660	2.500	500	2.200	360	1.400	115	1.200	95	795	35
10	2.650	630	2.000	475	1.750	325	1.100	115	955	95	635	35
12	2.200	590	1.650	440	1.450	300	955	110	800	95	530	35
16	1.650	640	1.250	480	1.100	335	720	120	600	95	400	40
20	1.350	535	1.000	400	875	280	570	120	480	80	320	40

Max cutting depth



1. Conditions to be used if slant is = 3 x dia.
   If length is 5 x dia, than reduce feed and rotation by 30 to 40% and use 1/2 of depth of passes.
   If length is 6 x dia, than reduce feed and rotation by 40 to 60% and use 1/4 of depth of passes.
2. Reduce speed to avoid distortion from deep passes or low rigidity
3. Use compresed air or a high quality coolant with a low co-efficient of smoke emmision.

1. Condizioni da utilizzare se la lunghezza dell'estensione dell'utensile è uguale a 3 volte il diametro.
   Se la lunghezza è di 5 volte il diametro ridurre l'avanzamento e la rotazione dal 30 al 40%
   ed utilizzate 1/2 della profondità di passata.
   Se la lunghezza è di 6 volte il diametro ridurre l'avanzamento e la rotazione dal 40 al 60%
   ed utilizzate 1/4 della profondità di passata.
2. Regolare l'avanzamento e la velocità in funzione di taglio o della rigidità della macchina.
3. Utilizzaree un getto di aria compressa. Se la vostra scelta ricade su dei liquidi da taglio,
   sceglieteli di alta qualità, dotati di un coefficiente elevato di rallentamento di emissione del fumo.

1. Die angegebenen Schnittdaten sind für eine max. Ausspanlänge von 3 x D.
   Bei 5 x D die Schnittgeschwindigkeit und den Vorschub um 30 bis 40% reduzieren, die
   Schnittiefe auf ein 1/2 reduzieren.
   Bei 6 x D die Schnittgeschwindigkeit und den Vorschub um 40 bis 60% reduzieren, die
   Schnittiefe auf ein 1/4 reduzieren.
2. Vorschub und Geschwindigkeit der Schnittiefe und Maschinen-Starrheit anpassen.
3. Benutzen Sie Druckluft oder Kühlmittel mit rauchhemmenden Zusätzen.

1. Die angegebenen Schnittdaten sind für eine max. Ausspanlänge von 3 x D.
   Bei 5 x D die Schnittgeschwindigkeit und den Vorschub um 30 bis 40% reduzieren, die
   Schnittiefe auf ein 1/2 reduzieren.
   Bei 6 x D die Schnittgeschwindigkeit und den Vorschub um 40 bis 60% reduzieren, die
   Schnittiefe auf ein 1/4 reduzieren.
2. Vorschub und Geschwindigkeit der Schnittiefe und Maschinen-Starrheit anpassen.
3. Benutzen Sie Druckluft oder Kühlmittel mit rauchhemmenden Zusätzen.

1. Skæredata til brug ved udhæng = 3 x Diameter
   Hvis længden er 5 x dia, reducér tilspænding og omdrejninger med 30-40% og reducér
   skæredybden til det halve
   Hvis længden er 6 x dia, reducér tilspænding og omdrejninger med 40-60% og reducér skæredybden til det 3/4
2. Reducér hastigheden for at undgå forvrængninger fra dybe passager eller lav stbilitet
3. Brug lufttryk eller kølevæske af høj kvalitet med lav røgudvikling

1. Condiciones utilizables con mango = 3 D
   Si el vuelo de 5 x D, reducir avance y velocidad un 30 a 40% y la pasada a 1/2
   Si el vuelo de 6 x D, reducir avance y velocidad un 40 a 60% y la pasada a 3/4
2. Reduzca velocidad para evitar distorsión entre pasadas profundas y baja rigidez
3. Utilizar aire comprimido o un refrigerante con un bajo coeficiente de emisión de humo

1. Skärdata vid uthäng = 3 x Diametern
   Vid uthäng är 5 x diametern, reducera varvtal och matning med 30-40% och reducera skärdjupet till 50%
   Vid uthäng är 6 x diametern, reducera varvtal och matning med 40-60% och reducera skärdjupet till 75%
2. Reducera varvtal för att undgå vibrationer i djupa kaviteter eller vid allmän låg stabilitet.områder eller lav stabilitet
3. Använd lufttryck eller kylvätska med låg rökutveckling

1. Режимы резания действительны при вылете фрезы = 3 D
   Если длина 5 x D, уменьшите подачу и обороты шпинделя на 40-50% и используйте ½ глубины резания.
   Если длина 6 x D, уменьшите подачу и обороты шпинделя на 60-70% и используйте ½ глубины резания.
2. Отрегулируйте обороты шпинделя, подачу в зависимости от глубины резания и жесткости станка.
3. Используйте сжатый воздух или качественную СОЖ с высокой устойчивостью к возникновению дыма

FXS-PKE

High speed milling - HSC Schlichtfräsen - Fresatura alta velocità - Fraisage UGV
High speed fræsning -High Speed Milling - Fresado a alta velocidad HSM - Высокоскоростное фрезерование

	C≤0,2% - GG S55C ■ SS400 ■ FC250 ~750 N/mm²		SCM - SKD SKD ■ SKS ■ SNCM ~30 HRC		30~38 HRC NAK55 ■ HPMI ■ SKT 30~38 HRC		38~45 HRC SUS SUS304 ■ X210CR12 X40CRMOV51 38~45 HRC		45~55 HRC HRS 45~55 HRC		55~60 HRC 55~60 HRC	
	200 (m/min)		200 (m/min)		200 (m/min)		150 (m/min)		150 (m/min)		100 (m/min)	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
3	20.000	2.180	20.000	1.750	20.000	1.100	15.900	880	15.900	705	10.600	460
4	15.900	2.420	15.900	1.940	15.900	1.220	11.900	915	11.900	765	7.960	485
5	12.700	2.550	12.700	2.040	12.700	1.270	9.550	975	9.550	800	6.370	510
6	10.600	2.650	10.600	2.200	10.600	1.370	8.000	1.000	8.000	800	5.300	530
8	8.000	2.650	8.000	2.200	8.000	1.370	6.000	1.000	6.000	800	4.000	530
10	6.400	2.120	6.400	1.700	6.400	1.060	4.800	800	4.800	640	3.180	420
12	5.300	2.120	5.300	1.700	5.300	1.060	4.000	800	4.000	640	2.650	420
16	4.000	2.050	4.000	1.600	4.000	1.000	3.000	765	3.000	610	2.000	400
20	3.200	1.900	3.200	1.550	3.200	970	2.400	725	2.400	575	1.600	380

Max cutting depth



ap / ae = 1D / 0,02D

1. Conditions to be used if slant is = 3 x dia.
   If length is 5 x dia, than reduce feed and rotation by 30 to 40% and use 1/2 of depth of passes.
   If length is 6 x dia, than reduce feed and rotation by 40 to 60% and use 1/4 of depth of passes.
2. Reduce speed to avoid distortion from deep passes or low rigidity
3. Use compresed air or a high quality coolant with a low co-efficient of smoke emmision.

1. Condizioni da utilizzare se la lunghezza dell'estensione dell'utensile è uguale a 3 volte il diametro.
   Se la lunghezza è di 5 volte il diametro ridurre l'avanzamento e la rotazione dal 30 al 40%
   ed utilizzate 1/2 della profondità di passata.
   Se la lunghezza è di 6 volte il diametro ridurre l'avanzamento e la rotazione dal 40 al 60%
   ed utilizzate 1/4 della profondità di passata.
2. Regolare l'avanzamento e la velocità in funzione di taglio o della rigidità della macchina.
3. Utilizzaree un getto di aria compressa. Se la vostra scelta ricade su dei liquidi da taglio,
   sceglieteli di alta qualità, dotati di un coefficiente elevato di rallentamento di emissione del fumo.

1. Die angegebenen Schnittdaten sind für eine max. Ausspanlänge von 3 x D.
   Bei 5 x D die Schnittgeschwindigkeit und den Vorschub um 30 bis 40% reduzieren, die
   Schnittiefe auf ein 1/2 reduzieren.
   Bei 6 x D die Schnittgeschwindigkeit und den Vorschub um 40 bis 60% reduzieren, die
   Schnittiefe auf ein 1/4 reduzieren.
2. Vorschub und Geschwindigkeit der Schnittiefe und Maschinen-Starrheit anpassen.
3. Benutzen Sie Druckluft oder Kühlmittel mit rauchhemmenden Zusätzen.

1. Die angegebenen Schnittdaten sind für eine max. Ausspanlänge von 3 x D.
   Bei 5 x D die Schnittgeschwindigkeit und den Vorschub um 30 bis 40% reduzieren, die
   Schnittiefe auf ein 1/2 reduzieren.
   Bei 6 x D die Schnittgeschwindigkeit und den Vorschub um 40 bis 60% reduzieren, die
   Schnittiefe auf ein 1/4 reduzieren.
2. Vorschub und Geschwindigkeit der Schnittiefe und Maschinen-Starrheit anpassen.
3. Benutzen Sie Druckluft oder Kühlmittel mit rauchhemmenden Zusätzen.

1. Skæredata til brug ved udhæng = 3 x Diameter
   Hvis længden er 5 x dia, reducér tilspænding og omdrejninger med 30-40% og reducér
   skæredybden til det halve
   Hvis længden er 6 x dia, reducér tilspænding og omdrejninger med 40-60% og reducér
   skæredybden til det 3/4
2. Reducér hastigheden for at undgå forvrængninger fra dybe passager eller lav stbilitet
3. Brug lufttryk eller kølevæske af høj kvalitet med lav røgudvikling

1. Condiciones utilizables con mango = 3 D
   Si el vuelo de 5 x D, reducir avance y velocidad un 30 a 40% y la pasada a 1/2
   Si el vuelo de 6 x D, reducir avance y velocidad un 40 a 60% y la pasada a 3/4
2. Reduzca velocidad para evitar distorsión entre pasadas profundas y baja rigidez
3. Utilizar aire comprimido o un refrigerante con un bajo coeficiente de emisión de humo

1. Skärdata vid uthäng = 3 x Diametern
   Vid uthäng är 5 x diametern, reducera varvtal och matning med 30-40% och reducera
   skärdjupet till 50%
   Vid uthäng är 6 x diametern, reducera varvtal och matning med 40-60% och reducera
   skärdjupet till 75%
2. Reducera varvtal för att undgå vibrationer i djupa kaviteter eller vid allmän låg
   stabilitet.områder eller lav stabilitet
3. Använd lufttryck eller kylvätska med låg rökutveckling

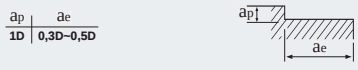
1. Режимы резания действительны при вылете фрезы = 3 D
   Если длина 5 x D, уменьшите подачу и обороты шпинделя на 40-50% и используйте ½
   глубины резания.
   Если длина 6 x D, уменьшите подачу и обороты шпинделя на 60-70% и используйте ½
   глубины резания.
2. Отрегулируйте обороты шпинделя, подачу в зависимости от глубины резания и
   жесткости станка.
3. Используйте сжатый воздух или качественную СОЖ с высокой устойчивостью к
   возникновению дыма.

FXS-PKE

High speed milling - HSC Schlichtfräsen - Fresatura alta velocità - Fraisage UGV
High speed fræsning -High Speed Milling - Fresado a alta velocidad HSM - Высокоскоростное фрезерование

	C≤0,2% - GG S55C ■ SS400 ■ FC250 ~750 N/mm²		SCM - SKD SKD ■ SKS ■ SNCM ~30 HRC		30~38 HRC NAK55 ■ HPMI ■ SKT 30~38 HRC		38~45 HRC SUS SUS304 ■ X210CR12 X40CRMOV51 38~45 HRC		45~55 HRC HRS 45~55 HRC		55~60 HRC 55~60 HRC	
	200 (m/min)		200 (m/min)		200 (m/min)		150 (m/min)		150 (m/min)		100 (m/min)	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
3	20.000	1.340	20.000	1.080	20.000	840	15.900	800	15.900	440	10.600	280
4	15.900	1.500	15.900	1.200	15.900	940	11.900	820	11.900	460	7.960	300
5	12.700	1.580	12.700	1.250	12.700	995	9.550	860	9.550	475	6.370	300
6	10.600	1.600	10.600	1.280	10.600	1.000	8.000	1.000	8.000	500	5.300	310
8	8.000	1.600	8.000	1.280	8.000	1.000	6.000	1.000	6.000	500	4.000	310
10	6.400	1.300	6.400	1.000	6.400	800	4.800	700	4.800	400	3.180	250
12	5.300	1.300	5.300	1.000	5.300	800	4.000	700	4.000	400	2.650	250
16	4.000	1.300	4.000	1.000	4.000	790	3.000	690	3.000	400	2.000	255
20	3.200	1.250	3.200	970	3.200	765	2.400	610	2.400	380	1.600	255

Max cutting depth



ap / ae = 0,05D / 0,2D~0,3D

ap / ae = 0,02D / 0,2D~0,3D

1. Conditions to be used if slant is = 3 x dia.
   If length is 5 x dia, than reduce feed and rotation by 30 to 40% and use 1/2 of depth of passes.
   If length is 6 x dia, than reduce feed and rotation by 40 to 60% and use 1/4 of depth of passes.
2. Reduce speed to avoid distortion from deep passes or low rigidity
3. Use compresed air or a high quality coolant with a low co-efficient of smoke emmision.

1. Condizioni da utilizzare se la lunghezza dell'estensione dell'utensile è uguale a 3 volte il diametro.
   Se la lunghezza è di 5 volte il diametro ridurre l'avanzamento e la rotazione dal 30 al 40%
   ed utilizzate 1/2 della profondità di passata.
   Se la lunghezza è di 6 volte il diametro ridurre l'avanzamento e la rotazione dal 40 al 60%
   ed utilizzate 1/4 della profondità di passata.
2. Regolare l'avanzamento e la velocità in funzione di taglio o della rigidità della macchina.
3. Utilizzaree un getto di aria compressa. Se la vostra scelta ricade su dei liquidi da taglio,
   sceglieteli di alta qualità, dotati di un coefficiente elevato di rallentamento di emissione del fumo.

1. Die angegebenen Schnittdaten sind für eine max. Ausspanlänge von 3 x D.
   Bei 5 x D die Schnittgeschwindigkeit und den Vorschub um 30 bis 40% reduzieren, die
   Schnittiefe auf ein 1/2 reduzieren.
   Bei 6 x D die Schnittgeschwindigkeit und den Vorschub um 40 bis 60% reduzieren, die
   Schnittiefe auf ein 1/4 reduzieren.
2. Vorschub und Geschwindigkeit der Schnittiefe und Maschinen-Starrheit anpassen.
3. Benutzen Sie Druckluft oder Kühlmittel mit rauchhemmenden Zusätzen.

1. Die angegebenen Schnittdaten sind für eine max. Ausspanlänge von 3 x D.
   Bei 5 x D die Schnittgeschwindigkeit und den Vorschub um 30 bis 40% reduzieren, die
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1. Skæredata til brug ved udhæng = 3 x Diameter
   Hvis længden er 5 x dia, reducér tilspænding og omdrejninger med 30-40% og reducér
   skæredybden til det halve
   Hvis længden er 6 x dia, reducér tilspænding og omdrejninger med 40-60% og reducér skæredybden til det 3/4
2. Reducér hastigheden for at undgå forvrængninger fra dybe passager eller lav stbilitet
3. Brug lufttryk eller kølevæske af høj kvalitet med lav røgudvikling

1. Condiciones utilizables con mango = 3 D
   Si el vuelo de 5 x D, reducir avance y velocidad un 30 a 40% y la pasada a 1/2
   Si el vuelo de 6 x D, reducir avance y velocidad un 40 a 60% y la pasada a 3/4
2. Reduzca velocidad para evitar distorsión entre pasadas profundas y baja rigidez
3. Utilizar aire comprimido o un refrigerante con un bajo coeficiente de emisión de humo

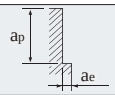
1. Skärdata vid uthäng = 3 x Diametern
   Vid uthäng är 5 x diametern, reducera varvtal och matning med 30-40% och reducera skärdjupet till 50%
   Vid uthäng är 6 x diametern, reducera varvtal och matning med 40-60% och reducera skärdjupet till 75%
2. Reducera varvtal för att undgå vibrationer i djupa kaviteter eller vid allmän låg stabilitet.områder eller lav stabilitet
3. Använd lufttryck eller kylvätska med låg rökutveckling

1. Режимы резания действительны при вылете фрезы = 3 D
   Если длина 5 x D, уменьшите подачу и обороты шпинделя на 40-50% и используйте ½ глубины резания.
   Если длина 6 x D, уменьшите подачу и обороты шпинделя на 60-70% и используйте ½ глубины резания.
2. Отрегулируйте обороты шпинделя, подачу в зависимости от глубины резания и жесткости станка.
3. Используйте сжатый воздух или качественную СОЖ с высокой устойчивостью к возникновению дыма.

FXS-HS-PKE

Side milling - HSC Konturfräsen - Fresatura alta velocità contornatura - Fraisage UGV contournage
High speed sidefræsning - High speed valsfräsning - Contorneado a alta velocidad - Высокоскоростное контурное фрезерование

	C≤0,2%		SCM - SKD		30~38 HRC		38~45 HRC SUS		45~55 HRC Tiall		55~60 HRC SCM	
	S55C ■ SS400 ■ FC250 ~750 N/mm²		SCM ■ SKT ■ SKS ■ HPM1 ~30 HRC		SKT ■ SKD ■ NAK55 ■ HPM1 30~38 HRC		SUS304 ■ SKD 38~45 HRC		45~55 HRC		55~60 HRC	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
6	4.500	905	4.000	805	3.500	410	2.250	195	2.100	125	1.250	50
8	3.400	940	3.000	730	2.650	400	1.650	180	1.600	140	955	55
10	2.700	755	2.400	670	2.100	310	1.350	175	1.250	130	760	55
12	2.250	896	2.000	670	1.750	310	1.100	175	1.050	125	635	45
16	1.700	680	1.500	600	1.300	310	850	175	800	135	475	35
20	1.350	540	1.200	480	1.050	310	650	165	650	135	380	35
Max cutting depth	ap 1,2D | ae 0,2D								ap 1D | ae 0,2D		ap 1D | ae 0,05D	



1. Use highest possible speed.
2. On lower speed machines, use maximum speed & feed settings.
3. Cutter mis-alignment must not exceed 10µ.
4. Always use coolant.

1. Utilizza la velocità più alta possibile.
2. Quando utilizzate delle macchine di basse velocità, utilizzate la velocità più alta e regolatevi il passo di avanzamento.
3. Dopo il suo passaggio nel mandrino, la fresa non può avere un run-out superiore a 0.01 mm.
4. Utilizzare sempre dei liquidi da taglio.

1. Maximale Geschwindigkeit benützen.
2. Bei konventionelen Maschinen, maximale Drehzahl - verwenden und den Vorschub entsprechend anpassen.
3. Fräserrundlauf darf max. 0.01 mm betragen.
4. Immer Külmittel benutzen.

1. Utilisez la vitesse la plus élévée possible.
2. Lorque vous employez des machines de basses vitesses, utilisez la vitesse la plus haute et ajustez-y le taux d'avance.
3. Après sa fixation dans le porte-outil, la fraise ne peut avoir un faux rond supérieur à 10µ.
4. Utiliser toujours des fluides de coupe.

1. Anvend højest mulige antal omdrejninger
2. På maskiner med lavt antal omdrejninger til rådighed, anvend maximum antal.
3. Nøjagtighed på opretning af fræseren må ikke overskride 10µ
4. Anvend altid kølevæske

1. Utilice velocidad más alta posible
2. Con máquina de velocidad convencional trabaje a la maxima velocidad posible y ajuste el avance en consecuencia
3. La desalineación de herramienta no debe exceder de 10 µ
4. Utilice siempre refrigerante

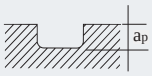
1. Använd högsta möjliga varvtal
2. På maskiner med lågt varvtal, använd max varvtal.
3. Rundgångsnogrannheten få ej överstiga 10µ
4. Använd alltid skärvätska

1. Используйте максимально возможную скорость вращения шпинделя.
2. На станках с низкооборотным шпинделем используйте максимальные обороты шпинделя и снизьте подачу пропорционально снижению скорости резания.
3. Биение фрезы не должно превышать 10 µ.
4. Всегда используйте СОЖ.

FXS-HS-PKE

Slotting milling - HSC Nutenfräsen - Fresatura alta velocità, per scanalature profonde - Fraisage UGV rainurage
High speed sporfræsning - High Speed Milling spårfräsning - Fresado en ranurado a alta velocidad - Высокоскоростное Фрезерование пазов

	C≤0,2% - GG		SCM - SKD		30~38 HRC		38~45 HRC SUS		45~55 HRC HRS		55~60 HRC	
	S55C ■ SS400 ■ FC250 ~750 N/mm²		SCM ■ SKD ■ SKS ■ SNCM ~30 HRC		NAK55 ■ HPMI ■ SKT ■ SKD 30~38 HRC		SUS304 ■ SKD 38~45 HRC		45~55 HRC		55~60 HRC	
	200 (m/min)		200 (m/min)		200 (m/min)		150 (m/min)		150 (m/min)		100 (m/min)	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
6	4.450	770	3.350	580	2.900	400	1.900	120	1.600	95	1.050	40
8	3.350	710	2.500	530	2.200	350	1.450	120	1.200	95	800	40
10	2.700	650	2.000	480	1.750	350	1.150	120	950	95	650	40
12	2.250	650	1.650	475	1.450	350	950	120	800	95	530	40
16	1.650	635	1.250	480	1.100	350	700	120	600	95	400	40
20	1.350	540	1.000	400	900	300	550	115	500	85	300	40
Max cutting depth	ap 0,5D								ap 0,5D			



1. Conditions to be used if slant is = 3 x dia.
   If length is 5 x dia, than reduce feed and rotation by 30 to 40% and use 1/2 of depth of passes.
   If length is 6 x dia, than reduce feed and rotation by 40 to 60% and use 1/4 of depth of passes.
2. Reduce speed to avoid distortion from deep passes or low rigidity
3. Use compresed air or a high quality coolant with a low co-efficient of smoke emmision.

1. Condizioni da utilizzare se la lunghezza dell'estensione dell'utensile è uguale a 3 volte il diametro.
   Se la lunghezza è di 5 volte il diametro ridurre l'avanzamento e la rotazione dal 30 al 40% ed utilizzate 1/2 della profondità di passata.
   Se la lunghezza è di 6 volte il diametro ridurre l'avanzamento e la rotazione dal 40 al 60% ed utilizzate 1/4 della profondità di passata.
2. Regolare l'avanzamento e la velocità in funzione di taglio o della rigidità della macchina.
3. Utilizzaree un getto di aria compressa. Se la vostra scelta ricade su dei liquidi da taglio, sceglietli di alta qualità, dotati di un coefficiente elevato di rallentamento di emissione del fumo.

1. Die angegebenen Schnittdaten sind für eine max. Ausspanlänge von 3 x D.
   Bei 5 x D die Schnittgeschwindigkeit und den Vorschub um 30 bis 40% reduzieren, die Schnittiefe auf ein 1/2 reduzieren.
   Bei 6 x D die Schnittgeschwindigkeit und den Vorschub um 40 bis 60% reduzieren, die Schnittiefe auf ein 1/4 reduzieren.
2. Vorschub und Geschwindigkeit der Schnittiefe und Maschinen-Starrheit anpassen.
3. Benutzen Sie Druckluft oder Kühlmittel mit rauchhemmenden Zusätzen.

1. Die angegebenen Schnittdaten sind für eine max. Ausspanlänge von 3 x D.
   Bei 5 x D die Schnittgeschwindigkeit und den Vorschub um 30 bis 40% reduzieren, die Schnittiefe auf ein 1/2 reduzieren.
   Bei 6 x D die Schnittgeschwindigkeit und den Vorschub um 40 bis 60% reduzieren, die Schnittiefe auf ein 1/4 reduzieren.
2. Vorschub und Geschwindigkeit der Schnittiefe und Maschinen-Starrheit anpassen.
3. Benutzen Sie Druckluft oder Kühlmittel mit rauchhemmenden Zusätzen.

1. Skæredata til brug ved udhæng = 3 x Diameter
   Hvis længden er 5 x dia, reducér tilspænding og omdrejninger med 30-40% og reducér skæredybden til det halve
   Hvis længden er 6 x dia, reducér tilspænding og omdrejninger med 40-60% og reducér skæredybden til det 3/4
2. Reducér hastigheden for at undgå forvrængninger fra dybe passager eller lav stbilitet
3. Brug lufttryk eller kølevæske af høj kvalitet med lav røgudvikling

1. Condiciones utilizables con mango = 3 D
   Si el vuelo de 5 x D, reducir avance y velocidad un 30 a 40% y la pasada a 1/2
   Si el vuelo de 6 x D, reducir avance y velocidad un 40 a 60% y la pasada a 3/4
2. Reduzca velocidad para evitar distorsión entre pasadas profundas y baja rigidez
3. Utilizar aire comprimido o un refrigerante con un bajo coeficiente de emisión de humo

1. Skärdata vid uthäng = 3 x Diametern
   Vid uthäng är 5 x diametern, reducera varvtal och matning med 30-40% och reducera skärdjupet till 50%
   Vid uthäng är 6 x diametern, reducera varvtal och matning med 40-60% och reducera skärdjupet till 75%
2. Reducera varvtal för att undgå vibrationer i djupa kaviteter eller vid allmän låstabilitet.områder eller lav stabilitet
3. Använd lufttryck eller kylvätska med låg rökutveckling

1. Режимы резания действительны при вылете фрезы = 3 D
   Если длина 5 x D, уменьшите подачу и обороты шпинделя на 40-50% и используйте ½ глубины резания.
   Если длина 6 x D, уменьшите подачу и обороты шпинделя на 60-70% и используйте ½ глубины резания.
2. Отрегулируйте обороты шпинделя, подачу в зависимости от глубины резания и жесткости станка.
3. Используйте сжатый воздух или качественную СОЖ с высокой устойчивостью к возникновению дыма.

FXS-HS-PKE

High speed milling - HSC Schlichtfräsen - Fresatura alta velocità - Fraisage UGV
High speed fræsning -High Speed Milling - Fresado a alta velocidad HSM - Высокоскоростное фрезерование



	C≤0,2% S55C ■ SS400 ■ FC250 ~750 N/mm²		SCM - SKD SCM ■ SKT ■ SKS ■ HPM1 ~30 HRC		30~38 HRC SKT ■ SKD ■ NAK55 ■ HPM1 30~38 HRC		38~45 HRC SUS SUS304 ■ SKD 38~45 HRC		45~55 HRC Tiall 45~55 HRC		55~60 HRC SCM 55~60 HRC	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
6	10.600	3.050	10.600	2.650	10.600	2.000	7.950	1.450	7.950	1.400	5.300	765
8	7.950	2.800	7.950	2.400	7.950	1.900	5.950	1.400	5.950	1.300	4.000	715
10	6.350	2.550	6.350	2.200	6.350	1.850	4.750	1.350	4.750	1.250	3.200	635
12	5.300	2.550	5.300	2.200	5.300	1.850	4.000	1.350	4.000	1.250	2.650	635
16	4.000	2.400	4.000	2.200	4.000	1.850	3.000	1.350	3.000	1.250	2.000	635
20	3.200	1.900	3.200	1.900	3.200	1.600	2.400	1.200	2.400	1.100	1.600	635

Max cutting depth						
	ap 1D | ae 0,1D; ae Max=1,5mm	ap; ae		ap 1D | ae 0,05D; ae Max=1,5mm		ap 1D | ae 0,02D

1. Use highest possible speed.
2. On lower speed machines, use maximum speed & feed settings.
3. Cutter mis-alignment must not exceed 10µ.
4. Always use coolant.

1. Utilizza la velocità più alta possibile.
2. Quando utilizzate delle macchine di basse velocità, utilizzate la velocità più alta e regolatevi il passo di avanzamento.
3. Dopo il suo passaggio nel mandrino, la fresa non può avere un run-out superiore a 0.01 mm.
4. Utilizzare sempre dei liquidi da taglio.

1. Maximale Geschwindigkeit benützen.
2. Bei konventionelen Maschinen, maximale Drehzahl - verwenden und den Vorschub entsprechend anpassen.
3. Fräserrundlauf darf max. 0.01 mm betragen.
4. Immer Külmittel benutzen.

1. Utilisez la vitesse la plus élévée possible.
2. Lorque vous employez des machines de basses vitesses, utilisez la vitesse la plus haute et ajustez-y le taux d'avance.
3. Après sa fixation dans le porte-outil, la fraise ne peut avoir un faux rond supérieur à 10µ.
4. Utiliser toujours des fluides de coupe.

1. Anvend højest mulige antal omdrejninger
2. På maskiner med lavt antal omdrejninger til rådighed, anvend maximum antal.
3. Nøjagtighed på opretning af fræseren må ikke overskride 10µ
4. Anvend altid kølevæske

1. Utilice velocidad más alta posible
2. Con máquina de velocidad convencional trabaje a la maxima velocidad posible y ajuste el avance en consecuencia
3. La desalineación de herramienta no debe exceder de 10 µ
4. Utilice siempre refrigerante

1. Använd högsta möjliga varvtal
2. På maskiner med lågt varvtal, använd max varvtal.
3. Rundgångsnogrannheten få ej överstiga 10µ
4. Använd alltid skärvätska

1. Используйте максимально возможную скорость вращения шпинделя.
2. На станках с низкооборотным шпинделем используйте максимальные обороты шпинделя и снизьте подачу пропорционально снижению скорости резания.
3. Биение фрезы не должно превышать 10 µ.
4. Всегда используйте СОЖ.

FXS-HS-PKE

High speed milling - HSC Schlichtfräsen - Fresatura alta velocità - Fraisage UGV
High speed fræsning -High Speed Milling - Fresado a alta velocidad HSM - Высокоскоростное фрезерование



	C≤0,2% - GG S55C ■ SS400 ■ FC250 ~750 N/mm²		SCM - SKD SCM ■ SKD ■ SKS ■ SNCM ~30 HRC		30~38 HRC NAK55 ■ HPMI ■ SKT ■ SKD 30~38 HRC		38~45 HRC SUS SUS304 ■ SKD 38~45 HRC		45~55 HRC HRS 45~55 HRC		55~60 HRC 55~60 HRC	
	200 (m/min)		200 (m/min)		200 (m/min)		150 (m/min)		150 (m/min)		100 (m/min)	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
6	10.600	2.250	10.600	2.100	10.600	2.050	7.950	1.550	7.950	1.400	5.300	635
8	7.950	2.150	7.950	2.000	7.950	1.950	5.950	1.450	5.950	1.250	4.000	585
10	6.350	2.050	6.350	1.900	6.350	1.850	4.750	1.400	4.750	1.150	3.200	535
12	5.300	2.050	5.300	1.900	5.300	1.850	4.000	1.400	4.000	1.150	2.650	535
16	4.000	2.050	4.000	1.900	4.000	1.850	3.000	1.400	3.000	1.150	2.000	535
20	3.200	1.800	3.200	1.800	3.200	1.600	2.400	1.200	2.400	955	1.600	535

Max cutting depth						
	ap 0,1D | ae 0,03D~0,5D	ap; ae		ap 0,05D | ae 0,2D~0,3D		ap 0,02D | ae 0,2D~0,3D

1. Conditions to be used if slant is = 3 x dia.
   If length is 5 x dia, than reduce feed and rotation by 30 to 40% and use 1/2 of depth of passes.
   If length is 6 x dia, than reduce feed and rotation by 40 to 60% and use 1/4 of depth of passes.
2. Reduce speed to avoid distortion from deep passes or low rigidity
3. Use compresed air or a high quality coolant with a low co-efficient of smoke emmision.

1. Condizioni da utilizzare se la lunghezza dell'estensione dell'utensile è uguale a 3 volte il diametro.
   Se la lunghezza è di 5 volte il diametro ridurre l'avanzamento e la rotazione dal 30 al 40% ed utilizzate 1/2 della profondità di passata.
   Se la lunghezza è di 6 volte il diametro ridurre l'avanzamento e la rotazione dal 40 al 60% ed utilizzate 1/4 della profondità di passata.
2. Regolare l'avanzamento e la velocità in funzione di taglio o della rigidità della macchina.
3. Utilizzaree un getto di aria compressa. Se la vostra scelta ricade su dei liquidi da taglio, sceglietli di alta qualità, dotati di un coefficiente elevato di rallentamento di emissione del fumo.

1. Die angegebenen Schnittdaten sind für eine max. Ausspanlänge von 3 x D.
   Bei 5 x D die Schnittgeschwindigkeit und den Vorschub um 30 bis 40% reduzieren, die Schnittiefe auf ein 1/2 reduzieren.
   Bei 6 x D die Schnittgeschwindigkeit und den Vorschub um 40 bis 60% reduzieren, die Schnittiefe auf ein 1/4 reduzieren.
2. Vorschub und Geschwindigkeit der Schnittiefe und Maschinen-Starrheit anpassen.
3. Benutzen Sie Druckluft oder Kühlmittel mit rauchhemmenden Zusätzen.

1. Die angegebenen Schnittdaten sind für eine max. Ausspanlänge von 3 x D.
   Bei 5 x D die Schnittgeschwindigkeit und den Vorschub um 30 bis 40% reduzieren, die Schnittiefe auf ein 1/2 reduzieren.
   Bei 6 x D die Schnittgeschwindigkeit und den Vorschub um 40 bis 60% reduzieren, die Schnittiefe auf ein 1/4 reduzieren.
2. Vorschub und Geschwindigkeit der Schnittiefe und Maschinen-Starrheit anpassen.
3. Benutzen Sie Druckluft oder Kühlmittel mit rauchhemmenden Zusätzen.

1. Skæredata til brug ved udhæng = 3 x Diameter
   Hvis længden er 5 x dia, reducér tilspænding og omdrejninger med 30-40% og reducér skæredybden til det halve
   Hvis længden er 6 x dia, reducér tilspænding og omdrejninger med 40-60% og reducér skæredybden til det 3/4
2. Reducér hastigheden for at undgå forvrængninger fra dybe passager eller lav stbilitet
3. Brug lufttryk eller kølevæske af høj kvalitet med lav røgudvikling

1. Condiciones utilizables con mango = 3 D
   Si el vuelo de 5 x D, reducir avance y velocidad un 30 a 40% y la pasada a 1/2
   Si el vuelo de 6 x D, reducir avance y velocidad un 40 a 60% y la pasada a 3/4
2. Reduzca velocidad para evitar distorsión entre pasadas profundas y baja rigidez
3. Utilizar aire comprimido o un refrigerante con un bajo coeficiente de emisión de humo

1. Skärdata vid uthäng = 3 x Diametern
   Vid uthäng är 5 x diametern, reducera varvtal och matning med 30-40% och reducera skärdjupet till 50%
   Vid uthäng är 6 x diametern, reducera varvtal och matning med 40-60% och reducera skärdjupet till 75%
2. Reducera varvtal för att undgå vibrationer i djupa kaviteter eller vid allmän låstabilitet.områder eller lav stabilitet
3. Använd lufttryck eller kylvätska med låg rökutveckling

1. Режимы резания действительны при вылете фрезы = 3 D
   Если длина 5 x D, уменьшите подачу и обороты шпинделя на 40-50% и используйте ½ глубины резания.
   Если длина 6 x D, уменьшите подачу и обороты шпинделя на 60-70% и используйте ½ глубины резания.
2. Отрегулируйте обороты шпинделя, подачу в зависимости от глубины резания и жесткости станка.
3. Используйте сжатый воздух или качественную СОЖ с высокой устойчивостью к возникновению дыма.

FXS-MFE

High speed milling - HSC Schlichtfräsen - Fresatura alta velocità - Fraisage UGV
High speed fræsning -High Speed Milling - Fresado a alta velocidad HSM - Высокоскоростное фрезерование

	C≤0,2% S55C ■ SS400 ~750 N/mm²		SCM - SKD SKD ■ SKS ■ SNCM ~30 HRC		30~38 HRC NAK55 ■ HPMI ■ SKT 30~38 HRC		38~45 HRC SUS SUS304 ■ X210CR12 X40CRMOV51 38~45 HRC		45~55 HRC HRS 45~55 HRC		55~60 HRC 55~60 HRC	
	200 (m/min)		200 (m/min)		200 (m/min)		150 (m/min)		150 (m/min)		100 (m/min)	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
10	6.400	2.120	6.400	1.700	6.400	1.060	4.800	800	4.800	640	3.180	420
12	5.300	2.120	5.300	1.700	5.300	1.060	4.000	800	4.000	640	2.650	420
14	4.550	2.120	4.550	1.700	4.550	1.060	3.400	800	3.400	640	2.270	420
18	3.500	1.750	3.500	1.400	3.500	1.060	2.650	800	2.650	640	1.750	420
22	2.900	1.450	2.900	1.150	2.900	1.060	2.170	800	2.170	640	1.450	420
Max cutting depth	a_p = **/ (1,5D)** a_e = **0,05D**										a_p = **/ (1,5D)** a_e = **0,02D**	

1. Conditions to be used if slant is = 3 x dia.
   If length is 5 x dia, than reduce feed and rotation by 10 to 20%.
   If length is 6 x dia, than reduce feed and rotation by 40 to 60% and use ½ of aa and 1/3 of ar.
2. Reduce speed to avoid distortion from deep passes or low rigidity
3. For milling > 18 mm, machining center ISO50 is recommended
4. Use compresed air or a high quality coolant with a low co-efficient of smoke emmision.

1. Condizioni da utilizzare se la lunghezza dell'estensione dell'utensile è uguale a 3 volte il diametro.
   Se la lunghezza è di 5 volte il diametro, ridurre l'avanzamento e la rotazione dal 10 al 20%.
   Se la lunghezza è di 6 volte il diametro, ridurre l'avanzamento e la rotazione dal 40 al 60%
   ed utilizzare ½ di aa e 1/3 di ar.
2. Regolare l'avanzamento e la velocità in funzione di taglio o della rigidità della macchina.
3. Per la fresatura superiore a 18 mm, è consigliato l'utilizzo di un centro di lavorazione ISO50.
4. Utilizzaree un getto di aria compressa. Se la vostra scelta ricade su dei liquidi da taglio,
   sceglieteli di alta qualità, dotati di un coefficiente elevato di rallentamento di emissione del fumo.

1. Die angegebenen Schnittdaten sind für eine max. Ausspanlänge von 3 x D.
   Bei 5 x D die Schnittgeschwindigkeit und den Vorschub um 10 bis 20%. reduzieren.
   Bei 6 x D die Schnittgeschwindigkeit und den Vorschub um 40 bis 60% reduzieren,
   die Schnittiefe auf ½ aa und 1/3 ar.
2. Vorschub und Geschwindigkeit der Schnittiefe und Maschinen-Starrheit anpassen.
3. Für Fräsen > 18 mm, empfehlen wir Maschinen mitt ISO50.
4. Benutzen Sie Druckluft oder Kühlmittel mit rauchhemmenden Zusätzen.

1. Conditions à utiliser si le porte-à-faux est = à 3 x le dia.
   Si la longueur est de 5 x le dia, veuillez réduire l'avance et la rotation de 10 à 20.
   Si la longueur est de 6 x le dia, veuillez réduire l'avance et la rotation de 40 à 60 % et
   utiliser ½ de aa et 1/3 de ar.
2. Ajuster l'avance et la vitesse en fonction de la profondeur de coupe ou de la rigidité de la machine.
3. Pour le fraisage > 18 mm, il est recommandé d'utiliser un C.U. ISO50.
4. Utilisez un jet d'air comprimé ou des fluides de coupe de haute qualité avec un coefficient élevé

1. Skæredata til brug ved udhæng = 3 x Diameter
   Hvis længden er 5 x dia, reducér tilspænding og omdrejninger med 10-20%
   Hvis længden er 6 x dia, reducér tilspænding og omdrejninger med 40-60% og reducér
   skæredybden til det ½ til aa och 1/3 til ar
2. Reducér hastigheden for at undgå forvrængninger fra dybe passager eller lav stbilitet
3. Ved fræsning > 18 mm, er det anbefalet at benytte et ISO50 bearbejdningscenter
4. Brug lufttryk eller kølevæske af høj kvalitet med lav røgudvikling

1. Condiciones utilizables con mango = 3 D
   Si el vuelo de 5 x D, reducir avance y velocidad un 10 a 20%
   Si el vuelo de 6 x D, reducir avance y velocidad un 40 a 60% y la pasada a ½ aa e 1/3 ar
2. Reduzca velocidad para evitar distorsión entre pasadas profundas y baja rigidez
3. Para fresar > 18 mm, se recomienda el uso de centro de mecanizado con ISO 50
4. Utilizar aire comprimido o un refrigerante con un bajo coeficiente de emisión de humo

1. Skärdata vid uthäng = 3 x Diametern
   Vid uthäng är 5 x diametern, reducera varvtal och matning med 10-20%
   Vid uthäng är 6 x diametern, reducera varvtal och matning med 40-60% och reducera
   skärdjupet till ½ och aa
2. Reducera varvtal för att undgå vibrationer i djupa kaviteter eller vid allmän låg
   stabilitet.områder eller lav stabilitet
3. Vid fräsning > 18 mm rekommenderas att använda maskiner med ISO50 kona
4. Använd lufttryck eller kylvätska med låg rökutveckling

1. Режимы резания действительны при вылете фрезы = 3 D
   Если длина 5 x D, уменьшите подачу и обороты шпинделя на 40-50% и используйте ½ г
   лубины резания.
   Если длина 6 x D, уменьшите подачу и обороты шпинделя на 60-70% и используйте ½
   глубины резания.
2. Отрегулируйте обороты шпинделя, подачу в зависимости от глубины резания и
   жесткости станка.
3. Используйте сжатый воздух или качественную СОЖ с высокой устойчивостью к
   возникновению дыма.

FXS-MFE

High speed milling - HSC Schlichtfräsen - Fresatura alta velocità - Fraisage UGV
High speed fræsning -High Speed Milling - Fresado a alta velocidad HSM - Высокоскоростное фрезерование

	C≤0,2% S55C ■ SS400 ~750 N/mm²		SCM - SKD SKD ■ SKS ■ SNCM ~30 HRC		30~38 HRC NAK55 ■ HPMI ■ SKT 30~38 HRC		38~45 HRC SUS SUS304 ■ X210CR12 X40CRMOV51 38~45 HRC		45~55 HRC HRS 45~55 HRC		55~60 HRC 55~60 HRC	
	200 (m/min)		200 (m/min)		200 (m/min)		150 (m/min)		150 (m/min)		100 (m/min)	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
10	6.400	1.300	6.400	1.000	4.800	800	4.800	700	4.800	400	3.180	250
12	5.300	1.300	5.300	1.000	4.000	800	4.000	700	4.000	400	2.650	250
14	4.550	1.300	4.550	1.000	3.400	800	3.400	700	3.400	400	2.270	250
18	3.500	1.300	3.500	1.000	2.650	800	2.650	700	2.650	400	1.750	250
22	2.900	1.300	2.900	1.000	2.170	800	2.170	700	2.170	400	1.450	250
Max cutting depth	a_p = **0,1D** a_e = **0,3D~0,5D**								a_p = **0,05D** a_e = **0,2D~0,3D**		a_p = **0,02D** a_e = **0,2D~0,3D**	

1. Conditions to be used if slant is = 3 x dia.
   If length is 5 x dia, than reduce feed and rotation by 10 to 20%.
   If length is 6 x dia, than reduce feed and rotation by 40 to 60% and use ½ of aa and 1/3 of ar.
2. Reduce speed to avoid distortion from deep passes or low rigidity
3. For milling > 18 mm, machining center ISO50 is recommended
4. Use compresed air or a high quality coolant with a low co-efficient of smoke emmision.

1. Condizioni da utilizzare se la lunghezza dell'estensione dell'utensile è uguale a 3 volte il diametro.
   Se la lunghezza è di 5 volte il diametro, ridurre l'avanzamento e la rotazione dal 10 al 20%.
   Se la lunghezza è di 6 volte il diametro, ridurre l'avanzamento e la rotazione dal 40 al 60%
   ed utilizzare ½ di aa e 1/3 di ar.
2. Regolare l'avanzamento e la velocità in funzione di taglio o della rigidità della macchina.
3. Per la fresatura superiore a 18 mm, è consigliato l'utilizzo di un centro di lavorazione ISO50.
4. Utilizzaree un getto di aria compressa. Se la vostra scelta ricade su dei liquidi da taglio,
   sceglieteli di alta qualità, dotati di un coefficiente elevato di rallentamento di emissione del fumo.

1. Die angegebenen Schnittdaten sind für eine max. Ausspanlänge von 3 x D.
   Bei 5 x D die Schnittgeschwindigkeit und den Vorschub um 10 bis 20%. reduzieren.
   Bei 6 x D die Schnittgeschwindigkeit und den Vorschub um 40 bis 60% reduzieren,
   die Schnittiefe auf ½ aa und 1/3 ar.
2. Vorschub und Geschwindigkeit der Schnittiefe und Maschinen-Starrheit anpassen.
3. Für Fräsen > 18 mm, empfehlen wir Maschinen mitt ISO50.
4. Benutzen Sie Druckluft oder Kühlmittel mit rauchhemmenden Zusätzen.

1. Conditions à utiliser si le porte-à-faux est = à 3 x le dia.
   Si la longueur est de 5 x le dia, veuillez réduire l'avance et la rotation de 10 à 20.
   Si la longueur est de 6 x le dia, veuillez réduire l'avance et la rotation de 40 à 60 % et
   utiliser ½ de aa et 1/3 de ar.
2. Ajuster l'avance et la vitesse en fonction de la profondeur de coupe ou de la rigidité de la machine.
3. Pour le fraisage > 18 mm, il est recommandé d'utiliser un C.U. ISO50.
4. Utilisez un jet d'air comprimé ou des fluides de coupe de haute qualité avec un coefficient élevé

1. Skæredata til brug ved udhæng = 3 x Diameter
   Hvis længden er 5 x dia, reducér tilspænding og omdrejninger med 10-20%
   Hvis længden er 6 x dia, reducér tilspænding og omdrejninger med 40-60% og reducér
   skæredybden til det ½ til aa och 1/3 til ar
2. Reducér hastigheden for at undgå forvrængninger fra dybe passager eller lav stbilitet
3. Ved fræsning > 18 mm, er det anbefalet at benytte et ISO50 bearbejdningscenter
4. Brug lufttryk eller kølevæske af høj kvalitet med lav røgudvikling

1. Condiciones utilizables con mango = 3 D
   Si el vuelo de 5 x D, reducir avance y velocidad un 10 a 20%
   Si el vuelo de 6 x D, reducir avance y velocidad un 40 a 60% y la pasada a ½ aa e 1/3 ar
2. Reduzca velocidad para evitar distorsión entre pasadas profundas y baja rigidez
3. Para fresar > 18 mm, se recomienda el uso de centro de mecanizado con ISO 50
4. Utilizar aire comprimido o un refrigerante con un bajo coeficiente de emisión de humo

1. Skärdata vid uthäng = 3 x Diametern
   Vid uthäng är 5 x diametern, reducera varvtal och matning med 10-20%
   Vid uthäng är 6 x diametern, reducera varvtal och matning med 40-60% och reducera
   skärdjupet till ½ och aa
2. Reducera varvtal för att undgå vibrationer i djupa kaviteter eller vid allmän låg
   stabilitet.områder eller lav stabilitet
3. Vid fräsning > 18 mm rekommenderas att använda maskiner med ISO50 kona
4. Använd lufttryck eller kylvätska med låg rökutveckling

1. Режимы резания действительны при вылете фрезы = 3 D
   Если длина 5 x D, уменьшите подачу и обороты шпинделя на 40-50% и используйте ½ г
   лубины резания.
   Если длина 6 x D, уменьшите подачу и обороты шпинделя на 60-70% и используйте ½
   глубины резания.
2. Отрегулируйте обороты шпинделя, подачу в зависимости от глубины резания и
   жесткости станка.
3. Используйте сжатый воздух или качественную СОЖ с высокой устойчивостью к
   возникновению дыма.

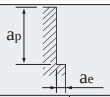
FXS-CR-EMS

High speed milling - HSC Schlichtfräsen - Fresatura alta velocità - Fraisage UGV
High speed fræsning -High Speed Milling - Fresado a alta velocidad HSM - Высокоскоростное фрезерование

	C≤0,2% - GG S55C ■ SS400 ~750 N/mm²		SCM - SKD SKD ■ SKS ■ SNCM ~30 HRC		30~38 HRC NAK55 ■ HPMI ■ SKT 30~38 HRC		38~45 HRC SUS SUS304 ■ X210CR12 X40CRMOV51 38~45 HRC		45~55 HRC HRS 45~55 HRC		55~60 HRC 55~60 HRC	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
3	47.500	6.250	42.000	5.350	31.500	2.650	26.500	1.650	15.500	830	12.500	590
4	35.500	6.250	31.500	5.750	23.500	3.350	19.500	1.650	11.500	960	9.500	595
5	28.500	6.700	25.000	6.000	19.000	3.600	15.500	1.650	9.500	995	7.600	595
6	23.500	4.400	21.000	3.750	15.500	2.800	13.000	2.000	7.950	1.200	6.350	960
8	17.500	4.300	15.500	3.750	11.500	2.800	9.900	2.050	5.950	1.250	4.750	955
10	14.000	4.250	12.500	3.750	9.500	2.800	7.950	2.100	4.750	1.250	3.800	955
12	11.500	3.950	10.500	3.500	7.950	2.600	6.600	1.950	3.950	1.150	3.150	875
14	10.000	3.750	9.050	3.350	6.800	2.500	5.650	1.750	3.400	1.050	2.700	795
16	8.950	3.500	7.950	3.100	5.950	2.300	4.950	1.600	2.950	970	2.350	740
18	7.950	3.100	7.050	2.750	5.300	2.050	4.400	1.450	2.650	885	2.100	690
20	7.150	2.800	6.350	2.500	4.750	1.850	3.950	1.350	2.350	785	1.900	625
25	5.700	2.350	5.050	2.100	3.800	1.500	3.150	1.100	1.900	675	1.500	525
30	4.750	1.950	4.200	1.750	3.150	1.250	2.650	940	1.550	550	1.250	435

Max cutting depth

	ap	ae
D ≤ Ø 12	1D	0,01D
Ø 12 < D	1D	0,02D



1. Conditions to be used if slant is = 3 x dia.
   If length is 5 x dia, than reduce feed and rotation by 10 to 20%.
   If length is 6 x dia, than reduce feed and rotation by 40 to 60% and use ½ of aa and 1/3 of ar.
2. Reduce speed to avoid distortion from deep passes or low rigidity
3. For milling > 18 mm, machining center ISO50 is recommended
4. Use compresed air or a high quality coolant with a low co-efficient of smoke emmision.

1. Condizioni da utilizzare se la lunghezza dell'estensione dell'utensile è uguale a 3 volte il diametro.
   Se la lunghezza è di 5 volte il diametro, ridurre l'avanzamento e la rotazione dal 10 al 20%.
   Se la lunghezza è di 6 volte il diametro, ridurre l'avanzamento e la rotazione dal 40 al 60%
   ed utilizzare ½ di aa e 1/3 di ar.
2. Regolare l'avanzamento e la velocità in funzione di taglio o della rigidità della macchina.
3. Per la fresatura superiore a 18 mm, è consigliato l'utilizzo di un centro di lavorazione ISO50.
4. Utilizzaree un getto di aria compressa. Se la vostra scelta ricade su dei liquidi da taglio,
   sceglieteli di alta qualità, dotati di un coefficiente elevato di rallentamento di emissione del fumo.

1. Die angegebenen Schnittdaten sind für eine max. Ausspanlänge von 3 x D.
   Bei 5 x D die Schnittgeschwindigkeit und den Vorschub um 10 bis 20%. reduzieren.
   Bei 6 x D die Schnittgeschwindigkeit und den Vorschub um 40 bis 60% reduzieren,
   die Schnittiefe auf ½ aa und 1/3 ar.
2. Vorschub und Geschwindigkeit der Schnittiefe und Maschinen-Starrheit anpassen.
3. Für Fräsen > 18 mm, empfehlen wir Maschinen mitt ISO50.
4. Benutzen Sie Druckluft oder Kühlmittel mit rauchhemmenden Zusätzen.

1. Conditions à utiliser si le porte-à-faux est = à 3 x le dia.
   Si la longueur est de 5 x le dia, veuillez réduire l'avance et la rotation de 10 à 20.
   Si la longueur est de 6 x le dia, veuillez réduire l'avance et la rotation de 40 à 60 % et
   utiliser ½ de aa et 1/3 de ar.
2. Ajuster l'avance et la vitesse en fonction de la profondeur de coupe ou de la rigidité de la machine.
3. Pour le fraisage > 18 mm, il est recommandé d'utiliser un C.U. ISO50.
4. Utilisez un jet d'air comprimé ou des fluides de coupe de haute qualité avec un coefficient élevé

1. Skæredata til brug ved udhæng = 3 x Diameter
   Hvis længden er 5 x dia, reducér tilspænding og omdrejninger med 10-20%
   Hvis længden er 6 x dia, reducér tilspænding og omdrejninger med 40-60% og reducér
   skæredybden til det ½ til aa och 1/3 til ar
2. Reducér hastigheden for at undgå forvrængninger fra dybe passager eller lav stbilitet
3. Ved fræsning > 18 mm, er det anbefalet at benytte et ISO50 bearbejdningscenter
4. Brug lufttryk eller kølevæske af høj kvalitet med lav røgudvikling

1. Condiciones utilizables con mango = 3 D
   Si el vuelo de 5 x D, reducir avance y velocidad un 10 a 20%
   Si el vuelo de 6 x D, reducir avance y velocidad un 40 a 60% y la pasada a ½ aa e 1/3 ar
2. Reduzca velocidad para evitar distorsión entre pasadas profundas y baja rigidez
3. Para fresar > 18 mm, se recomienda el uso de centro de mecanizado con ISO 50
4. Utilizar aire comprimido o un refrigerante con un bajo coeficiente de emisión de humo

1. Skärdata vid uthäng = 3 x Diametern
   Vid uthäng är 5 x diametern, reducera varvtal och matning med 10-20%
   Vid uthäng är 6 x diametern, reducera varvtal och matning med 40-60% och reducera
   skärdjupet till ½ och aa
2. Reducera varvtal för att undgå vibrationer i djupa kaviteter eller vid allmän låg
   stabilitet.områder eller lav stabilitet
3. Vid fräsning > 18 mm rekommenderas att använda maskiner med ISO50 kona
4. Använd lufttryck eller kylvätska med låg rökutveckling

1. Режимы резания действительны при вылете фрезы = 3 D
   Если длина 5 x D, уменьшите подачу и обороты шпинделя на 40-50% и используйте ½ г
   лубины резания.
   Если длина 6 x D, уменьшите подачу и обороты шпинделя на 60-70% и используйте ½
   глубины резания.
2. Отрегулируйте обороты шпинделя, подачу в зависимости от глубины резания и
   жесткости станка.
3. Используйте сжатый воздух или качественную СОЖ с высокой устойчивостью к
   возникновению дыма.

CBN-SXB

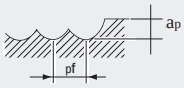
Regular milling - Normale Bearbeitung - Parametri di taglio - Fraisage régulier
Almindelig fræsning - Konventionell fräsning - Fresado regular - Нормальное фрезерование



Ø	30~45 HRC SKT ■ SKD ■ NAK80 ■ HPM50 30~45 HRC		45~55 HRC 45~55 HRC		55~60 HRC 55~60 HRC		60~68 HRC 60~68 HRC	
	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
R 0,2 X 1,2	50.000	2.000	50.000	2.000	50.000	2.000	50.000	2.000
R 0,3 X 1,8	50.000	2.000	50.000	2.000	50.000	2.000	50.000	2.000
R 0,5 X 2,5	50.000	3.000	50.000	3.000	50.000	3.000	50.000	3.000
R 1,0 X 5	50.000	4.000	50.000	4.000	40.000	3.200	32.000	2.500
R 1,5 X 6	32.000	2.550	32.000	2.550	26.500	2.100	21.500	1.700

Max cutting depth

ap	pf
0,015D	0,04D



ap	pf
0,01D	0,03D

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.

1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. In caso di vibrazione, ridurre simultaneamente la velocità di taglio e l'avanzamento.
3. Utilizare dei lubrificanti di taglio adequati, dotati di une elevato coefficiente di rallentamento di emessione del fumo.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindigkeit reduzieren.
3. Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen.

1. Utiliser une machine et un porte-outil de grande rigidité et de haute précision.
2. En cas de vibrations, réduisez, simultanément, la vitesse de coupe et l'avance.
3. Utiliser des fluides de coupes de haute qualité avec un coef, élevé de ralentissement d'emission de fumée.

1. Anvend stabil maskine og værktøjsholder
2. Ved vibrationer reducér omdrejninger og tilspænding simultant
3. Anvend en passende skærevæske

1. Use maquina y portaherramientas rigidos y precisos
2. En caso de vibración reduzca velocidad y avance simultaneamente
3. Use fluido de corte adecuado con retardador de humos

1. Använd en stabil maskin och verktygshållare
2. Vid vibrationer sänk varvtal och matning med samma simultant
3. Använd anpassad skärvätska

1. Используйте жесткие и точные станки и фрезерные патроны
2. При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя
3. Используйте соответствующую СОЖ с высокой устойчивостью к возникновению дыма

CA-RG-EDS

Side milling - Konturfräsen - Conturnatura - Contournage
Sidefræsning - Valsfräsning - Contorneado - Боковое фрезерование

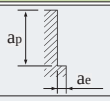
Slotting - Nutenfräsen - Per scanalature profonde - Rainurage
Skæredata - Skärdata - Ranurado - Фрезерование пазов



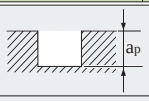
Ø	AL A7075		Cu C1100		AL A7075		Cu C1100	
	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
1	32.000	220	23.500	220	32.000	220	23.500	220
2	32.000	420	11.500	215	23.500	310	11.500	215
3	21.000	700	7.950	250	15.500	515	7.950	250
4	15.500	725	5.950	280	11.500	540	5.950	280
5	12.500	760	4.750	295	9.500	575	4.750	295
6	10.500	830	3.950	310	7.950	630	3.950	310
8	7.950	890	2.950	350	5.950	665	2.950	350
10	6.350	995	2.350	365	4.750	745	2.350	365
12	5.300	1.050	1.950	390	3.950	790	1.950	390
14	4.500	1.050	1.700	395	3.400	795	1.700	395
16	3.950	1.050	1.450	390	2.950	795	1.450	390
18	3.500	1.050	1.300	390	2.650	795	1.300	390
20	3.150	1.050	1.150	385	2.350	785	1.150	385

Max cutting depth

ap = 1,5D
ae = 0,1D



ap = 1D



1. Use a high rigidity machine set up.
2. Use soluble oil.

1. Utilizzare una macchina precisa e rigida.
2. Utilizzare dell'olio solubile.

1. Benutzen Sie stabile und präzise Maschinen, Werkzaugaufnahmen und Spannmittel.
2. Wasserlösliches Kühlmittel benutzen

1. Utilisez une machine précise et rigide.
2. Utilisez de l'huile soluble.

1.Brug en stabil opspænding
2. Brug passende skærevæske

1. Use maquina y portaherramientas rigidos y precisos
2. Aplique taladrina

1. Använd en stabil maskin och verktyghållare.
2. Använd en passande skärvätska

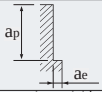
1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость.
2. Используйте водную эмульсию в качестве СОЖ.

Side milling - Konturfräsen - Conturnatura - Contournage
Sidefræsning - Valsfräsning - Contorneado - Боковое фрезерование



Ø	AL A7075 S (min-1)	AL A7075 F (mm/min)	Cu C1100 S (min-1)	Cu C1100 F (mm/min)
3	13.000	390	6.350	195
4	9.900	400	4.750	210
5	7.950	400	3.800	245
6	6.600	450	3.150	260
8	4.950	500	2.350	275
10	3.950	600	1.900	295
12	3.300	630	1.550	305

Max cutting depth	$a_p = 2{,}5D$ $a_e = 0{,}1D$



1. Use a high rigidity machine set up. 2. Use soluble oil. 3. For side milling, modify feed to obtain required finish quality	1. Utilizzare una macchina precisa e rigida. 2. Utilizzare dell'olio solubile. 3. Per la contornatura, modificate l'avanzamento per raggiungere lo stato della superfichie richiesto.
1. Benutzen Sie stabile und präzise Maschinen, Werkzaugaufnahmen und Spannmittel. 2. Wasserlösliches Kühlmittel benutzen. 3. Bei Seitenfräsen Vorschub anpassen um die erforderliche Finishing Qualität zu erreichen.	1. Utilisez une machine précise et rigide. 2. Utilisez de l'huile soluble. 3. Pour le contournage, modifiez l'avance pour ateindre l'état de surface requis.
1.Brug en stabil opspænding 2. Brug passende skærevæske 3.Ved sidefræsning, modificér tilspændingen for at opnå den ønskede overflade finish	1. Use maquina y portaherramientas rigidos y precisos 2. Aplique taladrina 3. Para la contorneado, modificar la alimentación necesaria para obtener la calidad de acabado
1. Använd en stabil maskin och verktyghållare. 2. Använd en passande skärvätska. 3. Vid valsfräsning, modifiera matningen för rätt ytfinish..	1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость. 2. Используйте водную эмульсию в качестве СОЖ. 3. При контурном фрезеровании, для достижения требуемого качества поверхности подберите подачу

CA-ETS

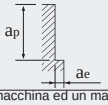
Side milling - Konturfräsen - Conturnatura - Contournage
Sidefræsning - Valsfräsning - Contorneado - Боковое фрезерование



Ø	AL A7075 S (min⁻¹)	AL A7075 F (mm/min)	AC <Si 13% S (min⁻¹)	AC <Si 13% F (mm/min)	Cu C1100 S (min⁻¹)	Cu C1100 F (mm/min)
3	21.000	950	21.000	950	7.950	320
4	15.500	1.080	15.500	1.080	5.950	350
5	12.500	1.100	12.500	1.100	4.750	380
6	10.500	1.200	10.500	1.200	3.950	400
8	7.950	1.300	7.950	1.300	2.950	450
10	6.350	1.500	6.350	1.500	2.350	480
12	5.300	1.550	5.300	1.550	1.950	510
16	3.950	1.550	3.950	1.550	1.450	510
20	3.150	1.550	3.150	1.550	1.150	510

Max cutting depth

ap	ae
1,5D	0,1D



1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.

1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. In caso di vibrazione, ridurre simultaneamente la velocità di taglio e l'avanzamento.
3. Utilizare dei lubrificanti di taglio adequati, dotati di une elevato coefficiente di rallentamento di emessione del fumo.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindigkeit reduzieren.
3. Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen.

1. Utiliser une machine et un porte-outil de grande rigidité et de haute précision.
2. En cas de vibrations, réduisez, simultanément, la vitesse de coupe et l'avance.
3. Utiliser des fluides de coupes de haute qualité avec un coef, élevé de ralentissement d'emission de fumée.

1. Anvend stabil maskine og værktøjsholder
2. Ved vibrationer reducér omdrejninger og tilspænding simultant
3. Anvend en passende skærevæske

1. Use maquina y portaherramientas rigidos y precisos
2. En caso de vibración reduzca velocidad y avance simultaneamente
3. Use fluido de corte adecuado con retardador de humos

1. Använd en stabil maskin och verktygshållare
2. Vid vibrationer sänk varvtal och matning med samma procenttal
3. Använd anpassad skärvätska

1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость.
2. При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя.
3. Используйте качественную СОЖ с высокой устойчивостью к возникновению дыма.

CA-ETS

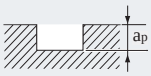
Slotting - Nutenfräsen - Per scanalature profonde - Rainurage
Sporfræsning - Spårfräsning - Ranurado - Фрезерование пазов



Ø	AL A7075 S (min⁻¹)	AL A7075 F (mm/min)	AC <Si 13% S (min⁻¹)	AC <Si 13% F (mm/min)	Cu C1100 S (min⁻¹)	Cu C1100 F (mm/min)
3	21.000	670	21.000	670	7.950	325
4	15.500	700	15.500	700	5.950	365
5	12.500	745	12.500	745	4.750	385
6	10.500	820	10.500	820	3.950	405
8	7.950	865	7.950	865	2.950	455
10	6.350	970	6.350	970	2.350	475
12	5.300	1.030	5.300	1.030	1.950	510
16	3.950	1.030	3.950	1.030	1.450	510
20	3.150	1.030	3.150	1.030	1.150	500

Max cutting depth

$a_{p=0,5D}$



1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.

1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. In caso di vibrazione, ridurre simultaneamente la velocità di taglio e l'avanzamento.
3. Utilizare dei lubrificanti di taglio adequati, dotati di une elevato coefficiente di rallentamento di emessione del fumo.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindigkeit reduzieren.
3. Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen.

1. Utiliser une machine et un porte-outil de grande rigidité et de haute précision.
2. En cas de vibrations, réduisez, simultanément, la vitesse de coupe et l'avance.
3. Utiliser des fluides de coupes de haute qualité avec un coef, élevé de ralentissement d'emission de fumée.

1. Anvend stabil maskine og værktøjsholder
2. Ved vibrationer reducér omdrejninger og tilspænding simultant
3. Anvend en passende skærevæske

1. Use maquina y portaherramientas rigidos y precisos
2. En caso de vibración reduzca velocidad y avance simultaneamente
3. Use fluido de corte adecuado con retardador de humos

1. Använd en stabil maskin och verktygshållare
2. Vid vibrationer sänk varvtal och matning med samma procenttal
3. Använd anpassad skärvätska

1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость.
2. При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя.
3. Используйте качественную СОЖ с высокой устойчивостью к возникновению дыма.

CAP-EBD

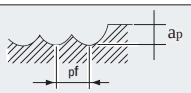
Regular milling - Normale Bearbeitung - Parametri di taglio - Fraisage regular
Almindelig fræsning - Konventionell fräsning - Fresado regular -
Нормальное фрезерование

High speed milling - HSC Schlichtfräsen - Fresatura alta velocità - Fraisage UGV - High speed fræsning - High Speed Milling - Fresado a alta velocidad HSM - Высокоскоростное фрезерование

	AL A7075		Cu C1100		AL A7075		Cu C1100	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
R 3 X 6	10.000	1.500	7.950	1.150	26.500	7.950	13.000	3.950
R 4 X 8	7.950	1.950	5.950	1.450	19.500	9.750	9.900	4.950
R 5 X 10	6.350	1.750	4.750	1.300	15.500	8.650	7.950	4.450
R 6 X 12	5.300	1.650	3.950	1.200	13.000	7.800	6.600	3.950
R 8 X 16	3.950	1.500	2.950	1.150	9.900	7.500	4.950	3.750
R10 X 20	3.150	1.350	2.350	1.000	7.950	6.350	3.950	3.150

Max cutting depth

$a_p = 0,1D$
$pf = 0,2D$



1. Use a high rigidity machine set up.
2. Use soluble oil.
3. When chattering occurs, reduce the speed and feed simultaneously.

1. Utilizzare una macchina precisa e rigida.
2. Utilizzare dell'olio solubile.
3. Utilizzare dei lubrificanti da taglio adeguati, dotati di un coefficiente elevato di rallentamento d'emissione del fumo.

1. Benutzen Sie stabile und präzise Maschinen, Werkzaugaufnahmen und Spannmittel.
2. Wasserlösliches Kühlmittel benutzen
3. Kühlmittel mit niedriger Rauchentwicklung verwenden.

1. Utilisez une machine précise et rigide.
2. Utilisez de l'huile soluble.
3. En cas de vibrations, réduisez, simultanément, la vitesse de coupe et l'avance.

1.Brug en stabil opspænding
2. Brug passende skærevæske
3. Ved vibrationer reducér omdrejninger og tilspænding simultant

1. Use maquina y portaherramientas rigidos y precisos
2. Aplique taladrina
3. En caso de vibración reduzca velocidad y avance simultaneamente

1. Använd en stabil maskin och verktyghållare.
2. Använd en passande skärvätska
3. Vid vibrationer sänk varvtal och matning med samma procenttal

1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость.
2. При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя.
3. Используйте водную эмульсию в качестве СОЖ.

CA-PKE

Side milling - Konturfräsen - Conturnatura - Contournage
Sidefræsning - Valsfräsning - Contorneado - Боковое фрезерование



Ø	AL A7075 S (min⁻¹)	AL A7075 F (mm/min)	AC <Si 13% S (min⁻¹)	AC <Si 13% F (mm/min)	Cu C1100 S (min⁻¹)	Cu C1100 F (mm/min)
3	21.000	1.100	21.000	1.100	7.950	325
4	15.500	1.250	15.500	1.250	5.950	365
5	12.500	1.280	12.500	1.275	4.750	385
6	10.500	1.400	10.500	1.400	3.950	400
8	7.950	1.500	7.950	1.500	2.950	460
10	6.350	1.700	6.350	1.700	2.350	475
12	5.300	1.750	5.300	1.750	1.950	510
16	3.950	1.750	3.950	1.750	1.450	510
20	3.150	1.750	3.150	1.750	1.150	510

Max cutting depth

ap	ae
1D	0,2D



1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.

1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. In caso di vibrazione, ridurre simultaneamente la velocità di taglio e l'avanzamento.
3. Utilizare dei lubrificanti di taglio adequati, dotati di une elevato coefficiente di rallentamento di emessione del fumo.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindigkeit reduzieren.
3. Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen.

1. Utiliser une machine et un porte-outil de grande rigidité et de haute précision.
2. En cas de vibrations, réduisez, simultanément, la vitesse de coupe et l'avance.
3. Utiliser des fluides de coupes de haute qualité avec un coef, élevé de ralentissement d'emission de fumée.

1. Anvend stabil maskine og værktøjsholder
2. Ved vibrationer reducér omdrejninger og tilspænding simultant
3. Anvend en passende skærevæske

1. Use maquina y portaherramientas rigidos y precisos
2. En caso de vibración reduzca velocidad y avance simultaneamente
3. Use fluido de corte adecuado con retardador de humos

1. Använd en stabil maskin och verktygshållare
2. Vid vibrationer sänk varvtal och matning med samma procenttal
3. Använd anpassad skärvätska

1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость.
2. При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя.
3. Используйте качественную СОЖ с высокой устойчивостью к возникновению дыма.

CA-PKE

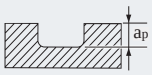
Slotting - Nutenfräsen - Per scanalature profonde - Rainurage
Sporfræsning - Spårfräsning - Ranurado - Фрезерование пазов



Ø	AL A7075 S (min⁻¹)	AL A7075 F (mm/min)	AC <Si 13% S (min⁻¹)	AC <Si 13% F (mm/min)	Cu C1100 S (min⁻¹)	Cu C1100 F (mm/min)
3	21.000	770	21.000	770	7.950	325
4	15.500	810	15.500	810	5.950	375
5	12.500	860	12.500	860	4.750	385
6	10.500	950	10.500	950	3.950	400
8	7.950	1.000	7.950	1.000	2.950	460
10	6.350	1.130	6.350	1.130	2.350	475
12	5.300	1.180	5.300	1.180	1.950	510
16	3.950	1.180	3.950	1.180	1.450	510
20	3.150	1.180	3.150	1.180	1.150	510

Max cutting depth

ap = 0,5D



1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.

1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. In caso di vibrazione, ridurre simultaneamente la velocità di taglio e l'avanzamento.
3. Utilizare dei lubrificanti di taglio adequati, dotati di une elevato coefficiente di rallentamento di emessione del fumo.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindigkeit reduzieren.
3. Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen.

1. Utiliser une machine et un porte-outil de grande rigidité et de haute précision.
2. En cas de vibrations, réduisez, simultanément, la vitesse de coupe et l'avance.
3. Utiliser des fluides de coupes de haute qualité avec un coef, élevé de ralentissement d'emission de fumée.

1. Anvend stabil maskine og værktøjsholder
2. Ved vibrationer reducér omdrejninger og tilspænding simultant
3. Anvend en passende skærevæske

1. Use maquina y portaherramientas rigidos y precisos
2. En caso de vibración reduzca velocidad y avance simultaneamente
3. Use fluido de corte adecuado con retardador de humos

1. Använd en stabil maskin och verktygshållare
2. Vid vibrationer sänk varvtal och matning med samma procenttal
3. Använd anpassad skärvätska

1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость.
2. При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя.
3. Используйте качественную СОЖ с высокой устойчивостью к возникновению дыма.

CA-PKE

High speed side milling - HSC Konturfräsen - Fresatura alta velocità contornatura - Fraisage UGV contournage
High speed sidefræsning - High speed valsfräsning - Contorneado a alta velocidad - Высокоскоростное контурное фрезерование



Ø	AL A7075 S (min⁻¹)	AL A7075 F (mm/min)	AC <Si 13% S (min⁻¹)	AC <Si 13% F (mm/min)	Cu C1100 S (min⁻¹)	Cu C1100 F (mm/min)
3	40.000	2.080	24.000	1.260	17.000	625
4	32.000	2.550	19.200	1.550	14.300	800
5	32.000	3.250	19.200	1.950	12.700	925
6	26.500	3.500	15.900	2.150	10.600	959
8	20.000	3.750	12.000	2.250	8.000	1.130
10	16.000	4.300	9.600	2.580	6.350	1.150
12	13.300	4.400	7.980	2.650	5.300	1.250
16	10.000	4.400	6.000	2.650	4.000	1.250
20	8.000	4.400	4.800	2.650	3.200	1.250

Max cutting depth

ap	ae
1D	0,1D



1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.

1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. In caso di vibrazione, ridurre simultaneamente la velocità di taglio e l'avanzamento.
3. Utilizare dei lubrificanti di taglio adequati, dotati di une elevato coefficiente di rallentamento di emessione del fumo.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindigkeit reduzieren.
3. Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen.

1. Utiliser une machine et un porte-outil de grande rigidité et de haute précision.
2. En cas de vibrations, réduisez, simultanément, la vitesse de coupe et l'avance.
3. Utiliser des fluides de coupes de haute qualité avec un coef, élevé de ralentissement d'emission de fumée.

1. Anvend stabil maskine og værktøjsholder
2. Ved vibrationer reducér omdrejninger og tilspænding simultant
3. Anvend en passende skærevæske

1. Use maquina y portaherramientas rigidos y precisos
2. En caso de vibración reduzca velocidad y avance simultaneamente
3. Use fluido de corte adecuado con retardador de humos

1. Använd en stabil maskin och verktygshållare
2. Vid vibrationer sänk varvtal och matning med samma procenttal
3. Använd anpassad skärvätska

1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость.
2. При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя.
3. Используйте качественную СОЖ с высокой устойчивостью к возникновению дыма.

CA-PKE

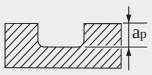
High speed slotting milling - HSC Nutenfräsen - Fresatura alta velocità, per scanalature profonde - Fraisage UGV rainurage
High speed sporfræsning - High Speed Milling spårfräsning - Fresado en ranurado a alta velocidad - Высокоскоростное Фрезерование пазов



Ø	AL A7075 S (min⁻¹)	AL A7075 F (mm/min)	AC <Si 13% S (min⁻¹)	AC <Si 13% F (mm/min)
3	40.000	1.450	24.000	880
4	32.000	1.680	19.200	1.000
5	32.000	2.200	19.200	1.330
6	26.500	2.400	15.900	1.450
8	20.000	2.500	12.000	1.500
10	16.000	2.800	9.600	1.700
12	13.300	2.950	7.980	1.780
16	10.000	3.000	6.000	1.800
20	8.000	3.000	4.800	1.800

Max cutting depth

$a_p = 0{,}25D$



1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.

1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. In caso di vibrazione, ridurre simultaneamente la velocità di taglio e l'avanzamento.
3. Utilizare dei lubrificanti di taglio adequati, dotati di une elevato coefficiente di rallentamento di emessione del fumo.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindigkeit reduzieren.
3. Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen.

1. Utiliser une machine et un porte-outil de grande rigidité et de haute précision.
2. En cas de vibrations, réduisez, simultanément, la vitesse de coupe et l'avance.
3. Utiliser des fluides de coupes de haute qualité avec un coef, élevé de ralentissement d'emission de fumée.

1. Anvend stabil maskine og værktøjsholder
2. Ved vibrationer reducér omdrejninger og tilspænding simultant
3. Anvend en passende skærevæske

1. Use maquina y portaherramientas rigidos y precisos
2. En caso de vibración reduzca velocidad y avance simultaneamente
3. Use fluido de corte adecuado con retardador de humos

1. Använd en stabil maskin och verktygshållare
2. Vid vibrationer sänk varvtal och matning med samma procenttal
3. Använd anpassad skärvätska

1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость.
2. При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя.
3. Используйте качественную СОЖ с высокой устойчивостью к возникновению дыма.

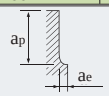
CA-MFE

High speed side milling - HSC Konturfräsen - Fresatura alta velocità contornatura - Fraisage UGV contournage
High speed sidefræsning - High speed valsfräsning - Contorneado a alta velocidad - Высокоскоростное контурное фрезерование



Ø	AL A7075 S (min⁻¹)	AL A7075 F (mm/min)	AC <Si 13% S (min⁻¹)	AC <Si 13% F (mm/min)	Cu C1100 S (min⁻¹)	Cu C1100 F (mm/min)
10	16.000	4.300	9.600	2.580	6.350	1.150
12	13.300	4.400	8.000	2.650	5.300	1.250
14	11.500	4.400	6.900	2.650	4.000	1.250
18	8.850	4.400	5.300	2.650	3.500	1.250
22	7.400	4.000	4.500	2.400	3.000	1.200

Max cutting depth



ap	ae
1,2D	0,1D

Maximum cutting depth	Maximum cutting depth ap	Maximum cutting depth ae	S.	F.
D X 4	1,2 D	0,100 D	100%	100%
D X 5	1,2 D	0,050 D	60~80%	60~80%
D X 6	1,2 D	0,025 D	40~60%	40~60%

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.

1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. In caso di vibrazione, ridurre simultaneamente la velocità di taglio e l'avanzamento.
3. Utilizare dei lubrificanti di taglio adeguati, dotati di une elevato coefficiente di rallentamento di emessione del fumo.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindigkeit reduzieren.
3. Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen.

1. Utiliser une machine et un porte-outil de grande rigidité et de haute précision.
2. En cas de vibrations, réduisez, simultanément, la vitesse de coupe et l'avance.
3. Utiliser des fluides de coupes de haute qualité avec un coef, élevé de ralentissement d'emission de fumée.

1. Anvend stabil maskine og værktøjsholder
2. Ved vibrationer reducér omdrejninger og tilspænding simultant
3. Anvend en passende skærevæske

1. Use maquina y portaherramientas rigidos y precisos
2. En caso de vibración reduzca velocidad y avance simultaneamente
3. Use fluido de corte adecuado con retardador de humos

1. Använd en stabil maskin och verktygshållare
2. Vid vibrationer sänk varvtal och matning med samma procenttal
3. Använd anpassad skärvätska

1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость.
2. При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя.
3. Используйте качественную СОЖ с высокой устойчивостью к возникновению дыма.

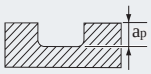
CA-MFE

High speed slotting milling - HSC Nutenfräsen - Fresatura alta velocità, per scanalature profonde - Fraisage UGV rainurage
High speed sporfræsning - High Speed Milling spårfräsning - Fresado en ranurado a alta velocidad - Высокоскоростное Фрезерование пазов



Ø	AL A7075 S (min⁻¹)	AL A7075 F (mm/min)	AC <Si 13% S (min⁻¹)	AC <Si 13% F (mm/min)
10	16.000	2.800	9.600	1.700
12	13.300	2.950	7.980	1.780
14	11.500	3.000	6.000	1.800
18	8.850	3.000	5.300	1.800
22	7.400	3.000	4.450	1.800

Max cutting depth



Maximum cutting depth	Maximum cutting depth ap	S.	F.
D X 4	0,100 D	100%	100%
D X 5	0,050 D	60~80%	60~80%
D X 6	0,025 D	40~60%	40~60%

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.

1. Utilizzare una macchina ed un mandrino di elevata rigidità e di alta precisione.
2. In caso di vibrazione, ridurre simultaneamente la velocità di taglio e l'avanzamento.
3. Utilizare dei lubrificanti di taglio adeguati, dotati di une elevato coefficiente di rallentamento di emessione del fumo.

1. Benutzen Sie stabile und präzise Maschinen, Werkzeugaufnahmen und Spannmittel.
2. Falls Vibrationen auftreten sollten, Vorschub und Schnittgeschwindigkeit reduzieren.
3. Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen.

1. Utiliser une machine et un porte-outil de grande rigidité et de haute précision.
2. En cas de vibrations, réduisez, simultanément, la vitesse de coupe et l'avance.
3. Utiliser des fluides de coupes de haute qualité avec un coef, élevé de ralentissement d'emission de fumée.

1. Anvend stabil maskine og værktøjsholder
2. Ved vibrationer reducér omdrejninger og tilspænding simultant
3. Anvend en passende skærevæske

1. Use maquina y portaherramientas rigidos y precisos
2. En caso de vibración reduzca velocidad y avance simultaneamente
3. Use fluido de corte adecuado con retardador de humos

1. Använd en stabil maskin och verktygshållare
2. Vid vibrationer sänk varvtal och matning med samma procenttal
3. Använd anpassad skärvätska

1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость.
2. При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя.
3. Используйте качественную СОЖ с высокой устойчивостью к возникновению дыма.

CRN-LN-EDS

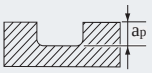


Cu
C1100

Ø	Slotting conventional Milling S (min⁻¹)	Slotting conventional Milling F (mm/min)	Slotting conventional Milling S (min⁻¹)	Slotting conventional Milling F (mm/min)	Side Milling conventional Milling S (min⁻¹)	Side Milling conventional Milling F (mm/min)	Side Milling High Speed Milling S (min⁻¹)	Side Milling High Speed Milling F (mm/min)	Side Milling Dry Milling S (min⁻¹)	Side Milling Dry Milling F (mm/min)
0,5	32.000	125	32.000	125	32.000	125	50.000	200	32.000	125
0,8	32.000	150	32.000	150	31.500	150	50.000	240	31.500	150
1,0	32.000	190	32.000	190	25.000	150	50.000	300	25.000	150
1,5	15.500	140	15.500	140	16.500	145	42.000	375	16.500	145
2,0	11.500	135	11.500	135	12.500	150	31.500	375	12.500	150
2,5	9.500	175	9.500	175	10.000	185	25.000	470	10.000	185
3,0	7.950	220	7.950	220	8.450	235	21.000	585	8.450	235
4,0	5.950	235	5.950	235	6.350	250	15.500	620	6.350	250
5,0	4.750	285	4.750	285	5.050	300	12.500	750	5.050	300
6,0	3.950	250	3.950	250	4.200	265	10.500	670	4.200	265
8,0	2.950	260	2.950	260	3.150	275	7.950	700	3.150	275
10,0	2.350	245	2.350	245	2.500	265	6.350	670	2.500	265
12,0	1.950	250	1.950	250	2.100	265	5.300	675	2.100	265

Max cutting depth

D < Ø1 a_p = 0,05D
Ø1 ≤ D a_p = 0,10D



a_p = 0,1D

D < Ø1
Ø1 ≤ D
a_p = 1,5D
a_p = 1,5D a_e = 0,02D
a_e 0,05D

D < Ø1 a_p = 1,5D a_e = 0,01D
Ø1 ≤ D a_p = 1,5D a_e = 0,02D



1. Use a high rigidity machine set up.
2. Use soluble oil.
3. When chattering occurs, reduce the speed and feed simultaneously.
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.

1. Utilizzare una macchina precisa e rigida.
2. Utilizzare dell'olio solubile.
3. Utilizare dei lubrificanti di taglio adequati, dotati di une elevato coefficiente di rallentamento di emessione del fumo.
4. Per fresatura a secco utilizzare aria.

1. Benutzen Sie stabile und präzise Maschinen, Werkzaugaufnahmen und Spannmittel.
2. Wasserlösliches Kühlmittel benutzen
3. Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen.
4. Bei Trockenbearbeitung Druckluft zum Entfermen der Späne verwenden.

1. Utilisez une machine précise et rigide.
2. Utilisez de l'huile soluble.
3. Utiliser des fluides de coupes de haute qualité avec un coef, élevé de ralentissement d'emission de fumée.
4. En cas d'usinage à sec, utiliser de l'air comprimé pour l'évacuation des copeaux de l'aire d'usinage et pour éviter une agglomération des Copeaux.

1. Brug en stabil opspænding
2. Brug passende skærevæske
3. Ved vibrationer reducér omdrejninger og tilspænding simultant
4. Under tørbearbejdning anvend lufttryk for at bortskaffe spåner

1. Use maquina y portaherramientas rigidos y precisos
2. Aplique taladrina
3. En caso de vibración reduzca velocidad y avance simultaneamente
4. Fresado en seco (sin líquido), por favor, utilice el aire soplado para eliminar la viruta de la zona de corte

1. Använd en stabil maskin och verktyghållare.
2. Använd en passande skärvätska.
3. Vid vibrationer sänk varvtal och matning med samma procenttal
4. Vid torrbearbetning använd tryckluft för att transportera bort spånor

1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость.
2. Используйте водную эмульсию в качестве СОЖ.
3. При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя.
4. При сухом (без СОЖ) фрезеровании, используйте воздушную струю для удаления стружки и предотвращения спрессовывания стружки.

CRN-EMS

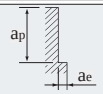


Cu
C1100

Ø	conventional Milling S (min⁻¹)	conventional Milling F (mm/min)	conventional Milling S (min⁻¹)	conventional Milling F (mm/min)	Dry Milling S (min⁻¹)	Dry Milling F (mm/min)
3	10.500	600	26.500	1.200	10.500	475
4	7.950	635	19.500	1.200	7.950	505
5	6.350	740	15.500	1.450	6.350	590
6	5.300	735	13.000	1.450	5.300	590
8	3.950	705	9.900	1.500	3.950	615
10	3.150	705	7.950	1.550	3.150	630
12	2.650	710	6.600	1.550	2.650	625

Max cutting depth

a_p = 1,5D a_e = 0,1D



D < Ø8 a_p = 1,5D a_e = 0,01D
Ø8 ≤ D a_p = 1,5D a_e = 0,02D



1. Use a high rigidity machine set up.
2. Use soluble oil.
3. When chattering occurs, reduce the speed and feed simultaneously.
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.

1. Utilizzare una macchina precisa e rigida.
2. Utilizzare dell'olio solubile.
3. Utilizare dei lubrificanti di taglio adequati, dotati di une elevato coefficiente di rallentamento di emessione del fumo.
4. Per fresatura a secco utilizzare aria.

1. Benutzen Sie stabile und präzise Maschinen, Werkzaugaufnahmen und Spannmittel.
2. Wasserlösliches Kühlmittel benutzen
3. Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen.
4. Bei Trockenbearbeitung Druckluft zum Entfermen der Späne verwenden.

1. Utilisez une machine précise et rigide.
2. Utilisez de l'huile soluble.
3. Utiliser des fluides de coupes de haute qualité avec un coef, élevé de ralentissement d'emission de fumée.
4. En cas d'usinage à sec, utiliser de l'air comprimé pour l'évacuation des copeaux de l'aire d'usinage et pour éviter une agglomération des Copeaux.

1. Brug en stabil opspænding
2. Brug passende skærevæske
3. Ved vibrationer reducér omdrejninger og tilspænding simultant
4. Under tørbearbejdning anvend lufttryk for at bortskaffe spåner

1. Use maquina y portaherramientas rigidos y precisos
2. Aplique taladrina
3. En caso de vibración reduzca velocidad y avance simultaneamente
4. Fresado en seco (sin líquido), por favor, utilice el aire soplado para eliminar la viruta de la zona de corte

1. Använd en stabil maskin och verktyghållare.
2. Använd en passande skärvätska.
3. Vid vibrationer sänk varvtal och matning med samma procenttal
4. Vid torrbearbetning använd tryckluft för att transportera bort spånor

1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость.
2. Используйте водную эмульсию в качестве СОЖ.
3. При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя.
4. При сухом (без СОЖ) фрезеровании, используйте воздушную струю для удаления стружки и предотвращения спрессовывания стружки.

CRN-EBD

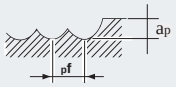


Cu
C1100

Ø	conventional Milling S (min⁻¹)	conventional Milling F (mm/min)	High speed Milling S (min⁻¹)	High speed Milling F (mm/min)	Dry Milling S (min⁻¹)	Dry Milling F (mm/min)
R 3 X 6	7.950	1.150	13.000	3.900	6.360	460
R 4 X 8	5.950	1.450	9.900	4.950	4.760	580
R 5 X 10	4.750	1.300	7.950	4.450	3.800	520
R 6 X 12	3.950	1.200	6.600	3.950	3.160	480

Max cutting depth

$a_p = 0{,}1D$
$p_f = 0{,}2D$



1. Use a high rigidity machine set up.
2. Use soluble oil.
3. When chattering occurs, reduce the speed and feed simultaneously.
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.

1. Utilizzare una macchina precisa e rigida.
2. Utilizzare dell'olio solubile.
3. Utilizare dei lubrificanti di taglio adequati, dotati di une elevato coefficiente di rallentamento di emessione del fumo.
4. Per fresatura a secco utilizzare aria.

1. Benutzen Sie stabile und präzise Maschinen, Werkzaugaufnahmen und Spannmittel.
2. Wasserlösliches Kühlmittel benutzen
3. Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen.
4. Bei Trockenbearbeitung Druckluft zum Entfermen der Späne verwenden.

1. Utilisez une machine précise et rigide.
2. Utilisez de l'huile soluble.
3. Utiliser des fluides de coupes de haute qualité avec un coef, élevé de ralentissement d'emission de fumée.
4. En cas d'usinage à sec, utiliser de l'air comprimé pour l'évacuation des copeaux de l'aire d'usinage et pour éviter une agglomération des Copeaux.

1. Brug en stabil opspænding
2. Brug passende skærevæske
3. Ved vibrationer reducér omdrejninger og tilspænding simultant
4. Under tørbearbejdning anvend lufttryk for at bortskaffe spåner

1. Use maquina y portaherramientas rigidos y precisos
2. Aplique taladrina
3. En caso de vibración reduzca velocidad y avance simultaneamente
4. Fresado en seco (sin líquido), por favor, utilice el aire soplado para eliminar la viruta de la zona de corte

1. Använd en stabil maskin och verktyghållare.
2. Använd en passande skärvätska.
3. Vid vibrationer sänk varvtal och matning med samma procenttal
4. Vid torrbearbetning använd tryckluft för att transportera bort spånor

1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость.
2. Используйте водную эмульсию в качестве СОЖ.
3. При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя.
4. При сухом (без СОЖ) фрезеровании, используйте воздушную струю для удаления стружки и предотвращения спрессовывания стружки.

CRN-LN-EBD

CARBIDE



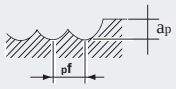
Cu
C1100

Ø	conventional Milling S (min⁻¹)	conventional Milling F (mm/min)	High speed Milling S (min⁻¹)	High speed Milling F (mm/min)	Dry Milling S (min⁻¹)	Dry Milling F (mm/min)
R 0,50	32.000	690	50.000	1.050	31.500	680
R 0,60	31.500	700	50.000	1.100	26.500	590
R 0,70	27.000	680	45.000	1.100	22.500	565
R 0,50	25.000	675	42.000	1.100	21.000	565
R 0,80	23.500	675	39.500	1.100	19.500	560
R 0,90	21.000	680	35.000	1.100	17.500	565
R 1,00	19.000	680	31.500	1.100	15.500	555
R 1.25	15.000	675	25.000	1.100	12.500	560
R 1,50	12.500	675	21.000	1.100	10.500	565
R 1,75	10.500	660	18.000	1.100	9.050	570
R 2,00	9.500	680	15.500	1.100	7.950	570
R 2,50	7.600	770	12.500	1.250	6.350	640

Max cutting depth

$a_p = 0{,}05D$
$p_f = 0{,}2D$

$a_p = 0{,}02D$
$p_f = 0{,}05D$



1. Use a high rigidity machine set up.
2. Use soluble oil.
3. When chattering occurs, reduce the speed and feed simultaneously.
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.

1. Utilizzare una macchina precisa e rigida.
2. Utilizzare dell'olio solubile.
3. Utilizare dei lubrificanti di taglio adequati, dotati di une elevato coefficiente di rallentamento di emessione del fumo.
4. Per fresatura a secco utilizzare aria.

1. Benutzen Sie stabile und präzise Maschinen, Werkzaugaufnahmen und Spannmittel.
2. Wasserlösliches Kühlmittel benutzen
3. Benutzen Sie Kühlmittel mit rauchhemmenden Zusätzen.
4. Bei Trockenbearbeitung Druckluft zum Entfermen der Späne verwenden.

1. Utilisez une machine précise et rigide.
2. Utilisez de l'huile soluble.
3. Utiliser des fluides de coupes de haute qualité avec un coef, élevé de ralentissement d'emission de fumée.
4. En cas d'usinage à sec, utiliser de l'air comprimé pour l'évacuation des copeaux de l'aire d'usinage et pour éviter une agglomération des Copeaux.

1. Brug en stabil opspænding
2. Brug passende skærevæske
3. Ved vibrationer reducér omdrejninger og tilspænding simultant
4. Under tørbearbejdning anvend lufttryk for at bortskaffe spåner

1. Use maquina y portaherramientas rigidos y precisos
2. Aplique taladrina
3. En caso de vibración reduzca velocidad y avance simultaneamente
4. Fresado en seco (sin líquido), por favor, utilice el aire soplado para eliminar la viruta de la zona de corte

1. Använd en stabil maskin och verktyghållare.
2. Använd en passande skärvätska.
3. Vid vibrationer sänk varvtal och matning med samma procenttal
4. Vid torrbearbetning använd tryckluft för att transportera bort spånor

1. Используйте высокоточные станки и оснастку, чтобы гарантировать максимальную жесткость.
2. Используйте водную эмульсию в качестве СОЖ.
3. При возникновении вибрации, снизьте одновременно подачу и обороты шпинделя.
4. При сухом (без СОЖ) фрезеровании, используйте воздушную струю для удаления стружки и предотвращения спрессовывания стружки.

HSS END MILLS

XPM HSS-Co



TOKO-TON SPIRIT

www.osgeurope.com

TOOL COMMUNICATION
OSG CORPORATION

TOOL COMMUNICATION
OSG EUROPE

TYPE	DESCRIPTIONS
XPM	• Material developed by OSG to be used for allied steels, upto 52 HRC, stainless steels, Titanium and cast iron. • Von OSG entwickeltes Material zur Anwendung in leg. Stählen bis 52HRC, rostfreie Stähle, Titan-Legierungen und Grauguss. • Materiale sviluppato dalla OSG per l'utilizzo su acciai legati, fino a 52 HRC, acciai inossidabili, titanio e ghisa. • Matière développée par OSG pour tous les aciers alliés, jusquà 52 HRC, inox, titane et les fontes. • Materiale udviklet af OSG for stål op til 52 HRC, rustfrit stål, Titanium og støbejern • Matrial utvecklat av OSG för att kunna användas i legerat stål upp mtill 52 HRC, rostfritt, Titan och gjutjärn • Matrerial desarrollado por OSG para aceros aleados hasta 52 HrC, aceros inoxidables, Titanio y fundición. • Материал разработан OSG для всех нержавеющих сталей, титана, легированных сталей, экзотических сплавов стали и чугуна до 52 HRC
HSS-Co	• High speed steel with 8% cobalt for better wear resistance. • HSSE mit 8% Cobalt für eine bessere Verschleißfestigkeit. • Acciaio ad alta velocità con l'8% di cobalto per una migliore resistenza all'usura. • Acier rapide avec 8% de cobalt, donne une meilleure résistance à l'usure. • HSS med 8% kobolt for bedre slidstyrke • HSS 8% Kobolt för bättre slitstyrka • HSS con 8% de Cobalto para mejro resistencia al desgaste • Быстрорежущая сталь с 8% кобальта для большей износостойкости

HSS

HSS

WORK MATERIAL

~ 40 HRC	Hardened steels Pre-hardened steels	Legierter Stahl Gehärteter Stahl	Acciaio temprato Acciaio pre-temprato	Aciers trempés Aciers pré-trempés	Hærdet stål	Härdat stål	Aceros endurecidos	Закаленные и улучшенные стали
~ 45 HRC	Hardened steels Pre-hardened steels	Legierter Stahl Gehärteter Stahl	Acciaio temprato Acciaio pre-temprato	Aciers trempés Aciers pré-trempés	Hærdet stål	Härdat stål	Aceros endurecidos	Закаленные и улучшенные стали
~ 55 HRC	Hardened steels Pre-hardened steels	Legierter Stahl Gehärteter Stahl	Acciaio temprato Acciaio pre-temprato	Aciers trempés Aciers pré-trempés	Hærdet stål	Härdat stål	Aceros endurecidos	Закаленные и улучшенные стали
~ 60 HRC	Hardened steels Pre-hardened steels	Legierter Stahl Gehärteter Stahl	Acciaio temprato Acciaio pre-temprato	Aciers trempés Aciers pré-trempés	Hærdet stål	Härdat stål	Aceros endurecidos	Закаленные и улучшенные стали
~ 65 HRC	Hardened steels Pre-hardened steels	Legierter Stahl Gehärteter Stahl	Acciaio temprato Acciaio pre-temprato	Aciers trempés Aciers pré-trempés	Hærdet stål	Härdat stål	Aceros endurecidos	Закаленные и улучшенные стали
SUS	Stainless steels ~ 35 HRC	VA Stahl ~ 35 HRC	Acciaio inossidabili ~ 35 HRC	Inoxydable ~ 35 HRC	Rustfrit stål	Rostfritt stål	Aceros inoxidables	Нержавеющие стали ~35 HRC
GG	Cast iron ~ 350 HB	Grauguss ~ 350 HB	Ghisa grigia ~ 350 HB	Fonte ~ 350 HB	Støbejern	Gjutgods ~ 350 HB	Fundición de hierro ~ 350 HB	Чугун ~ 350 HB
Cu	Copper alloys	Kupferlegierungen	Rame	Alliages de cuivre	Kobber	Koppar legeringer	aleaciones de cobre	Медные сплавы
Ac	Aluminium alloys	Aluminium - legierungen	Leghe di Alluminio	Alliages d'aluminium	Aluminium leg.	Aluminium legeringar	Aluminio aleado	Алюминиевые сплавы
Gr	Graphite	Graphit	Rame e grafite	Graphite	Grafit	Grafit	Grafito	Графит
Ti	Titanium alloys	Titaniumlegierungen	Leghe di Titanio	Alliages de Titane	Titanium	Titanlegeringar	Titanio aleado	Титановые сплавы
HRS	Heat resisting steels	Hitzebeständige legierungen	Acciai resistenti al calore	Alliages à haute résistance temp.	Varmefast stål	Värmebehandlat stål	Aceros tratados	Жаростойкие стали
Plast.	Plastics	Kunststoff	Plastiche	Plastiques	Plastik	Plast	Plasticos	Пластики

HSS

HSS

○	Good	Gut	Buono	Bon	God	Bra	Utilizable	Хороший
◎	Excellent	Sehr gut	Ottimo	Excellent	Meget god	Mycket bra	Excelente	Превосходный

HSS

Type	Appearance		material	coating	range
AL-WEDS		E.16	HSS-Co		3 ~ 20
AL-WREES		E.44	HSS-Co	OX	6 ~ 30
FC-3L		E.32	HSS-Co		1,5 ~ 6
FC-3L-TICN		E.31	HSS-Co	TiCN	1,5 ~ 6
FC-3S		E.30	HSS-Co		1,5 ~ 6
FC-3S-TICN		E.29	HSS-Co	TiCN	1,5 ~ 6
VP-RELF		E.39	XPM	V	10 ~ 25
VP-RESF-SP		E.38	XPM	V	6 ~ 25
VPS-EMS		E.22	XPM	V	10 ~ 30
V-WEBDS Limited Supply		E.52	HSS-Co	V	2 ~ 32
V-WEBMS Limited Supply		E.54	HSS-Co	V	6 ~ 20
V-WEDL Limited Supply		E.17	HSS-Co	V	1,5 ~ 30
V-WEDS		E.14	HSS-Co	V	1 ~ 40
V-WEML Limited Supply		E.35	HSS-Co	V	2 ~ 40
V-WEMS		E.33	HSS-Co	V	1,5 ~ 40
V-WETL Limited Supply		E.27	HSS-Co	V	3 ~ 30
V-WETS		E.25	HSS-Co	V	1,5 ~ 40
V-WREEL		E.42	HSS-Co	V	8 ~ 40
V-WREES		E.40	HSS-Co	V	6 ~ 40
V-WRELF		E.47	HSS-Co	V	8 ~ 20
V-WRESF Limited Supply		E.45	HSS-Co	V	6 ~ 40
V-WRFEL Limited Supply		E.50	HSS-Co	V	8 ~ 40
V-WRFES		E.49	HSS-Co	V	6 ~ 40
V-XPM-WEBDS Limited Supply		E.51	XPM	V	3 ~ 30
V-XPM-WEDL		E.13	XPM	V	3 ~ 30
V-XPM-WEDS		E.12	XPM	V	2 ~ 30
V-XPM-WEHS		E.21	XPM	V	2 ~ 30
V-XPM-WEML		E.24	XPM	V	3 ~ 30
V-XPM-WEMS		E.23	XPM	V	3 ~ 30
V-XPM-WETL		E.20	XPM	V	3 ~ 30
V-XPM-WETS		E.19	XPM	V	3 ~ 30
V-XPM-WRESF		E.37	XPM	V	6 ~ 50
WEBDS Limited Supply		E.53	HSS-Co		2 ~ 32
WEBMS Limited Supply		E.55	HSS-Co		6 ~ 20
WEDL		E.18	HSS-Co		1,5 ~ 30
WEDS		E.15	HSS-Co		1 ~ 40
WEML		E.36	HSS-Co		2 ~ 40
WEMS		E.34	HSS-Co		1,5 ~ 40

Type	Appearance		material	coating	range
WETL		E.28	HSS-Co		3 ~ 30
WETS Limited Supply		E.26	HSS-Co		1,5 ~ 40
WREEL		E.43	HSS-Co		8 ~ 40
WREES		E.41	HSS-Co		6 ~ 40
WRELF		E.48	HSS-Co		8 ~ 20
WRESF Limited Supply		E.46	HSS-Co		6 ~ 40

HSS

HSS

ICONS

ICONS								
Material - Werkstoff - Materiale - Matière - Materiale - Material - Material - Обрабатываемый материал								
XPM	High grade Powder Metallurgy HSS (XPM) (Co10 + V5)	Spezial Pulvermetall HSS (XPM) (Co10 + V5)	Alto livello di metallurgia delle polveri sinterizzate HSS (XPM) (Co10 + V5)	Haut niveau de métallurgie des poudres HSS (XPM) (Co10 + V5)	Special pulvermetal HSS (XPM) (Co10 + V5)	Special PM (Co10+V5)	HSS sinterizado de alto grado	Высококачественный порошковый HSS (Co10 + V5)
HSS-Co	HSS Cobalt (Co8)	HSS (Co8)	Cobalto HSS (Co8)	HSS Cobalt (Co8)	HSS (Co8)	HSS (Co8)	HSS al cobalto (Co8)	быстрорежущая сталь с 8% кобальта
Coating - Beschichtung - Rivestimento - Revêtement - Belægning - Beläggning - Recubrimiento - Покрытие								
V	Multi layered composite TiCN	Mehrlagenbeschichtung TiCN	Multistrato composito TiCN	Revêtement multicouche TiCN	Multilags komposit TiCN	Multi layered composite TiCN	Recubrimiento de Carbo-Nitruro de Titanio	многослойное покрытие TiAlN
N	Nitride	Nitride	Nitrurazione	Nitruration	Nitrid	Nitrid	Nitrurado y Vaporizado	Нитрид
TiCN	Coating TiCN	TiCN Beschichtet	Rivestimento TiCN	Revêtement TiCN	TiCN belægning	Belägning , TiCN	Recubrimiento de Carbo-Nitruro de Titanio	Покрытие TiCN
OX	Steam Oxide	Dampfbehandelt	Trattamento al vapore	Traitement vapeur	Damp oxideret	Ångoxiderad	Vaporizado	Паровой оксид
TiAlN	Multi layered coating TiAlN	TiAlN Beschichtet	Rivestimento TiAlN	Revêtement multicouches TiAlN	TiAlN belægning	Multi layered coating TiAlN	Recubrimiento de TiAlN	Многослойный составной TiAlN
Shank - Shaft - Gambo - Queue - Skaft - Skaft - Mango - Хвостовик								
h6	Shank diameter tolerance	Schafttoleranz	Tolleranza del diametro del gambo	Tolérance du diamètre de queue	Skaft tolerance	Skaft tolerans	Tolerancia en diametro de mango	Точность диаметра хвостовика
FIT	All shanks of OSG mills are suitable for Hypro-Shrink Fit systeme	Speziell entwickelt zum Schrumpfen	Sviluppate specialmente per il calettamento	Toutes les queues sont adaptées pour le système de frettage	Velegnet for krymp	Krymp tolerans	Todos los mangos de metal duro OSG son aptos para fijación térmica	все хвостовики инструмента OSG пригодны для Hypro термозажимной системы
	Cylindrical straight shank	Zylindrischer schaft	Gambo cilindrico	Queue cylindrique	Cylindriskt skaft	Cylindriskt skaft	Mango sencillo	Прямой хвостовик
Helix Angle - Helix-Drall Winkel - Angolo d'elica - Angle d'hélice - Spiralvinkel - Spiral Vinkel - Angulo de helice - Угол спирали								
30°	Helix Angle	Helix-Drall Winkel	Angolo d'elica	Angle d'hélice	Spiralvinkel	Spiral Vinkel	Angulo de helice	Угол спирали
Taper Angle - Kegeltoleranz - Tolleranza della conicità - Tolérance conicité - Konusvinkel - Konisk vinkel - Angulo de cono - Угол уклона								
	Taper Angle per side	Kegeltoleranz	Tolleranza della conicità	Tolérance de conicité	Konusvinkel målt på side	Konisk vinkel / sida	Angulo de cono	Угол уклона на сторону
Corner edge - Schneidkantenausfügrung - Angolo di taglio - Arrête de coupe - Hjørneudførelse - Hörnutförande - Filo de vertice - Острая кромка								
	Sharp corner edge	Micro-Abzugfase	Angolo di taglio con microsmusso	Angle vif	Skarpt hjørne	Skarpt hörn	Filo de vertice agudo	Острая кромка
Tolerance - Toleranz - Tolleranza - Tolérance - Tolerance - Tolerans - Tolerancia - Точность								
	Milling diameter tolerance	Durchmessertoleranz	Tolleranza del diametro di fresatura	Tolérance du diamètre de fraisage	Tolerance på fræserens diameter	Tolerans skärdiameter	Tolerancia en diametro de fresa	Точность диаметра режущей части
h8	Drilling hole tolerance	Werkzeugtoleranz	Tolleranza del diametro	Tolérance du diamètre de perçage	Værktøjs hul tolerance	Verktyg tolerans	Tolerancia en diametro taladrado	Допуск на отверстие
Radius Tolerance - Radius Tolerance - Tolleranza del taggio - Tolérance rayon - Radius Tolerance - Radie tolerans - Tolerancia del radio - Точность радиуса								
± 0.01	Radius tolerance	Radiusgenauigkeit	Tolleranza del raggio delle frese	Tolérance du rayon	Radius tolerance	Radie tolerans	Tolerancia del radio	Точность радиуса
Serie - Serie - Serie - Série - Serie - Serie - Serie - Серия								
	Short serie	Kurze serie	Serie corta	Série courte	Kort serie	Kort Serie	Serie corte	Короткий серия
	Long serie	Lange serie	Serie lunga	Série longue	Lang serie	Lång Serie	Serie larga	Длинная серия
Center - Zentrum - Centro - Centre - Borrende - Borrande - Corte central - Режущий центр								
C C	Center cutting	Zentrumschneidend	Taglio al centro	Coupe au centre	Borende	Borrande	Corte central	Режущий центр
Cutting conditions - Schnittwerte - Condizioni di taglio - Conditions de coupe - Skæredata - Skärdata - Condiciones de corte - Условия резания								
min⁻¹	Cutting conditions	Schnittwerte	Velocita di taglio	Conditions de coupe	Skæredata	Skärdata	Condiciones de corte	Условия резания

NAME	SPECIFICATION		
SLOTTING END MILLS			
 **V-XPM-WEDS**	XPM	DIN 327, 2 flutes, short series, flatted shank	DIN 327, 2 Schneiden, Kurzer Hals, Weldon Schaft
	V	DIN 327, 2 denti, serie corta, gambo cilindrico Weldon	DIN 327, 2 lèvres, série courte, Weldon
 **V-XPM-WEDL**	XPM	DIN 844, 2 flutes, long series, flatted shank	DIN 844, 2 Schneiden, Langer Hals, Weldon Schaft
	V	DIN 844, 2 denti, serie lunga, gambo cilindrico Weldon	DIN 844, 2 lèvres, série longue, Weldon
 **V-WEDS**	HSS-Co	DIN 327, 2 flutes, short series, flatted shank	DIN 327, 2 Schneiden, Kurzer Hals, Weldon Schaft
	V	DIN 327, 2 denti, serie corta, gambo cilindrico Weldon	DIN 327, 2 lèvres, série courte, Weldon
 **WEDS**	HSS-Co	DIN 327, 2 flutes, short series, flatted shank	DIN 327, 2 Schneiden, Kurzer Hals, Weldon Schaft
		DIN 327, 2 denti, serie corta, gambo cilindrico Weldon	DIN 327, 2 lèvres, série courte, Weldon
 **AL-WEDS**	HSS-Co	2 flutes, short series, flatted shank, for aluminium	2 Schneiden, Kurzer Hals, Weldon Schaft, für aluminium
		2 denti, serie corta, gambo cilindrico Weldon, per aluminio	2 lèvres, série courte, Weldon, pour aluminiu
 **V-WEDL** Limited Supply	HSS-Co	DIN 844, 2 flutes, long series, flatted shank	DIN 844, 2 Schneiden, Langer Hals, Weldon Schaft
	V	DIN 844, 2 denti, serie lunga, gambo cilindrico Weldon	DIN 844, 2 lèvres, série longue, Weldon
 **WEDL**	HSS-Co	DIN 844, 2 flutes, long series, flatted shank	DIN 844, 2 Schneiden, Langer Hals, Weldon Schaft
		DIN 844, 2 denti, serie lunga, gambo cilindrico Weldon	DIN 844, 2 lèvres, série longue, Weldon
MULTIFLUTE END MILLS			
 **V-XPM-WETS**	XPM	DIN 327, 3 flutes, short series, flatted shank	DIN 327, 3 Schneiden, Kurzer Hals, Weldon Schaft
	V	DIN 327, 3 denti, serie corta, gambo cilindrico Weldon	DIN 327, 3 lèvres, série courte, Weldon
 **V-XPM-WETL**	XPM	DIN 844, 3 flutes, long series, flatted shank	DIN 844, 3 Schneiden, Langer Hals, Weldon Schaft
	V	DIN 844, 3 denti, serie corta, gambo cilindrico Weldon	DIN 844, 3 lèvres, série longue, Weldon
 **V-XPM-WEHS**	XPM	DIN 844, muliflutes, short series, flatted shank	DIN 844, Mehrschneiden, Kurzer Hals, Weldon Schaft
	V	DIN 844, multidenti, serie corta, gambo cilindrico Weldon	DIN 844, multilèvres, série courte, Weldon
 **VPS-EMS**	XPM	6 or 10 flutes, short series	6 oder 10 Schneiden, Kurzer Hals
	V	6 o 10 denti, serie corta	6 ou 10 lèvres, série courte
 **V-XPM-WEMS**	XPM	DIN 844, 4 or 6 flutes, short series, flatted shank	DIN 844, 4 oder 6 Schneiden, Kurzer Hals, Weldon Schaft
	V	DIN 844, 4 o 6 denti, serie corta, gambo cilindrico Weldon	DIN 844, 4 ou 6 lèvres, série courte, Weldon
 **V-XPM-WEML**	XPM	DIN 844, 4 or 6 flutes, short series, flatted shank	DIN 844, 4 oder 6 Schneiden, Langer Hals, Weldon Schaft
	V	DIN 844, 4 o 6 denti, serie lunga, gambo cilindrico Weldon	DIN 844, 4 ou 6 lèvres, série longue, Weldon
 **V-WETS**	HSS-Co	DIN 327, 3 flutes, short series, flatted shank	DIN 327, 3 Schneiden, Kurzer Hals, Weldon Schaft
	V	DIN 327, 3 denti, serie corta, gambo cilindrico Weldon	DIN 327, 3 lèvres, série courte, Weldon
 **WETS** Limited Supply	HSS-Co	DIN 327, 3 flutes, short series, flatted shank	DIN 327, 3 Schneiden, Kurzer Hals, Weldon Schaft
		DIN 327, 3 denti, serie corta, gambo cilindrico Weldon	DIN 327, 3 lèvres, série courte, Weldon
 **V-WETL** Limited Supply	HSS-Co	DIN 844, 3 flutes, long series, flatted shank	DIN 844, 3 Schneiden, Langer Hals, Weldon Schaft
	V	DIN 327, 3 denti, serie lunga, gambo cilindrico Weldon	DIN 844, 3 lèvres, série longue, Weldon

SPECIFICATION		RANGE	PAGE
SLOTTING END MILLS			
DIN 327, 2 skær, kort serie, flade på skaft	DIN 327, 2 skär, kort utförande, Weldon	2 ~ 30	E.12
DIN 327, 2 labios, serie corta, mango con plano	DIN 327, 2 режущих кромки, короткая серия с лыской на хвостовике		
DIN 844, 2 skær, lang serie, flade på skaft	DIN 844, 2 skär, långt utförande, Weldon	3 ~ 30	E.13
DIN 844, 2 labios, serie larga, mango con plano	DIN 844, 2 режущих кромки, длинная серия с резьбой на хвостовике		
DIN 327, 2 skær, kort serie, flade på skaft	DIN 327, 2 skär, kort utförande, Weldon	1 ~ 40	E.14
DIN 327, 2 labios, serie corta, mango con plano	DIN 327, 2 режущих кромки, короткая серия с лыской на хвостовике		
DIN 327, 2 skær, kort serie, flade på skaft	DIN 327, 2 skär, kort utförande, Weldon	1 ~ 40	E.15
DIN 327, 2 labios, serie corta, mango con plano	DIN 327, 2 режущих кромки, короткая серия с лыской на хвостовике		
2 skær, kort serie, flade på skaft, til aluminium	2 skär, kort utförande, Weldon, för Aluminium	3 ~ 20	E.16
2 labios, corte central, serie corta mango con plano para aluminio	2 режущих кромки, короткая серия с лыской на хвостовике для алюминия		
DIN 844, 2 skær, lang serie, flade på skaft	DIN 844, 2 skär, långt utförande, Weldon	1,5 ~ 30	E.17
DIN 844, 2 labios, serie larga, mango con plano	DIN 844, 2 режущих кромки, длинная серия с лыской на хвостовике		
DIN 844, 2 skær, lang serie, flade på skaft	DIN 844, 2 skär, långt utförande, Weldon	1,5 ~ 30	E.18
DIN 844, 2 labios, serie larga, mango con plano	DIN 844, 2 режущих кромки, длинная серия с лыской на хвостовике		
MULTIFLUTE END MILLS			
DIN 327, 3 skær, kort serie, flade på skaft	DIN 327, 3 skär, kort utförande, Weldon	3 ~ 30	E.19
DIN 327, 3 labios, serie corta, mango con plano	DIN 327, 3 режущих кромки, короткая серия с лыской на хвостовике		
DIN 844, 3 skær, lang serie, flade på skaft	DIN 844, 3 skär, långt utförande, Weldon	3 ~ 30	E.20
DIN 844, 3 labios, serie larga, mango con plano	DIN 844, 3 режущих кромки, длинная серия с лыской на хвостовике		
DIN 844, flerskærs, kort serie, flade på skaft	DIN 844, flerskärig, kort utförande, Weldon	2 ~ 30	E.21
DIN 844, multi-labios, serie corta, mango con plano	DIN 327, многозубая, короткая серия с лыской на хвостовике		
6 eller 10 skær, kort serie	6 eller 10 skär, kort utförande	10 ~ 30	E.22
6 ó 10 labios, serie corta	6 или 10 режущих кромок, короткая серия		
DIN 844, 4 eller 6 skær, kort serie, flade på skaft	DIN 844, 4 eller 6 skär, kort utförande, Weldon	3 ~ 30	E.23
DIN 844, 4 ó 6 labios, serie corta, mango con plano	DIN 844, 4 или 6 режущих кромок, короткая серия с лыской на хвостовике		
DIN 844, 4 eller 6 skær, kort serie, flade på skaft	DIN 844, 4 eller 6 skär, kort utförande, Weldon	3 ~ 30	E.24
DIN 844, 4 ó 6 labios, serie larga, mango con plano	DIN 844, 4 или 6 режущих кромок, длинная серия с лыской на хвостовике		
DIN 327, 3 skær, kort serie, flade på skaft	DIN 327, 3 skär, kort utförande, Weldon	1,5 ~ 40	E.25
DIN 327, 3 labios, serie corta, mango con plano	DIN 327, 3 режущих кромки, короткая серия с лыской на хвостовике		
DIN 327, 3 skær, kort serie, flade på skaft	DIN 327, 3 skär, kort utförande, Weldon	1,5 ~ 40	E.26
DIN 327, 3 labios, serie corta, mango con plano	DIN 327, 3 режущих кромки, короткая серия с лыской на хвостовике		
DIN 844, 3 skær, lang serie, flade på skaft	DIN 844, 3 skär, långt utförande, Weldon	3 ~ 30	E.27
DIN844 , 3 labios, serie larga, mango con plano	DIN 844, 3 режущих кромки, длинная серия с лыской на хвостовике		

HSS

NAME	SPECIFICATION		
MULTIFLUTE END MILLS			
 **WETL**	HSS-Co	DIN 844, 3 flutes, long series, flatted shank	DIN 844, 3 Schneiden, Langer Hals, Weldon Schaft
		DIN 327, 3 denti, serie lunga, gambo cilindrico Weldon	DIN 844, 3 lèvres, série longue, Weldon
 **FC-3S-TICN**	HSS-Co	Throw away, 3 flutes, short series, flatted shank	Einwegfräsen - 3 Schneiden, Kurzer Hals, Weldon Schaft
	TiCN	A gettare, 3 denti, serie corta, gambo cilindrico Weldon	A jeter, 3 lèvres, série courte, Weldon
 **FC-3S**	HSS-Co	Throw away, 3 flutes, short series, flatted shank	Einwegfräsen - 3 Schneiden, Kurzer Hals, Weldon Schaft
		A gettare, 3 denti, serie corta, gambo cilindrico Weldon	A jeter, 3 lèvres, série courte, Weldon
 **FC-3L-TICN**	HSS-Co	Throw away, 3 flutes, long series, flatted shank	Einwegfräsen - 3 Schneiden, Langer Hals, Weldon Schaft
	TiCN	A gettare, 3 denti, serie lunga, gambo cilindrico Weldon	A jeter, 3 lèvres, série longue, Weldon
 **FC-3L**	HSS-Co	Throw away, 3 flutes, long series, flatted shank	Einwegfräsen - 3 Schneiden, Langer Hals, Weldon Schaft
		A gettare, 3 denti, serie lunga, gambo cilindrico Weldon	A jeter, 3 lèvres, série longue, Weldon
 **V-WEMS**	HSS-Co	DIN 844, 4 or 6 flutes, short series, flatted shank	DIN 844, 4 oder 6 Schneiden, Kurzer Hals, Weldon Schaft
	V	DIN 844, 4 o 6 denti, serie corta, gambo cilindrico Weldon	DIN 844, 4 ou 6 lèvres, série courte, Weldon
 **WEMS**	HSS-Co	DIN 844, 4 or 6 flutes, short series, flatted shank	DIN 844, 4 oder 6 Schneiden, Kurzer Hals, Weldon Schaft
		DIN 844, 4 o 6 denti, serie corta, gambo cilindrico Weldon	DIN 844, 4 ou 6 lèvres, série courte, Weldon
 **V-WEML** *Limited Supply*	HSS-Co	DIN 844, 4 or 6 flutes, long serie, flatted shank	DIN 844, 4 oder 6 Schneiden, Langer Hals, Weldon Schaft
	V	DIN 844, 4 o 6 denti, serie lunga, gambo cilindrico Weldon	DIN 844, 4 ou 6 lèvres, série longue, Weldon
 **WEML**	HSS-Co	DIN 844, 4 or 6 flutes, long series, flatted shank	DIN 844, 4 oder 6 Schneiden, Langer Hals, Weldon Schaft
		DIN 844, 4 o 6 denti, serie lunga, gambo cilindrico Weldon	DIN 844, 4 ou 6 lèvres, série longue, Weldon
ROUGHING END MILLS			
 **V-XPM-WRESF**	XPM	DIN 844, fine pitch, multiflute, short series, flatted shank	DIN 844, Feinverzahnung, Mehrschneiden, Kurzer Hals, Anzugsgewinde
	V	DIN 844, passo fine, multidenti, serie corta, gambo cilindrico Weldon	DIN 844, pas fin, multilèvres, série courte, Weldon
 **VP-RESF-SP**	XPM	3 and 4 flutes, short series, flatted shank	3 und 4 Schneiden, Kurzer Hals, Weldon Schaft
	V	3 o 4 denti, serie corta, gambo cilindrico Weldon	3 ou 4 lèvres, série courte, Weldon
 **VP-RELF**	XPM	3 and 4 flutes, long series, flatted shank	3 und 4 Schneiden, Langer Kurz, Weldon Schaft
	V	3 o 4 denti, serie lunga, gambo cilindrico Weldon	3 ou 4 lèvres, série courte, Weldon
 **V-WREES**	HSS-Co	DIN 844, coarse pitch, multiflute, short series, flatted shank	DIN 844, Normalverzahnung, Mehrschneiden, Kurzer Hals, Weldon Schaft
	V	DIN 844, passo normale, multidenti, serie corta, gambo cilindrico Weldon	DIN 844, pas normal, multilèvres, série courte, Weldon
 **WREES**	HSS-Co	DIN 844, coarse pitch, multiflute, short series, flatted shank	DIN 844, Normalverzahnung, Mehrschneiden, Langer Kurz, Weldon Schaft
		DIN 844, passo normale, multidenti, serie corta, gambo cilindrico Weldon	DIN 844, pas normal, multilèvres, série courte, Weldon
 **V-WREEL**	HSS-Co	DIN 844, coarse pitch, multiflute, long series, flatted shank	DIN 844, Normaverzahnung, Mehrschneiden, Langer Hals, Weldon Schaft
	V	DIN 844, passo normale, multidenti, serie lunga, gambo cilindrico Weldon	DIN 844, pas normal, multilèvres, série longue, Weldon
 **WREEL**	HSS-Co	DIN 844, coarse pitch, multiflute, long series, flatted shank	DIN 844, Normalverzahnung, Mehrschneiden, Langer Hals, Weldon Schaft
		DIN 844, passo normale, multidenti, serie lunga, gambo cilindrico Weldon	DIN 844, pas normal, multilèvres, série longue, Weldon

SPECIFICATION		RANGE	PAGE
MULTIFLUTE END MILLS			
DIN 844, 3 skær, lang serie, flade på skaft	DIN 844, 3 skär, långt utförande, Weldon	3 ~ 30	E.28
DIN844 , 3 labios, serie larga, mango con plano	DIN 844, 3 режущих кромки, длинная серия с лыской на хвостовике		
Engangsfræser, 3 skær, kort serie, flade på skaft	Engångsfräsar, 3 skär, kort utförande, Weldon	1,5 ~ 6	E.29
Usar y tirar, 3 labios, serie corta	3 режущих кромки, режущий центр, короткая серия с лыской на хвостовике		
Engangsfræser, 3 skær, kort serie, flade på skaft	Engångsfräsar, 3 skär, kort utförande, Weldon	1,5 ~ 6	E.30
Usar y tirar, 3 labios, serie corta	3 режущих кромки, режущий центр, короткая серия с лыской на хвостовике		
Engangsfræser, 3 skær, lang serie, flade på skaft	Engångsfräsar, 3 skär, långt utförande, Weldon	1,5 ~ 6	E.31
Usar y tirar, 3 labios, seri larga	3 режущих кромки, режущий центр, длинная серия с лыской на хвостовике		
Engangsfræser, 3 skær, lang serie, flade på skaft	Engångsfräsar, 3 skär, långt utförande, Weldon	1,5 ~ 6	E.32
Usar y tirar, 3 labios, serie larga	3 режущих кромки, режущий центр, длинная серия с лыской на хвостовике		
DIN 844, 4- eller 6 skær, kort serie, flade på skaft	DIN 844, 4 eller 6 skär, kort utförande, Weldon	1,5 ~ 40	E.33
DIN 844, 4 ó 6 labios, serie corta, mango con plano	DIN 844, 4 или 6 режущих кромок, короткая серия с лыской на хвостовике		
DIN 844, 4- eller 6 skær, lang serie, flade på skaft	DIN 844, 4 eller 6 skär, kort utförande, Weldon	1,5 ~ 40	E.34
DIN 844, 4 ó 6 labios, serie corta, mango con plano	DIN 844, 4 или 6 режущих кромок, короткая серия с лыской на хвостовике		
DIN 844, 4- eller 6 skær, kort serie, flade på skaft	DIN 844, 4 eller 6 skär, långt utförande, Weldon	2 ~ 40	E.35
DIN 844, 4 ó 6 labios, serie larga, mango con plano	DIN 844, 4 или 6 режущих кромок, длинная серия с лыской на хвостовике		
DIN 844, 4- eller 6 skær, kort serie, flade på skaft	DIN 844, 4 eller 6 skär, långt utförande, Weldon	2 ~ 40	E.36
DIN 844, 4 ó 6 labios, serie larga, mango con plano	DIN 844, 4 или 6 режущих кромок, длинная серия с лыской на хвостовике		
ROUGHING END MILLS			
DIN 844, Finfortandet, flérskærs, kort serie, flade på skaft	DIN 844, Finskrubb, flerskärig, kort utförande, Weldon	6 ~ 50	E.37
DIN 844, Paso fino, multi-labios, serie corta, mango con plano	DIN 844, Мелкая насечка, многозубая, короткая серия с лыской на хвостовике		
3 & 4 skær, kort serie, flade på skaft	3 & 4 skär, kort utförande, Weldon	6 ~ 25	E.38
3 & 4 labios, serie corta, mango con plano	3 или 4 режущих кромки, короткая серия с лыской на хвостовике		
3 & 4 skær, lang serie, flade på skaft	3 & 4 skär, långt utförande, Weldon	10 ~ 25	E.39
3 & 4 labios, serie larga, mango con plano	3 или 4 режущих кромки, длинная серия с лыской на хвостовике		
DIN 844, Grovfortandet, flérskærs, kort serie, gevind på skaft	DIN 844, Grovskrubb, flerskärig, kort utförande,	6 ~ 40	E.40
DIN 844, Paso normal, multi-labios, serie corta, mango con plano	DIN 844, Крупная насечка, многозубая, короткая серия с лыской на хвостовике		
DIN 844, Grovfortandet, flérskærs, kort serie, gevind på skaft	DIN 844, Grovskrubb, flerskärig, långt utförande,	6 ~ 40	E.41
DIN 844, Paso normal, multi-labios, serie corta, mango con plano	DIN 844, Крупная насечка, многозубая, длинная серия с лыской на хвостовике		
DIN 844, Grovfortandet, flérskærs, lang serie, gevind på skaft	DIN 844, Grovskrubb, flerskärig, långt utförande,	8 ~ 40	E.42
DIN 844, Paso normal, multi-labios, serie larga, mango con plano	DIN 844, Крупная насечка, многозубая, длинная серия с лыской на хвостовике		
DIN 844, Grovfortandet, flérskærs, lang serie, gevind på skaft	DIN 844, Grovskrubb, flerskärig, långt utförande	8 ~ 40	E.43
DIN 844, Paso normal, multi-labios, serie larga, mango con plano	DIN 844, Крупная насечка, многозубая, длинная серия с лыской на хвостовике		

HSS

NAME	SPECIFICATION	
ROUGHING END MILLS		
 **AL-WREES**	HSS-Co	DIN 844B, 3 flutes, short series, flatted shank, for aluminium
	OX	DIN 844B, 3 denti, serie corta, gambo cilindrico Weldon, per aluminio
		DIN 844B, 3 Schneiden, Kurzer Hals, Weldon Schaft, für aluminium
		DIN 844B, 3 lèvres, série courte, Weldon, pour aluminium
 **V-WRESF**	HSS-Co	DIN 844, fine pitch, multiflute, short series, flatted shank
	V	DIN 844, passo fine, multidenti, serie corta, gambo cilindrico Weldon
		DIN 844, Feinverzahnung, Mehrschneiden, Kurzer Hals, Weldon Schaft
		DIN 844, pas fin, multilèvres, série courte, Weldon
 **WRESF** Limited Supply	HSS-Co	DIN 844, fine pitch, multiflute, short series, flatted shank
		DIN 844, passo fine, multidenti, serie corta, gambo cilindrico Weldon
		DIN 844, Feinverzahnung, Mehrschneiden, Kurzer Hals, Weldon Schaft
		DIN 844, pas fin, multilèvres, série courte, Weldon
 **V-WRELF**	HSS-Co	DIN 844, fine pitch, multiflute, long series, flatted shank
	V	DIN 844, passo fine, multidenti, serie lunga, gambo cilindrico Weldon
		DIN 844, Feinverzahnung, Mehrschneiden, Langer Hals, Weldon Schaft
		DIN 844, pas fin, multilèvres, série longue, Weldon
 **WRELF**	HSS-Co	DIN 844, fine pitch, multiflute, long series, flatted shank
		DIN 844, passo fine, multidenti, serie lunga, gambo cilindrico Weldon
		DIN 844, Feinverzahnung, Mehrschneiden, Langer Hals, Weldon Schaft
		DIN 844, pas fin, multilèvres, série longue, Weldon
 **V-WRFES** Limited Supply	HSS-Co	DIN 844, semi finishing, multiflute, short series, flatted shank
	V	DIN 844, per semi finiture , multidenti, serie lunga, gambo cilindrico Weldon
		DIN 844, Vorschlichten, Mehrschneiden, Kurzer Hals, Weldon Schaft
		DIN 844, semi finition, multilèvres, série longue, Weldon
 **V-WRFEL** Limited Supply	HSS-Co	DIN 844, semi finishing, multiflute, long series, flatted shank
	V	DIN 844, per semi finiture , multidenti, serie lunga, gambo cilindrico Weldon
		DIN 844, Vorschlichten, Mehrschneiden, Langer Hals, Weldon Schaft
		DIN 844, semi finition, multilèvres, série longue, Weldon
BALL NOSE END MILLS		
 **V-XPM-WEBDS** Limited Supply	XPM	DIN 327, 2 flutes, short series, flatted shank
	V	DIN 327, 2 denti, serie corta, gambo cilindrico Weldon
		DIN 327, 2 Schneiden, Kurzer Hals, Weldon Schaft
		DIN 327, 2 lèvres, série courte, Weldon
 **V-WEBDS** Limited Supply	HSS-Co	DIN 327, 2 flutes, short series, flatted shank
	V	DIN 327, 2 denti, serie corta, gambo cilindrico Weldon
		DIN 327, 2 Schneiden, Kurzer Hals, Weldon Schaft
		DIN 327, 2 lèvres, série courte, Weldon
 **WEBDS** Limited Supply	HSS-Co	DIN 327, 2 flutes, short series, flatted shank
		DIN 327, 2 denti, serie corta, gambo cilindrico Weldon
		DIN 327, 2 Schneiden, Kurzer Hals, Weldon Schaft
		DIN 327, 2 lèvres, série courte, Weldon
 **V-WEBMS** Limited Supply	HSS-Co	DIN 1889, 4 flutes, short series, flatted shank
	V	DIN 1889, 4 denti, serie corta, gambo cilindrico Weldon
		DIN 1889, 4 Schneiden, Kurzer Hals, Weldon Schaft
		DIN 1889, 4 lèvres, série courte, Weldon
 **WEBMS** Limited Supply	HSS-Co	DIN 1889, 4 flutes, short series, flatted shank
		DIN 1889, 4 denti, serie corta, gambo cilindrico Weldon
		DIN 1889, 4 Schneiden, Kurzer Hals, Weldon Schaft
		DIN 1889, 4 lèvres, série courte, Weldon

SPECIFICATION		RANGE	PAGE
ROUGHING END MILLS			
DIN 844B 3 skær, kort serie, flade på skaft, til aluminium	DIN 844B 3, kort utförande, Weldon, för Aluminium	 6 ~ 30	E.44
DIN 844B 3 labios, corte central, serie corta mango con plano para aluminio	DIN 844B 3 режущих кромки, короткая серия с лыской на хвостовике для алюминия		
DIN 844, Finfortandet, flérskærs, kort serie, flade på skaft	DIN 844, Finskrubb, flerskärig, kort utförande, Weldon	6 ~ 40	E.45
DIN 844, Paso fino, multi-labios, serie corta, mango con plano	DIN 844, Мелкая насечка, многозубая, короткая серия с лыской на хвостовике		
DIN 844, Finfortandet, flérskærs, kort serie, flade på skaft	DIN 844, Finskrubb, flerskärig, kort utförande, Weldon	6 ~ 40	E.46
DIN 844, Paso fino, multi-labios, serie corta, mango con plano	DIN 844, Мелкая насечка, многозубая, короткая серия с лыской на хвостовике		
DIN 844, Finfortandet, flérskærs, lang serie, flade på skaft	DIN 844, Finskrubb, flerskärig, långt utförande, Weldon	8 ~ 20	E.47
DIN 844, Paso fino, multi-labios, erie larga, mango con plano	DIN 844, Мелкая насечка, многозубая, длинная серия с лыской на хвостовике		
DIN 844, Finfortandet, flérskærs, lang serie, flade på skaft	DIN 844, Finskrubb, flerskärig, långt utförande, Weldon	8 ~ 20	E.48
DIN 844, Paso fino, multi-labios, erie larga, mango con plano	DIN 844, Мелкая насечка, многозубая, длинная серия с лыской на хвостовикее		
DIN 844, skrub-slet, flérskærs, kort serie, flade på skaft	DIN 844, semi- finishing, flerskärig, kort utförande, Weldon	6 ~ 40	E.49
DIN 844 semi-acabado,multi-labios, serie corta, mango con plano	DIN 844, получистовая, многозубая, короткая серия с лыской на хвостовике		
DIN 844, skrub-slet, flérskærs, lang serie, flade på skaft	DIN 844, semi- finishing, flerskärig, Långt utförande, Weldon	8 ~ 40	E.50
DIN 844 semi-acabado,multi-labios, serie larga, mango con plano	DIN 844, получистовая, многозубая, длинная серия с лыской на хвостовике		
BALL NOSE END MILLS			
DIN 327, 2 skær, kort serie, flade på skaft	DIN 327, 2 skär, kort utförande, Weldon	 3 ~ 30	E.51
DIN 327, 2 labios, serie corta, mango con plano	DIN 327, 2 режущих кромки, короткая серия с лыской на хвостовике		
DIN 327, 2 skær, kort serie, flade på skaft	DIN 327, 2 skär, kort utförande, Weldon	2 ~ 32	E.52
DIN 327, 2 labios, serie corta, mango con plano	DIN 327, 2 режущих кромки, короткая серия с лыской на хвостовике		
DIN 327, 2 skær, kort serie, flade på skaft	DIN 327, 2 skär, kort utförande, Weldon	2 ~ 32	E.53
DIN 327, 2 labios, serie corta, mango con plano	DIN 327, 2 режущих кромки, короткая серия с лыской на хвостовике		
DIN 1889, 4 skær, kort serie, flade på skaft	DIN 1889, 4 skär, kort utförande, Weldon	6 ~ 20	E.54
DIN 1889, 4 labios, serie corta, mango con plano	DIN 1889, 4 режущих кромки, короткая серия с лыской на хвостовике		
DIN 1889, 4 skær, kort serie, flade på skaft	DIN 1889, 4 skär, kort utförande, Weldon	6 ~ 20	E.55
DIN 1889, 4 labios, serie corta, mango con plano	DIN 1889, 4 режущих кромки, короткая серия с лыской на хвостовике		

HSS

V-XPM-WEDS



HIGH PERFORMANCE
- 2 flutes
- Flatted shank

Slotting end mill

HIGH PERFORMANCE
- 2 Schneiden
- Weldon Schaft

Schaftfräser

ALTA PRESTAZIONE
- 2 denti
- Codolo cilindrico Weldon

Fresa per nervature

HAUTE PERFORMANCE
- 2 lèvres
- Queue Weldon

Fraise à rainurer

HIGH PERFORMANCE
- 2 skær
- Weldon skaft

Endeskærs fræsere

HIGH PERFORMANCE
- 2 skär
- Weldon

Raka fräsar

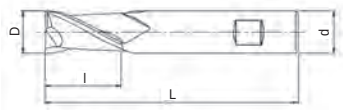
ALTO RENDIMIENTO
- 2 labios
- Mango weldon

Fresas de ranurar

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Хвостовик с лыской

Пазовые концевые фрезы

XPM | V | 32° | CC | DIN 327 | min⁻¹ E.59



EDP	D	L	l	d	Stock	Price
99025901	2,0	48	4	6	●	
99025902	2,5	49	5	6	●	
99025903	3,0	49	5	6	●	
99025904	3,5	50	6	6	●	
99025906	4,0	51	7	6	●	
99025907	4,5	51	7	6	●	
99025909	5,0	52	8	6	●	
99025910	5,5	52	8	6	●	
99025912	6,0	52	8	6	●	
99025913	6,5	60	10	10	●	
99025915	7,0	60	10	10	●	
99025916	7,5	60	10	10	●	
99025918	8,0	61	11	10	●	
99025919	8,5	61	11	10	●	
99025921	9,0	61	11	10	●	
99025922	9,5	61	11	10	●	
99025924	10,0	63	13	10	●	
99025925	10,5	70	13	12	●	
99025926	11,0	70	13	12	●	
99025927	11,5	70	13	12	●	
99025929	12,0	73	16	12	●	
99025930	12,5	73	16	12	●	
99025932	13,0	73	16	12	●	
99025935	14,0	73	16	12	●	
99025937	15,0	73	16	12	●	
99025940	16,0	79	19	16	●	
99025942	17,0	79	19	16	●	
99025945	18,0	79	19	16	●	
99025947	19,0	79	19	16	●	
99025950	20,0	88	22	20	●	
99025952	22,0	88	22	20	●	
99025954	24,0	102	26	25	●	
99025955	25,0	102	26	25	●	
99025960	30,0	102	26	25	●	

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE
- 2 flutes
- Flatted shank

Slotting end mill

HIGH PERFORMANCE
- 2 Schneiden
- Weldon Schaft

Schaftfräser

ALTA PRESTAZIONE
- 2 denti
- Codolo cilindrico Weldon

Fresa per nervature

HAUTE PERFORMANCE
- 2 lèvres
- Queue Weldon

Fraise à rainurer

HIGH PERFORMANCE
- 2 skær
- Weldon skaft

Endeskærs fræsere

HIGH PERFORMANCE
- 2 skär
- Weldon

Raka fräsar

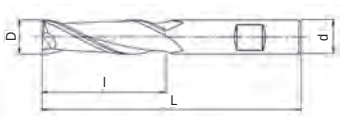
ALTO RENDIMIENTO
- 2 labios
- Mango weldon

Fresas de ranurar

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Хвостовик с лыской

Пазовые концевые фрезы

XPM | V | 32° | CC | DIN 844



EDP	D	L	l	d	Stock	Price
99125903	3	56	8	6	●	
99125906	4	63	11	6	●	
99125909	5	68	13	6	●	
99125912	6	68	13	6	●	
99125918	8	88	19	10	●	
99125924	10	95	22	10	●	
99125929	12	110	26	12	●	
99125935	14	110	26	12	●	
99125940	16	123	32	16	●	
99125945	18	123	32	16	●	
99125950	20	141	38	20	●	
99125952	22	141	38	20	●	
99125955	25	166	45	25	●	
99125958	28	166	45	25	●	
99125960	30	186	45	25	●	

V-WEDS



HIGH PERFORMANCE
- 2 flutes
- Flatted shank

Slotting end mill

HIGH PERFORMANCE
- 2 Schneiden
- Weldon Schaft

Schaftfräser

ALTA PRESTAZIONE
- 2 denti
- Codolo cilindrico Weldon

Fresa per nervature

HAUTE PERFORMANCE
- 2 lèvres
- Queue Weldon

Fraise à rainurer

HIGH PERFORMANCE
- 2 skær
- Weldon skaft

Endeskærs fræsere

HIGH PERFORMANCE
- 2 skär
- Weldon

Raka fräsar

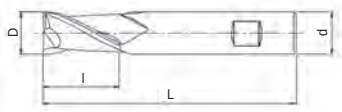
ALTO RENDIMIENTO
- 2 labios
- Mango weldon

Fresas de ranurar

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Хвостовик с лыской

Пазовые концевые фрезы

HSS-Co | V | 30° | C C | DIN 327 | min⁻¹ E.59



EDP	D	L	l	d	Stock	Price
2002801660	1,0	46	3	6	●	
2002800010	1,5	47	3	6	●	
2002801670	1,8	48	4	6	●	
2001801180	2,0	48	4	6	●	
2002800020	2,5	49	5	6	●	
2003800030	2,8	49	5	6	●	
2001801190	3,0	49	5	6	●	
2002800030	3,5	50	6	6	●	
2003800040	3,8	51	7	6	●	
2001801200	4,0	51	7	6	●	
2002800040	4,5	51	7	6	●	
2002801240	4.8	52	8	6	●	
2001801210	5,0	52	8	6	●	
2002800050	5,5	52	8	6	●	
2003800050	5,75	52	8	6	●	
2001801220	6,0	52	8	6	●	
2002800060	6,5	60	10	10	●	
2003800060	6,75	60	10	10	●	
2002800070	7,0	60	10	10	●	
2002800080	7,5	60	10	10	●	
2002802010	7,75	61	11	10	●	
2001801230	8,0	61	11	10	●	
2002800090	8,5	61	11	10	●	
2003800070	8,7	61	11	10	●	
2001801240	9,0	61	11	10	●	
2003800080	9,5	61	11	10	●	
2003800090	9,7	63	13	10	●	
2001801250	10,0	63	13	10	●	
2002800100	10,5	70	13	12	●	
2002800110	11,0	70	13	12	●	

EDP	D	L	l	d	Stock	Price
2003800100	11,5	70	13	12	●	
2003800110	11,7	73	16	12	●	
2001801260	12,0	73	16	12	●	
2002800120	12,5	73	16	12	●	
2003800120	12,7	73	16	12	●	
2002800130	13,0	73	16	12	●	
2003800130	13,7	73	16	12	●	
2001801270	14,0	73	16	12	●	
2002800140	15,0	73	16	12	●	
2003800140	15,7	79	19	16	●	
2001801280	16,0	79	19	16	●	
2002800150	17,0	79	19	16	●	
2003800150	17,7	79	19	16	●	
2001801290	18,0	79	19	16	●	
2002800160	19,0	79	19	16	●	
2003800160	19,7	88	22	20	●	
2001801300	20,0	88	22	20	●	
2002801250	21,0	88	22	20	●	
2002800170	22,0	88	22	20	●	
2003800170	23,0	88	22	20	●	
2002800180	24,0	102	26	25	●	
2002800190	25,0	102	26	25	●	
2003800180	26,0	102	26	25	●	
2002801850	27,0	102	26	25	●	
2002800200	28,0	102	26	25	●	
2002800210	30,0	102	26	25	●	
2002802230	32,0	112	32	32	●	
2002802170	35,0	112	32	32	●	
2002802090	40,0	118	38	32	●	

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE
- 2 flutes
- Flatted shank

Slotting end mill

HIGH PERFORMANCE
- 2 Schneiden
- Weldon Schaft

Schaftfräser

ALTA PRESTAZIONE
- 2 denti
- Codolo cilindrico Weldon

Fresa per nervature

HAUTE PERFORMANCE
- 2 lèvres
- Queue Weldon

Fraise à rainurer

HIGH PERFORMANCE
- 2 skær
- Weldon skaft

Endeskærs fræsere

HIGH PERFORMANCE
- 2 skär
- Weldon

Raka fräsar

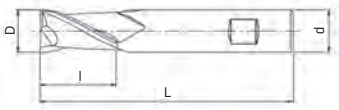
ALTO RENDIMIENTO
- 2 labios
- Mango weldon

Fresas de ranurar

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Хвостовик с лыской

Пазовые концевые фрезы

HSS-Co | 30° | CC | DIN 327 | min⁻¹ E.59



EDP	D	L	l	d	Stock	Price
29020895	1,00	46	3	6	●	
29020900	1,50	47	3	6	●	
29020897	1,80	48	4	6	●	
29020901	2,00	48	4	6	●	
29020902	2,50	49	5	6	●	
29020898	2,80	49	5	6	●	
29020903	3,00	49	5	6	●	
29020904	3,50	50	6	6	●	
29020905	3,80	51	7	6	●	
29020906	4,00	51	7	6	●	
29020907	4,50	51	7	6	●	
29020908	4,80	52	8	6	●	
29020909	5,00	52	8	6	●	
29020910	5,50	52	8	6	●	
29020911	5,75	52	8	6	●	
29020912	6,00	52	8	6	●	
29020913	6,50	60	10	10	●	
29020914	6,75	60	10	10	●	
29020915	7,00	60	10	10	●	
29020916	7,50	60	10	10	●	
29020917	7,75	61	11	10	●	
29020918	8,00	61	11	10	●	
29020919	8,50	61	11	10	●	
29020920	8,70	61	11	10	●	
29020921	9,00	61	11	10	●	
29020922	9,50	61	11	10	●	
29020923	9,70	63	13	10	●	
29020924	10,00	63	13	10	●	
29020925	10,50	70	13	12	●	
29020926	11,00	70	13	12	●	
29020927	11,50	70	13	12	●	
29020928	11,70	73	16	12	●	

EDP	D	L	l	d	Stock	Price
29020929	12,0	73	16	12	●	
29020930	12,5	73	16	12	●	
29020931	12,7	73	16	12	●	
29020932	13,0	73	16	12	●	
29020934	13,7	73	16	12	●	
29020935	14,0	73	16	12	●	
29020937	15,0	73	16	12	●	
29020939	15,7	79	19	16	●	
29020940	16,0	79	19	16	●	
29020942	17,0	79	19	16	●	
29020944	17,7	79	19	16	●	
29020945	18,0	79	19	16	●	
29020947	19,0	79	19	16	●	
29020949	19,7	88	22	20	●	
29020950	20,0	88	22	20	●	
29020951	21,0	88	22	20	●	
29020952	22,0	88	22	20	●	
29020953	23,0	88	22	20	●	
29020954	24,0	102	26	25	●	
29020955	25,0	102	26	25	●	
29020956	26,0	102	26	25	●	
29020957	27,0	102	26	25	●	
29020958	28,0	102	26	25	●	
29020959	29,0	102	26	25	●	
29020960	30,0	102	26	25	●	
29020961	32,0	112	32	32	●	
29020962	34,0	112	32	32	●	
29020963	35,0	112	32	32	●	
29020964	36,0	112	32	32	●	
29021965	38,0	118	38	32	●	
29021966	40,0	118	38	32	●	



HIGH PERFORMANCE
- 2 flutes
- Flatted shank

Slotting end mill

HIGH PERFORMANCE
- 2 Schneiden
- Weldon Schaft

Schaftfräser

ALTA PRESTAZIONE
- 2 denti
- Codolo cilindrico Weldon

Fresa per nervature

HAUTE PERFORMANCE
- 2 lèvres
- Queue Weldon

Fraise à rainurer

HIGH PERFORMANCE
- 2 skær
- Weldon skaft

Endeskærs fræsere

HIGH PERFORMANCE
- 2 skär
- Weldon

Raka fräsar

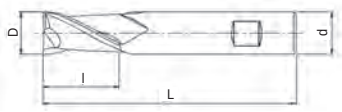
ALTO RENDIMIENTO
- 2 labios
- Mango weldon

Fresas de ranurar

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Хвостовик с лыской

Пазовые концевые фрезы

HSS-Co | 40° | CC | DIN 327 | min⁻¹ E.56



EDP	D	L	l	d	Stock	Price
2089652300	3	49	5	6	●	
2089652320	4	51	7	6	●	
2089652340	5	52	8	6	●	
2089652360	6	52	8	6	●	
2089652400	8	61	11	10	●	
2089652440	10	63	13	10	●	
2089652460	12	73	16	12	●	
2089652480	14	73	16	12	●	
2089652500	16	79	19	16	●	
2089652520	18	79	19	16	●	
2089652540	20	88	22	20	●	

V-WEDL



HIGH PERFORMANCE
- 2 flutes
- Flatted shank

Slotting end mill

HIGH PERFORMANCE
- 2 Schneiden
- Weldon Schaft

Schaftfräser

ALTA PRESTAZIONE
- 2 denti
- Codolo cilindrico Weldon

Fresa per nervature

HAUTE PERFORMANCE
- 2 lèvres
- Queue Weldon

Fraise à rainurer

HIGH PERFORMANCE
- 2 skær
- Weldon skaft

Endeskærs fræsere

HIGH PERFORMANCE
- 2 skär
- Weldon

Raka fräsar

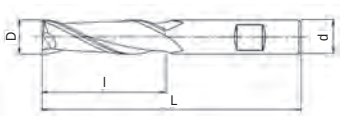
ALTO RENDIMIENTO
- 2 labios
- Mango weldon

Fresas de ranurar

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Хвостовик с лыской

Пазовые концевые фрезы

HSS-Co | V | 30° | C C | DIN 844



EDP	D	L	l	d	Stock	Price
2003804860	1,5	54	7	6	●	
2002801680	2,0	54	7	6	●	
2003800240	2,5	56	8	6	●	
2003800250	3,0	56	8	6	●	
2003800260	3,5	59	10	6	●	
2002801360	4,0	63	11	6	●	
2003800270	4,5	63	11	6	●	
2002800590	5,0	68	13	6	●	
2002801690	5,5	68	13	6	●	
2002800600	6,0	68	13	6	●	
2002801700	6,5	80	16	10	●	
2002801710	7,0	80	16	10	●	
2003800280	7,5	80	16	10	●	
2002800610	8,0	88	19	10	●	
2003800290	8,5	88	19	10	●	
2002801720	9,0	88	19	10	●	
2003800300	9,5	88	19	10	●	
2002801730	10,0	95	22	10	●	
2002801740	11,0	102	22	12	●	
2002800620	12,0	110	26	12	●	
2003800310	13,0	110	26	12	●	
2002800630	14,0	110	26	12	●	
2003800320	15,0	110	26	12	●	
2002801970	16,0	123	32	16	●	
2003800330	17,0	123	32	16	●	
2003800340	18,0	123	32	16	●	
2003800350	19,0	123	32	16	●	
2002800640	20,0	141	38	20	●	
2003800380	25,0	166	45	25	●	
2003800400	28,0	166	45	25	●	
2003800410	30,0	186	45	25	●	



HIGH PERFORMANCE
- 2 flutes
- Flatted shank

Slotting end mill

HIGH PERFORMANCE
- 2 Schneiden
- Weldon Schaft

Schaftfräser

ALTA PRESTAZIONE
- 2 denti
- Codolo cilindrico Weldon

Fresa per nervature

HAUTE PERFORMANCE
- 2 lèvres
- Queue Weldon

Fraise à rainurer

HIGH PERFORMANCE
- 2 skær
- Weldon skaft

Endeskærs fræsere

HIGH PERFORMANCE
- 2 skär
- Weldon

Raka fräsar

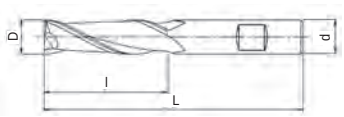
ALTO RENDIMIENTO
- 2 labios
- Mango weldon

Fresas de ranurar

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Хвостовик с лыской

Пазовые концевые фрезы

HSS-Co | 30° | CC | DIN 844



EDP	D	L	l	d	Stock	Price
2089686040	1,5	54	7	6	●	
29120901	2,0	54	7	6	●	
29120902	2,5	56	8	6	●	
29120903	3,0	56	8	6	●	
29120904	3,5	59	10	6	●	
29120906	4,0	63	11	6	●	
29120907	4,5	63	11	6	●	
29120909	5,0	68	13	6	●	
29120910	5,5	68	13	6	●	
29120912	6,0	68	13	6	●	
29120913	6,5	80	16	10	●	
29120915	7,0	80	16	10	●	
29120916	7,5	80	16	10	●	
29120918	8,0	88	19	10	●	
29120919	8,5	88	19	10	●	
29120921	9,0	88	19	10	●	
29120922	9,5	88	19	10	●	
29120924	10,0	95	22	10	●	
29120926	11,0	102	22	12	●	
29120929	12,0	110	26	12	●	
29120932	13,0	110	26	12	●	
29120935	14,0	110	26	12	●	
29120937	15,0	110	26	12	●	
29120940	16,0	123	32	16	●	
29120942	17,0	123	32	16	●	
29120945	18,0	123	32	16	●	
29120947	19,0	123	32	16	●	
29120950	20,0	141	38	20	●	
29120952	22,0	141	38	20	●	
29120954	24,0	166	45	25	●	
29120955	25,0	166	45	25	●	
29120956	26,0	166	45	25	●	
29120958	28,0	166	45	25	●	
29120960	30,0	186	45	25	●	

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE
- 3 flutes
- Flatted shank

Multiflute end mill

HIGH PERFORMANCE
- 3 Schneiden
- Weldon Schaft

Mehrschneider

ALTA PRESTAZIONE
- 3 denti
- Codolo cilindrico Weldon

Fresa multidenti

HAUTE PERFORMANCE
- 3 lèvres
- Queue Weldon

Fraise multilèvres

HIGH PERFORMANCE
- 3 skær
- Weldon skaft

Flérskærs endefræsere

HIGH PERFORMANCE
- 3 skär
- Weldon

Flerskärsfräs

ALTO RENDIMIENTO
- 3 labios
- Mango weldon

Fresas multi labio

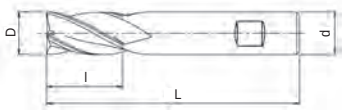
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 3 режущих кромки
- Хвостовик с лыской

Многозубые концевые фрезы



XPM | V | 30° | CC

DIN 327 | min⁻¹ E.63



EDP	D	L	l	d	Stock	Price
99425903	3	49	5	6	●	
99425906	4	51	7	6	●	
99425909	5	52	8	6	●	
99425912	6	52	8	6	●	
99425915	7	60	10	10	●	
99425918	8	61	11	10	●	
99425924	10	63	13	10	●	
99425929	12	73	16	12	●	
99425935	14	73	16	12	●	
99425937	15	73	16	12	●	
99425940	16	79	19	16	●	
99425945	18	79	19	16	●	
99425950	20	88	22	20	●	
99425952	22	88	22	20	●	
99425954	24	102	26	25	●	
99425955	25	102	26	25	●	
99425960	30	102	26	25	●	

V-XPM-WETL



HIGH PERFORMANCE
- 3 flutes
- Flatted shank

Multiflute end mill

HIGH PERFORMANCE
- 3 Schneiden
- Weldon Schaft

Mehrschneider

ALTA PRESTAZIONE
- 3 denti
- Codolo cilindrico Weldon

Fresa multidenti

HAUTE PERFORMANCE
- 3 lèvres
- Queue Weldon

Fraise multilèvres

HIGH PERFORMANCE
- 3 skær
- Weldon skaft

Flérskærs endefræsere

HIGH PERFORMANCE
- 3 skär
- Weldon

Flerskärsfräs

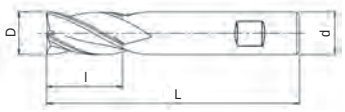
ALTO RENDIMIENTO
- 3 labios
- Mango weldon

Fresas multi labio

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 3 режущих кромки
- Хвостовик с лыской

Многозубые концевые фрезы

XPM | V | 30° | CC | DIN 844



EDP	D	L	l	d	Stock	Price
99625903	3	56	12	6	●	
99625906	4	63	19	6	●	
99625909	5	68	24	6	●	
99625912	6	68	24	6	●	
99625918	8	88	38	10	●	
99625924	10	95	45	10	●	
99625929	12	110	53	12	●	
99625935	14	110	53	12	●	
99625940	16	123	63	16	●	
99625945	18	123	63	16	●	
99625950	20	141	75	20	●	
99625952	22	141	75	20	●	
99625955	25	166	90	25	●	
99625958	28	166	90	25	●	
99625960	30	166	90	25	●	

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE

- 2 flutes D ≤ 5
- 3 flutes 5 < D ≤ 22
- 4 flutes D > 22
- Flatted shank

Multiflute end mill

HIGH PERFORMANCE

- 2 Schneiden D ≤ 5
- 3 Schneiden 5 < D ≤ 22
- 4 Schneiden D > 22
- Weldon Schaft

Mehrschneider

ALTA PRESTAZIONE

- 2 denti D ≤ 5
- 3 denti 5 < D ≤ 22
- 4 denti D > 22
- Codolo cilindrico Weldon

Fresa multidenti

HAUTE PERFORMANCE

- 2 lèvres D ≤ 5
- 3 lèvres 5 < D ≤ 22
- 4 lèvres D > 22
- Queue Weldon

Fraise multilèvres

HIGH PERFORMANCE

- 2 skær D ≤ 5
- 3 skær 5 < D ≤ 22
- 4 skær D > 22
- Weldon skaft

Flérskærs endefræsere

HIGH PERFORMANCE

- 2 skär D ≤ 5
- 3 skär 5 < D ≤ 22
- 4 skär D > 22
- Weldon

Flerskärsfräs

ALTO RENDIMIENTO

- 2 labios D ≤ 5
- 3 labios 5 < D ≤ 22
- 4 labios D > 22
- Mango weldon

Fresas multi labio

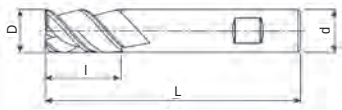
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- 2 кромки D ≤5
- 3 кромки 5 < D ≤22
- 4 кромки D > 22
- Хвостовик с лыской

Многозубые концевые фрезы



XPM | V | 50° | CC | DIN 844 | min⁻¹ E.60-61



EDP	D	L	l	d	Stock	Price
97125901	2	51	7	6	●	
97125903	3	52	8	6	●	
97125906	4	55	11	6	●	
97125909	5	57	13	6	●	
97125912	6	57	13	6	●	
97125915	7	66	16	10	●	
97125918	8	69	19	10	●	
97125921	9	69	19	10	●	
97125924	10	72	22	10	●	
97125926	11	79	22	12	●	
97125929	12	83	26	12	●	
97125932	13	83	26	12	●	
97125935	14	83	26	12	●	
97125937	15	83	26	12	●	
97125940	16	92	32	16	●	
97125945	18	92	32	16	●	
97125950	20	104	38	20	●	
97125952	22	104	38	20	●	
97125954	24	121	45	25	●	
97125955	25	121	45	25	●	
97125958	28	121	45	25	●	
97125960	30	121	45	25	●	

VPS-EMS



HIGH PERFORMANCE
- 6 flutes for internal contouring
- 10 flutes for external contouring

Multiflute end mill

HIGH PERFORMANCE
- 6 Schneiden für Innenkonturen
- 10 Schneiden für Aussenkonturen

Mehrschneider

ALTA PRESTAZIONE
- 6 denti per la contornatura interna
- 10 denti per la contornatura esterna

Fresa multidenti

HAUTE PERFORMANCE
- 6 lèvres pour le contournage intérieur
- 10 lèvres pour le contournage extérieur

Fraise multilèvres

HIGH PERFORMANCE
- 6 skær til fræsning af indvendig kontur
- 10 skær til fræsning af udvendig kontur

Flérskærs endefræsere

HIGH PERFORMANCE
- 6 skär för invändig konturfräsning
- 10 skär för utvändig konturfräsning

Flerskärsfräs

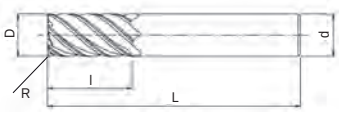
ALTO RENDIMIENTO
- 6 labios para contoprneado interior
- 10 labios para contorneado exterior

Fresas multi labio

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Шестизубая для внутренних контуров
- Десятизубая для наружных контуров

Многозубые концевые фрезы

XPM | V | 45° | CC | DIN 844 | min⁻¹ E.57



EDP	D	R	L	l	ZΔ	d	Stock	Price
8457100	10	-	75	25	6	10	●	
8457120	12	-	90	30	6	12	●	
8458120	12	-	90	30	10	12	●	
8457160	16	-	100	40	6	16	●	
8457162	16	1	100	40	6	16	●	
8458160	16	-	100	40	10	16	●	
8458162	16	1	100	40	10	16	●	
8457200	20	-	115	45	6	20	●	
8457202	20	1	115	45	6	20	●	
8458200	20	-	115	45	10	20	●	
8458202	20	1	115	45	10	20	●	
8457250	25	-	125	50	6	25	●	
8457252	25	1	125	50	6	25	●	
8458250	25	-	125	50	10	25	●	
8458252	25	1	125	50	10	25	●	
8457300	30	-	130	55	6	25	●	
8457302	30	1	130	55	6	25	●	
8458300	30	-	130	55	10	25	●	
8458302	30	1	130	55	10	25	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE
- 4 flutes D ≤ 22
- 6 flutes D > 22
- Flatted shank

Multiflute end mill

HIGH PERFORMANCE
- 4 Schneiden D ≤ 22
- 6 Schneiden D > 22
- Weldon Schaft

Mehrschneider

ALTA PRESTAZIONE
- 4 denti D ≤ 22
- 6 denti D > 22
- Condolo cilindrico Weldon

Fresa multidenti

HAUTE PERFORMANCE
- 4 lèvres D ≤ 22
- 6 lèvres D > 22
- Queue Weldon

Fraise multilèvres

HIGH PERFORMANCE
- 4 skær D ≤ 22
- 6 skær D > 22
- Weldon skaft

Flérskærs endefræsere

HIGH PERFORMANCE
- 4 skär D ≤ 22
- 6 skär D > 22
- Weldon

Flerskärsfräs

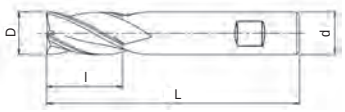
ALTO RENDIMIENTO
- 4 labios D ≤ 22
- 6 labios D > 22
- Mango weldon

Fresas multi labio

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 4 кромки D ≤22
- 6 кромок D > 22
- Хвостовик с лыской

Многозубые концевые фрезы

XPM | V | 32° | CC | DIN 844 | min⁻¹ E.62



EDP	D	L	l	d	Stock	Price
98025903	3	52	8	6	●	
98025906	4	55	11	6	●	
98025909	5	57	13	6	●	
98025912	6	57	13	6	●	
98025915	7	66	16	10	●	
98025918	8	69	19	10	●	
98025924	10	72	22	10	●	
98025929	12	83	26	12	●	
98025935	14	83	26	12	●	
98025937	15	83	26	12	●	
98025940	16	92	32	16	●	
98025945	18	92	32	16	●	
98025950	20	104	38	20	●	
98025952	22	104	38	20	●	
98025954	24	121	45	25	●	
98025955	25	121	45	25	●	
98025960	30	121	45	25	●	

V-XPM-WEML



HIGH PERFORMANCE
- 4 flutes D ≤ 22
- 6 flutes D > 22
- Flatted shank

Multiflute end mill

HIGH PERFORMANCE
- 4 Schneiden D ≤ 22
- 6 Schneiden D > 22
- Weldon Schaft

Mehrschneider

ALTA PRESTAZIONE
- 4 denti D ≤ 22
- 6 denti D > 22
- Condolo cilindrico Weldon

Fresa multidenti

HAUTE PERFORMANCE
- 4 lèvres D ≤ 22
- 6 lèvres D > 22
- Queue Weldon

Fraise multilèvres

HIGH PERFORMANCE
- 4 skær D ≤ 22
- 6 skær D > 22
- Weldon skaft

Flérskærs endefræsere

HIGH PERFORMANCE
- 4 skär D ≤ 22
- 6 skär D > 22
- Weldon

Flerskärsfräs

ALTO RENDIMIENTO
- 4 labios D ≤ 22
- 6 labios D > 22
- Mango weldon

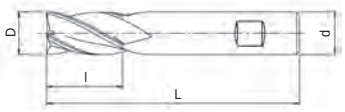
Fresas multi labio

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 4 кромки D ≤22
- 6 кромок D > 22
- Хвостовик с лыской

Многозубые концевые фрезы



XPM V 32° CC DIN 844



EDP	D	L	l	d	Stock	Price
98125903	3	56	12	6	●	
98125906	4	63	19	6	●	
98125909	5	68	24	6	●	
98125912	6	68	24	6	●	
98125918	8	88	38	10	●	
98125924	10	95	45	10	●	
98125929	12	110	53	12	●	
98125935	14	110	53	12	●	
98125940	16	123	63	16	●	
98125945	18	123	63	16	●	
98125950	20	141	75	20	●	
98125952	22	141	75	20	●	
98125955	25	166	90	25	●	
98125958	28	166	90	25	●	
98125960	30	166	90	25	●	

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE
- 3 flutes
- Flatted shank

Multiflute end mill

HIGH PERFORMANCE
- 3 Schneiden
- Weldon Schaft

Mehrschneider

ALTA PRESTAZIONE
- 3 denti
- Codolo cilindrico Weldon

Fresa multidenti

HAUTE PERFORMANCE
- 3 lèvres
- Queue Weldon

Fraise multilèvres

HIGH PERFORMANCE
- 3 skær
- Weldon skaft

Flérskærs endefræsere

HIGH PERFORMANCE
- 3 skär
- Weldon

Flerskärsfräs

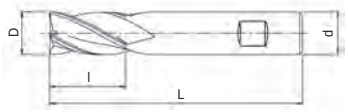
ALTO RENDIMIENTO
- 3 labios
- Mango weldon

Fresas multi labio

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 3 режущих кромки
- Хвостовик с лыской

Многозубые концевые фрезы

HSS-Co | V | 30° | CC | DIN 327 | min⁻¹ E.63



EDP	D	L	l	d	Stock	Price
2002800220	1,5	47	3	6	●	
2002800230	2,0	48	4	6	●	
2002800240	2,5	49	5	6	●	
2001801480	3,0	49	5	6	●	
2002801260	3,5	50	6	6	●	
2001801490	4,0	51	7	6	●	
2002801270	4,5	51	7	6	●	
2001801500	5,0	52	8	6	●	
2002800250	5,5	52	8	6	●	
2001801510	6,0	52	8	6	●	
2002800260	6,5	60	10	10	●	
2001801520	7,0	60	10	10	●	
2002800270	7,5	60	10	10	●	
2001801530	8,0	61	11	10	●	
2002801280	8,5	61	11	10	●	
2002800280	9,0	61	11	10	●	
2003800470	9,5	61	11	10	●	
2001801540	10,0	63	13	10	●	
2002800290	10,5	70	13	12	●	
2002800300	11,0	70	13	12	●	
2003800480	11,5	70	13	12	●	
2001801550	12,0	73	16	12	●	
2003800490	12,5	73	16	12	●	
2002800310	13,0	73	16	12	●	
2001801560	14,0	73	16	12	●	
2002800320	15,0	73	16	12	●	
2001801570	16,0	79	19	16	●	
2002800330	17,0	79	19	16	●	
2001801580	18,0	79	19	16	●	
2003804870	19,0	79	19	16	●	
2001801590	20,0	88	22	20	●	
2003800510	21,0	88	22	20	●	
2002801290	22,0	88	22	20	●	
2003804850	23,0	88	22	20	●	
2002801300	25,0	102	26	25	●	
2003800540	26,0	102	26	25	●	
2003800560	28,0	102	26	25	●	
2002800340	30,0	102	26	25	●	
2003800580	32,0	112	32	32	●	
2003800630	40,0	118	38	32	●	



HIGH PERFORMANCE
- 3 flutes
- Flatted shank

Multiflute end mill

HIGH PERFORMANCE
- 3 Schneiden
- Weldon Schaft

Mehrschneider

ALTA PRESTAZIONE
- 3 denti
- Codolo cilindrico Weldon

Fresa multidenti

HAUTE PERFORMANCE
- 3 lèvres
- Queue Weldon

Fraise multilèvres

HIGH PERFORMANCE
- 3 skær
- Weldon skaft

Flérskærs endefræsere

HIGH PERFORMANCE
- 3 skär
- Weldon

Flerskärsfräs

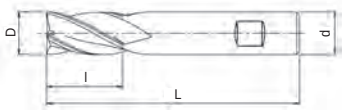
ALTO RENDIMIENTO
- 3 labios
- Mango weldon

Fresas multi labio

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 3 режущих кромки
- Хвостовик с лыской

Многозубые концевые фрезы

HSS-Co | 30° | CC | DIN 327 | min⁻¹ E.63



EDP	D	L	l	d	Stock	Price
29060900	1,5	47	3	6	●	
29060901	2,0	48	4	6	●	
29060902	2,5	49	5	6	●	
29060903	3,0	49	5	6	●	
29060904	3,5	50	6	6	●	
29060906	4,0	51	7	6	●	
29060907	4,5	51	7	6	●	
29060909	5,0	52	8	6	●	
29060910	5,5	52	8	6	●	
29060912	6,0	52	8	6	●	
29060913	6,5	60	10	10	●	
29060915	7,0	60	10	10	●	
29060916	7,5	60	10	10	●	
29060918	8,0	61	11	10	●	
29060919	8,5	61	11	10	●	
29060921	9,0	61	11	10	●	
29060922	9,5	61	11	10	●	
29060924	10,0	63	13	10	●	
29060925	10,5	70	13	12	●	
29060926	11,0	70	13	12	●	
29060927	11,5	70	13	12	●	
29060929	12,0	73	16	12	●	
29060930	12,5	73	16	12	●	
29060932	13,0	73	16	12	●	
29060935	14,0	73	16	12	●	
29060937	15,0	73	16	12	●	
29060940	16,0	79	19	16	●	
29060942	17,0	79	19	16	●	
29060945	18,0	79	19	16	●	
29060947	19,0	79	19	16	●	
29060950	20,0	88	22	20	●	
29060951	21,0	88	22	20	●	
29060952	22,0	88	22	20	●	
29060953	23,0	88	22	20	●	
29060954	24,0	102	26	25	●	
29060955	25,0	102	26	25	●	
29060956	26,0	102	26	25	●	
29060957	27,0	102	26	25	●	
29060958	28,0	102	26	25	●	
29060959	29,0	102	26	25	●	
29060960	30,0	102	26	25	●	
29060963	35,0	112	32	32	●	
29061966	40,0	118	38	32	●	

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE
- 3 flutes
- Flatted shank

Multiflute end mill

HIGH PERFORMANCE
- 3 Schneiden
- Weldon Schaft

Mehrschneider

ALTA PRESTAZIONE
- 3 denti
- Codolo cilindrico Weldon

Fresa multidenti

HAUTE PERFORMANCE
- 3 lèvres
- Queue Weldon

Fraise multilèvres

HIGH PERFORMANCE
- 3 skær
- Weldon skaft

Flérskærs endefræsere

HIGH PERFORMANCE
- 3 skär
- Weldon

Flerskärsfräs

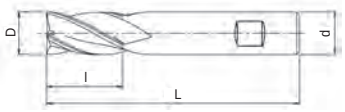
ALTO RENDIMIENTO
- 3 labios
- Mango weldon

Fresas multi labio

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 3 режущих кромки
- Хвостовик с лыской

Многозубые концевые фрезы

HSS-Co | V | 30° | C C | DIN 844



EDP	D	L	l	d	Stock	Price
2003800640	3,0	56	12	6	●	
2003800650	3,5	59	15	6	●	
2003800660	4,0	63	19	6	●	
2003800670	4,5	63	19	6	●	
2002802100	5,0	68	24	6	●	
2003800680	5,5	68	24	6	●	
2002801750	6,0	68	24	6	●	
2003800690	6,5	80	30	10	●	
2003800700	7,0	80	30	10	●	
2003800710	7,5	80	38	10	●	
2002801760	8,0	88	38	10	●	
2002801770	9,0	88	38	10	●	
2002800720	10,0	95	45	10	●	
2002802110	11,0	102	45	12	●	
2003800720	12,0	110	53	12	●	
2002801550	13,0	110	53	12	●	
2002801330	14,0	110	53	12	●	
2003800730	15,0	110	53	12	●	
2002801340	16,0	123	63	16	●	
2003800740	17,0	123	63	16	●	
2003800750	18,0	123	63	16	●	
2003800760	19,0	123	63	16	●	
2002801350	20,0	141	75	20	●	
2002802050	30,0	166	90	25	●	



HIGH PERFORMANCE
- 3 flutes
- Flatted shank

Multiflute end mill

HIGH PERFORMANCE
- 3 Schneiden
- Weldon Schaft

Mehrschneider

ALTA PRESTAZIONE
- 3 denti
- Codolo cilindrico Weldon

Fresa multidenti

HAUTE PERFORMANCE
- 3 lèvres
- Queue Weldon

Fraise multilèvres

HIGH PERFORMANCE
- 3 skær
- Weldon skaft

Flérskærs endefræsere

HIGH PERFORMANCE
- 3 skär
- Weldon

Flerskärsfräs

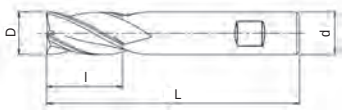
ALTO RENDIMIENTO
- 3 labios
- Mango weldon

Fresas multi labio

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 3 режущих кромки
- Хвостовик с лыской

Многозубые концевые фрезы

HSS-Co | 30° | CC | DIN 844



EDP	D	L	l	d	Stock	Price
2089622480	3,0	56	12	6	●	
2089622490	3,5	59	15	6	●	
2089622500	4,0	63	19	6	●	
2089622510	4,5	63	19	6	●	
2089622520	5,0	68	24	6	●	
2089622530	5,5	68	24	6	●	
2089622540	6,0	68	24	6	●	
2089622570	6,5	80	30	10	●	
2089622550	7,0	80	30	10	●	
2092800050	7,5	80	38	10	●	
2092800030	8,0	88	38	10	●	
2089622580	9,0	88	38	10	●	
2089623540	10,0	95	45	10	●	
2089622600	11,0	102	45	12	●	
2089622610	12,0	110	53	12	●	
2089622620	13,0	110	53	12	●	
2089622630	14,0	110	53	12	●	
2089622640	15,0	110	53	12	●	
2089622650	16,0	123	63	16	●	
2095800130	17,0	123	63	16	●	
2089622660	18,0	123	63	16	●	
2003800460	19,0	123	63	16	●	
2095800150	20,0	141	75	20	●	
2089622680	22,0	141	75	20	●	
2089622700	28,0	166	90	25	●	
2089622710	30,0	166	90	25	●	

● Delivery from stock
○ Available on short notice

FC-3S-TICN



- 3 flutes
- Flatted shank
- OSG standard

Throw away end mill

- 3 Schneiden
- Weldon Schaft
- OSG Standard

Einwegfräser

- 3 denti
- Codolo cilindrico Weldon
- Standard OSG

A gettare

- 3 lèvres
- Queue Weldon
- Norme OSG

Fraise à jeter

- 3 skær
- Weldon skaft
- OSG standard

"Throw away" endefræsere

- 3 skär
- Weldon
- OSG standard

Engångsfräsar

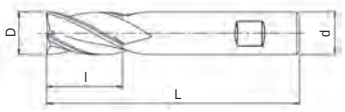
- 3 labios
- Mango weldon
- OSG estándar

Fresa de usar y tirar

- 3 режущих кромки
- Хвостовик с лыской
- OSG стандарт

OSG Стандарт

HSS-Co | TiCN | 30° | C C



EDP	D	L	l	d	Stock	Price
2003803570	1,5	24,5	2,5	6	●	
2003803580	2,0	24,5	3,0	6	●	
2003803590	2,5	36,0	4,0	6	●	
2003803600	3,0	28,0	4,5	6	●	
2003803610	3,5	30,0	5,5	6	●	
2003803620	4,0	32,5	6,5	6	●	
2003803630	4,5	36,0	7,5	6	●	
2003803640	5,0	36,0	7,5	6	●	
2003803650	5,5	36,0	9,5	6	●	
2003803660	6,0	36,0	9,5	6	●	

FC-3S



- 3 flutes
- Flatted shank
- OSG standard

Throw away end mill

- 3 Schneiden
- Weldon Schaft
- OSG Standard

Einwegfräser

- 3 denti
- Codolo cilindrico Weldon
- Standard OSG

A gettare

- 3 lèvres
- Queue Weldon
- Norme OSG

Fraise à jeter

- 3 skær
- Weldon skaft
- OSG standard

"Throw away" endefræsere

- 3 skär
- Weldon
- OSG standard

Engångsfräsar

- 3 labios
- Mango weldon
- OSG estándar

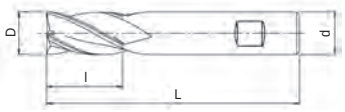
Fresa de usar y tirar

- 3 режущих кромки
- Хвостовик с лыской
- OSG стандарт

OSG Стандарт



HSS-Co | 30° | C C



EDP	D	L	l	d	Stock	Price
2089622720	1,5	24,5	2,5	6	●	
2089622730	2,0	24,5	3,0	6	●	
2089622740	2,5	36,0	4,0	6	●	
2089622750	3,0	28,0	4,5	6	●	
2089622760	3,5	30,0	5,5	6	●	
2089622770	4,0	32,5	6,5	6	●	
2089622780	4,5	36,0	7,5	6	●	
2089622790	5,0	36,0	7,5	6	●	
2089622810	5,5	36,0	9,5	6	●	
2089622820	6,0	36,0	9,5	6	●	

● Delivery from stock
○ Available on short notice

FC-3L-TICN



- 3 flutes
- Flatted shank
- OSG standard

Throw away end mill

- 3 Schneiden
- Weldon Schaft
- OSG Standard

Einwegfräser

- 3 denti
- Codolo cilindrico Weldon
- Standard OSG

A gettare

- 3 lèvres
- Queue Weldon
- Norme OSG

Fraise à jeter

- 3 skær
- Weldon skaft
- OSG standard

"Throw away" endefræsere

- 3 skär
- Weldon
- OSG standard

Engångsfräsar

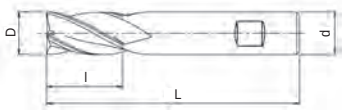
- 3 labios
- Mango weldon
- OSG estándar

Fresa de usar y tirar

- 3 режущих кромки
- Хвостовик с лыской
- OSG стандарт

OSG Стандарт

HSS-Co | TiCN | 30° | C C



EDP	D	L	l	d	Stock	Price
2003803670	1,5	28,0	4,0	6	●	
2003803680	2,0	29,0	4,5	6	●	
2003803690	2,5	32,0	6,5	6	●	
2003803700	3,0	34,0	7,5	6	●	
2003803710	3,5	36,5	8,5	6	●	
2003803720	4,0	39,0	9,5	6	●	
2003803730	4,5	42,0	11,0	6	●	
2003803740	5,0	44,5	12,5	6	●	
2003803750	5,5	46,0	14,5	6	●	
2003803760	6,0	44,5	16,0	6	●	

FC-3L



- 3 flutes
- Flatted shank
- OSG standard

Throw away end mill

- 3 Schneiden
- Weldon Schaft
- OSG Standard

Einwegfräser

- 3 denti
- Codolo cilindrico Weldon
- Standard OSG

A gettare

- 3 lèvres
- Queue Weldon
- Norme OSG

Fraise à jeter

- 3 skær
- Weldon skaft
- OSG standard

"Throw away" endefræsere

- 3 skär
- Weldon
- OSG standard

Engångsfräsar

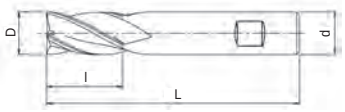
- 3 labios
- Mango weldon
- OSG estándar

Fresa de usar y tirar

- 3 режущих кромки
- Хвостовик с лыской
- OSG стандарт

OSG Стандарт

HSS-Co | 30° | C C



EDP	D	L	l	d	Stock	Price
2089622830	1,5	28,0	4,0	6	●	
2089622840	2,0	29,0	4,5	6	●	
2089622850	2,5	32,0	6,5	6	●	
2089622860	3,0	34,0	7,5	6	●	
2089623200	3,5	36,5	8,5	6	●	
2089622870	4,0	39,0	9,5	6	●	
2089622880	4,5	42,0	11,0	6	●	
2089622890	5,0	44,5	12,5	6	●	
2089622900	5,5	46,0	14,5	6	●	
2089622910	6,0	44,5	16,0	6	●	

● Delivery from stock
○ Available on short notice



- 4 flutes D ≤ 21
- 6 flutes D > 21
- Flatted shank

Multiflute end mill

- 4 Schneiden D ≤ 21
- 6 Schneiden D > 21
- Weldon Schaft

Mehrschneider

- 4 denti D ≤ 21
- 6 denti D > 21
- Codolo cilindrico Weldon

Fresa multidenti

- 4 lèvres D ≤ 21
- 6 lèvres D > 21
- Queue Weldon

Fraise multilèvres

- 4 skær D ≤ 21
- 6 skær D > 21
- Weldon skaft

Flérskærs endefræsere

- 4 skär D ≤ 21
- 6 skär D > 21
- Weldon

Flerskärsfräs

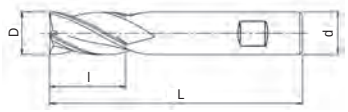
- 4 labios D ≤ 21
- 6 labios D > 21
- Mango weldon

Fresas multi labio

- 4 кромки D ≤21
- 6 кромок D > 21
- Хвостовик с лыской

Многозубые концевые фрезы

HSS-Co | V | 30° | CC | DIN 844 | min⁻¹ E.62



EDP	D	L	l	d	Stock	Price
2003800010	1,5	51	7	6	●	
2001801310	2,0	51	7	6	●	
2002800350	2,5	52	8	6	●	
2002800360	3,0	52	8	6	●	
2002800370	3,5	54	10	6	●	
2001801320	4,0	55	11	6	●	
2002800380	4,5	55	11	6	●	
2001801330	5,0	57	13	6	●	
2002800390	5,5	57	13	6	●	
2001801340	6,0	57	13	6	●	
2003800790	6,5	66	16	10	●	
2002800400	7,0	66	16	10	●	
2003800800	7,5	66	16	10	●	
2001801350	8,0	69	19	10	●	
2003800810	8,5	69	19	10	●	
2001801360	9,0	69	19	10	●	
2003800820	9,5	69	19	10	●	
2001801370	10,0	72	22	10	●	
2003800830	10,5	79	22	12	●	
2002800410	11,0	79	22	12	●	
2003800840	11,5	83	26	12	●	
2001801380	12,0	83	26	12	●	
2002800420	13,0	83	26	12	●	
2001801390	14,0	83	26	12	●	
2002800430	15,0	83	26	12	●	
2001801400	16,0	92	32	16	●	
2002800440	17,0	92	32	16	●	
2001801410	18,0	92	32	16	●	
2002800450	19,0	92	32	16	●	
2001801420	20,0	104	38	20	●	
2003800850	21,0	104	38	20	●	
2001801430	22,0	104	38	20	●	
2003800860	23,0	104	38	20	●	
2002802240	24,0	121	45	25	●	
2001801440	25,0	121	45	25	●	
2002800460	26,0	121	45	25	●	
2002800470	28,0	121	45	25	●	
2001801450	30,0	121	45	25	●	
2001801460	32,0	133	53	32	●	
2003800890	36,0	133	53	32	●	
2001801470	40,0	143	63	32	●	



- 6 flutes D > 21
- Flatted shank

Multiflute end mill

- 6 Schneiden D > 21
- Weldon Schaft

Mehrschneider

- 6 denti D > 21
- Codolo cilindrico Weldon

Fresa multidenti

- 6 lèvres D > 21
- Queue Weldon

Fraise multilèvres

- 6 skærs D > 21
- Weldon skaft

Flérskærs endefræsere

- 6 skär D > 21
- Weldon

Flerskärsfräs

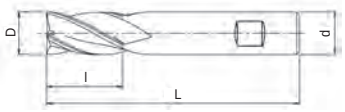
- 6 labios D > 21
- Mango weldon

Fresas multi labio

- 6 кромок D > 21
- Хвостовик с лыской

Многозубые концевые фрезы

HSS-Co | 30° | CC | DIN 844 | min⁻¹ E.62



EDP	D	L	l	d	Stock	Price
28020900	1,5	51	7	6	●	
28020901	2,0	51	7	6	●	
28020902	2,5	52	8	6	●	
28020903	3,0	52	8	6	●	
28020904	3,5	54	10	6	●	
28020906	4,0	55	11	6	●	
28020907	4,5	55	11	6	●	
28020909	5,0	57	13	6	●	
28020910	5,5	57	13	6	●	
28020912	6,0	57	13	6	●	
28020913	6,5	66	16	10	●	
28020915	7,0	66	16	10	●	
28020916	7,5	66	16	10	●	
28020918	8,0	69	19	10	●	
28020919	8,5	69	19	10	●	
28020921	9,0	69	19	10	●	
28020922	9,5	69	19	10	●	
28020924	10,0	72	22	10	●	
28020925	10,5	79	22	12	●	
28020926	11,0	79	22	12	●	
28020927	11,5	83	26	12	●	
28020929	12,0	83	26	12	●	
28020932	13,0	83	26	12	●	
28020935	14,0	83	26	12	●	
28020937	15,0	83	26	12	●	
28020940	16,0	92	32	16	●	
28020942	17,0	92	32	16	●	
28020945	18,0	92	32	16	●	
28020947	19,0	92	32	16	●	
28020950	20,0	104	38	20	●	
28020951	21,0	104	38	20	●	
28020952	22,0	104	38	20	●	
28020953	23,0	104	38	20	●	
28020954	24,0	121	45	25	●	
28020955	25,0	121	45	25	●	
28020956	26,0	121	45	25	●	
28020958	28,0	121	45	25	●	
28020960	30,0	121	45	25	●	
28020961	32,0	133	53	32	●	
28020962	34,0	133	53	32	●	
28020963	35,0	133	53	32	●	
28020964	36,0	133	53	32	●	
28021965	38,0	143	63	32	●	
28021966	40,0	143	63	32	●	

V-WEML



GO TO LIVE STOCK CHECK

- 4 flutes D ≤ 22
- 6 flutes D > 22
- Flatted shank

Multiflute end mill

- 4 Schneiden D ≤ 22
- 6 Schneiden D > 22
- Weldon Schaft

Mehrschneider

- 4 denti D ≤ 22
- 6 denti D > 22
- Codolo cilindrico Weldon

Fresa multidenti

- 6 lèvres D ≤ 22
- 6 lèvres D > 22
- Queue Weldon

Fraise multilèvres

- 4 skær D ≤ 22
- 6 skær D > 22
- Weldon skaft

Flérskærs endefræsere

- 4 skär D ≤ 22
- 6 skär D > 22
- Weldon

Flerskärsfräs

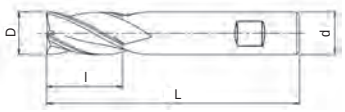
- 4 labios D ≤ 22
- 6 labios D > 22
- Mango weldon

Fresas multi labio

- 4 кромки D ≤22
- 6 кромок D > 22
- Хвостовик с лыской

Многозубые концевые фрезы

HSS-Co | V | 30° | CC | DIN 844



EDP	D	L	l	d	Stock	Price
2002801640	2,0	54	10	6	●	
2002801650	2,5	56	12	6	●	
2003804880	3,0	56	12	6	●	
2003804890	3,5	63	15	6	●	
2003804900	4,0	63	19	6	●	
2003804910	4,5	63	19	6	●	
2002800650	5,0	68	24	6	●	
2003804920	5,5	68	24	6	●	
2003804930	6,0	68	24	6	●	
2003804940	6,5	80	30	10	●	
2003804950	7,0	80	30	10	●	
2003804960	7,5	80	30	10	●	
2002800660	8,0	88	38	10	●	
2003804970	8,5	88	38	10	●	
2003804980	9,0	88	38	10	●	
2003804990	9,5	88	38	10	●	
2002800670	10,0	95	45	10	●	
2003805000	11,0	102	45	12	●	
2002801600	12,0	110	53	12	●	
2003805010	13,0	110	53	12	●	
2003805020	14,0	110	53	12	●	
2003805030	15,0	110	53	12	●	
2002802210	16,0	123	63	16	●	
2003805040	17,0	123	63	16	●	
2003805050	18,0	123	63	16	●	
2003805060	19,0	123	63	16	●	
2002800680	20,0	141	75	20	●	
2003805070	22,0	141	75	20	●	
2003805080	24,0	166	90	25	●	
2002800690	25,0	166	90	25	●	
2003805100	28,0	166	90	25	●	
2002800700	30,0	166	90	25	●	
2002800710	32,0	186	106	32	●	
2003805110	35,0	186	106	32	●	
2003805120	36,0	186	106	32	●	
2002801580	40,0	205	125	32	●	



- 4 flutes D ≤ 20
- 6 flutes D > 20
- Flatted shank

Multiflute end mill

- 4 Schneiden D ≤ 20
- 6 Schneiden D > 20
- Weldon Schaft

Mehrschneider

- 4 denti D ≤ 20
- 6 denti D > 20
- Codolo cilindrico Weldon

Fresa multidenti

- 4 lèvres D ≤ 20
- 6 lèvres D > 20
- Queue Weldon

Fraise multilèvres

- 4 skær D ≤ 20
- 6 skær D > 20
- Weldon skaft

Flérskærs endefræsere

- 4 skär D ≤ 22
- 6 skär D > 22
- Weldon

Flerskärsfräs

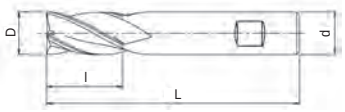
- 4 labios D ≤ 20
- 6 labios D > 20
- Mango weldon

Fresas multi labio

- 4 кромки D ≤20
- 6 кромок D > 20
- Хвостовик с лыской

Многозубые концевые фрезы

HSS-Co | 30° | CC | DIN 844



EDP	D	L	l	d	Stock	Price
28120901	2,0	54	10	6	●	
28120902	2,5	56	12	6	●	
28120903	3,0	56	12	6	●	
28120904	3,5	63	15	6	●	
28120906	4,0	63	19	6	●	
28120907	4,5	63	19	6	●	
28120909	5,0	68	24	6	●	
28120910	5,5	68	24	6	●	
28120912	6,0	68	24	6	●	
28120913	6,5	80	30	10	●	
28120915	7,0	80	30	10	●	
28120916	7,5	80	30	10	●	
28120918	8,0	88	38	10	●	
28120919	8,5	88	38	10	●	
28120921	9,0	88	38	10	●	
28120922	9,5	88	38	10	●	
28120924	10,0	95	45	10	●	
28120926	11,0	102	45	12	●	
28120929	12,0	110	53	12	●	
28120932	13,0	110	53	12	●	
28120935	14,0	110	53	12	●	
28120937	15,0	110	53	12	●	
28120940	16,0	123	63	16	●	
28120942	17,0	123	63	16	●	
28120945	18,0	123	63	16	●	
28120947	19,0	123	63	16	●	
28120950	20,0	141	75	20	●	
28120952	22,0	141	75	20	●	
28120954	24,0	166	90	25	●	
28120955	25,0	166	90	25	●	
28120956	26,0	166	90	25	●	
28120958	28,0	166	90	25	●	
28120960	30,0	166	90	25	●	
28120961	32,0	186	106	32	●	
28120963	35,0	186	106	32	●	
28120964	36,0	186	106	32	●	
28121966	40,0	205	125	32	●	



- 4 flutes fine pitch D ≤ 22
- 5 flutes 22 ≤ D < 28
- 6 flutes 30 ≤ D ≤ 45
- Flatted shank

Roughing end mill

- 4 Schneiden Feinverzahnung D ≤ 22
- 5 Schneiden 22 ≤ D < 28
- 6 Schneiden 30 ≤ D ≤ 45
- Weldon Schaft

Schruppfräser

- 4 denti a passo fine D ≤ 22
- 5 denti 22 ≤ D < 28
- 6 denti 30 ≤ D ≤ 45
- Codolo cilindrico Weldon

Fresa a sgrossare

- 4 lèvres pas fin D ≤ 22
- 5 lèvres 22 ≤ D < 28
- 6 lèvres 30 ≤ D ≤ 45
- Queue Weldon

Fraise ébauche

- 4 skær, fint fortandet D ≤ 22
- 5 skær 22 ≤ D < 28
- 6 skær 30 ≤ D ≤ 45
- Weldon skaft

Skrub fræsere

- 4 skär finskrubb D ≤ 22
- 5 skär 22 ≤ D < 28
- 6 skär 30 ≤ D ≤ 45
- Weldon

Skrubbfräs

- 4 labios paso fino D ≤ 22
- 5 labios 22 ≤ D < 28
- 6 labios 30 ≤ D ≤ 45
- Mango weldon

Fresas de desbastar

- 4 кромки с мелкой насечкой D ≤22
- 5 кромок 22 ≤D ≤28
- 6 кромок 30 ≤D ≤45
- Хвостовик с лыской

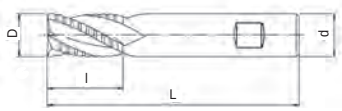
Черновые концевые фрезы



XPM V CC

DIN 844

min⁻¹ E.64-65



EDP	D	L	l	d	Stock	Price
97825912	6	57	13	6	●	
97825915	7	66	16	10	●	
97825918	8	69	19	10	●	
97825924	10	72	22	10	●	
97825929	12	83	26	12	●	
97825932	13	83	26	12	●	
97825935	14	83	26	12	●	
97825937	15	83	26	12	●	
97825940	16	92	32	16	●	
97825945	18	92	32	16	●	
97825950	20	104	38	20	●	
97825952	22	104	38	20	●	
97825955	25	121	45	25	●	
97825958	28	121	45	25	●	
97825960	30	121	45	25	●	
97825961	32	133	53	32	●	

VP-RESF-SP



HIGH PERFORMANCE

- 3 flutes fine pitch D < 25
- 4 flutes D = 25
- Flatted shank

Roughing end mill

HIGH PERFORMANCE

- 3 Schneiden Feinverzahnung D < 25
- 4 Schneiden D = 25
- Weldon Schaft

Schruppfräser

ALTA PRESTAZIONE

- 3 denti a passo fine D < 25
- 4 denti D = 25
- Codolo cilindrico Weldon

Fresa a sgrossare

HAUTE PERFORMANCE

- 3 lèvres pas fin D < 25
- 4 lèvres D = 25
- Queue Weldon

Fraise ébauche

HIGH PERFORMANCE

- 3 skær, fint fortandet D < 25
- 4 skær D = 25
- Weldon skaft

Skrub fræsere

HIGH PERFORMANCE

- 3 skär finskrubb D < 25
- 4 skär D = 25
- Weldon

Skrubbfräs

ALTO RENDIMIENTO

- 3 labios paso fino D < 25
- 4 labios D = 25
- Mango weldon

Fresas de desbastar

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

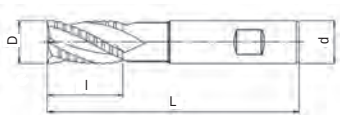
- 3 кромки с мелкой насечкой D <25
- 4 кромок 0 D = 25
- Хвостовик с лыской

Черновые концевые фрезы



XPM V CC

min^{-1} E.56



EDP	D	L	l	d	Stock	Price
48101060	6	51	6	6	●	
48101080	8	59	8	10	●	
48101100	10	63	10	10	●	
48101120	12	72	12	12	●	
48101160	16	83	16	16	●	
48101200	20	93	20	20	●	
48101250	25	109	25	25	●	

GO TO LIVE STOCK CHECK

HSS

HSS

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE

- 3 flutes fine pitch D < 25
- 4 flutes D = 25
- Flatted shank

Roughing end mill

HIGH PERFORMANCE

- 3 Schneiden Feinverzahnung D < 25
- 4 Schneiden D = 25
- Weldon Schaft

Schruppfräser

ALTA PRESTAZIONE

- 3 denti a passo fine D < 25
- 4 denti D = 25
- Codolo cilindrico Weldon

Fresa a sgrossare

HAUTE PERFORMANCE

- 3 lèvres pas fin D < 25
- 4 lèvres D = 25
- Queue Weldon

Fraise ébauche

HIGH PERFORMANCE

- 3 skær, fint fortandet D < 25
- 4 skær D = 25
- Weldon skaft

Skrub fræsere

HIGH PERFORMANCE

- 3 skär finskrubb D < 25
- 4 skär D = 25
- Weldon

Skrubbfräs

ALTO RENDIMIENTO

- 3 labios paso fino D < 25
- 4 labios D = 25
- Mango weldon

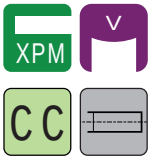
Fresas de desbastar

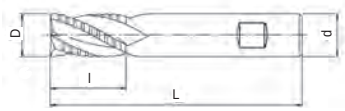
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- 3 кромки с мелкой насечкой D <25
- 4 кромок 0 D = 25
- Хвостовик с лыской

Черновые концевые фрезы







EDP	D	L	l	d	Stock	Price
48102100	10	95	45	10	●	
48102120	12	110	53	12	●	
48102160	16	123	63	16	●	
48102200	20	141	75	20	●	
48102250	25	166	90	25	●	

V-WREES



- 4 flutes coarse pitch D ≤ 22
- 5 flutes 22 < D ≤ 30
- 6 flutes D > 30
- Flatted shank

Roughing end mill

- 4 Schneiden Normalverzahnung D ≤ 22
- 5 Schneiden 22 < D ≤ 30
- 6 Schneiden D > 30
- Weldon Schaft

Schruppfräser

- 4 denti a passo nomale D ≤ 22
- 5 denti 22 < D ≤ 30
- 6 denti D > 30
- Codolo cilindrico Weldon

Fresa a sgrossare

- 4 lèvres pas normal D ≤ 22
- 5 lèvres 22 < D ≤ 30
- 6 lèvres D > 30
- Queue Weldon

Fraise ébauche

- 4 skær, groft fortandet D ≤ 22
- 5 skær 22 < D ≤ 30
- 6 skær D > 30
- Weldon skaft

Skrub fræsere

- 4 skär grovskrubb D ≤ 22
- 5 skär 22 < D ≤ 30
- 6 skär D > 30
- Weldon

Skrubbfräs

- 4 labios paso amplio D ≤ 22
- 5 labios 22 < D ≤ 30
- 6 labios D > 30
- Mango weldon

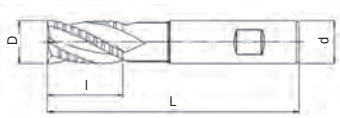
Fresas de desbastar

- 4 кромки с крупной насечкой D ≤ 22
- 5 кромок 22 ≤ D ≤ 30
- 6 кромок D > 300
- Хвостовик с лыской

Черновые концевые фрезы



HSS-Co | V | 30° | CC | DIN 844 | min⁻¹ E.64-65



EDP	D	L	l	d	Stock	Price
2001801600	6	57	13	6	●	
2002800480	7	66	16	10	●	
2001801610	8	69	19	10	●	
2002800490	9	69	19	10	●	
2001801620	10	72	22	10	●	
2002800500	11	79	22	12	●	
2001801630	12	83	26	12	●	
2002801180	13	83	26	12	●	
2001801640	14	83	26	12	●	
2002800510	15	83	26	12	●	
2002801190	16	92	32	16	●	
2002800520	18	92	32	16	●	
2001801650	20	104	38	20	●	
2002800530	22	104	38	20	●	
2001801660	24	121	45	25	●	
2001801670	25	121	45	25	●	
2002801540	26	121	45	25	●	
2001801680	28	121	45	25	●	
2001801690	30	121	45	25	●	
2001801700	32	133	53	32	●	
2003800980	35	133	53	32	●	
2003800990	36	133	53	32	●	
2001801710	40	143	63	32	●	

● Delivery from stock
○ Available on short notice



- 4 flutes coarse pitch D ≤ 22
- 5 flutes 22 < D ≤ 30
- 6 flutes D > 30
- Flatted shank

Roughing end mill

- 4 Schneiden Normalverzahnung D ≤ 22
- 5 Schneiden 22 < D ≤ 30
- 6 Schneiden D > 30
- Weldon Schaft

Schruppfräser

- 4 denti a passo nomale D ≤ 22
- 5 denti 22 < D ≤ 30
- 6 denti D > 30
- Codolo cilindrico Weldon

Fresa a sgrossare

- 4 lèvres pas normal D ≤ 22
- 5 lèvres 22 < D ≤ 30
- 6 lèvres D > 30
- Queue Weldon

Fraise ébauche

- 4 skær, groft fortandet D ≤ 22
- 5 skær 22 < D ≤ 30
- 6 skær D > 30
- Weldon skaft

Skrub fræsere

- 4 skär grovskrubb D ≤ 22
- 5 skär 22 < D ≤ 30
- 6 skär D > 30
- Weldon

Skrubbfräs

- 4 labios paso amplio D ≤ 22
- 5 labios 22 < D ≤ 30
- 6 labios D > 30
- Mango weldon

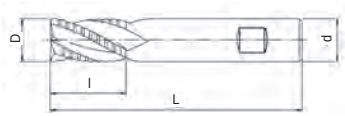
Fresas de desbastar

- 4 кромки с крупной насечкой D ≤ 22
- 5 кромок 22 ≤ D ≤ 30
- 6 кромок D > 300
- Хвостовик с лыской

Черновые концевые фрезы



HSS-Co | 30° | CC | DIN 844 | min⁻¹ E.64-65



EDP	D	L	l	d	Stock	Price
28520912	6	57	13	6	●	
28520915	7	66	16	10	●	
28520918	8	69	19	10	●	
28520921	9	69	19	10	●	
28520924	10	72	22	10	●	
28520926	11	79	22	12	●	
28520929	12	83	26	12	●	
28520932	13	83	26	12	●	
28520935	14	83	26	12	●	
28520937	15	83	26	12	●	
28520940	16	92	32	16	●	
28520945	18	92	32	16	●	
28520950	20	104	38	20	●	
28520952	22	104	38	20	●	
28520954	24	121	45	25	●	
28520955	25	121	45	25	●	
28520956	26	121	45	25	●	
28520958	28	121	45	25	●	
28520960	30	121	45	25	●	
28520961	32	133	53	32	●	
28520963	35	133	53	32	●	
28520964	36	133	53	32	●	
28521966	40	143	63	32	●	



■ 4 flutes coarse pitch D ≤ 22
■ 5 flutes 22 < D ≤ 30
■ 6 flutes D > 30

■ Flatted shank

Roughing end mill

■ 4 Schneiden Normalverzahnung D ≤ 22
■ 5 Schneiden 22 < D ≤ 30
■ 6 Schneiden D > 30

■ Weldon Schaft

Schruppfräser

■ 4 denti a passo nomale D ≤ 22
■ 5 denti 22 < D ≤ 30
■ 6 denti D > 30

■ Codolo cilindrico Weldon

Fresa a sgrossare

■ 4 lèvres pas normal D ≤ 22
■ 5 lèvres 22 < D ≤ 30
■ 6 lèvres D > 30

■ Queue Weldon

Fraise ébauche

■ 4 skær, groft fortandet D ≤ 22
■ 5 skær 22 < D ≤ 30
■ 6 skær D > 30

■ Weldon skaft

Skrub fræsere

■ 4 skär grovskrubb D ≤ 22
■ 5 skär 22 < D ≤ 30
■ 6 skär D > 30

■ Weldon

Skrubbfräs

■ 4 labios paso amplio D ≤ 22
■ 5 labios 22 < D ≤ 30
■ 6 labios D > 30

■ Mango weldon

Fresas de desbastar

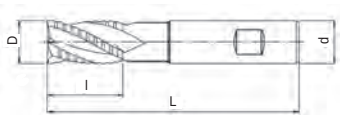
■ 4 кромки с крупной насечкой D ≤ 22
■ 5 кромок 22 ≤ D ≤ 30
■ 6 кромок D > 300

■ Хвостовик с лыской

Черновые концевые фрезы



HSS-Co | V | 30° | C C | DIN 844



EDP	D	L	l	d	Stock	Price
2002801780	8	88	38	10	●	
2002802130	10	95	45	10	●	
2002801790	12	110	53	12	●	
2002801800	14	110	53	12	●	
2003805430	15	110	53	12	●	
2003805440	16	123	63	16	●	
2003805450	18	123	63	16	●	
2002801810	20	141	75	20	●	
2003805460	22	141	75	20	●	
2003805470	24	166	90	90	●	
2002800730	25	166	90	90	●	
2003805480	26	166	90	90	●	
2003805490	28	166	90	90	●	
2002801820	30	166	90	90	●	
2002801560	32	186	106	106	●	
2003805500	36	186	106	106	●	
2002801570	40	205	125	125	●	



- 4 flutes coarse pitch D ≤ 22
- 5 flutes 22 < D ≤ 30
- 6 flutes D > 30
- Flatted shank

Roughing end mill

- 4 Schneiden Normalverzahnung D ≤ 22
- 5 Schneiden 22 < D ≤ 30
- 6 Schneiden D > 30
- Weldon Schaft

Schruppfräser

- 4 denti a passo nomale D ≤ 22
- 5 denti 22 < D ≤ 30
- 6 denti D > 30
- Codolo cilindrico Weldon

Fresa a sgrossare

- 4 lèvres pas normal D ≤ 22
- 5 lèvres 22 < D ≤ 30
- 6 lèvres D > 30
- Queue Weldon

Fraise ébauche

- 4 skær, groft fortandet D ≤ 22
- 5 skær 22 < D ≤ 30
- 6 skær D > 30
- Weldon skaft

Skrub fræsere

- 4 skär grovskrubb D ≤ 22
- 5 skär 22 < D ≤ 30
- 6 skär D > 30
- Weldon

Skrubbfräs

- 4 labios paso amplio D ≤ 22
- 5 labios 22 < D ≤ 30
- 6 labios D > 30
- Mango weldon

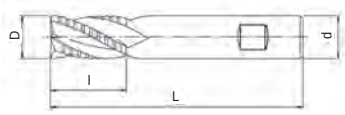
Fresas de desbastar

- 4 кромки с крупной насечкой D ≤ 22
- 5 кромок 22 ≤ D ≤ 30
- 6 кромок D > 300
- Хвостовик с лыской

Черновые концевые фрезы



HSS-Co | 30° | CC | DIN 844



EDP	D	L	l	d	Stock	Price
25120918	8	88	38	10	●	
25120924	10	95	45	10	●	
25120929	12	110	53	12	●	
25120935	14	110	53	12	●	
25120937	15	110	53	12	●	
25120940	16	123	63	16	●	
25120945	18	123	63	16	●	
25120950	20	141	75	20	●	
25120952	22	141	75	20	●	
25120954	24	166	90	25	●	
25120955	25	166	90	25	●	
25120956	26	166	90	25	●	
25120958	28	166	90	25	●	
25120960	30	166	90	25	●	
25120961	32	186	106	32	●	
25120964	36	186	106	32	●	
25121966	40	205	125	32	●	



- 3 flutes
- Flatted shank

Roughing end mill

- 3 Schneiden
- Weldon Schaft

Schruppfräser

- 3 denti
- Codolo cilindrico Weldon

Fresa a sgrossare

- 3 lèvres
- Queue Weldon

Fraise ébauche

- 3 skær
- Weldon skaft

Skrub fræsere

- 3 skär
- Weldon

Skrubbfräs

- 3 labios
- Mango weldon

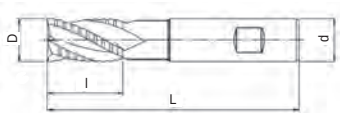
Fresas de desbastar

- 3 режущих кромки для алюминия
- Хвостовик с лыской

Черновые концевые фрезыX



HSS-Co | OX | 35° | CC | DIN 844 | min⁻¹ E.56



EDP	D	L	l	d	Stock	Price
2089647980	6	57	13	6	●	
2089648000	8	69	19	10	●	
2089648020	10	72	22	10	●	
2089648040	12	83	26	12	●	
2089648080	16	92	32	16	●	
2089648120	20	104	38	20	●	
2089648140	25	121	45	25	●	

● Delivery from stock
○ Available on short notice



- 4 flutes coarse pitch D ≤ 22
- 5 flutes 22 < D ≤ 30
- 6 flutes D > 30
- Flatted shank

Roughing end mill

- 4 Schneiden Normalverzah D ≤ 22
- 5 Schneiden 22 < D ≤ 30
- 6 Schneiden D > 30
- Weldon Schaft

Schruppfräser

- 4 denti a passo nomale D ≤ 22
- 5 denti 22 < D ≤ 30
- 6 denti D > 30
- Codolo cilindrico Weldon

Fresa a sgrossare

- 4 lèvres pas normal D ≤ 22
- 5 lèvres 22 < D ≤ 30
- 6 lèvres D > 30
- Queue Weldon

Fraise ébauche

- 4 skærs groft fortandet D ≤ 22
- 5 skærs 22 < D ≤ 30
- 6 skærs D > 30
- Weldon skaft

Skrub fræsere

- 4 skär grovskrubb D ≤ 22
- 5 skär 22 < D ≤ 30
- 6 skär D > 30
- Weldon

Skrubbfräs

- 4 labios paso amplio D ≤ 22
- 5 labios 22 < D ≤ 30
- 6 labios D > 30
- Mango weldon

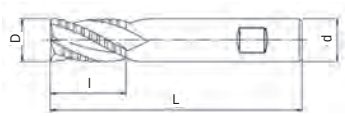
Fresas de desbastar

- 4 кромки с крупной насечкой D ≤ 22
- 5 кромок 22 ≤ D ≤ 30
- 6 кромок D > 30
- Хвостовик с лыской

Черновые концевые фрезы



HSS-Co | V | 30° | CC | DIN 844 | min⁻¹ E.64-65



EDP	D	L	l	d	Stock	Price
2001801720	6	57	13	6	●	
2002800540	7	66	16	10	●	
2001801730	8	69	19	10	●	
2002801200	9	69	19	10	●	
2001801740	10	72	22	10	●	
2002800550	11	79	22	12	●	
2001801750	12	83	26	12	●	
2002800560	13	83	26	12	●	
2001801760	14	83	26	12	●	
2002801210	15	83	26	12	●	
2001801770	16	92	32	16	●	
2002801220	18	92	32	16	●	
2001801780	20	104	38	20	●	
2001801790	22	104	38	20	●	
2001801800	24	121	45	25	●	
2001801810	25	121	45	25	●	
2002801610	26	121	45	25	●	
2002802020	28	121	45	25	●	
2001801820	30	121	45	25	●	
2001801830	32	133	53	32	●	
2003801040	35	133	53	32	●	
2001801840	40	143	63	32	●	



GO TO LIVE STOCK CHECK

- 4 flutes coarse pitch D ≤ 22
- 5 flutes 22 < D ≤ 30
- 6 flutes D > 30
- Flatted shank

Roughing end mill

- 4 Schneiden Normalverzah D ≤ 22
- 5 Schneiden 22 < D ≤ 30
- 6 Schneiden D > 30
- Weldon Schaft

Schruppfräser

- 4 denti a passo nomale D ≤ 22
- 5 denti 22 < D ≤ 30
- 6 denti D > 30
- Codolo cilindrico Weldon

Fresa a sgrossare

- 4 lèvres pas normal D ≤ 22
- 5 lèvres 22 < D ≤ 30
- 6 lèvres D > 30
- Queue Weldon

Fraise ébauche

- 4 skærs groft fortandet D ≤ 22
- 5 skærs 22 < D ≤ 30
- 6 skærs D > 30
- Weldon skaft

Skrub fræsere

- 4 skär grovskrubb D ≤ 22
- 5 skär 22 < D ≤ 30
- 6 skär D > 30
- Weldon

Skrubbfräs

- 4 labios paso amplio D ≤ 22
- 5 labios 22 < D ≤ 30
- 6 labios D > 30
- Mango weldon

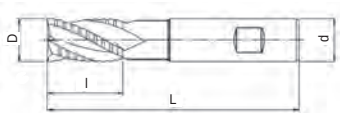
Fresas de desbastar

- 4 кромки с крупной насечкой D ≤ 22
- 5 кромок 22 ≤ D ≤ 30
- 6 кромок D > 30
- Хвостовик с лыской

Черновые концевые фрезы



HSS-Co | 30° | CC | DIN 844 | min⁻¹ E.64-65



EDP	D	L	l	d	Stock	Price
27820912	6	57	13	6	●	
27820915	7	66	16	10	●	
27820918	8	69	19	10	●	
27820921	9	69	19	10	●	
27820924	10	72	22	10	●	
27820926	11	79	22	12	●	
27820929	12	83	26	12	●	
27820932	13	83	26	12	●	
27820935	14	83	26	12	●	
27820937	15	83	26	12	●	
27820940	16	92	32	16	●	
27820945	18	92	32	16	●	
27820950	20	104	38	20	●	
27820952	22	104	38	20	●	
27820954	24	121	45	25	●	
27820955	25	121	45	25	●	
27820956	26	121	45	25	●	
27820958	28	121	45	25	●	
27820960	30	121	53	25	●	
27820961	32	133	53	32	●	
27820963	35	133	53	32	●	
27821966	40	143	63	32	●	

HSS

● Delivery from stock
○ Available on short notice



- 4 flutes coarse pitch
- Flatted shank

Roughing end mill

- 4 Schneiden Normalverzahnung
- Weldon Schaft

Schruppfräser

- 4 denti a passo normale
- Codolo cilindrico Weldon

Fresa a sgrossare

- 4 lèvres pas normal
- Queue Weldon

Fraise ébauche

- 4 skær, groft fortandet
- Weldon skaft

Skrub fræsere

- 4 skär grovskrubb
- Weldon

Skrubbfräs

- 4 labios paso amplio
- Mango weldon

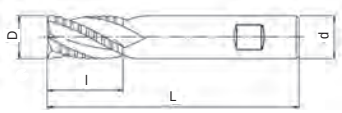
Fresas de desbastar

- 4 кромки с крупной насечкой
- Хвостовик с лыской

Черновые концевые фрезы



HSS-Co | V | 30° | C C | DIN 844



EDP	D	L	l	d	Stock	Price
2002800740	8	88	38	10	●	
2002800750	10	95	45	10	●	
2002800760	12	110	53	12	●	
2002801840	14	110	53	12	●	
2002800770	16	123	63	16	●	
2002800780	18	123	63	16	●	
2002800790	20	141	75	20	●	



- 4 flutes coarse pitch
- Flatted shank

Roughing end mill

- 4 Schneiden Normalverzahnung
- Weldon Schaft

Schruppfräser

- 4 denti a passo normale
- Codolo cilindrico Weldon

Fresa a sgrossare

- 4 lèvres pas normal
- Queue Weldon

Fraise ébauche

- 4 skær, groft fortandet
- Weldon skaft

Skrub fræsere

- 4 skär grovskrubb
- Weldon

Skrubbfräs

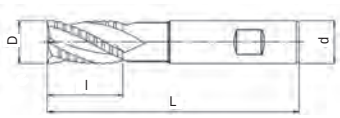
- 4 labios paso amplio
- Mango weldon

Fresas de desbastar

- 4 кромки с крупной насечкой
- Хвостовик с лыской

Черновые концевые фрезы

HSS-Co | 30° | C C | DIN 844



EDP	D	L	l	d	Stock	Price
2089665840	8	88	38	10	●	
2089665850	10	95	45	10	●	
2089665860	12	110	53	12	●	
2089665870	14	110	53	12	●	
2089665880	16	123	63	16	●	
2000800020	18	123	63	16	●	
2089665890	20	141	75	20	●	

● Delivery from stock
○ Available on short notice



- 4 flutes coarse pitch D ≤ 22
- 5 flutes 22 < D ≤ 30
- 6 flutes D > 30
- Flatted shank

Semi finishing end mill

- 4 Schneiden Normalverzahnung D ≤ 22
- 5 Schneiden 22 < D ≤ 30
- 6 Schneiden D > 30
- Weldon Schaft

Vorschlichtfräser

- 4 denti a passo nomale D ≤ 22
- 5 denti 22 < D ≤ 30
- 6 denti D > 30
- Codolo cilindrico Weldon

Fresa a demi-finitura

- 4 lèvres pas normal D ≤ 22
- 5 lèvres 22 < D ≤ 30
- 6 lèvres D > 30
- Queue Weldon

Fraise semi-finition

- 4 skær, groft fortandet D ≤ 22
- 5 skærs 22 < D ≤ 30
- 6 skærs D > 30
- Weldon skaft

Skrub fræsere

- 4 skær grovskrubb D ≤ 22
- 5 skär 22 < D ≤ 30
- 6 skär D > 30
- Weldon

Semi finishing end mill

- 4 labios paso amplio D ≤ 22
- 5 labios 22 < D ≤ 30
- 6 labios D > 30
- Mango weldon

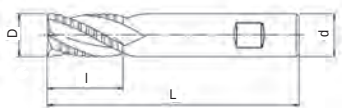
Fresas de desbastar

- 4 кромки с крупной насечкой D ≤ 22
- 5 кромок 22 ≤ D ≤ 30
- 6 кромок D > 30
- Хвостовик с лыской

Черновые концевые фрезы



HSS-Co | V | 25° | CC | DIN 844 | min⁻¹ E.64-65



EDP	D	L	l	d	Stock	Price
2003805600	6	57	13	6	●	
2003805620	8	69	19	10	●	
2003805660	12	83	26	12	●	
2003805760	28	121	45	25	●	
2003805780	32	133	53	32	●	
2003805800	40	143	63	32	●	



GO TO LIVE STOCK CHECK

■ 4 flutes coarse pitch D ≤ 22
■ 5 flutes 22 < D ≤ 30
■ 6 flutes D > 30

■ Flatted shank

Semi finishing end mill

■ 4 Schneiden Normalverzahnung D ≤ 22
■ 5 Schneiden 22 < D ≤ 30
■ 6 Schneiden D > 30

■ Weldon Schaft

Vorschlichtfräser

■ 4 denti a passo nomale D ≤ 22
■ 5 denti 22 < D ≤ 30
■ 6 denti D > 30

■ Codolo cilindrico Weldon

Fresa a demi-finitura

■ 4 lèvres pas normal D ≤ 22
■ 5 lèvres 22 < D ≤ 30
■ 6 lèvres D > 30

■ Queue Weldon

Fraise semi-finition

■ 4 skær, groft fortandet D ≤ 22
■ 5 skærs 22 < D ≤ 30
■ 6 skærs D > 30

■ Weldon skaft

Skrub fræsere

■ 4 skær grovskrubb D ≤ 22
■ 5 skär 22 < D ≤ 30
■ 6 skär D > 30

■ Weldon

Semi finishing end mill

■ 4 labios paso amplio D ≤ 22
■ 5 labios 22 < D ≤ 30
■ 6 labios D > 30

■ Mango weldon

Fresas de desbastar

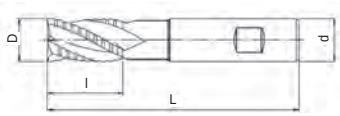
■ 4 кромки с крупной насечкой D ≤ 22
■ 5 кромок 22 ≤ D ≤ 30
■ 6 кромок D > 30

■ Хвостовик с лыской

Черновые концевые фрезы



HSS-Co | V | 25° | C C | DIN 844



EDP	D	L	l	d	Stock	Price
2002801870	10	95	45	10	●	
2002801880	12	110	53	12	●	
2002801890	14	110	53	12	●	
2003805510	15	110	53	12	●	
2002801900	16	123	63	16	●	
2002801910	18	123	63	16	●	
2002802150	20	141	75	20	●	
2002802160	22	141	75	20	●	
2003805530	25	166	90	25	●	
2003805570	32	186	106	32	●	
2003805590	40	205	125	32	●	

HSS

● Delivery from stock
○ Available on short notice

V-XPM-WEBDS



HIGH PERFORMANCE
- 2 flutes
- Flatted shank

Ball nose end mill

HIGH PERFORMANCE
- 2 Schneiden
- Weldon Schaft

Kopierfräser

ALTA PRESTAZIONE
- 2 denti
- Codolo cilindrico Weldon

Fresa sferiche

HAUTE PERFORMANCE
- 2 lèvres
- Queue Weldon

Fraise hémisphérique

HIGH PERFORMANCE
- 2 skær
- Weldon skaft

Radius fræsere

HIGH PERFORMANCE
- 2 skär
- Weldon

Fullradie fräsar

ALTO RENDIMIENTO
- 2 labios
- Mango weldon

Fresas de punta esférica

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Хвостовик с лыской

Сферические концевые фрезы

HSS-Co | V | 35° | CC | DIN 327 | min⁻¹ E.58



EDP	D	L	l	d	Stock	Price
94025903	3	49	5	6	●	
94025906	4	51	7	6	●	
94025909	5	52	8	6	●	
94025912	6	52	8	6	●	
94025918	8	61	11	10	●	
94025924	10	63	13	10	●	
94025929	12	73	16	12	●	
94025935	14	73	16	12	●	
94025940	16	79	19	16	●	
94025945	18	79	19	16	●	
94025950	20	88	22	20	●	
94025955	25	102	26	25	●	



HIGH PERFORMANCE
- 2 flutes
- Flatted shank

Ball nose end mill

HIGH PERFORMANCE
- 2 Schneiden
- Weldon Schaft

Kopierfräser

ALTA PRESTAZIONE
- 2 denti
- Codolo cilindrico Weldon

Fresa sferiche

HAUTE PERFORMANCE
- 2 lèvres
- Queue Weldon

Fraise hémisphérique

HIGH PERFORMANCE
- 2 skær
- Weldon skaft

Radius fræsere

HIGH PERFORMANCE
- 2 skär
- Weldon

Fullradie fräsar

ALTO RENDIMIENTO
- 2 labios
- Mango weldon

Fresas de punta esférica

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Хвостовик с лыской

Сферические концевые фрезы





EDP	D	L	l	d	Stock	Price
2002802120	2	48	4	6	●	
2003801080	3	49	5	6	●	
2003801090	4	51	7	6	●	
2002800570	5	52	8	6	●	
2002801630	6	52	8	6	●	
2003801100	7	60	10	10	●	
2002801620	8	61	11	10	●	
2003801110	9	61	11	10	●	
2002800580	10	63	13	10	●	
2003801120	11	70	13	12	●	
2002801370	12	73	16	12	●	
2003801130	13	73	16	12	●	
2003801140	14	73	16	12	●	
2003801150	15	73	16	12	●	
2002801380	16	79	19	16	●	
2003801160	17	79	19	16	●	
2003801170	18	79	19	16	●	
2003801180	19	79	19	16	●	
2002801390	20	88	22	20	●	
2003801200	24	102	26	25	●	
2003801210	25	102	26	25	●	
2003801230	28	102	26	25	●	
2003801240	30	102	26	25	●	

● Delivery from stock
○ Available on short notice



HIGH PERFORMANCE
- 2 flutes
- Flatted shank

Ball nose end mill

HIGH PERFORMANCE
- 2 Schneiden
- Weldon Schaft

Kopierfräser

ALTA PRESTAZIONE
- 2 denti
- Codolo cilindrico Weldon

Fresa sferiche

HAUTE PERFORMANCE
- 2 lèvres
- Queue Weldon

Fraise hémisphérique

HIGH PERFORMANCE
- 2 skær
- Weldon skaft

Radius fræsere

HIGH PERFORMANCE
- 2 skär
- Weldon

Fullradie fräsar

ALTO RENDIMIENTO
- 2 labios
- Mango weldon

Fresas de punta esférica

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- 2 режущих кромки
- Хвостовик с лыской

Сферические концевые фрезы

HSS-Co | 30° | CC | DIN 327 | min⁻¹ E.58



EDP	D	L	l	d	Stock	Price
24020901	2	48	4	6	●	
24020903	3	49	5	6	●	
24020906	4	51	7	6	●	
24020909	5	52	8	6	●	
24020912	6	52	8	6	●	
24020915	7	60	10	10	●	
24020918	8	61	11	10	●	
24020921	9	61	11	10	●	
24020924	10	63	13	10	●	
24020926	11	70	13	12	●	
24020929	12	73	16	12	●	
24020932	13	73	16	12	●	
24020935	14	73	16	12	●	
24020937	15	73	16	12	●	
24020940	16	79	19	16	●	
24020942	17	79	19	16	●	
24020945	18	79	19	16	●	
24020947	19	79	19	16	●	
24020950	20	88	22	20	●	
24020954	24	102	26	25	●	
24020955	25	102	26	25	●	
24020958	28	102	26	25	●	
24020960	30	102	26	25	●	



GO TO LIVE STOCK CHECK

- 4 flutes
- Flatted shank

Ball nose end mill

- 4 Schneiden
- Weldon Schaft

Kopierfräser

- 4 denti
- Codolo cilindrico Weldon

Fresa sferiche

- 4 lèvres
- Queue Weldon

Fraise hémisphérique

- 4 skær
- Weldon skaft

Radius fræsere

- 4 skär
- Weldon

Fullradie fräsar

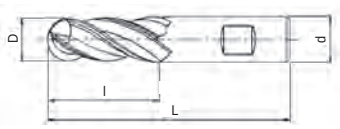
- 4 labios
- Mango weldon

Fresas de punta esférica

- 4 режущих кромки
- Хвостовик с лыской

Сферические концевые фрезы

HSS-Co | V | 30° | CC | DIN 1889 | min⁻¹ E.58



EDP	D	L	l	d	Stock	Price
2003801260	6	57	13	6	●	
2003801270	10	72	22	10	●	
2003801280	12	83	26	12	●	
2003801290	16	92	32	16	●	
2003801300	20	104	38	20	●	

HSS

● Delivery from stock
○ Available on short notice



GO TO LIVE STOCK CHECK

- 4 flutes
- Flatted shank

Ball nose end mill

- 4 Schneiden
- Weldon Schaft

Kopierfräser

- 4 denti
- Codolo cilindrico Weldon

Fresa sferiche

- 4 lèvres
- Queue Weldon

Fraise hémisphérique

- 4 skær
- Weldon skaft

Radius fræsere

- 4 skär
- Weldon

Fullradie fräsar

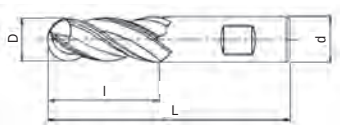
- 4 labios
- Mango weldon

Fresas de punta esférica

- 4 режущих кромки
- Хвостовик с лыской

Сферические концевые фрезы

HSS-Co | 30° | CC | DIN 1889 | min⁻¹ E.58

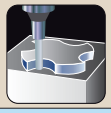


EDP	D	L	l	d	Stock	Price
26620924	10	72	22	10	●	
26620929	12	83	26	12	●	
26620940	16	92	32	16	●	
26620950	20	104	38	20	●	

HSS

AL-WEDS

Slotting - Nutenfräsen - Scanalatura - Rainurage / Roughing - Schruppen - Sgrossatura - Ebauche
Sporfræsning -Spårfräsning - Ranurado - Пазовое / Skrubfræsning - Grovfräsning - Desbaste - Черновая обработка

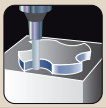


	AU4G Aluminium alloys < 6% Si Magnesium alloys			AS7 Aluminium alloys < 6% S			Thermoplastics			Cu2 Copper alloys		
Vc	180 m/min			75 m/min			180 m/min			75 m/min		
Ø	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**
3	19.099	344	0,006	7.958	143	0,006	19.099	344	0,006	7.958	143	0,006
4	14.324	344	0,008	5.968	143	0,008	14.324	344	0,008	5.968	143	0,008
5	11.459	344	0,010	4.775	143	0,010	11.459	344	0,010	4.775	143	0,010
6	9.549	430	0,015	3.979	179	0,015	9.549	430	0,015	3.979	179	0,015
8	7.162	537	0,025	2.984	224	0,025	7.162	537	0,025	2.984	224	0,025
10	5.730	602	0,035	2.387	251	0,035	5.730	602	0,035	2.387	251	0,035
12	4.775	716	0,050	1.989	298	0,050	4.775	716	0,050	1.989	298	0,050
14	4.093	675	0,055	1.705	281	0,055	4.093	675	0,055	1.705	281	0,055
16	3.581	645	0,060	1.492	269	0,060	3.581	645	0,060	1.492	269	0,060
18	3.183	668	0,070	1.326	279	0,070	3.183	668	0,070	1.326	279	0,070
20	2.865	645	0,075	1.194	269	0,075	2.865	645	0,075	1.194	269	0,075

These parameters are for use with cutting-depth of 0,5 D and a cutting-width of 1 D	Questi parametri si intendono per un utilizzo con profondità di taglio di 0,5 D ed una larghezza di taglio di 1 D
Diese Schnittdaten sind für eine Frästiefe von 0,5 D und eine Nutenbreite von 1 D	Ces paramètres sont pour une profondeur de passe de 0,5 D sur une largeur de passe de 1 D
Disse parametre er til brug ved en spåndybde på 0,5 D og en bredde på 1 D	Parámetros para usar con profundidad de pasada 0,5 D y ancho de 1 D
Dessa parametrar används vid ett skärdjup av 0,5 D och sidoskär av 1 D	Эти параметры для глубины фрезерования 0,5 D и ширины фрезерования 1 D

AL-WREES

Slotting - Nutenfräsen - Scanalatura - Rainurage / Roughing - Schruppen - Sgrossatura - Ebauche
Sporfræsning -Spårfräsning - Ranurado - Пазовое / Skrubfræsning - Grovfräsning - Desbaste - Черновая обработка

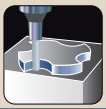


	AU4G Aluminium alloys < 6% Si Magnesium alloys			AS7 Aluminium alloys < 6% S			Thermoplastics			Cu2 Copper alloys		
Vc	180 m/min			75 m/min			180 m/min			75 m/min		
Ø	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**
6	9.549	716	0,025	3.979	239	0,020	9.549	716	0,025	3.979	239	0,020
8	7.162	967	0,045	2.984	313	0,035	7.162	967	0,045	2.984	313	0,035
10	5.730	1031	0,060	2.387	322	0,045	5.730	1031	0,060	2.387	322	0,045
12	4.775	1218	0,085	1.989	448	0,075	4.775	1218	0,085	1.989	448	0,075
14	4.093	1166	0,095	1.705	409	0,080	4.093	1166	0,095	1.705	409	0,080
16	3.581	1074	0,100	1.492	380	0,085	3.581	1074	0,100	1.492	380	0,085
18	3.183	1146	0,120	1.326	398	0,100	3.183	1146	0,120	1.326	398	0,100
20	2.865	1160	0,135	1.194	412	0,115	2.865	1160	0,135	1.194	412	0,115
22	2.604	1133	0,145	1.085	407	0,125	2.604	1133	0,145	1.085	407	0,125
25	2.292	1100	0,160	955	372	0,130	2.292	1100	0,160	955	372	0,130
30	1.910	1146	0,200	796	358	0,150	1.910	1146	0,200	796	358	0,150

These parameters are for use with cutting-depth of 1 D and a cutting-width of 1 D	Questi parametri si intendono per un utilizzo con profondità di taglio di 1 D ed una larghezza di taglio di 1D
Diese Schnittdaten sind für eine Frästiefe von 1 D und eine Nutenbreite von 1 D	Ces paramètres sont pour une profondeur de passe de 1 D sur une largeur de passe de 1 D
Disse parametre er til brug ved en spåndybde på 1 D og en bredde på 1 D	Parámetros para usar con profundidad de pasada 1 D y ancho de 1 D
Dessa parametrar används vid ett skärdjup av 1 D och sidoskär av 1 D	Эти параметры для глубины фрезерования 1 D и ширины фрезерования 1 D

VP-RESF-SP

Slotting - Nutenfräsen - Scanalatura - Rainurage / Roughing - Schruppen - Sgrossatura - Ebauche
Sporfræsning -Spårfräsning - Ranurado - Пазовое / Skrubfræsning - Grovfräsning - Desbaste - Черновая обработка

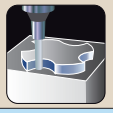


		E24 ■ XC48 Fonte GG25 490 ~ 750 MPA Low carbon steels, cast iron			35NCD16 ■ 40CMD8 750 ~ 1100 MPA Alloy steels, tool steels			316 ■ 304 800 MPA Stainless steels			Z38CDV5 ■ Z40CDV5 40 HRC Treated & pretreated steels		
Vc		53 m/min			45 m/min			25 m/min			40 m/min		
Nb. flutes	**Ø**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**
3	**8**	2.109	633	0,100	1.790	537	0,100	995	298	0,100	1.592	477	0,100
3	**10**	1.687	506	0,100	1.432	430	0,100	796	239	0,100	1.273	382	0,100
3	**12**	1.406	506	0,120	1.194	430	0,120	663	239	0,120	1.061	382	0,120
3	**16**	1.054	380	0,120	895	322	0,120	497	179	0,120	796	286	0,120
3	**20**	844	329	0,130	716	279	0,130	398	155	0,130	560	218	0,130
3	**25**	675	283	0,140	573	223	0,130	318	134	0,140	450	189	0,140
4	**25**	400	208	0,130	420	218	0,130	220	114	0,130	400	192	0,120

These parameters are for use with cutting-depth of 0,8 D and a cutting-width of 1 D. For the end mill dia 25 mm 4 flutes, the cutting depth may not exceed 0.5D.	Questi parametri si intendono per un utilizzo con profondità di taglio di 0.8 D ed una larghezza di taglio di 1D. Per le frese D.25 mm a 4 denti, la profondità di taglio non deve superare 0,5 D.
Diese Schnittdaten sind für eine Frästiefe von 0,8 D und eine Nutenbreite von 1 D. Für Schaftfräser D25 (4Schneiden) sollte die Schnitttiefe max. 0,5 D sein.	Ces paramètres sont pour une profondeur de passe de 0,8 D sur une largeur de passe de 1 D. Pour la fraise dia 25mm en 4 dents, la profondeur de passe ne devra pas dépasser 0.5D.
Disse parametre er ved spåndybde af 0,8 D og bredde af 1 D For fræseren diameter 25 mm med 4 skær, må spåndybde ikke overstige 0,5 D	Parámetros para usar con profundidad de pasada 0,8 D y ancho de 1 D Para la fresa D 25 mm con 4 labios, no exceder la profundidad de corte de 0,5D
Dessa parametrar används vid ett skärdjup av 0,8 D och sidoskär av 1 D För fräsar med Ø 25mm och 4 skär bör inte skärdjupet överstiga 0,5 D	Эти параметры для глубины фрезерования 0,8 D и ширины фрезерования 1 D Для фрез диаметром 25 мм с четырьмя зубами, глубина фрезерования не должна превышать 0,5 D

VPS-EMS

Side milling - Konturfräsen - Conturnatura - Coutournage / Semi-finishing - Semi-finitura - Semi-finition - Semi-finition
Sidefræsning - Valsfräsning - Contorneado - Боковое фрезерование / Sletfræsning - Finfräsning - Acabado - Получистовая

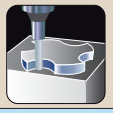


		E24 ■ XC48 Fonte GG25 490 ~ 750 MPA Low carbon steels, cast iron			35NCD16 ■ 40CMD8 750 ~ 1100 MPA Alloy steels, tool steels			316 ■ 304 800 MPA Stainless steels			Z38CDV5 ■ Z40CDV5 38 ~ 45 HRC Treated & pretreated steels			Inconel ■ Hastelloy 35 ~ 43 HRC Steel alloys, Nickel base			TA6V 900 ~ 1100 MPA Alloy titanium		
Vc		50 m/min			40 m/min			35 m/min			30 m/min			15 m/min			20 m/min		
nb. flutes	Ø	S (min-1)	F (mm/min)	AZ (mm)	S (min-1)	F (mm/min)	AZ (mm)	S (min-1)	F (mm/min)	AZ (mm)	S (min-1)	F (mm/min)	AZ (mm)	S (min-1)	F (mm/min)	AZ (mm)	S (min-1)	F (mm/min)	AZ (mm)
6	10	1.592	573	0,060	1.273	458	0,060	1.114	401	0,060	955	344	0,060	477	172	0,060	637	229	0,060
6	12	1.326	637	0,080	1.061	509	0,080	928	446	0,080	796	382	0,080	398	191	0,080	531	255	0,080
6	16	995	537	0,090	796	430	0,090	696	376	0,090	597	322	0,090	298	161	0,090	398	215	0,090
6	20	796	430	0,090	637	344	0,090	557	301	0,090	477	258	0,090	239	129	0,090	318	172	0,090
6	25	637	382	0,100	509	306	0,100	446	267	0,100	382	229	0,100	191	115	0,100	255	153	0,100
6	30	531	318	0,100	424	255	0,100	371	223	0,100	318	191	0,100	159	95	0,100	212	127	0,100
10	12	1.326	928	0,070	1.061	743	0,070	928	650	0,070	796	557	0,070	398	279	0,070	531	371	0,070
10	16	995	796	0,080	796	637	0,080	696	557	0,080	597	477	0,080	298	239	0,080	398	318	0,080
10	20	796	716	0,090	637	573	0,090	557	501	0,090	477	430	0,090	239	215	0,090	318	286	0,090
10	25	637	637	0,100	509	509	0,100	446	446	0,100	382	382	0,100	191	191	0,100	255	255	0,100
10	30	531	531	0,100	424	424	0,100	371	371	0,100	318	318	0,100	159	159	0,100	212	212	0,100

These parameters are for use with cutting-depth of 1.5 D and a cutting-width of 0,04 D	Questi parametri si intendono per un utilizzo con profondità di taglio di 1,5 D ed una larghezza di taglio di 0,04 D
Diese Schnittdaten sind für eine Frästiefe von 1,5 D und eine Nutenbreite von 0,04 D	Ces paramètres sont pour une profondeur de passe de 1.5 D sur une largeur de passe de 0,04 D
Disse parametre er ved spåndybde af 1,5 D og bredde af 0,04 D	Parámetros para usar con profundidad de pasada 1,5 D y ancho de 0,04 D
Dessa parametrar används vid ett skärdjup av 1,5 D och sidoskär av 0,04 D	Эти параметры для глубины фрезерования 1,5 D и ширины фрезерования 0,04 D

VPS-EMS

Side milling - Konturfräsen - Conturnatura - Coutournage / Finishing - Finitura - Finition - Finition
Sidefræsning - Valsfräsning - Contorneado - Боковое фрезерование / Sletfræsning - Finfräsning - Acabado - Получистовая



		E24 ■ XC48 Fonte GG25 490 ~ 750 MPA Low carbon steels, cast iron			35NCD16 ■ 40CMD8 750 ~ 1100 MPA Alloy steels, tool steels			316 ■ 304 800 MPA Stainless steels			Z38CDV5 ■ Z40CDV5 38 ~ 45 HRC Treated & pretreated steels			Inconel ■ Hastelloy 35 ~ 43 HRC Steel alloys, Nickel base			TA6V 900 ~ 1100 MPA Alloy titanium		
Vc		50 m/min			40 m/min			35 m/min			30 m/min			15 m/min			20 m/min		
nb. flutes	Ø	S (min-1)	F (mm/min)	AZ (mm)	S (min-1)	F (mm/min)	AZ (mm)	S (min-1)	F (mm/min)	AZ (mm)	S (min-1)	F (mm/min)	AZ (mm)	S (min-1)	F (mm/min)	AZ (mm)	S (min-1)	F (mm/min)	AZ (mm)
6	10	1.592	286	0,030	1.273	229	0,030	1.114	201	0,030	955	172	0,030	477	86	0,030	637	115	0,030
6	12	1.326	318	0,040	1.061	255	0,040	928	223	0,040	796	191	0,040	398	95	0,040	531	127	0,040
6	16	995	239	0,040	796	191	0,040	696	167	0,040	597	143	0,040	298	72	0,040	398	95	0,040
6	20	796	239	0,050	637	191	0,050	557	167	0,050	477	143	0,050	239	72	0,050	318	95	0,050
6	25	637	229	0,060	509	183	0,060	446	160	0,060	382	138	0,060	191	69	0,060	255	92	0,060
6	30	531	223	0,070	424	178	0,070	371	156	0,070	318	134	0,070	159	67	0,070	212	89	0,070
10	12	1.326	398	0,030	1.061	318	0,030	928	279	0,030	796	239	0,030	398	119	0,030	531	159	0,030
10	16	995	398	0,040	796	318	0,040	696	279	0,040	597	239	0,040	298	119	0,040	398	159	0,040
10	20	796	398	0,050	637	318	0,050	557	279	0,050	477	239	0,050	239	119	0,050	318	159	0,050
10	25	637	382	0,060	509	306	0,060	446	267	0,060	382	229	0,060	191	115	0,060	255	153	0,060
10	30	531	371	0,070	424	297	0,070	371	260	0,070	318	223	0,070	159	111	0,070	212	149	0,070

These parameters are for use with cutting-depth of 1.5 D and a cutting-width of 0,025 D	Questi parametri si intendono per un utilizzo con profondità di taglio di 1,5 D ed una larghezza di taglio di 0,025 D
Diese Schnittdaten sind für eine Frästiefe von 1,5 D und eine Nutenbreite von 0,025 D	Ces paramètres sont pour une profondeur de passe de 1.5 D sur une largeur de passe de 0,025 D
Disse parametre er ved spåndybde af 1,5 D og bredde af 0,025 D	Parámetros para usar con profundidad de pasada1,5 D y ancho de 0,025 D
Dessa parametrar används vid ett skärdjup av 1,5 D och sidoskär av 0,025 D	Эти параметры для глубины фрезерования 1,5 D и ширины фрезерования 0,025 D

V-XPM-WEBDS - (V-)WEBDS - (V-)WEBMS

Slotting - Nutenfräsen - Scanalatura - Rainurage / Finishing - Finitura - Finition - Finition
Sporfræsning - Spårfräsning - Ranurado - Фрезерование пазов / Sletfræsning - Finfräsning - Acabado - Чистовая обработка



	E24 ■ XC48 Fonte GG25 490 ~ 750 MPA Low carbon steels, cast iron			35NCD16 ■ 40CMD8 750 ~ 1100 MPA Alloy steels, tool steels			316 ■ 304 800 MPA Stainless steels			Z38CDV5 ■ Z40CDV5 38 ~ 45 HRC Treated & pretreated steels			Inconel ■ Hastelloy 35 ~ 43 HRC Steel alloys, Nickel base			TA6V 900 ~ 1100 MPA Alloy titanium		
Vc	70 m/min			55 m/min			40 m/min			40 m/min			20 m/min			27 m/min		
nb. flutes	**Ø**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**
2	**3**	7.427	386	0,026	5.836	303	0,026	4.244	221	0,026	4.244	221	0,026	2.122	110	0,026	2.865	149	0,026
2	**4**	5.570	490	0,044	4.377	385	0,044	3.183	280	0,044	3.183	280	0,044	1.592	140	0,044	2.149	189	0,044
2	**5**	4.456	535	0,060	3.501	420	0,060	2.546	306	0,060	2.546	306	0,060	1.273	153	0,060	1.719	206	0,060
2	**6**	3.714	557	0,075	2.918	438	0,075	2.122	318	0,075	2.122	318	0,075	1.061	159	0,075	1.432	215	0,075
2	**8**	2.785	696	0,125	2.188	547	0,125	1.592	398	0,125	1.592	398	0,125	796	199	0,125	1.074	269	0,125
2	**10**	2.228	624	0,140	1.751	490	0,140	1.273	357	0,140	1.273	357	0,140	637	178	0,140	859	241	0,140
2	**12**	1.857	594	0,160	1.459	467	0,160	1.061	340	0,160	1.061	340	0,160	531	170	0,160	716	229	0,160
2	**14**	1.592	573	0,180	1.251	450	0,180	909	327	0,180	909	327	0,180	455	164	0,180	614	221	0,180
2	**16**	1.393	557	0,200	1.094	438	0,200	796	318	0,200	796	318	0,200	398	159	0,200	537	215	0,200
2	**18**	1.238	545	0,220	973	428	0,220	707	311	0,220	707	311	0,220	354	156	0,220	477	210	0,220
2	**20**	1.114	557	0,250	875	438	0,250	637	318	0,250	637	318	0,250	318	159	0,250	430	215	0,250
2	**25**	891	481	0,270	700	378	0,270	509	275	0,270	509	275	0,270	255	138	0,270	344	186	0,270
2	**30**	743	431	0,290	584	338	0,290	424	246	0,290	424	246	0,290	212	123	0,290	286	166	0,290

These parameters are for use with cutting-depth of 0.1 mm and for end mills ø 3 and 4.
These parameters are for use with cutting-depth of 0.2 mm and for end mills ø 4 to 8.
These parameters are for use with cutting-depth of 0.3 mm and for end mills ø 8 to 30.
For alu. alloys < 6% Si, please use feed/flute as indicated in the colomn by X by 3 times the cutting speed.
For copper alloys, please use the feed/flute as indicated in the colomn by X by 2 times the cutting speed.
For V-WEBDS and V-WEBMS, reduce cutting speed by 20% and feed/flute by 10%.
For WEBDS and WEBMS, reduce cutting speed by 30% and feed/flute by 10%

Questi parametri si intendono per un utilizzo con una profondità di taglio di 0,1 mm e per frese D. 3 e D. 4.
Questi parametri si intendono per un utilizzo con una profondità di taglio di 0,2 mm e per frese D. 4 e D. 8.
Questi parametri si intendono per un utilizzo con una profondità di taglio di 0,3 mm e per frese D. 8 e D. 30.
Per le leghe di alluminio, usate avanzamento/denti come indicato nella colonna della tabella con “X” per 3 volte la velocità di taglio.
Per le leghe di Rame, usate avanzamento/denti come indicato nella colonna della tabella con “X” per 2 volte la velocità di taglio.
Per le V-WEBDS and V-WEBMS, ridurre la velocità di taglio del 20% e avanzamento/denti del 10%.
Per le WEBDS and WEBMS, ridurre la velocità di taglio del 30% e avanzamento/denti del 10%.

Diese Schnittdaten sind für eine Frästiefe von 0,1 mm und fur Kopierfräsen dia 3 und 4.
Diese Schnittdaten sind für eine Frästiefe von 0,2 mm und fur Kopierfräsen dia 4 bis 8.
Diese Schnittdaten sind für eine Frästiefe von 0,3 mm und fur Kopierfräsen dia 8 bis 30.
Für Aluminium-Legierungen < 6%, bitte den Vorschub pro Schneide aus Reihe X verwenden und die Schnittgeschwindigkeit mit 3 multiplizieren.
Für Kupfer-Legierungen, bitte den Vorschub pro Schneide aus Reihe X verwenden und die Schnittgeschwindig keit mit 2 multiplizieren.
Für V-WEBDS, V-WEBMS bitte die Schnittgeschwindigkeit 20% reduzieren und den Vorschub pro Schneide um 10%.
Für WEBDS, WEBMS bitte die Schnittgeschwindigkeit 30% reduzieren und den Vorschub pro Schneide um 10%.

Ces paramètres sont pour une profondeur de passe de 0,1 mm pour les ø de fraises 3 et 4.
Ces paramètres sont pour une profondeur de passe de 0,2 mm pour les ø de fraises 4 à 8.
Ces paramètres sont pour une profondeur de passe de 0,3 mm pour les ø de fraises 8 à 30.
Pour les alliages d’alu < 6% Si, veuillez utiliser l’avance/dent indiquée dans la colonne du tableau en X par 3 la vitesse de coupe.
Pour les alliages de cuivre non allié, veuillez utiliser l’avance/dent indiquée dans la colonne du tableau en X par 2 la vitesse de coupe.
Veuillez svp réduire la vitesse de coupe de 20% ainsi que l’avance/dent de 10% pour les fraises V-WEBDS, CEBDS-TiCN, V-WEBMS.
Veuillez svp réduire la vitesse de coupe de 30% ainsi que l’avance/dent de 10% pour les fraises WEBDS, CEBDS, WEBMS.

Disse parametre er ved spåndybde af 0,1 D og for fræser med diameter 3, 4
Disse parametre er ved spåndybde af 0,2 D og for fræser med diameter 4, 5, 6, 7, 8
Disse parametre er ved spåndybde af 0,3 D og for fræser med diameter > 8
For Aluminium legering <6% Si, benyttes tilspænding per tand som noteret i første materialekolonne, mens skærehastigheden multipliceres med x 3.
For Kobber legering, benyttes tilspænding per tand som noteret i første materialekolonne, mens skærehastigheden multipliceres med x 2.
For V-WEBDS, and V-WEBMS, reducer skærehastighed med 20% og tilspænding per tand med 10%
For WEBDS, and WEBMS, reducer skærehastighed med 30% og tilspænding per tand med 10%

Estos parametros son para usar con profundidad de corte de 0,1mm y diametro de fresa. dia 3 - 4
Estos parametros son para usar con profundidad de corte de 0,2mm y diametro de fresa. dia 4 - 8
dia 8 - 30
Para Alum. Aleado < 6% Si, aplique avance por diente como indicado en columna X y 3 veces la velocidad de corte.
Para Cobre Aleado, aplique avance por diente como indicado en columna X y 3 veces la velocidad de corte.
Para V-WEBDS, y V-WEBMS reducir velocidad de corte el 20% y el avance fz el 10%
Para WEBDS, y WEBMS reducir velocidad de corte el 30% y el avance fz el 10%

Dessa parametrar används vid ett skärdjup av 0,1 D och skärdjup av 3, 4
Dessa parametrar används vid ett skärdjup av 0,2 D och skärdjup av 4, 5, 6, 7, 8
Dessa parametrar används vid ett skärdjup av 0,3 D och skärdjup av > 8 mm
För Aluminium legeringar < 6% SI, använd matning/tand som visas i första materialkolumn, medan skärhastigheten multipliceras med x 3
För Koppar legeringar, använd matning/tand som visas i första materialkolumn, medan skärhastigheten multipliceras med x 2
För V-WEBDS and V-WEBMS, reducera skärhastigheten med 20% och matningen/tand med 10%
För WEBDS and WEBMS, reducera skärhastigheten med 30% och matningen/tand med 10%

Эти параметры, для глубины фрезерования 0,1mm фрезами диаметрами 3 - 4 mm.
Эти параметры, для глубины фрезерования 0,2mm фрезами диаметрами 4 - 8 mm.
Эти параметры, для глубины фрезерования 0,3mm фрезами диаметрами 8 - 30 mm.
Для алюминиевых сплавов с содержанием кремния < 6% SI, используйте подачу на зуб как указано, а скорость резания умножьте на 3.
Для медных сплавов используйте подачу на зуб, как указано, а скорость резания умножьте на 2.
Для V-WEBDS и V-WEBMS снизьте скорость резания на 20% и подачу на зуб на 10%.
Для WEBDS, и WEBMS снизьте скорость резания на 30% и подачу на зуб на 10%.

V-XPM-WEDS -(V-)WEDS

Slotting - Nutenfräsen - Scanalatura - Rainurage / Finishing - Finitura - Finition - Finition
Sporfræsning - Spårfräsning - Ranurado - Фрезерование пазов / Sletfræsning - Finfräsning - Acabado - Чистовая обработка



	E24 ■ XC48 Fonte GG25 490 ~ 750 MPA Low carbon steels, cast iron			35NCD16 ■ 40CMD8 750 ~ 1100 MPA Alloy steels, tool steels			316 ■ 304 800 MPA Stainless steels			Z38CDV5 ■ Z40CDV5 38 ~ 45 HRC Treated & pretreated steels			Inconel ■ Hastelloy 35 ~ 43 HRC Steel alloys, Nickel base			TA6V 900 ~ 1100 MPA Alloy titanium		
Vc	55 m/min			45 m/min			25 m/min			30 m/min			15 m/min			22 m/min		
nb. flutes	**Ø**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**
2	**2,0**	8.754	70	0,004	7.162	57	0,004	3.979	32	0,004	4.775	38	0,004	2.387	19	0,004	3.501	28	0,004
2	**2,5**	7.003	63	0,005	5.730	52	0,005	3.183	29	0,005	3.820	34	0,005	1.910	17	0,005	2.801	25	0,005
2	**3,0**	5.836	70	0,006	4.775	57	0,006	2.653	32	0,006	3.183	38	0,006	1.592	19	0,006	2.334	28	0,006
2	**3,5**	5.002	70	0,007	4.093	57	0,007	2.274	32	0,007	2.728	38	0,007	1.364	19	0,007	2.001	28	0,007
2	**4,0**	4.377	70	0,008	3.581	57	0,008	1.989	32	0,008	2.387	38	0,008	1.194	19	0,008	1.751	28	0,008
2	**4,5**	3.890	70	0,009	3.183	57	0,009	1.768	32	0,009	2.122	38	0,009	1.061	19	0,009	1.556	28	0,009
2	**5,0**	3.501	70	0,010	2.865	57	0,010	1.592	32	0,010	1.910	38	0,010	955	19	0,010	1.401	28	0,010
2	**5,5**	3.183	76	0,012	2.604	63	0,012	1.447	35	0,012	1.736	42	0,012	868	21	0,012	1.273	31	0,012
2	**6,0**	2.918	82	0,014	2.387	67	0,014	1.326	37	0,014	1.592	45	0,014	796	22	0,014	1.167	33	0,014
2	**6,5**	2.693	81	0,015	2.204	66	0,015	1.224	37	0,015	1.469	44	0,015	735	22	0,015	1.077	32	0,015
2	**7,0**	2.501	75	0,015	2.046	61	0,015	1.137	34	0,015	1.364	41	0,015	682	20	0,015	1.000	30	0,015
2	**7,5**	2.334	75	0,016	1.910	61	0,016	1.061	34	0,016	1.273	41	0,016	637	20	0,016	934	30	0,016
2	**8,0**	2.188	79	0,018	1.790	64	0,018	995	36	0,018	1.194	43	0,018	597	21	0,018	875	32	0,018
2	**8,5**	2.060	78	0,019	1.685	64	0,019	936	36	0,019	1.123	43	0,019	562	21	0,019	824	31	0,019
2	**9,0**	1.945	78	0,020	1.592	64	0,020	884	35	0,020	1.061	42	0,020	531	21	0,020	778	31	0,020
2	**9,5**	1.843	81	0,022	1.508	66	0,022	838	37	0,022	1.005	44	0,022	503	22	0,022	737	32	0,022
2	**10,0**	1.751	84	0,024	1.432	69	0,024	796	38	0,024	955	46	0,024	477	23	0,024	700	34	0,024

These parameters are for use with cutting-depth of 0,5 D and a cutting-width of 1 D.
For alu. alloys < 6% Si, please use feed/flute as indicated in the colomm by X by 3 times the cutting speed.
For copper alloys, please use the feed/flute as indicated in the colomm by X by 2 times the cutting speed.
For V-WEDS reduce cutting speed by 20% and feed/flute by 10%.
For WEDS reduce cutting speed by 30% and feed/flute by 10%.

Questi parametri si intendono per un utilizzo con una profondità di taglio di 0,5 D ed una larghezza di taglio di 1 D.
Per le leghe di Rame, usate avanzamento/denti come indicato nella colonna della tabella con “X” per 2 volte la velocità di taglio.
Per le V-WEDS, ridurre la velocità di taglio del 20% e avanzamento/denti del 10%. Per le WEDS ridurre la velocità di taglio del 30% e avanzamento/denti del 10%.

Diese Schnittdaten sind für eine Frästiefe von 0,5 D und fur Fräsbreite 1 D.
Für Aluminium-Legierungen < 6%, bitte den Vorschub pro Schneide aus Reihe X verwenden und die Schnittgeschwindigkeit mit 3 multiplizieren.
Für Kupfer-Legierungen, bitte den Vorschub pro Schneide aus Reihe X verwenden und die Schnittgeschwindig keit mit 2 multiplizieren.
Für V-WEDS bitte die Schnittgeschwindigkeit 20% reduzieren und den Vorschub pro Schneide um 10%.
Für WEDS bitte die Schnittgeschwindigkeit 30% reduzieren und den Vorschub pro Schneide um 10%.

Ces paramètres sont pour une profondeur de passe de 0,5 D sur une largeur de passe de 1 D. Pour les alliages d’alu < 6% Si, veuillez utiliser l’avance/dent indiquée dans la colonne du tableau en X par 3 la vitesse de coupe.
Pour les alliages de cuivre non allié, veuillez utiliser l’avance/dent indiquée dans la colonne du tableau en X par 2 la vitesse de coupe.
Veuillez svp réduire la vitesse de coupe de 20% ainsi que l’avance/dent de 10% pour les fraises V-WEDS.

Veuillez svp réduire la vitesse de coupe de 30% ainsi que l’avance/dent de 10% pour les fraises WEDS.
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Disse parametre er ved spåndybde af 0,5 D og bredde af 1 D
For Aluminium legering <6% Si, benyttes tilspænding per tand som noteret i første materialekolonne, mens skærehastigheden multipliceres med x 3.
For Kobber legering, benyttes tilspænding per tand som noteret i første materialekolonne, mens skærehastigheden multipliceres med x 2.
For V-WEDS reducer skærehastighed med 20% og tilspænding per tand med 10%
For WEDS reducer skærehastighed med 30% og tilspænding per tand med 10%

Estos parametros son para usar con profundidad de corte de 0,5D y ancho de pasada de 1D
Para Alum. Aleado < 6% Si, aplique avance por diente como indicado en columna X y 3 veces la velocidad de corte.
XPara Cobre Aleado, aplique avance por diente como indicado en columna X y 2 veces la velocidad de corte.
Para V-WEDS reducir velocidad de corte el 20% y el avance fz el 10%
Para WEDS educir velocidad de corte el 30% y el avance fz el 10%

Dessa parametrar används vid ett skärdjup av 0,5 D och sidoskär av 1 D
För Aluminium legeringar < 6% SI, använd matning/tand som visas i första materialkolumn, medan skärhastigheten multipliceras med x 3
För Koppar legeringar, använd matning/tand som visas i första materialkolumn, medan skärhastigheten multipliceras med x 2
För V-WEDS reducera skärhastigheten med 20% och matningen/tand med 10%
För WEDS reducera skärhastigheten med 30% och matningen/tand med 10%

Эти параметры для фрезерования глубиной 0,5D и шириной 1 D.
Для алюминиевых сплавов, с содержанием кремния < 6% SI, используйте подачу на зуб как указано, а скорость резания умножьте на 3.
Для медных сплавов используйте подачу на зуб как указано, а скорость резания умножьте на 2.
Для V-WEDS снизьте скорость резания на 20% и подачу на зуб на 10%
Для WEDS снизьте скорость резания на 30% и подачу на зуб на 10%

V-XPM-WEHS

Slotting - Nutenfräsen - Scanalatura - Rainurage / Finishing - Finitura - Finition - Finition
Sporfræsning - Spårfräsning - Ranurado - Фрезерование пазов / Sletfræsning - Finfräsning - Acabado - Чистовая обработка



	E24 ■ XC48 Fonte GG25 490 ~ 750 MPA Low carbon steels, cast iron			35NCD16 ■ 40CMD8 750 ~ 1100 MPA Alloy steels, tool steels			316 ■ 304 800 MPA Stainless steels			Z38CDV5 ■ Z40CDV5 38 ~ 45 HRC Treated & pretreated steels			Inconel ■ Hastelloy 35 ~ 43 HRC Steel alloys, Nickel base			TA6V 900 ~ 1100 MPA Alloy titanium		
Vc	55 m/min			45 m/min			25 m/min			30 m/min			15 m/min			22 m/min		
nb. flutes	**Ø**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**
2	**2**	8.754	70	0,004	7.162	57	0,004	3.979	32	0,004	4.775	38	0,004	2.387	19	0,004	3.501	28	0,004
2	**3**	5.836	70	0,006	4.775	57	0,006	2.653	32	0,006	3.183	38	0,006	1.592	19	0,006	2.334	28	0,006
2	**4**	4.377	70	0,008	3.581	57	0,008	1.989	32	0,008	2.387	38	0,008	1.194	19	0,008	1.751	28	0,008
2	**5**	3.501	70	0,010	2.865	57	0,010	1.592	32	0,010	1.910	38	0,010	955	19	0,010	1.401	28	0,010
3	**6**	2.918	96	0,011	2.387	79	0,011	1.326	44	0,011	1.592	53	0,011	796	26	0,011	1.167	39	0,011
3	**7**	2.501	90	0,012	2.046	74	0,012	1.137	41	0,012	1.364	49	0,012	682	25	0,012	1.000	36	0,012
3	**8**	2.188	85	0,013	1.790	70	0,013	995	39	0,013	1.194	47	0,013	597	23	0,013	875	34	0,013
3	**9**	1.945	82	0,014	1.592	67	0,014	884	37	0,014	1.061	45	0,014	531	22	0,014	778	33	0,014
3	**10**	1.751	95	0,018	1.432	77	0,018	796	43	0,018	955	52	0,018	477	26	0,018	700	38	0,018
3	**11**	1.592	95	0,020	1.302	78	0,020	723	43	0,020	868	52	0,020	434	26	0,020	637	38	0,020
3	**12**	1.459	109	0,025	1.194	90	0,025	663	50	0,025	796	60	0,025	398	30	0,025	584	44	0,025
3	**13**	1.347	105	0,026	1.102	86	0,026	612	48	0,026	735	57	0,026	367	29	0,026	539	42	0,026
3	**14**	1.251	105	0,028	1.023	86	0,028	568	48	0,028	682	57	0,028	341	29	0,028	500	42	0,028
3	**15**	1.167	105	0,030	955	86	0,030	531	48	0,030	637	57	0,030	318	29	0,030	467	42	0,030
3	**16**	1.094	105	0,032	895	86	0,032	497	48	0,032	597	57	0,032	298	29	0,032	438	42	0,032
3	**18**	973	102	0,035	796	84	0,035	442	46	0,035	531	56	0,035	265	28	0,035	389	41	0,035
3	**20**	875	105	0,040	716	86	0,040	398	48	0,040	477	57	0,040	239	29	0,040	350	42	0,040
4	**22**	796	111	0,035	651	91	0,035	362	51	0,035	434	61	0,035	217	30	0,035	318	45	0,035
4	**24**	729	117	0,040	597	95	0,040	332	53	0,040	398	64	0,040	199	32	0,040	292	47	0,040
4	**25**	700	126	0,045	573	103	0,045	318	57	0,045	382	69	0,045	191	34	0,045	280	50	0,045
4	**28**	625	125	0,050	512	102	0,050	284	57	0,050	341	68	0,050	171	34	0,050	250	50	0,050
4	**30**	584	128	0,055	477	105	0,055	265	58	0,055	318	70	0,055	159	35	0,055	233	51	0,055

These parameters are for use with cutting-depth of 0,5 D and a cutting-width of 1 D for end mills 2 and 3 flutes.
These parameters are for use with cutting-depth of 0.25 D and a cutting-width of 1 D for end mills 4 flutes.
For alu. alloys < 6% Si, please use feed/flute as indicated in the colomn by X by 3 times the cutting speed.
For copper alloys, please use the feed/flute as indicated in the colomn by X by 2 times the cutting speed.

Questi parametri si intendono per un utilizzo con una profondità di taglio di 1,5 D ed una larghezza di taglio di 0,1 D.
Per le leghe di alluminio, usate avanzamento/denti come indicato nella colonna della tabella con “X” per 3 volte la velocità di taglio.
Per le leghe di Rame, usate avanzamento/denti come indicato nella colonna della tabella con “X” per 2 volte la velocità di taglio.

Diese Schnittdaten sind für eine Frästiefe von 1,5 D und fur Fräsbreite 0,1 D.
Für Aluminium-Legierungen < 6%, bitte den Vorschub pro Schneide aus Reihe X verwenden und die Schnittgeschwindigkeit mit 3 multiplizieren.
Für Kupfer-Legierungen, bitte den Vorschub pro Schneide aus Reihe X verwenden und die Schnittgeschwindig keit mit 2 multiplizieren.

Ces paramètres sont pour une profondeur de passe de 1,5 D sur une largeur de passe de 0,1 D. Pour les alliages d’alu < 6% Si, veuillez utiliser l’avance/dent indiquée dans la colonne du tableau en X par 3 la vitesse de coupe.
Pour les alliages de cuivre non allié, veuillez utiliser l’avance/dent indiquée dans la colonne du tableau en X par 2 la vitesse de coupe.

Disse parametre er ved spåndybde af 0,5 D og bredde af 1 D og for fræser med 2 & 3 skærs
Disse parametre er ved spåndybde af 0,25 D og bredde af 1 D og for fræser med 2 & 3 skærs
For Aluminium legering <6% Si, benyttes tilspænding per tand som noteret i første materialekolonne, mens skærehastigheden multipliceres med x 3.
For Kobber legering, benyttes tilspænding per tand som noteret i første materialekolonne, mens skærehastigheden multipliceres med x 2.

Estos parametros son para usar con profundidad de corte de 0,5D y ancho de pasada de1D
Estos parametros son para usar con profundidad de corte de 0,25D y ancho de pasada de 1D
Para Alum. Aleado < 6% Si, aplique avance por diente como indicado en columna X y 3 veces la velocidad de corte.
Para Cobre Aleado, aplique avance por diente como indicado en columna X y 3 veces la velocidad de corte.

Dessa parametrar används vid ett skärdjup av 0,5 D och sidoskär av 1 D ett 2 & 3 skår
Dessa parametrar används vid ett skärdjup av 0,25 D och sidoskär av 1 D ett 2 & 3 skår
För Aluminium legeringar < 6% SI, använd matning/tand som visas i första materialkolumn, medan skärhastigheten multipliceras med x 3
För Koppar legeringar, använd matning/tand som visas i första materialkolumn, medan skärhastigheten multipliceras med x 2

Эти параметры для фрезерования глубиной 0,5D и шириной 1 D фрезами с 2 и 3 режущими кромками.
Эти параметры для фрезерования глубиной 0,25D и шириной 1 D фрезами с 4 режущими кромками.
Для алюминиевых сплавов, с содержанием кремния < 6% SI, используйте подачу на зуб как указано, а скорость резания умножьте на 3.
Для медных сплавов используйте подачу на зуб как указано, а скорость резания умножьте на 2.

V-XPM-WEHS

Side milling - Konturfräsen - Conturnatura - Contournage / Finishing - Finitura - Finition - Finition
Sidefræsning - Valsfräsning - Contorneado - Боковое фрезерование / Sletfræsning - Finfräsning - Acabado - Чистовая обработка



	E24 ■ XC48 Fonte GG25 490 ~ 750 MPA Low carbon steels, cast iron			35NCD16 ■ 40CMD8 750 ~ 1100 MPA Alloy steels, tool steels			316 ■ 304 800 MPA Stainless steels			Z38CDV5 ■ Z40CDV5 38 ~ 45 HRC Treated & pretreated steels			Inconel ■ Hastelloy 35 ~ 43 HRC Steel alloys, Nickel base			TA6V 900 ~ 1100 MPA Alloy titanium		
Vc	55 m/min			45 m/min			25 m/min			30 m/min			15 m/min			22 m/min		
nb. flutes	**Ø**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**
2	**2**	8.754	70	0,004	7.162	57	0,004	3.979	32	0,004	4.775	38	0,004	2.387	19	0,004	3.501	28	0,004
2	**3**	5.836	70	0,006	4.775	57	0,006	2.653	32	0,006	3.183	38	0,006	1.592	19	0,006	2.334	28	0,006
2	**4**	4.377	70	0,008	3.581	57	0,008	1.989	32	0,008	2.387	38	0,008	1.194	19	0,008	1.751	28	0,008
2	**5**	3.501	70	0,010	2.865	57	0,010	1.592	32	0,010	1.910	38	0,010	955	19	0,010	1.401	28	0,010
3	**6**	2.918	105	0,012	2.387	86	0,012	1.326	48	0,012	1.592	57	0,012	796	29	0,012	1.167	42	0,012
3	**7**	2.501	105	0,014	2.046	86	0,014	1.137	48	0,014	1.364	57	0,014	682	29	0,014	1.000	42	0,014
3	**8**	2.188	131	0,020	1.790	107	0,020	995	60	0,020	1.194	72	0,020	597	36	0,020	875	53	0,020
3	**9**	1.945	117	0,020	1.592	95	0,020	884	53	0,020	1.061	64	0,020	531	32	0,020	778	47	0,020
3	**10**	1.751	131	0,025	1.432	107	0,025	796	60	0,025	955	72	0,025	477	36	0,025	700	53	0,025
3	**11**	1.592	119	0,025	1.302	98	0,025	723	54	0,025	868	65	0,025	434	33	0,025	637	48	0,025
3	**12**	1.459	153	0,035	1.194	125	0,035	663	70	0,035	796	84	0,035	398	42	0,035	584	61	0,035
3	**13**	1.347	141	0,035	1.102	116	0,035	612	64	0,035	735	77	0,035	367	39	0,035	539	57	0,035
3	**14**	1.251	150	0,040	1.023	123	0,040	568	68	0,040	682	82	0,040	341	41	0,040	500	60	0,040
3	**15**	1.167	140	0,040	955	115	0,040	531	64	0,040	637	76	0,040	318	38	0,040	467	56	0,040
3	**16**	1.094	148	0,045	895	121	0,045	497	67	0,045	597	81	0,045	298	40	0,045	438	59	0,045
3	**18**	973	146	0,050	796	119	0,050	442	66	0,050	531	80	0,050	265	40	0,050	389	58	0,050
3	**20**	875	158	0,060	716	129	0,060	398	72	0,060	477	86	0,060	239	43	0,060	350	63	0,060
4	**22**	796	223	0,070	651	182	0,070	362	101	0,070	434	122	0,070	217	61	0,070	318	89	0,070
4	**24**	729	219	0,075	597	179	0,075	332	99	0,075	398	119	0,075	199	60	0,075	292	88	0,075
4	**25**	700	224	0,080	573	183	0,080	318	102	0,080	382	122	0,080	191	61	0,080	280	90	0,080
4	**28**	625	225	0,090	512	184	0,090	284	102	0,090	341	123	0,090	171	61	0,090	250	90	0,090
4	**30**	584	233	0,100	477	191	0,100	265	106	0,100	318	127	0,100	159	64	0,100	233	93	0,100

These parameters are for use with cutting-depth of 1,5 D and a cutting-width of 0,1 D.
For alu. alloys < 6% Si, please use feed/flute as indicated in the colomm by X by 3 times the cutting speed.
For copper alloys, please use the feed/flute as indicated in the colomm by X by 2 times the cutting speed.

Questi parametri si intendono per un utilizzo con una profondità di taglio di 1,5 D ed una larghezza di taglio di 0,1 D.
Per le leghe di alluminio, usate avanzamento/denti come indicato nella colonna della tabella con “X” per 3 volte la velocità di taglio.
Per le leghe di Rame, usate avanzamento/denti come indicato nella colonna della tabella con “X” per 2 volte la velocità di taglio.

Diese Schnittdaten sind für eine Frästiefe von 1,5 D und fur Fräsbreite 0,1 D
Für Aluminium-Legierungen < 6%, bitte den Vorschub pro Schneide aus Reihe X verwenden und die Schnittgeschwindigkeit mit 3 multiplizieren.
Für Kupfer-Legierungen, bitte den Vorschub pro Schneide aus Reihe X verwenden und die Schnittgeschwindig keit mit 2 multiplizieren.

Ces paramètres sont pour une profondeur de passe de 1,5 D sur une largeur de passe de 0,1 D
Pour les alliages d’alu < 6% Si, veuillez utiliser l’avance/dent indiquée dans la colonne du tableau en X par 3 la vitesse de coupe.
Pour les alliages de cuivre non allié, veuillez utiliser l’avance/dent indiquée dans la colonne du tableau en X par 2 la vitesse de coupe.

Disse parametre er ved spåndybde af 1,5 D og bredde af 0,1 D
For Aluminium legering <6% Si, benyttes tilspænding per tand som noteret i første materialekolonne, mens skærehastigheden multipliceres med x 3.
For Kobber legering, benyttes tilspænding per tand som noteret i første materialekolonne, mens skærehastigheden multipliceres med x 2.

Estos parametros son para usar con profundidad de corte de 1,5 D y ancho de pasada de 0,1 D
Para Alum. Aleado < 6% Si, aplique avance por diente como indicado en columna X y 3 veces la velocidad de corte.
Para Cobre Aleado, aplique avance por diente como indicado en columna X y 3 veces la velocidad de corte.

Dessa parametrar används vid ett skärdjup av 1,5 D och sidoskär av 0,1 D
För Aluminium legeringar < 6% SI, använd matning/tand som visas i första materialkolumn, medan skärhastigheten multipliceras med x 3
För Koppar legeringar, använd matning/tand som visas i första materialkolumn, medan skärhastigheten multipliceras med x 2

Эти параметры для фрезерования глубиной 1,5 D и шириной 0,1 D.
Для алюминиевых сплавов, с содержанием кремния < 6% SI, используйте подачу на зуб как указано, а скорость резания умножьте на 3.
Для медных сплавов используйте подачу на зуб как указано, а скорость резания умножьте на 2.

V-XPM-WEMS (V-)WEMS

Side milling - Konturfräsen - Conturnatura - Contournage / Finishing - Finitura - Finition - Finition
Sidefræsning - Valsfräsning - Contorneado - Боковое фрезерование / Sletfræsning - Finfräsning - Acabado - Чистовая обработка



	E24 ■ XC48 Fonte GG25 490 ~ 750 MPA Low carbon steels, cast iron			35NCD16 ■ 40CMD8 750 ~ 1100 MPA Alloy steels, tool steels			316 ■ 304 800 MPA Stainless steels			Z38CDV5 ■ Z40CDV5 38 ~ 45 HRC Treated & pretreated steels			Inconel ■ Hastelloy 35 ~ 43 HRC Steel alloys, Nickel base			TA6V 900 ~ 1100 MPA Alloy titanium		
Vc	60 m/min			50 m/min			30 m/min			30 m/min			15 m/min			25 m/min		
nb. flutes	**Ø**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**
4	**3**	6.366	76	0,003	5.305	64	0,003	3.183	38	0,003	3.183	38	0,003	1.592	19	0,003	2.653	32	0,003
4	**4**	4.775	76	0,004	3.979	64	0,004	2.387	38	0,004	2.387	38	0,004	1.194	19	0,004	1.989	32	0,004
4	**5**	3.820	76	0,005	3.183	64	0,005	1.910	38	0,005	1.910	38	0,005	955	19	0,005	1.592	32	0,005
4	**6**	3.183	127	0,010	2.653	106	0,010	1.592	64	0,010	1.592	64	0,010	796	32	0,010	1.326	53	0,010
4	**7**	2.728	218	0,020	2.274	182	0,020	1.364	109	0,020	1.364	109	0,020	682	55	0,020	1.137	91	0,020
4	**8**	2.387	191	0,020	1.989	159	0,020	1.194	95	0,020	1.194	95	0,020	597	48	0,020	995	80	0,020
4	**10**	1.910	229	0,030	1.592	191	0,030	955	115	0,030	955	115	0,030	477	57	0,030	796	95	0,030
4	**12**	1.592	286	0,045	1.326	239	0,045	796	143	0,045	796	143	0,045	398	72	0,045	663	119	0,045
4	**14**	1.364	273	0,050	1.137	227	0,050	682	136	0,050	682	136	0,050	341	68	0,050	568	114	0,050
4	**15**	1.273	280	0,055	1.061	233	0,055	637	140	0,055	637	140	0,055	318	70	0,055	531	117	0,055
4	**16**	1.194	263	0,055	995	219	0,055	597	131	0,055	597	131	0,055	298	66	0,055	497	109	0,055
4	**18**	1.061	276	0,065	884	230	0,065	531	138	0,065	531	138	0,065	265	69	0,065	442	115	0,065
4	**20**	955	267	0,070	796	223	0,070	477	134	0,070	477	134	0,070	239	67	0,070	398	111	0,070
6	**22**	868	286	0,055	723	239	0,055	434	143	0,055	434	143	0,055	217	72	0,055	362	119	0,055
6	**24**	796	286	0,060	663	239	0,060	398	143	0,060	398	143	0,060	199	72	0,060	332	119	0,060
6	**25**	764	275	0,060	637	229	0,060	382	138	0,060	382	138	0,060	191	69	0,060	318	115	0,060
6	**30**	637	267	0,070	531	223	0,070	318	134	0,070	318	134	0,070	159	67	0,070	265	111	0,070

These parameters are for use with cutting-depth of 1,5 D and a cutting-width of 1 D.
For alu. alloys < 6% Si, please use feed/flute as indicated in the colomm by X by 3 times the cutting speed.
For copper alloys, please use the feed/flute as indicated in the colomm by X by 2 times the cutting speed.
For V-WEMS reduce cutting speed by 20% and feed/flute by 10%.
For WEMS reduce cutting speed by 30% and feed/flute by 10%.

Questi parametri si intendono per un utilizzo con una profondità di taglio di 1,5 D ed una larghezza di taglio di 1 D.
Per le leghe di alluminio, usate avanzamento/denti come indicato nella colonna della tabella con “X” per 3 volte la velocità di taglio.
Per le leghe di Rame, usate avanzamento/denti come indicato nella colonna della tabella con “X” per 2 volte la velocità di taglio.
Per le V-WEMS ridurre la velocità di taglio del 20% e avanzamento/denti del 10%. Per le WEMS ridurre la velocità di taglio del 30% e avanzamento/denti del 10%.

Diese Schnittdaten sind für eine Frästiefe von 1,5 D und fur Fräsbreite 1 D. Für Aluminium-Legierungen < 6%, bitte den Vorschub pro Schneide aus Reihe X verwenden und die Schnittgeschwindigkeit mit 3 multiplizieren.
Für Kupfer-Legierungen, bitte den Vorschub pro Schneide aus Reihe X verwenden und die Schnittgeschwindig keit mit 2 multiplizieren.
Für V-WEMS bitte die Schnittgeschwindigkeit 20% reduzieren und den Vorschub pro Schneide um 10%. Für WEMS bitte die Schnittgeschwindigkeit 30% reduzieren und den Vorschub pro Schneide um 10%.

Ces paramètres sont pour une profondeur de passe de 1,5 D sur une largeur de passe de 1 D. Pour les alliages d’alu < 6% Si, veuillez utiliser l’avance/dent indiquée dans la colonne du tableau en X par 3 la vitesse de coupe.
Pour les alliages de cuivre non allié, veuillez utiliser l’avance/dent indiquée dans la colonne du tableau en X par 2 la vitesse de coupe.
Veuillez svp réduire la vitesse de coupe de 20% ainsi que l’avance/dent de 10% pour les fraises V-WEMS.

Veuillez svp réduire la vitesse de coupe de 30% ainsi que l’avance/dent de 10% pour les fraises WEMS.

.Disse parametre er ved spåndybde af 1,5 D og bredde af 1 D
For Aluminium legering <6% Si, benyttes tilspænding per tand som noteret i første materialekolonne, mens skærehastigheden multipliceres med x 3.
For Kobber legering, benyttes tilspænding per tand som noteret i første materialekolonne, mens skærehastigheden multipliceres med x 2.
For V-WEMS reducer skærehastighed med 20% og tilspænding per tand med 10%
For WEMS reducer skærehastighed med 30% og tilspænding per tand med 10%

Estos parametros son para usar con profundidad de corte de 1,5D y ancho de pasada de 1D
Para Alum. Aleado < 6% Si, aplique avance por diente como indicado en columna X y 3 veces la velocidad de corte.
Para Cobre Aleado, aplique avance por diente como indicado en columna X y 3 veces la velocidad de corte.
Para V-WEMS reducir velocidad de corte el 20% y el avance fz el 10%
Para WEMS reducir velocidad de corte el 30% y el avance fz el 10%

Dessa parametrar används vid ett skärdjup av 1,5 D och sidoskär av 1 D
För Aluminium legeringar < 6% SI, använd matning/tand som visas i första materialkolumn, medan skärhastigheten multipliceras med x 3
För Koppar legeringar, använd matning/tand som visas i första materialkolumn, medan skärhastigheten multipliceras med x 2
För V-WEMS reducera skärhastigheten med 20% och matningen/tand med 10%
För WEMS reducera skärhastigheten med 30% och matningen/tand med 10%

Эти параметры для фрезерования глубиной 1,5 D и шириной 0,1 D.
Для алюминиевых сплавов, с содержанием кремния < 6% SI, используйте подачу на зуб как указано, а скорость резания умножьте на 3.
Для медных сплавов используйте подачу на зуб как указано, а скорость резания умножьте на 2.
Для V-WEMS снизьте скорость резания на 20% и подачу на зуб на 10%
Для WEMS снизьте скорость резания на 30% и подачу на зуб на 10%

V-XPM-WETS - (V-)WETS - FC-3S (-TiCN)

Slotting - Nutenfräsen - Scanalatura - Rainurage / Roughing - Schruppen - Sgrossatura - Ebauche
Sporfræsning - Spårfräsning - Ranurado - Фрезерование пазов / Skrubfræsning - Grovfräsning - Desbaste - Черновая обработка



	E24 ■ XC48 Fonte GG25 490 ~ 750 MPA Low carbon steels, cast iron			35NCD16 ■ 40CMD8 750 ~ 1100 MPA Alloy steels, tool steels			316 ■ 304 800 MPA Stainless steels			Z38CDV5 ■ Z40CDV5 38 ~ 45 HRC Treated & pretreated steels			Inconel ■ Hastelloy 35 ~ 43 HRC Steel alloys, Nickel base			TA6V 900 ~ 1100 MPA Alloy titanium		
Vc	55 m/min			45 m/min			25 m/min			30 m/min			15 m/min			22 m/min		
nb. flutes	**Ø**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**
3	**3**	5.836	70	0,004	4.775	57	0,004	2.653	32	0,004	3.183	38	0,004	1.592	19	0,004	2.334	28	0,004
3	**4**	4.377	79	0,006	3.581	64	0,006	1.989	36	0,006	2.387	43	0,006	1.194	21	0,006	1.751	32	0,006
3	**5**	3.501	84	0,008	2.865	69	0,008	1.592	38	0,008	1.910	46	0,008	955	23	0,008	1.401	34	0,008
3	**6**	2.918	96	0,011	2.387	79	0,011	1.326	44	0,011	1.592	53	0,011	796	26	0,011	1.167	39	0,011
3	**7**	2.501	83	0,011	2.046	68	0,011	1.137	38	0,011	1.364	45	0,011	682	23	0,011	1.000	33	0,011
3	**8**	2.188	85	0,013	1.790	70	0,013	995	39	0,013	1.194	47	0,013	597	23	0,013	875	34	0,013
3	**10**	1.751	95	0,018	1.432	77	0,018	796	43	0,018	955	52	0,018	477	26	0,018	700	38	0,018
3	**12**	1.459	109	0,025	1.194	90	0,025	663	50	0,025	796	60	0,025	398	30	0,025	584	44	0,025
3	**14**	1.251	105	0,028	1.023	86	0,028	568	48	0,028	682	57	0,028	341	29	0,028	500	42	0,028
3	**15**	1.161	98	0,028	955	80	0,028	531	45	0,028	637	53	0,028	318	27	0,028	467	39	0,028
3	**16**	1.094	105	0,032	895	86	0,032	497	48	0,032	597	57	0,032	298	29	0,032	438	42	0,032
3	**18**	973	102	0,035	796	84	0,035	442	46	0,035	531	56	0,035	265	28	0,035	389	41	0,035
3	**20**	875	105	0,040	716	86	0,040	398	48	0,040	477	57	0,040	239	29	0,040	350	42	0,040
3	**22**	796	107	0,045	651	88	0,045	362	49	0,045	434	59	0,045	217	29	0,045	318	43	0,045
3	**24**	729	109	0,050	597	90	0,050	332	50	0,050	398	60	0,050	199	30	0,050	292	44	0,050
3	**25**	700	116	0,055	573	95	0,055	318	53	0,055	382	63	0,055	191	32	0,055	280	46	0,055
3	**30**	584	105	0,060	477	86	0,060	265	48	0,060	318	57	0,060	159	29	0,060	233	42	0,060

These parameters are for use with cutting-depth of 0,5 D and a cutting-width of 1 D.
For alu. alloys < 6% Si, please use feed/flute as indicated in the colomm by X by 3 times the cutting speed.
For copper alloys, please use the feed/flute as indicated in the colomm by X by 2 times the cutting speed.
For V-WETS, FC-3S-TiCN reduce cutting speed by 20% and feed/flute by 10%.
For WETS, FC-3S reduce cutting speed by 30% and feed/flute by 10%.

Questi parametri si intendono per un utilizzo con una profondità di taglio di 0,5 D ed una larghezza di taglio di 1 D.
Per le leghe di alluminio, usate avanzamento/denti come indicato nella colonna della tabella con “X” per 3 volte la velocità di taglio.
Per le leghe di Rame, usate avanzamento/denti come indicato nella colonna della tabella con “X” per 2 volte la velocità di taglio.
Per le V-WETS, FC-3S-TiCN ridurre la velocità di taglio del 20% e avanzamento/denti del 10%.
Per le WETS, FC-3S ridurre la velocità di taglio del 30% e avanzamento/denti del 10%..

Diese Schnittdaten sind für eine Frästiefe von 0,5 D und fur Fräsbreite 1 D.
Für Aluminium-Legierungen < 6%, bitte den Vorschub pro Schneide aus Reihe X verwenden und die Schnittgeschwindigkeit mit 3 multiplizieren.
Für Kupfer-Legierungen, bitte den Vorschub pro Schneide aus Reihe X verwenden und die Schnittgeschwindig keit mit 2 multiplizieren.
Für V-WETS, FC-3S-TiCN bitte die Schnittgeschwindigkeit 20% reduzieren und den Vorschub pro Schneide um 10%.
Für WETS, FC-3S bitte die Schnittgeschwindigkeit 30% reduzieren und den Vorschub pro Schneide um 10%.

Ces paramètres sont pour une profondeur de passe de 0,5 D sur une largeur de passe de 1 D. Pour les alliages d’alu < 6% Si, veuillez utiliser l’avance/dent indiquée dans la colonne du tableau en X par 3 la vitesse de coupe.
Pour les alliages de cuivre non allié, veuillez utiliser l’avance/dent indiquée dans la colonne du tableau en X par 2 la vitesse de coupe.
Veuillez svp réduire la vitesse de coupe de 20% ainsi que l’avance/dent de 10% pour les fraises V-WETS, FC-3S-TiCN.
Veuillez svp réduire la vitesse de coupe de 30% ainsi que l’avance/dent de 10% pour les fraises WETS, FC-3S.

Disse parametre er ved spåndybde af 0,5 D og bredde af 1 D
For Aluminium legering <6% Si, benyttes tilspænding per tand som noteret i første materialekolonne, mens skærehastigheden multipliceres med x 3.
For Kobber legering, benyttes tilspænding per tand som noteret i første materialekolonne, mens skære-hastigheden multipliceres med x 2.
For V-WETS, FC-3S-TiCN reducer skærehastighed med 20% og tilspænding per tand med 10%.
For WETS, FC-3S reducer skærehastighed med 30% og tilspænding per tand med 10%

Estos parametros son para usar con profundidad de corte de 0,5D y ancho de pasada de 1D
Para Alum. Aleado < 6% Si, aplique avance por diente como indicado en columna X y 3 veces la velocidad de corte.
Para Cobre Aleado, aplique avance por diente como indicado en columna X y 2 veces la velocidad de corte.
Para V-WETS, FC-3S-TiCN reducir velocidad de corte el 20% y el avance fz el 10%.
Para WETS, FC-3S reducir velocidad de corte el 20% y el avance fz el 10%.

Dessa parametrar används vid ett skärdjup av 0,5 D och sidoskär av 1 D.
För Aluminium legeringar < 6% SI, använd matning/tand som visas i första materialkolumn, medan skärhastigheten multipliceras med x 3.
För Koppar legeringar, använd matning/tand som visas i första materialkolumn, medan skärhastigheten multipliceras med x 2.
För V-WETS, FC-3S-TiCN reducera skärhastigheten med 20% och matningen/tand med 10%.
För WETS, FC-3S reducera skärhastigheten med 30% och matningen/tand med 10%.

Эти параметры для фрезерования глубиной 0,5 D и шириной 0,1 D.
Для алюминиевых сплавов, с содержанием кремния < 6% SI, используйте подачу на зуб как указано, а скорость резания умножьте на 3.
Для медных сплавов используйте подачу на зуб как указано, а скорость резания умножьте на 2.
Для V-WETS и FC-3S-TiCN снизьте скорость резания на 20% и подачу на зуб на 10%.
Для WETS и FC-3S снизьте скорость резания на 30% и подачу на зуб на 10%.

V-XPM-WRESF - (V-)WREES - (V-)WRESF - V-WRFES

Slotting - Nutenfräsen - Scanalatura - Rainurage / Roughing - Schruppen - Sgrossatura - Ebauche
Sporfræsning - Spårfräsning - Ranurado - Фрезерование пазов / Skrubfræsning - Grovfräsning - Desbaste - Черновая обработка



	E24 ■ XC48 Fonte GG25 490 ~ 750 MPA Low carbon steels, cast iron			35NCD16 ■ 40CMD8 750 ~ 1100 MPA Alloy steels, tool steels			316 ■ 304 800 MPA Stainless steels			Z38CDV5 ■ Z40CDV5 38 ~ 45 HRC Treated & pretreated steels			Inconel ■ Hastelloy 35 ~ 43 HRC Steel alloys, Nickel base			TA6V 900 ~ 1100 MPA Alloy titanium		
Vc	55 m/min			45 m/min			25 m/min			30 m/min			15 m/min			22 m/min		
nb. flutes	**Ø**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**
4	**6**	2.918	233	0,020	2.387	191	0,020	1.326	106	0,020	1.592	127	0,020	796	64	0,020	1.167	93	0,020
4	**7**	2.501	250	0,025	2.046	205	0,025	1.137	114	0,025	1.364	136	0,025	682	68	0,025	1.000	100	0,025
4	**8**	2.188	263	0,030	1.790	215	0,030	995	119	0,030	1.194	143	0,030	597	72	0,030	875	105	0,030
4	**10**	1.751	280	0,040	1.432	229	0,040	796	127	0,040	955	153	0,040	477	76	0,040	700	112	0,040
4	**12**	1.459	350	0,060	1.194	286	0,060	663	159	0,060	796	191	0,060	398	95	0,060	584	140	0,060
4	**14**	1.251	325	0,065	1.023	266	0,065	568	148	0,065	682	177	0,065	341	89	0,065	500	130	0,065
4	**15**	1.167	327	0,070	955	267	0,070	531	149	0,070	637	178	0,070	318	89	0,070	467	131	0,070
4	**16**	1.094	328	0,075	895	269	0,075	497	149	0,075	597	179	0,075	298	90	0,075	438	131	0,075
4	**18**	973	331	0,085	796	271	0,085	442	150	0,085	531	180	0,085	265	90	0,085	389	132	0,085
4	**20**	875	350	0,100	716	286	0,100	398	159	0,100	477	191	0,100	239	95	0,100	350	140	0,100
5	**22**	796	438	0,110	651	358	0,110	362	199	0,110	434	239	0,110	217	119	0,110	318	175	0,110
5	**25**	700	438	0,125	573	358	0,125	318	199	0,125	382	239	0,125	191	119	0,125	280	175	0,125
5	**28**	625	391	0,125	512	320	0,125	284	178	0,125	341	213	0,125	171	107	0,125	250	156	0,125
6	**30**	584	438	0,125	477	358	0,125	265	199	0,125	318	239	0,125	159	119	0,125	233	175	0,125
6	**32**	547	410	0,125	448	336	0,125	249	187	0,125	298	224	0,125	149	112	0,125	219	164	0,125
6	**35**	500	375	0,125	409	307	0,125	227	171	0,125	273	205	0,125	136	102	0,125	200	150	0,125
6	**36**	486	365	0,125	398	298	0,125	221	166	0,125	265	199	0,125	133	99	0,125	195	146	0,125
6	**40**	438	328	0,125	358	269	0,125	199	149	0,125	239	179	0,125	119	90	0,125	175	131	0,125
6	**45**	389	292	0,125	318	239	0,125	177	133	0,125	212	159	0,125	106	80	0,125	156	117	0,125
8	**50**	350	350	0,125	286	286	0,125	159	159	0,125	191	191	0,125	95	95	0,125	140	140	0,125

These parameters are for use with cutting-depth of 1 D and a cutting-width of 1 D. For V-WREES, V-WRESF, V-WRFES, reduce cutting speed by 20% and feed/flute by 10%. For WREES reduce cutting speed by 30% and feed/flute by 10%.	Questi parametri si intendono per un utilizzo con una profondità di taglio di 1 D ed una larghezza di taglio di 1 D. Per le V-WREES, V-WRESF, V-WRFES, ridurre la velocità di taglio del 20% e avanzamento/denti del 10%. Per le WREES ridurre la velocità di taglio del 30% e avanzamento/denti del 10%.
Diese Schnittdaten sind für eine Frästiefe von 1 D und fur Fräsbreite 1 D. Für V-WREES, V-WRESF, V-WRFES, bitte die Schnittgeschwindigkeit 20% reduzieren und den Vorschub pro Schneide um 10%. Für WREES, bitte die Schnittgeschwindigkeit 30% reduzieren und den Vorschub pro Schneide um 10%.	Ces paramètres sont pour une profondeur de passe de 1 D sur une largeur de passe de 1 D. Veuillez svp réduire la vitesse de coupe de 20% ainsi que l'avance/dent de 10% pour les fraises V-WREES, V-WRESF, V-WRFES. Veuillez svp réduire la vitesse de coupe de 30% ainsi que l'avance/dent de 10% pour les fraises WREES.
Disse parametre er ved spåndybde af 1 D og bredde af 1 D For V-WREES, V-WRESF, V-WRFES, reducer skærehastighed med 20% og tilspænding per tand med 10% For WREES reducer skærehastighed med 30% og tilspænding per tand med 10%	Estos parametros son para usar con profundidad de corte de 1D y ancho de pasada de 1D Para. V-WREES, V-WRESF, V-WRFES, reducir velocidad de corte el 20% y el avance fz el 10% Para WREES reducir velocidad de corte el 20% y el avance fz el 10%
Dessa parametrar används vid ett skärdjup av1 D och sidoskär av 1 D För V-WREES, V-WRESF, V-WRFES, reducera skärhastigheten med 20% och matningen/tand med 10% För WREES reducera skärhastigheten med 30% och matningen/tand med 10%	Эти параметры для фрезерования глубиной 1 D и шириной 1 D. Для V-WREES, V-WRESF и V-WRFES снизьте скорость резания на 20% и подачу на зуб на 10% Для WREES снизьте скорость резания на 30% и подачу на зуб на 10%

V-XPM-WRESF - (V-)WREES - (V-)WRESF - V-WRFES

Side milling - Konturfräsen - Conturnatura - Contournage / Roughing - Schruppen - Sgrossatura - Ebauche
Sporfræsning - Spårfräsning - Ranurado - Фрезерование пазов / Skrubfræsning - Grovfräsning - Desbaste - Черновая обработка



	E24 ■ XC48 Fonte GG25 490 ~ 750 MPA Low carbon steels, cast iron			35NCD16 ■ 40CMD8 750 ~ 1100 MPA Alloy steels, tool steels			316 ■ 304 800 MPA Stainless steels			Z38CDV5 ■ Z40CDV5 38 ~ 45 HRC Treated & pretreated steels			Inconel ■ Hastelloy 35 ~ 43 HRC Steel alloys, Nickel base			TA6V 900 ~ 1100 MPA Alloy titanium		
Vc	55 m/min			45 m/min			25 m/min			30 m/min			15 m/min			22 m/min		
nb. flutes	**Ø**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**	**S (min⁻¹)**	**F (mm/min)**	**AZ (mm)**
4	**6**	2.918	292	0,025	2.387	239	0,025	1.326	133	0,025	1.592	159	0,025	796	80	0,025	1.167	117	0,025
4	**7**	2.501	300	0,030	2.046	246	0,030	1.137	136	0,030	1.364	164	0,030	682	82	0,030	1.000	120	0,030
4	**8**	2.188	394	0,045	1.790	322	0,045	995	179	0,045	1.194	215	0,045	597	107	0,045	875	158	0,045
4	**10**	1.751	385	0,055	1.432	315	0,055	796	175	0,055	955	210	0,055	477	105	0,055	700	154	0,055
4	**12**	1.459	467	0,080	1.194	382	0,080	663	212	0,080	796	255	0,080	398	127	0,080	584	187	0,080
4	**14**	1.251	425	0,085	1.023	348	0,085	568	193	0,085	682	232	0,085	341	116	0,085	500	170	0,085
4	**15**	1.167	397	0,085	955	325	0,085	531	180	0,085	637	216	0,085	318	108	0,085	467	159	0,085
4	**16**	1.094	438	0,100	895	358	0,100	497	199	0,100	597	239	0,100	298	119	0,100	438	175	0,100
4	**18**	973	428	0,110	796	350	0,110	442	195	0,110	531	233	0,110	265	117	0,110	389	171	0,110
4	**20**	875	455	0,130	716	372	0,130	398	207	0,130	477	248	0,130	239	124	0,130	350	182	0,130
5	**22**	796	557	0,140	651	456	0,140	362	253	0,140	434	304	0,140	217	152	0,140	318	223	0,140
5	**25**	700	560	0,160	573	458	0,160	318	255	0,160	382	306	0,160	191	153	0,160	280	224	0,160
5	**28**	625	438	0,140	512	358	0,140	284	199	0,140	341	239	0,140	171	119	0,140	250	175	0,140
6	**30**	584	490	0,140	477	401	0,140	265	223	0,140	318	267	0,140	159	134	0,140	233	196	0,140
6	**32**	547	460	0,140	448	376	0,140	249	209	0,140	298	251	0,140	149	125	0,140	219	184	0,140
6	**35**	500	420	0,140	409	344	0,140	227	191	0,140	273	229	0,140	136	115	0,140	200	168	0,140
6	**36**	486	408	0,140	398	334	0,140	221	186	0,140	265	223	0,140	133	111	0,140	195	163	0,140
6	**40**	438	368	0,140	358	301	0,140	199	167	0,140	239	201	0,140	119	100	0,140	175	147	0,140
6	**45**	389	327	0,140	318	267	0,140	177	149	0,140	212	178	0,140	106	89	0,140	156	131	0,140
8	**50**	350	392	0,140	286	321	0,140	159	178	0,140	191	214	0,140	95	107	0,140	140	157	0,140

These parameters are for use with cutting-depth of 1 D and a cutting-width of 0,5 D. For V-WREES, V-WRESF, reduce cutting speed by 20% and feed/flute by 10%. For WREES, reduce cutting speed by 30% and feed/flute by 10%.	Questi parametri si intendono per un utilizzo con una profondità di taglio di 1 D ed una larghezza di taglio di 0,5 D. Per le V-WREES, V-WRESF, ridurre la velocità di taglio del 20% e avanzamento/denti del 10%. Per le WREES, ridurre la velocità di taglio del 30% e avanzamento/denti del 10%.
Diese Schnittdaten sind für eine Frästiefe von 1 D und fur Fräsbreite 0,5 D. Für V-WREES, V-WRESF,bitte die Schnittgeschwindigkeit 20% reduzieren und den Vorschub pro Schneide um 10%. Für WREES, bitte die Schnittgeschwindigkeit 30% reduzieren und den Vorschub pro Schneide um 10%.	Ces paramètres sont pour une profondeur de passe de 1 D sur une largeur de passe de 0,5 D. Veuillez svp réduire la vitesse de coupe de 20% ainsi que l'avance/dent de 10% pour les fraises V-WREES, V-WRESF. Veuillez svp réduire la vitesse de coupe de 30% ainsi que l'avance/dent de 10% pour la fraise WREES.
Disse parametre er ved spåndybde af 1D og bredde af 0,5 D For V-WREES, V-WRESF,reducer skærehastighed med 20% og tilspænding per tand med 10% För WREES, reducera skärhastigheten med 30% och matningen/tand med 10%	Estos parametros son para usar con profundidad de corte de 1 D y ancho de pasada de 0,5 D Para V-WREES, V-WRESF, reducir velocidad de corte el 20% y el avance fz el 10% Para WREES, reducir velocidad de corte el 30% y el avance fz el 10%
Dessa parametrar används vid ett skärdjup av 1D och sidoskär av 0,5D För V-WREES, V-WRESF, reducera skärhastigheten med 20% och matningen/tand med 10%. För WREES, reducera skärhastigheten med 30% och matningen/tand med 10%	Эти параметры для фрезерования глубиной 1 D и шириной 0.5 D. Для V-WREES, V-WRESF, снизьте скорость резания на 20% и подачу на зуб на 10% Для WREES снизьте скорость резания на 30% и подачу на зуб на 10%

INDEXABLE TOOLS

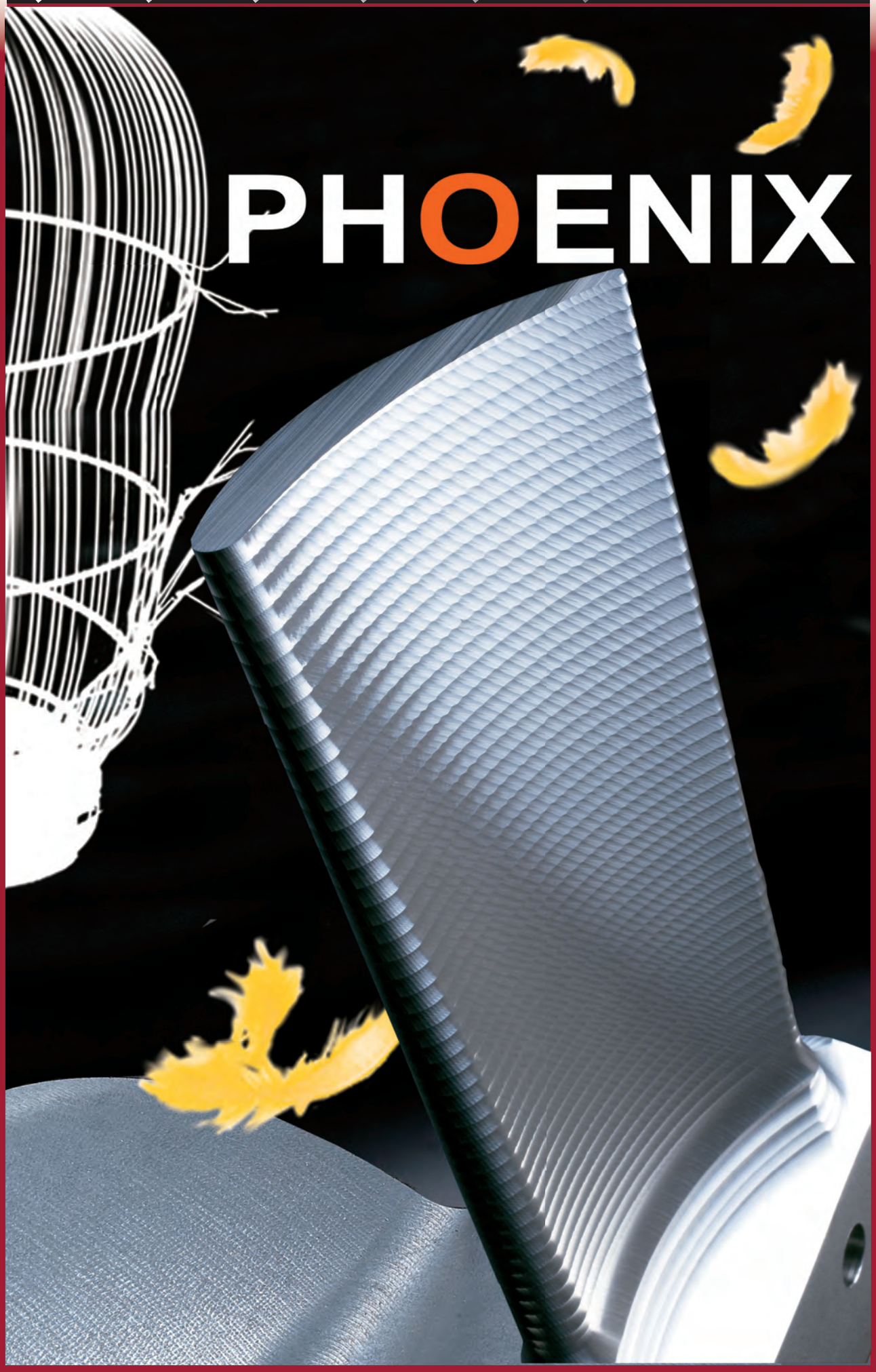


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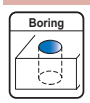

PHOENIX

NAME	SPECIFICATION	
DRILLING		
 **PHP** NEW	3 x D High Performance Indexable Drill, 2 flutes	3 x D Hochleistungswendeplattenbohrer
	3 xD alta performance punta ad inserti	Foret à plaquettes amovibles 3D haute performance

NAME	SPECIFICATION	
MILLING		
 **PFB** NEW	Finishing Ball nose Cutter, 2 flutes	2 Schneider Kugelfräser für Schlichtbearbeitungen
	Fresa sferica di finitura, 2 eliche	Finition hémisphérique 2 dents
 **PSE/SS** NEW	90° Shoulder Cutter, straight shank	90 ° Schulterfräser, Zylinderschaft
	90° Fresa spallamento retto, gambo cilindrico	Surfacer dresser à 90° queue cylindrique
 **PSE/WS** NEW	90° Shoulder Cutter, Weldon shank	90 ° Schulterfräser, Weldonschaft
	90° Fresa spallamento retto, gambo cilindrico Weldon	Surfacer dresser à 90° queue weldon
 **PSE Scew Fit** NEW	90° Shoulder Cutter, screw fit type	90 ° Schulterfräser, Aufschraubschaft
	90° Fresa spallamento retto, sistema modulare	Surfacer dresser à 90° tête vissée
 **PSE BORE** NEW	90° Shoulder Cutter, Bore type	90 ° Schulterfräser, Aufnahmebohrung
	90° Fresa spallamento retto, a manicotto	Surfacer dresser à 90° à trou lisse
 **PRC-SS** NEW	Radius cutter, straight shank	Rundplattenfräser , Zylinderschaft
	Fresa con inserto tondo, gambo cilindrico	Fraise à plaquettes rondes, queue cylindrique
 **PRC Scew Fit** NEW	Radius cutter, screw fit type	Rundplattenfräser , Aufschraubschaft
	Fresa con inserto tondo, sistema modulare	Fraise à plaquettes rondes, tête vissée
 **PRC BORE** NEW	Radius cutter, Bore type	Rundplattenfräser, Aufnahmebohrung
	Fresa con inserto tondo, a manicotto	Fraise à plaquettes rondes, trou lisse
 **PHC-SS** NEW	High feed radius cutter, straight shank	Hochvorschubsfräser , Zylinderschaft
	Fresa alto avanzamento, gambo cilindrico	Fraise grandes avances, queue cylindrique
 **PHC-SS Screw Fit** NEW	High feed radius cutter, screw fit type	Hochvorschubsfräser , Aufschraubschaft
	Fresa alto avanzamento, sistema modulare	Fraise grandes avances, tête vissée
 **PHC BORE** NEW	High feed radius cutter, Bore type	Hochvorschubsfräser , Aufnahmebohrung
	Fresa alto avanzamento, a manicotto	Fraise grandes avances, trou lisse
 **PDR-SS/MT/CN** NEW	Deep feed radius cutter, shank type	Torusfräser für maximale Zustellungen, Zylinderschaft
	Fresa ad alta asportazione, stelo	Fraise torique, grande avance, queue cylindrique
 **PDR BORE** NEW	Deep feed radius cutter, Bore type	Torusfräser für maximale Zustellungen, Aufnahmebohrung
	Fresa ad alta asportazione, a manicotto	Fraise torique grande avance, trou lisse

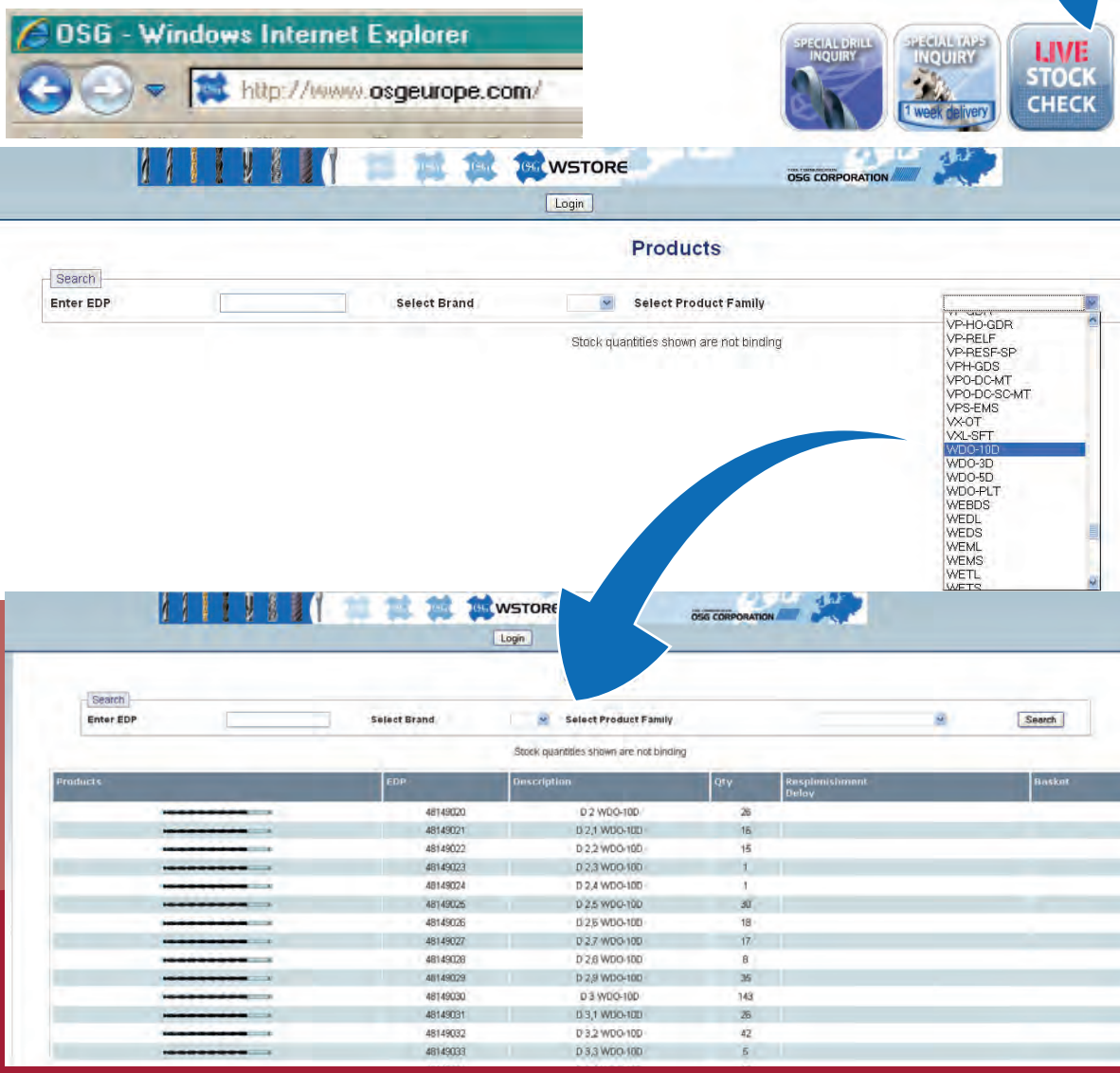
SPECIFICATION	RANGE	APPLICATION	PAGE
DRILLING	8 60 125		
3 x D High Performance bor med vendeskær Broca insertable para altas prestaciones	3 x D high performance borr 3D высокопроизводительное сверло со сменными пластинками	14 32	Boring, Plunging	F.26~

SPECIFICATION	RANGE	APPLICATION	PAGE
MILLING	8 60 125		
Radiusfræser til sletbearbejdning, 2 skær Fresa de punta esférica 2 labios para acabado.	Finkörnings vändskärs fullradie fräs, 2 skär Чистовая сферическая фреза, 2-зубая	8 30	Side Milling, Face Milling, Contouring, Slotting, Profile Milling, Plunging	F. 6~
90° vendeskærsfræser, cylindrisk skaft Fresa a 90° para escuadrar, mango cilíndrico.	90° vändskärsfräs, rakt skaft Торцевая фреза 90°, цилиндрический хвостовик	16 63	Side Milling, Face Milling, Contouring, Slotting	F.12
90° vendeskærsfræser, Weldon skaft Fresa a 90° para escuadrar, mango Weldon	90° vändskärsfräs, Weldon skaft Торцевая фреза 90°, хвостовик Weldon	16 32	Side Milling, Face Milling, Contouring, Slotting	F.12
90° vendeskærsfræser, Indskrunings type Fresa a 90° para escuadrar, Cabeza roscada	90° vändskärsfräs huvud med gängin-fästning Торцевая фреза 90°, резьбовая головка	16 40	Side Milling, Face Milling, Contouring, Slotting	F.13
90° vendeskærsfræser, til dorn Fresa a 90° para escuadrar, hueca	90° vändskärsfräs huvud med skruvfäste Торцевая фреза 90°, насадная	40 125	Side Milling, Face Milling, Contouring, Slotting	F.14
Radius fræser, cylindrisk skaft Fresa tórica, mango cilíndrico.	Vändskärsfräs med runda skär, rakt skaft Торовая фреза, цилиндрический хвостовик	20 63	Side Milling, Face Milling, Contouring, Slotting, Profile Milling, Plunging	F.16
Radius fræser, Indskrunings type Fresa tórica, Cabeza roscada	Vändskärsfräs med runda skär huvud med gänginfästning Торовая фреза, резьбовая головка	20 40	Side Milling, Face Milling, Contouring, Slotting, Profile Milling, Plunging	F.17
Radius fræser, til dorn Fresa tórica, hueca	Vändskärsfräs med runda skär med skruvfäste Торовая фреза, насадная	50 100	Side Milling, Face Milling, Contouring, Slotting, Profile Milling, Plunging	F.18
High feed radius fræser, cylindrisk skaft Fresa de gran avance, mango cilíndrico	Högmatningsfräs, rakt skaft Фреза с высокой подачей, цилиндрический хвостовик	25 63	Side Milling, Face Milling, Contouring, Slotting, Profile Milling, Plunging	F.20
High feed radius fræser, Indskrunings type Fresa de gran avance, Cabeza roscada	Högmatningsfräs med gänginfästning Фреза с высокой подачей, резьбовая головка	25 40	Side Milling, Face Milling, Contouring, Slotting, Profile Milling, Plunging	F.21
High feed radius fræser, til dorn Fresa de gran avance, hueca	Högmatningsfräs med skruvfäste Фреза с высокой подачей, насадная	40 100	Side Milling, Face Milling, Contouring, Slotting, Profile Milling, Plunging	F.22
Deep feed radiusfræser, cylindrisk skaft Fresa de gran avance con radio, con mango	Avverknings och hörnradie vändskärsfräs med skaft Фреза с высокой подачей и увеличенной глубиной резания, цилиндрический стовик	40 50	Side Milling, Face Milling, Contouring, Slotting, Profile Milling, Plunging	F.24
Deep feed radiusfræser, til dorn Fresa de gran avance con radio, hueca	Avverknings och hörnradie vändskärsfräshu-vud med skruvfäste Фреза с высокой подачей и увеличенной глубиной резания, насадная	63 105	Side Milling, Face Milling, Contouring, Slotting, Profile Milling, Plunging	F.25

ICONS								
Face milling - Planfräsen - Spianatura - Surfaçage - Planfræsning - Planfräsning - Fresado plano - Фрезерование плоскостей								
	Face milling	Planfräsen	Spianatura	Surfaçage	Planfræsning	Planfräsning	Fresado plano	Фрезерование плоскостей
Side milling - Konturfräsen - Fresatura contornatura - Fraisage contournage - Sidefræsning - Valsfräsning - Contorneado - Боковое фрезерование								
	Side milling	Konturfräsen	Fresatura contornatura	Fraisage contournage	Sidefræsning	Valsfräsning	Contorneado	Боковое фрезерование
	Side milling	Konturfräsen	Fresatura contornatura	Fraisage contournage	Sidefræsning	Valsfräsning	Contorneado	Боковое фрезерование
	Side milling	Konturfräsen	Fresatura contornatura	Fraisage contournage	Sidefræsning	Valsfräsning	Contorneado	Боковое фрезерование
Slotting - Nutenfräsen - Per scanalature profonde - Rainurage - Skæredata - Skärdata - Ranurado - Фрезерование пазов								
	Slotting	Nutenfräsen	Per scanalature profonde	Rainurage	Skæredata	Skärdata	Ranurado	Фрезерование пазов
	Slotting	Nutenfräsen	Per scanalature profonde	Rainurage	Skæredata	Skärdata	Ranurado	Фрезерование пазов
	Slotting	Nutenfräsen	Per scanalature profonde	Rainurage	Skæredata	Skärdata	Ranurado	Фрезерование пазов
Contouring - Konturfräsen - Contornatura - Contournage - Konturfræsning - Konturfräsning - Contorneado -								
	Contouring	Konturfräsen	Contornatura	Contournage	Konturfræsning	Konturfräsning	Contorneado	фрезерования
Profile milling - Profilfräsen - Copiatura - Usinage de forme - Profil fræsning - Profilfräsning - Copiado de figura - Профильное фрезерование								
	Profile milling	Profilfräsen	Copiatura	Usinage de forme	Profil fræsning	Profilfräsning	Copiado de figura	Профильное фрезерование
	Profile milling	Profilfräsen	Copiatura	Usinage de forme	Profil fræsning	Profilfräsning	Copiado de figura	Профильное фрезерование
Boring & Plunging - Bohren & Tauchfräsen - Foratura & Fresatura in spinta - Perçage et Plongée - Boring & Plunging - Borrning & Plunging - Taladrado & Penetraci - Сверлени								
	Boring	Bohren	Foratura	Perçage	Boring	Borrning	Taladrado	Сверление
	Plunging	Tauchfräsen	Fresatura in spinta	plongée	Plunging	Plunging	Penetración axial	Плунжерное фрезерование
	Plunging	Tauchfräsen	Fresatura in spinta	plongée	Plunging	Plunging	Penetración axial	Плунжерное фрезерование

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PFB



HIGH PERFORMANCE
- Finish Ball nose Cutter
- 2 flutes

HIGH PERFORMANCE
- Kugelfräser für Schlichtbearbeitungen
- 2 Schneider

ALTA PRESTAZIONE
- Fresa sferica di finitura
- 2 eliche

HAUTE PERFORMANCE
- Finition hémisphérique
- 2 dents

HIGH PERFORMANCE
- Radiusfræser til sletbearbejdning
- 2 skær

HIGH PERFORMANCE
- Fullradiefräs för finishing
- 2 skär

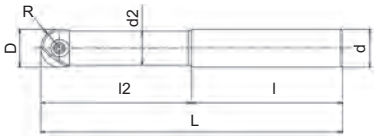
ALTO RENDIMIENTO
- Fresa de punta esférica
- 2 labios para acabado.

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Чистовая сферическая фреза
- 2-зубая

GO TO LIVE STOCK CHECK

Profile Milling

min^{-1} F.28-F.29



Steel Shanks

EDP	Tool Specification	D	R	l2	l2/D	l	L	d2	d	Z∆	Stock	Price
7801400	PFB-R080SS08-S120	8	4	36	4,5	84	120	7	8	2	●	
7801401	PFB-R100SS10-S130	10	5	45	4,5	85	130	9	10	2	●	
7801402	PFB-R120SS12-S130	12	6	54	4,5	76	130	11	12	2	●	
7801403	PFB-R160SS16-S140	16	8	64	4	76	140	14	16	2	●	
7801404	PFB-R200SS20-S160	20	10	80	4	80	160	18	20	2	●	
7801405	PFB-R250SS25-S160	25	12,5	75	3	85	160	22	25	2	●	
7801406	PFB-R300SS32-S170	30	15	90	3	80	170	27	32	2	●	

Z∆= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Carbide Shanks- Short

EDP	Tool Specification	D	R	l2	l2/D	l	L	d2	d	Z∆	Stock	Price
7801430	PFB-R080SS08-S100CS	8	4	20	2,5	80	100	7	8	2	●	
7801431	PFB-R100SS10-S100CS	10	5	25	2,5	75	100	9	10	2	●	
7801432	PFB-R120SS12-S110CS	12	6	30	2,5	80	110	11	12	2	●	
7801433	PFB-R160SS16-S140CS	16	8	40	2,5	100	140	14	16	2	●	
7801434	PFB-R200SS20-S160CS	20	10	50	2,5	100	160	18	20	2	●	
7801435	PFB-R250SS25-S160CS	25	12,5	62,5	2,5	97,5	160	22	25	2	●	
7801436	PFB-R300SS32-S170CS	30	15	75	2,5	95	170	27	32	2	●	

Z∆= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Carbide Shanks- Long

EDP	Tool Specification	D	R	l2	l2/D	l	L	d2	d	Z∆	Stock	Price
7801420	PFB-R080SS08-LL140CS	8	4	56	7	84	140	7	8	2	●	
7801421	PFB-R100SS10-LL150CS	10	5	70	7	80	150	9	10	2	●	
7801422	PFB-R120SS12-LL160CS	12	6	84	7	76	160	11	12	2	●	
7801423	PFB-R160SS16-LL200CS	16	8	96	6	104	200	14	16	2	●	
7801424	PFB-R200SS20-LL240CS	20	10	120	6	120	240	18	20	2	●	
7801425	PFB-R250SS25-LL260CS	25	12,5	137,5	5,5	122,5	260	22	25	2	●	
7801426	PFB-R300SS32-LL290CS	30	15	165	5,5	125	290	27	32	2	●	

Z∆= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

● Delivery from stock
○ Available on short notice



Applicable insert for Finish Ball Nose Cutter

Wendeplatten, Kugelfräser PFB

Inserti applicabili per fresa sferica di finitura

Choix de plaquettes de finition hémisphérique

Anvendelige skær til radiusfræser

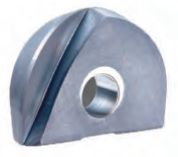
Utbytbara skärinsatser för fullradiefräs

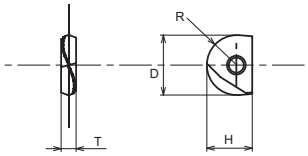
Plaquitas para fresa esférica de acabado

Сменные пластинки для чистовой сферической фрезы

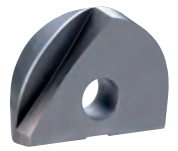
GO TO LIVE STOCK CHECK

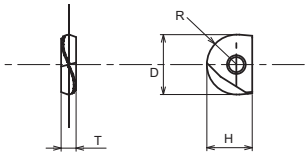
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WXS Coated	Designation	Insert Size				Nb of Cutting Edges	Price
XP3320		D	R	T	H		
7820010	PFB080-SP	8	4	2,4	7	2	
7820011	PFB100-SP	10	5	2,6	8,5	2	
7820012	PFB120-SP	12	6	3	10	2	
7820013	PFB160-SP	16	8	4	12	2	
7820014	PFB200-SP	20	10	5	15	2	
7820015	PFB250-SP	25	12,5	6	18,5	2	
7820016	PFB300-SP	30	15	7	22,5	2	

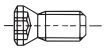




Dia Coated	Designation	Insert Size				Nb of Cutting Edges	Price
XC4505		D	R	T	H		
7820020	PFB080-D	8	4	2,4	7	2	
7820021	PFB100-D	10	5	2,6	8,5	2	
7820022	PFB120-D	12	6	3	10	2	
7820023	PFB160-D	16	8	4	12	2	
7820024	PFB200-D	20	10	5	15	2	
7820025	PFB250-D	25	12,5	6	18,5	2	
7820026	PFB300-D	30	15	7	22,5	2	

Inserts are all sold 1 pieces per package

Accessories



Clamping Screw

EDP	Designation	Size Ø	Recommanded Torque	Stock	Price
7808123	FS25669RB	8	1 Nm	●	
7808117	FS30686RB	10	1,2 Nm	●	
7808118	FS35610RB	12	2 Nm	●	
7808119	FS40613RB	16	3 Nm	●	
7808120	FS50615RB	20	5 Nm	●	
7808121	FS60620RB	25	5 Nm	●	
7808122	FS80624RB	30	6 Nm	●	



Wrench

OSG Phoenix
Information
Recycled Plastic Cases are used in all OSG Phoenix packaging.
Let's reduce, re-use and re-cycle!

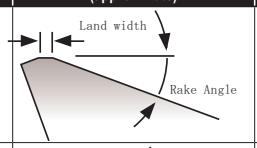
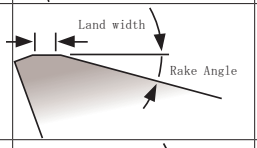
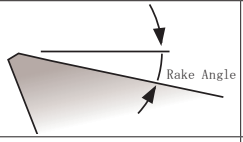
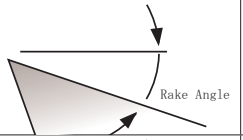
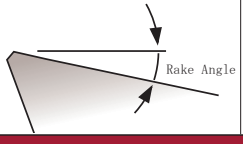


EDP	Designation	Size Ø	Stock	Price
7808204	T7-D	8	●	
7808205	T8-D	10	●	
7808207	T10-D	12	●	
7808208	T15-D	16	●	
7808209	T20-D	20/ 25	●	
7808212	T30-D	30	●	

Table of Inserts

Classification	Grades	Coating Method	(HRA) Hardness	Surface treatment		Features
				Main Component	Coating thickness	
P	XP3035	PVD	90,7	TiAlN-TiN	4 µm	For machining steels, stainless steels and cast irons A material for general-purpose milling, it is made of a tough, high-strength carbide material coated with chipping-resistant and wear-resistant coating.
	XP3225	PVD	91,5	Cr	3 µm	For machining steels, stainless steels and cast irons A tough carbide base material and excellent general purpose coating
	XP3320	PVD	91,5	SiC Silicon-based heat-resistant coating	3 µm	For machining steels, stainless steels and cast irons It is made of a tough carbide material with a heat-resistant and wear-resistant coating
	XP3930	PVD	90,8	TiAlN	3 µm	For machining steels, cast irons and stainless steels Excellent balance, can accommodate a range of workpiece materials
	XP9040	PVD	91,9	TiAlN	3 µm	For machining steels and stainless steels A material for hole drilling, it is made of a tough carbide material with an anti-chipping and wear-resistant coating
M	XP2040	PVD	89,6	TiAlN	4 µm	For machining stainless steels and steels A material for general-purpose milling, it is made of a tough, high-strength carbide material with an anti-chipping and wear-resistant coating
K	XC1015	CVD	92,0	TiCN-Al2O3	5 µm	For machining cast irons A material for milling cast-iron, it is made of a tough, high-strength carbide material with an anti-chipping and wear-resistant coating
	XC9025	CVD	90,8	TiCN-Al2O3	6 µm	For machining cast irons A material for hole drilling in cast-iron, it is made of a tough, high-strength carbide material with an anti-chipping and wear-resistant coating
N	CK010	-	92,0	-	-	For machining non-ferrous materials A non-coated carbide material with both anti-chipping and wear resistant properties
	XC4505	CVD	92.0	DIA	12µm	For machining non-ferrous materials The minute diamond crystals provide for a coating layer with excellent strength
H	XP6305	PVD	93.0	SiC Silicon-based heat-resistant coating	3µm	For machining high hardness materials High temperature hardness levels and excellent thermal conductivity for machining high hardness materials
S	XC5035	CVD	89.3	TiN-Ti(CN)-Al2O3-Ti(BN)	6µm	For machining heat-resistant alloy and stainless steels A material for machining heat-resistant steel, it is made of a tough carbide material with an oxidation-resistant and high-lubricity coating
	XC5040	CVD	89.3	TiN-TiB2	4µm	For machining heat-resistant alloy and stainless steels A material for machining heat-resistant steel, it can be used for wet machining. It is made of a tough carbide material with an oxidation-resistant and high-lubricity coating

Type of chip former and the application

	Chib Former	Cutting edge cross-section (approximate)	Rake Angle	Application
For Milling	GL		25°	For milling stainless-steel: a breaker with a large rake angle and a small flat land to reduce cutting force
	GM		15°	For machining various materials from steel to cast iron: a breaker with a superior balance of rake angle and flat land
	SM		15°	For machining difficult materials: a breaker with a sharp cutting edge to reduce cutting force and provide smooth chip evacuation
	NM		30°	For machining nonferrous materials: a breaker with a sharp cutting edge and a large rake angle to suppress welding, improve the milling surface and prevent burrs
For Drilling	DM		10°	For drilling various materials from steel to cast iron: a general-purpose breaker with an ideal rake angle

Designation (Body)

PHC	12	R	050	SS	42	-	4	S
①	②	③	④	⑤	⑥		⑦	⑧

① Abbreviation

Example:
PHC= High Feed Cutter

② Cutting Direction

R= Right hand
L= Left hand

⑥ Mounting Diameter

Example:
42=42mm

⑦ Number of flute

Example:
4=4 Flute

② Insert Size

Example:
12=12mm

④ Cutting Diameter

Example:
050=50mm

⑤ Mounting type

A	Bore Type (Inch)
M	Bore Type (Metric)
SS	Straight Shank (Metric)
WS	Weldon Shank (Metric)
SA	Straight Shank (Inch)
MT	Morse Taper Shank
SF	Screw Fit Type
FS	Flat Shank

⑧ Shank type

S	Short
L	Long
LL	Extra Long

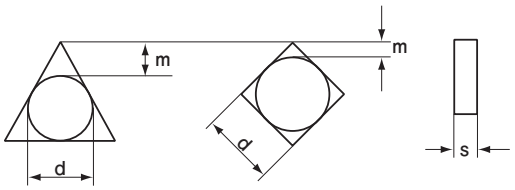
Designation (Insert)

Z	D	K	T
①	②	③	④

Shape of insert

C	80° Diamond apex 80°	
D	55° Diamond apex 55°	
O	octagon	
R	round	
S	square	
T	triangle	
V	35° diamond apex 35°	
W	axonometric hexagon	
Z	other shapes	-

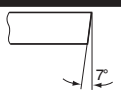
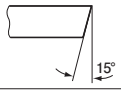
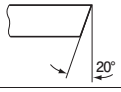
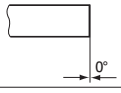
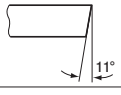
Tolerance



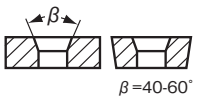
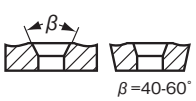
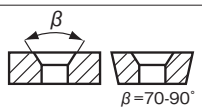
Symbol	dia d (mm) Inscribed circle tolerance	m (mm) Corner height tolerance	s (mm) Thickness tolerance
A	±0,025	±0,005	±0,025
C	±0,025	±0,013	±0,025
E	±0,025	±0,025	±0,025
H	±0.013	±0,013	±0,025
K*	±0,05 ~ ±0,15	±0,013	±0,025
M*	±0,05 ~ ±0,15	±0,08 ~ ±0,18	±0,13
N*	±0,05 ~ ±0,15	±0,08 ~ ±0,18	±0,025

* = Sintered surface shown on the side

Clearance Angle

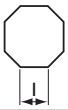
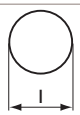
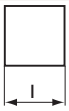
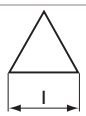
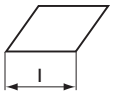
C		7°
D		15°
E		20°
N		0°
P		11°
X	Special Dimension	

Special Cutting and Fastening Features

Symbol	Shape of Hole	With or without Breaker	Insert cross section
W	40° - 60° Partial cylindrical hole	No breaker	
T		One side	
B	70° - 90° Partial cylindrical hole	No breaker	
N	-	No breaker	
R	-	One side	

15	05	08	S	R	-	GM
⑤	⑥	⑦	⑧	⑨	-	⑩

Length of the cutting edge

O	
R	
S	
T	
Z	

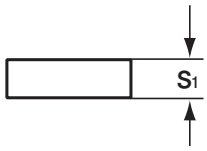
Corner Radius

Symbol	r
02	R 0,2
04	R 0,4
08	R 0,8
12	R 1,2
16	R 1,6
24	R 2,4

Cutting Direction

Symbol	Cutting Direction
R	Right hand
L	Left hand
N	Both ways

Thickness of insert



Symbol	S_1 (mm) Thickness
02	2,38
03	3,18
T3	3,97
04	4,76
05	5,56
06	6,35

Type of cutting edge

Symbol	Appearance
F	 Sharpe edge
E	 Round honing
T	 Chamfer honing
S	 Combination honing

Type of chip breaker

Symbol	Name
GL	GL breaker
GM	GM breaker
GR	GR breaker
NM	NM breaker
SM	SM breaker
DM	DM breaker

PSE-WS/SS



HIGH PERFORMANCE
- 90° Shoulder cutter
- Weldon and Straight shank type

HIGH PERFORMANCE
- 90 ° Schulterfräser
- Weldon und Zylinderschaft

ALTA PRESTAZIONE
- 90° Spallamento retto
- Gambo Weldon e cilindrico

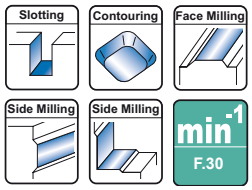
HAUTE PERFORMANCE
- Surfacer dresser à 90°
- Queue weldon et cylindrique

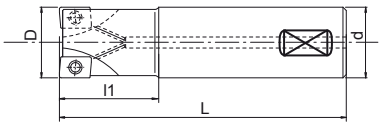
HIGH PERFORMANCE
- 90° vendeskærsfræser
- Med og uden Weldon flade

HIGH PERFORMANCE
- 90° vändskärsfräs
- Weldon och rakt skaft

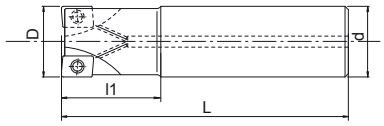
ALTO RENDIMIENTO
- Fresa de 90° para escuadrar
- Mango cilíndrico Weldon

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Торцевая фреза 90°
- Weldon и цилиндрический хвостовик





Type 1



Type 2

Weldon Shank

EDP	Type	Designation	D	Z△	d	L	l1	Applicable Inserts	Type	Stock	Price
47801100	Coarse Pitch	PSE11R016WS16-2S	16	2	16	75	25		1	●	
47801115	Close Pitch	PSE11R020WS20-3S	20	3	20	80	25	ZD-T11-	1	●	
47801104	Close Pitch	PSE11R025WS25-4S	25	4	25	90	35	①	1	●	
47801105	Close Pitch	PSE11R032WS32-5S	32	5	32	105	40		1	●	
47801106	Coarse Pitch	PSE15R025WS25-2S	25	2	25	100	32	ZD-T15-	1	●	
47801111	Close Pitch	PSE15R032WS32-3S	32	3	32	125	40	②	1	●	

Z△= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Straight Shank

EDP	Type	Designation	D	Z△	d	L	l1	Applicable Inserts	Type	Stock	Price
7801101	Coarse Pitch short	PSE11R020SS20-2S	20	2	20	100	30		2	o	
7801102	Coarse Pitch short	PSE11R025SS25-3S	25	3	25	120	35		2	o	
7801103	Coarse Pitch short	PSE11R032SS32-3S	32	3	32	130	45		2	o	
7801100	Close Pitch short	PSE11R016SS16-2S	16	2	16	90	25		2	●	
7801116	Close Pitch short	PSE11R018SS16-2S	18	2	16	90	25		2	o	
7801115	Close Pitch short	PSE11R020SS20-3S	20	3	20	100	30		2	●	
7801117	Close Pitch short	PSE11R022SS20-3S	22	3	20	110	30		2	o	
7801104	Close Pitch short	PSE11R025SS25-4S	25	4	25	120	35		2	●	
7801118	Close Pitch short	PSE11R028SS25-4S	28	4	25	120	35	ZD-T11-	2	o	
7801119	Close Pitch short	PSE11R030SS32-4S	30	4	32	130	45	①	2	o	
7801105	Close Pitch short	PSE11R032SS32-5S	32	5	32	125	40		2	●	
7801120	Close Pitch short	PSE11R035SS32-5S	35	5	32	130	35		2	o	
7801121	Long	PSE11R016SS16-2L	16	2	16	150	50		2	o	
7801122	Long	PSE11R018SS16-2L	18	2	16	150	25		2	o	
7801123	Long	PSE11R020SS20-3L	20	3	20	160	60		2	o	
7801124	Long	PSE11R022SS20-3L	22	3	20	160	30		2	o	
7801125	Long	PSE11R025SS25-3L	25	3	25	170	70		2	o	
7801126	Long	PSE11R028SS25-3L	28	3	25	170	35		2	o	
7801127	Long	PSE11R030SS32-3L	30	3	32	190	90		2	o	
7801128	Long	PSE11R032SS32-3L	32	3	32	190	90		2	o	
7801129	Long	PSE11R035SS32-3L	35	3	32	190	35		2	o	
7801107	Coarse Pitch short	PSE15R032SS32-2S	32	2	32	130	45		2	o	
7801108	Coarse Pitch short	PSE15R040SS32-3S	40	3	32	140	50		2	o	
7801109	Coarse Pitch short	PSE15R050SS32-3S	50	3	32	130	45		2	o	
7801110	Coarse Pitch short	PSE15R063SS32-4S	63	4	32	130	45		2	o	
7801106	Close Pitch short	PSE15R025SS25-2S	25	2	25	120	35		2	●	
7801130	Close Pitch short	PSE15R028SS25-2S	28	2	25	120	35		2	o	
7801131	Close Pitch short	PSE15R030SS32-3S	30	3	32	130	45		2	o	
7801111	Close Pitch short	PSE15R032SS32-3S	32	3	32	130	45	ZD-T15-	2	●	
7801132	Close Pitch short	PSE15R035SS32-3S	35	3	32	130	35	②	2	o	
7801112	Close Pitch short	PSE15R040SS32-4S	40	4	32	140	50		2	o	
7801113	Close Pitch short	PSE15R050SS32-5S	50	5	32	130	45		2	o	
7801114	Close Pitch short	PSE15R063SS32-6S	63	6	32	130	45		2	o	
7801133	Long	PSE15R025SS25-2L	25	2	25	170	70		2	o	
7801134	Long	PSE15R028SS25-2L	28	2	25	170	35		2	o	
7801135	Long	PSE15R030SS32-3L	30	3	32	190	90		2	o	
7801136	Long	PSE15R032SS32-3L	32	3	32	190	90		2	o	
7801137	Long	PSE15R035SS32-3L	35	3	32	190	45		2	o	
7801138	Long	PSE15R040SS32-3L	40	3	32	190	45		2	o	

Z△= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

For Applicable insert type, see page F.15

● Delivery from stock
○ Available on short notice

PSE Screw Fit



HIGH PERFORMANCE
- 90° Shoulder Cutter
- Screw fit type

HIGH PERFORMANCE
- 90 ° Schulterfräser
- Aufschraubschaft

ALTA PRESTAZIONE
- 90° Spallamento retto
- Sistema modulare

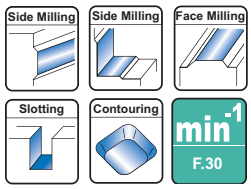
HAUTE PERFORMANCE
- Surfacer dresser à 90°
- Tête vissée

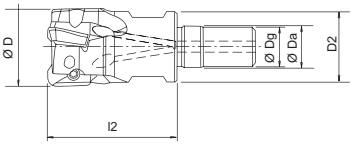
HIGH PERFORMANCE
- 90° vendeskærsfræser
- Indskrunings type

HIGH PERFORMANCE
- 90° vändskärsfräs
- Med gänginfästning

ALTO RENDIMIENTO
- Fresa de 90° para escuadrar
- Cabeza roscada

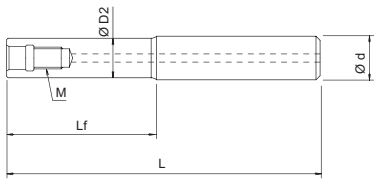
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Торцевая фреза 90°
- Резьбовая головка





EDP	Designation	D	Z△	Da	Dg	l2	D2	Applicable Inserts	Stock	Price
7801600	PSE11R016SF8-2	16	2	8,5	8	27	14,5		●	
7801601	PSE11R020SF10-3	20	3	10,5	10	33	18		●	
7801602	PSE11R025SF12-4	25	4	12,5	12	35	23	ZD-T11-	●	
7801603	PSE11R028SF12-4	28	4	12,5	12	35	23	①	●	
7801604	PSE11R032SF16-5	32	5	17	16	40	28		●	
7801605	PSE11R035SF16-5	35	5	17	16	40	28		●	
7801606	PSE11R040SF16-6	40	6	17	16	40	28		●	
7801607	PSE15R025SF12-2	25	2	12,5	12	35	23		●	
7801608	PSE15R028SF12-2	28	2	12,5	12	35	23	ZD-T15-	●	
7801609	PSE15R032SF16-3	32	3	17	16	40	28	②	●	
7801610	PSE15R035SF16-3	35	3	17	16	40	28		●	
7801611	PSE15R040SF16-4	40	4	17	16	40	28		●	

Z△= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок



Straight arbor with steel shank

EDP	Designation	d	D2	M	L	Lf	Stock	Price
7801900	SF-M08SS16-15	16	14,5	8	95	15	○	
7801901	SF-M10SS20-20	20	18	10	120	20	○	
7801902	SF-M12SS25-35	25	23	12	135	35	○	
7801903	SF-M16SS32-35	32	28	16	155	35	○	

Straight arbor with carbide shank

EDP	Designation	d	D2	M	L	Lf	Stock	Price
7801910	SF-M08SS16-55CS	16	14,5	8	115	55	○	
7801911	SF-M08SS16-85CS	16	14,5	8	145	85	○	
7801912	SF-M10SS20-70CS	20	18	10	140	70	○	
7801913	SF-M10SS20-110CS	20	18	10	180	110	○	
7801914	SF-M12SS25-90CS	25	23	12	170	90	○	
7801915	SF-M12SS25-140CS	25	23	12	220	140	○	
7801916	SF-M16SS32-120CS	32	28	16	220	120	○	
7801917	SF-M16SS32-190CS	32	28	16	290	190	○	

For Applicable insert type, see page F.15

PSE BORE

HIGH PERFORMANCE
- 90° Shoulder Cutter
- Bore Type

HIGH PERFORMANCE
- 90 ° Schulterfräser
- Aufnahmebohrung

ALTA PRESTAZIONE
- 90° Spallamento retto
- A manicotto

HAUTE PERFORMANCE
- Surfacer dresser à 90°
- Trou lisse



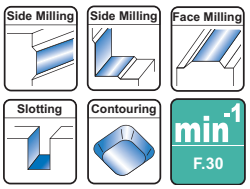
HIGH PERFORMANCE
- 90° vendeskærsfræser
- Til dorn

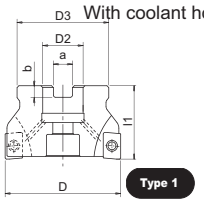
HIGH PERFORMANCE
- 90° vändskärsfräs
- Med skruvfäste

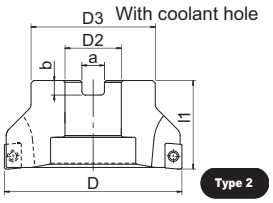
ALTO RENDIMIENTO
- Fresa de 90° para escuadrar
- Hueca

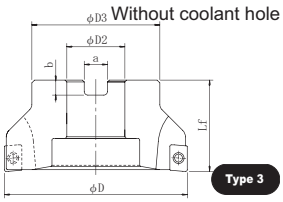
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Торцевая фреза 90°
- Насадная

GO TO LIVE STOCK CHECK





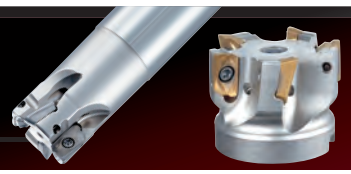




EDP	Type	Designation	D	ZΔ	l1	D3	D2	a	b	Appl. Inserts	Type	Stock	Price
7801000	Coarse Pitch	PSE11R040M16-4	40	4	40	38	16	8,4	5,6		1	o	
7801001	Coarse Pitch	PSE11R050M22-5	50	5	40	45	22	10,4	6,3		1	o	
7801002	Coarse Pitch	PSE11R063M22-6	63	6	40	50	22	10,4	6,3		2	o	
7801003	Coarse Pitch	PSE11R080M27-7	80	7	50	60	27	12,4	7		2	o	
7801020	Coarse Pitch	PSE11R080M25.4-7	80	7	50	60	25,4	9,5	6	ZD-T11-	2	o	
7801004	Close Pitch	PSE11R040M16-6	40	6	40	38	16	8,4	5,6	①	1	●	
7801005	Close Pitch	PSE11R050M22-7	50	7	40	45	22	10,4	6,3		1	●	
7801006	Close Pitch	PSE11R063M22-8	63	8	40	50	22	10,4	6,3		2	●	
7801007	Close Pitch	PSE11R080M27-10	80	10	50	60	27	12,4	7		2	●	
7801021	Close Pitch	PSE11R080M25.4-10	80	10	50	60	25,4	9,5	6		2	o	
7801008	Coarse Pitch	PSE15R040M16-3	40	3	40	38	16	8,4	5,6		1	o	
7801009	Coarse Pitch	PSE15R050M22-3	50	3	40	45	22	10,4	6,3		1	o	
7801010	Coarse Pitch	PSE15R063M22-4	63	4	40	50	22	10,4	6,3		2	o	
7801011	Coarse Pitch	PSE15R080M27-5	80	5	50	60	27	12,4	7		2	o	
7801022	Coarse Pitch	PSE15R080M25.4-5	80	5	50	60	25,4	9,5	6		2	o	
7801012	Coarse Pitch	PSE15R100M32-7	100	7	50	70	32	14,4	8		3	o	
7801023	Coarse Pitch	PSE15R100M31.7-7	100	7	50	70	31,75	12,7	8	ZD-T15-	3	o	
7801024	Coarse Pitch	PSE15R125M38.1-8	125	8	63	90	38,1	15,9	10	②	3	o	
7801014	Close Pitch	PSE15R040M16-4	40	4	40	38	16	8,4	5,6		1	●	
7801015	Close Pitch	PSE15R050M22-5	50	5	40	45	22	10,4	6,3		1	●	
7801016	Close Pitch	PSE15R063M22-6	63	6	40	50	22	10,4	6,3		2	●	
7801017	Close Pitch	PSE15R080M27-8	80	8	50	60	27	12,4	7		2	o	
7801025	Close Pitch	PSE15R080M25.4-8	80	8	50	60	25,4	9,5	6		2	o	
7801018	Close Pitch	PSE15R100M32-10	100	10	50	70	32	14,4	8		3	o	
7801026	Close Pitch	PSE15R100M31.7-10	100	10	50	70	31,75	12,7	8		3	o	
7801027	Close Pitch	PSE15R125M38.1-11	125	11	63	90	38,1	15,9	10		3	o	

» Phoenix PSE

Phoenix Shoulder Cutter Series — Phoenix Shoulder End mill



Bottom notch

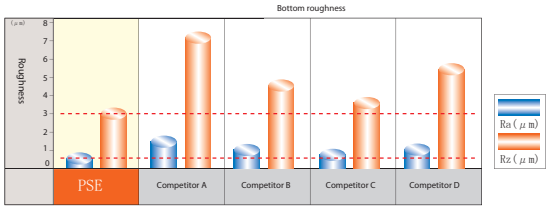
- The bottom notch breaks chips into small pieces.
- This prevents the jamming or wrapping of chips, enabling the tool to perform ramping and helical milling in a smooth manner.



High precision insert

—Bottom roughness

PSE11R032SS32-5S (ZDKT11T304SR-GM XP3035) S50C
Vc=180 m/min fz=0,1 mm/t ap=0,1 mm ae=25,6 mm
Ra-0,5 μm-Rz-4 μm-PSE

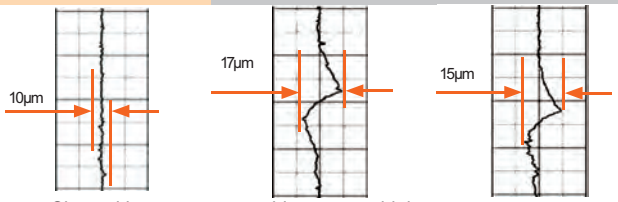


PSE showed an improvement at the bottom flat surface finish Rz 4μm and under.

—Side Milling Offset

PSE15R032SS32-3S (ZDKT150508SR-GHXP3035) S50C
Vc=180 m/min fz=0,1 mm/t ap=5 mm ae=0,2 mm

PSE	Competitor A	Competitor B



Showed improvement at side step machining as (measured) step as 10 μm

● Delivery from stock
○ Available on short notice



Applicable insert for 90° Shoulder cutter

Wendeplatten 90° Schulterfräser PSE

Inserti applicabili per fresa 90° spallamento retto

choix de plaquette pour surfaçage-dressage à 90°

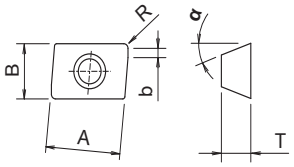
Anvendelige skær til 90° vendeskærsfræser

Utbytbara vändskär för 90° vändskärsfräs

Плаquitas para fresa a 90° de escuadrar

Сменные пластинки для торцевой фрезы 90°





Designation	Nb. of Cutting edges	Insert Size					Uncoated	Grade of Coated Materials					Price
		A X B	T	α	R	b	CK010	XP3035	XP2040	XC1015	XC5035	XC5040	
ZDKT11T308SR-GL	2	10x6,8	3,8	15°	0,8	1,4		7814026	7813026				
ZDKT11T304SR-GM	2	10x6,8	3,8	15°	0,4	1,8		7814025	7813025	7812025			
ZDKT11T308SR-GM	2	10x6,8	3,8	15°	0,8	1,4		7814032	7813032				
ZDKT11T312SR-GM	2	10x6,8	3,8	15°	1,2	1,0		7814053					
ZDKT11T320SR-GM	2	10x6,8	3,8	15°	2	2,1		7814038					
①ZDKT11T330SR-GM	2	10x6,8	3,8	15°	3	1,5		7814054					
ZDKT11T340SR-GM	2	10x6,8	3,8	15°	4	-		7814055					
ZDKT11T308ER-SM	2	10x6,8	3,8	15°	0,8	1,4					7815031	7816031	
ZDKT11T316ER-SM	2	10x6,8	3,8	15°	1,6	0,8					7815027	7816027	
ZDKT11T302FR-NM	2	10x6,8	3,8	15°	0,2	2	7811048						
ZDKT11T304FR-NM	2	10x6,8	3,8	15°	0,4	1,8	7811049						
ZDHT11T304FR-NM	2	10x6,8	3,5	15°	0,4	1,8	7811024						
ZDKT150508SR-GL	2	14x9,3	5,56	15°	0,8	1,6		7814057	7813057				
②ZDKT150508SR-GM	2	14x9,3	5,56	15°	0,8	1,6		7814029	7813028	7812029			
ZDKT150508ER-SM	2	14x9,3	5,56	15°	0,8	1,6					7815056	7816056	
ZDKT150508FR-NM	2	14x9,3	5,56	15°	0,8	1,6	7811046						

■ Recommanded Materials by Applications

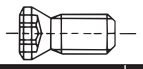
◉ First recommended material
○ Second recommended material

Inserts are all sold 10 pieces per package

Inserts Grades	Chip Breaker	Coolant	P	M	K	N	S	H
CK010	NM	–			○	◉		
XP2040	GL/GM	–	○					◉
		yes		◉			○	
XP3035	GL/GM	–	◉	○	○			
XC1015	–	–			◉			
XC5035	SM	–		◉				○
		yes		○			○	
XC5040	SM	yes		○			◉	○

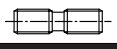
GL:Light Cutting GM:Middle Cutting NM:Aluminum
SM:Heat Resistance Alloy

Accessories



Clamping Screw

EDP	Designation	Appl. Inserts		Appl. Cutters	Stock	Price
7808107	FS25656P (Torx 8IP)	①	ZD-T11...	PSE SS/SF Ø 16~35	●	
7808109	FS25673P (Torx 8IP)	①	ZD-T11...	PSE BORE Ø 40~80	●	
7808115	FS35686P (Torx 15IP)	②	ZDKT15...	PSE SS/SF Ø 25~63 PSE BORE Ø 40~125	●	



Power Screw

EDP	Designation	Appl. Inserts		Appl. Cutters	Stock	Price
7808150	PS0830 (Mx30)	①	ZD-T11...	PSE BORE Ø 40	●	
		②	ZDKT15...			
7808151	PS1031 (M10x31)	①	ZD-T11...	PSE BORE Ø 50	●	
		②	ZDKT15...			



Wrench

EDP	Designation	Applicable Inserts		Appl. Cutters	Stock	Price
7808225	81P-D (Torx 8IP)	①	ZD-T11...	PSE SS/SF Ø 16~35	●	
		②	ZDKT15...	PSE BORE Ø 40~80		
7808228	15IP-D (Torx 15IP)	①	ZD-T11...	PSE SS/SF Ø 25~63	●	
		②	ZDKT15...	PSE BORE Ø 40~125		



GO TO LIVE STOCK CHECK

HIGH PERFORMANCE
- Radius Cutter
- Straight Shank

HIGH PERFORMANCE
- Rundplattenfräser
- Zylinderschaft

ALTA PRESTAZIONE
- Fresa con inserto tondo
- Gambo cilindrico

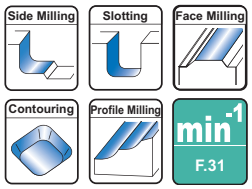
HAUTE PERFORMANCE
- Fraise plaquettes rondes
- Queue cylindrique

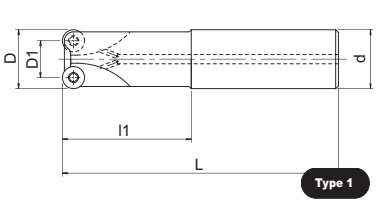
HIGH PERFORMANCE
- Radius fræser
- Cylindrisk skaft

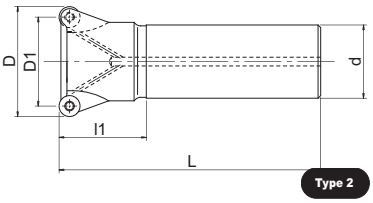
HIGH PERFORMANCE
- Vändskärsfräs med runda skär
- Rakt skaft

ALTO RENDIMIENTO
- Fresa tórica
- Mango cilíndrico

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Торовая фреза
- Цилиндрический хвостовик







EDP	Type	Designation	D1	D	Z△	d	L	l1	Appl. Inserts	Type	Stock	Price
7800300	Short	PRC10R020SS20-2S	10	20	2	20	130	50		1	●	
7800301	Short	PRC10R020SS25-3S	15	25	3	25	140	60		1	●	
7800302	Short	PRC10R032SS32-4S	22	32	4	32	150	70	RP-10-	1	●	
7800303	Long	PRC10R020SS20-2L	10	20	2	20	180	80	①	1	○	
7800304	Long	PRC10R025SS25-3L	15	25	3	25	200	120		1	○	
7800305	Long	PRC10R032SS32-4L	22	32	4	32	200	120		1	○	
7800318	Short	PRC12R030SS32-2S	18	30	2	32	150	70		1	○	
7800306	Short	PRC12R032SS32-2S	20	32	2	32	150	70		1	●	
7800320	Short	PRC12R032SS32-3S	20	32	3	32	150	70		1	○	
7800307	Short	PRC12R040SS32-3S	28	40	3	32	150	50		2	●	
7800308	Short	PRC12R050SS42-4S	38	50	4	42	150	50		2	○	
7800319	Long	PRC12R030SS32-2L	18	30	2	32	200	120		1	○	
7800309	Long	PRC12R032SS32-2L	20	32	2	32	200	120	RP-12-	1	○	
7800321	Long	PRC12R032SS32-3L	20	32	3	32	200	120	②	1	○	
7800310	Long	PRC12R040SS32-3L	28	40	3	32	250	50		2	○	
7800311	Long	PRC12R050SS42-4L	38	50	4	42	250	50		2	○	
7800312	Short	PRC16R040SS32-2S	24	40	2	32	150	50		2	●	
7800313	Short	PRC16R050SS42-3S	34	50	3	42	150	50		2	○	
7800314	Short	PRC16R063SS42-4S	47	63	4	42	150	50	RP-16-	2	○	
7800315	Long	PRC16R040SS32-2L	24	40	2	32	250	50	③	2	○	
7800316	Long	PRC16R050SS42-3L	34	50	3	42	250	50		2	○	
7800317	Long	PRC16R063SS42-4L	47	63	4	42	250	50		2	○	

Z△= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

For Applicable insert type, see page F.19

● Delivery from stock
○ Available on short notice

PRC Screw Fit



HIGH PERFORMANCE
- Radius Cutter
- Screw fit type

HIGH PERFORMANCE
- Rundplattenfräser
- Aufschraubschaft

ALTA PRESTAZIONE
- Fresa con inserto tondo
- sistema modulare

HAUTE PERFORMANCE
- Fraise plaquettes rondes
- tête vissée

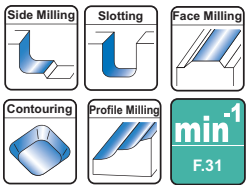
HIGH PERFORMANCE
- Radius fræser
- Indskrunings type

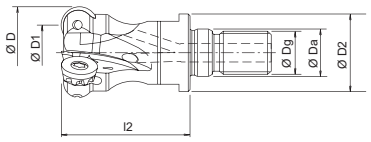
HIGH PERFORMANCE
- Vändskärsfräs med runda skär
- Rakt skaft

ALTO RENDIMIENTO
- Fresa tórica
- Cabeza roscada

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Торовая фреза
- Крепление винтом

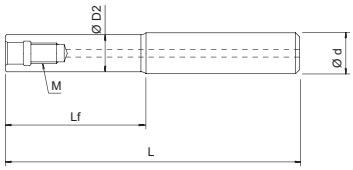
GO TO LIVE STOCK CHECK





EDP	Designation	D1	D	ZΔ	Da	Dg	l2	D2	App. Inserts	Stock	Price
7801700	PRC10R020SF10-2	10	20	2	10,5	10	33	18		●	
7801701	PRC10R025SF12-3	15	25	3	12,5	12	35	23	RP-10-	●	
7801702	PRC10R030SF16-3	20	30	3	17	16	40	28	①	●	
7801703	PRC10R032SF16-4	22	32	4	17	16	40	28		●	
7801704	PRC10R040SF16-4	30	40	4	17	16	40	28		●	
7801705	PRC12R030SF16-2	18	30	2	17	16	40	28		●	
7801706	PRC12R032SF16-3	20	32	3	17	16	40	28	RP-12-	●	
7801707	PRC12R040SF16-3	28	40	3	17	16	40	28	②	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок



Straight arbor with steel shank

EDP	Designation	d	D2	M	L	Lf	Stock	Price
7801900	SF-M08SS16-15	16	14,5	8	95	15	○	
7801901	SF-M10SS20-20	20	18	10	120	20	○	
7801902	SF-M12SS25-35	25	23	12	135	35	○	
7801903	SF-M16SS32-35	32	28	16	155	35	○	

Straight arbor with carbide shank

EDP	Designation	d	D2	M	L	Lf	Stock	Price
7801910	SF-M08SS16-55CS	16	14,5	8	115	55	○	
7801911	SF-M08SS16-85CS	16	14,5	8	145	85	○	
7801912	SF-M10SS20-70CS	20	18	10	140	70	○	
7801913	SF-M10SS20-110CS	20	18	10	180	110	○	
7801914	SF-M12SS25-90CS	25	23	12	170	90	○	
7801915	SF-M12SS25-140CS	25	23	12	220	140	○	
7801916	SF-M16SS32-120CS	32	28	16	220	120	○	
7801917	SF-M16SS32-190CS	32	28	16	290	190	○	

For Applicable insert type, see page F.19



HIGH PERFORMANCE
- Radius Cutter
- Bore type

HIGH PERFORMANCE
- Rundplattenfräser
- Aufnahmebohrung

ALTA PRESTAZIONE
- Fresa con inserto tondo
- A manicotto

HAUTE PERFORMANCE
- Fraise plaquettes rondes
- Trou lisse

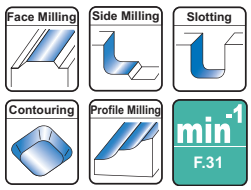
HIGH PERFORMANCE
- Radius fræser
- Til dorn

HIGH PERFORMANCE
- Vändskärsfräs med runda skär
- Med skruvfäste

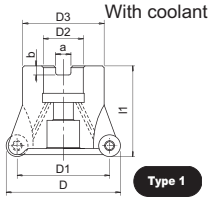
ALTO RENDIMIENTO
- Fresa tórica
- Hueca

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Торовая фреза
- Насадная

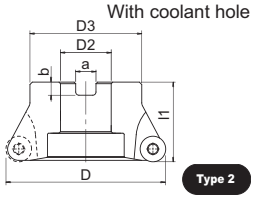
GO TO LIVE STOCK CHECK



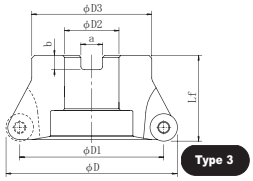
With coolant hole



With coolant hole



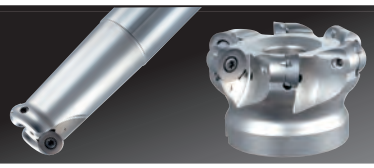
Without coolant hole



EDP	Type	Designation	D1	D	Z△	l1	D3	D2	a	b	Appl. Inserts	Type	Stock	Price
7800200	Coarse Pitch	PRC12R050M22-4	38	50	4	40	45	22	10,4	6,3		2	○	
7800201	Coarse Pitch	PRC12R063M22-4	51	63	4	40	50	22	10,4	6,3		2	○	
7800202	Coarse Pitch	PRC12R080M27-5	68	80	5	50	60	27	12,4	7		2	○	
7800209	Coarse Pitch	PRC12R080M25.4-5	68	80	5	50	60	25,4	9,5	6		2	○	
7800203	Coarse Pitch	PRC12R100M32-6	88	100	6	50	70	32	14,4	8		2	○	
7800210	Coarse Pitch	PRC12R100M31.7-6	88	100	6	50	70	31,75	12,7	8	RP-12-②	3	○	
7800204	Close Pitch	PRC12R050M22-5	38	50	5	40	45	22	10,4	6,3		2	●	
7800206	Close Pitch	PRC12R063M22-6	51	63	6	40	50	22	10,4	6,3		2	●	
7800207	Close Pitch	PRC12R080M27-8	68	80	8	50	60	27	12,4	7		2	○	
7800211	Close Pitch	PRC12R080M25.4-8	68	80	8	50	60	25,4	9,5	6		2	○	
7800208	Close Pitch	PRC12R100M32-10	88	100	10	50	70	32	14,4	8		2	○	
7800212	Close Pitch	PRC12R100M31.7-10	88	100	10	50	70	31,75	12,7	8		3	○	
7800213	Close Pitch	PRC16R050M22-3	34	50	3	40	45	22	10,4	6,3		1	●	
7800214	Close Pitch	PRC16R063M33-5	47	63	5	40	50	22	10,4	6,3		2	●	
7800216	Close Pitch	PRC16R080M27-6	64	80	6	50	60	27	12,4	7	RP-16-③	2	○	
7800218	Close Pitch	PRC16R080M25.4-6	64	80	6	50	60	25,4	9,5	6		2	○	
7800217	Close Pitch	PRC16R100M32-7	84	100	7	50	70	32	14,4	8		2	○	
7800219	Close Pitch	PRC16R100M31.7-7	84	100	7	50	70	31,75	12,7	8		3	○	

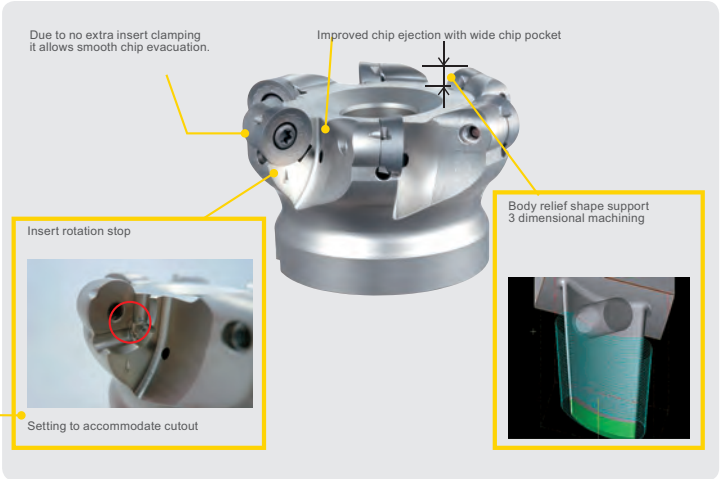
» Phoenix PRC

Phoenix Radius Cutter Series — Phoenix Radius Cutter

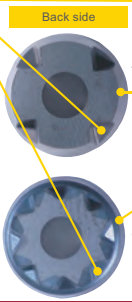


■PRC

Features of PRC







Depended on the cutting depth setting possible to choose number of corners. (4 or 8 corners)

For Applicable insert type, see page F.19



Applicable insert for Radius Cutter

Wendeplatten, Rundplattenfräser PRC

Inserti applicabili per fresa con inserto tondo

Choix de plaquettes rondes

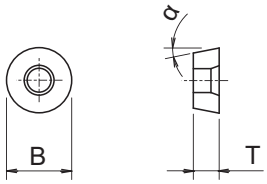
Anvendelige vendeskær til radiusfræser

Utbytbara vändskär för vändskärsfräs med runda skär

Plaquitas para fresa tórica

Сменные пластинки для торовой фрезы





Designation	Nb. of corner	Insert Size			Uncoated	Grade of Coated Materials					Price
		B	T	α	CK010	XP3035	XP2040	XC1015	XC5035	XC5040	
RPHW10T3MOSN	8	10	3,97	11°		7814030					
RPHW10T3MOEN	8	10	3,97	11°				7812017			
① RPHT10T3MOEN-GL	8	10	3,97	11°			7813008				
RPHT10T3MOEN-SM	4	10	3,97	11°					7815010		
RPHT10T3M8EN-SM	8	10	3,97	11°					7815050	7816050	
RPHT10T3MOFN-NM	8	10	3,97	11°	7811009						
RPHW1204MOSN	8	12	4,76	11°				7812018			
RPHW1204MOSN	8	12	4,76	11°		7814018					
② RPHT1204MOEN-GL	8	12	4,76	11°			7813011				
RPHT1204MOEN-SM	4	12	4,76	11°					7815012		
RPHT1204M8EN-SM	8	12	4,76	11°					7815051	7816051	
RPHT1204MOFN-NM	8	12	4,76	11°	7811013						
RPHW1605MOSN	8	16	5,56	11°				7812019			
RPHW1605MOSN	8	16	5,56	11°		7814019					
③ RPHT1605MOEN-GL	8	16	5,56	11°			7813014				
RPHT1605MOEN-SM	4	16	5,56	11°					7815015		
RPHT1605M8EN-SM	8	16	5,56	11°					7815052	7816052	
RPHT1605MOFN-NM	8	16	5,56	11°	7811016						

■ Recommanded Materials by Applications

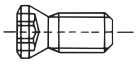
◉ First recommended material
○ Second recommended material

Inserts are all sold 10 pieces per package

Inserts Grades	Chip Breaker	Coolant	P	M	K	N	S	H
CK010	NM	–			○	◉		
XP2040	GL	–	○					◉
		yes		◉			○	
XP3035	–	–	◉	○	○			
XC1015	–	–			◉			
XC5035	SM	–		◉				○
		yes		○			○	
XC5040	SM	yes		○			◉	○

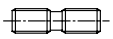
GL:Light Cutting GM:Middle Cutting NM:Aluminum
SM:Heat Resistance Alloy

Accessories



Clamping Screw

EDP	Designation	Appl. Inserts		App. Cutters	Stock	Price
7808116	FS30573A (Torx 10)	①	RPH-10...	PRC SS/SF Ø 20~32	●	
7808112	FS35586 (Torx 15)	②	RPH-12...	PRC SS/SF Ø 32~50 PRC BORE Ø 32~63	●	
7808113	FS45510 (Torx 20)	③	RPH-16...	PRC SS/SF Ø 40~63 PRC BORE Ø 50~100	●	



Power Screw

EDP	Designation	Appl. Inserts		App. Cutters	Stock	Price
7808151	PS1031 (M10x31)	③	RPH-16...	PRC BORE Ø 50	●	



Wrench



EDP	Designation	Appl. Inserts		Appl. Cutters	Stock	Price
7808207	T10-D (Torx 10)	①	RPH-10...	PRC SS/SF Ø 20~32	●	
7808208	T15-D (Torx 15)	②	RPH-12...	PRC SS/SF Ø 32~50 PRC BORE Ø 32~63	●	
7808209	T20-D (Torx 20)	③	RPH-16...	PRC SS/SF Ø 40~63 PRC BORE Ø 50~100	●	

PHC-SS



GO TO LIVE STOCK CHECK

HIGH PERFORMANCE
- High Feed Radius Cutter
- Straight Shank

HIGH PERFORMANCE
- Hochvorschubsfräser
- Zylinderschaft

ALTA PRESTAZIONE
- Fresa alto avanzamento
- Gambo cilindrico

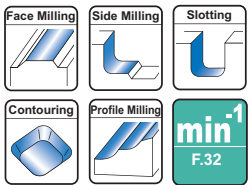
HAUTE PERFORMANCE
- Fraise grandes avances
- Queue cylindrique

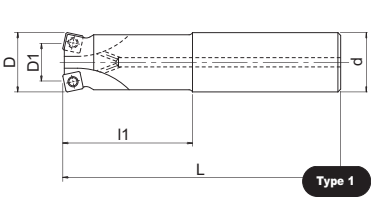
HIGH PERFORMANCE
- High feed radiusfræser
- Cylindrisk skaft

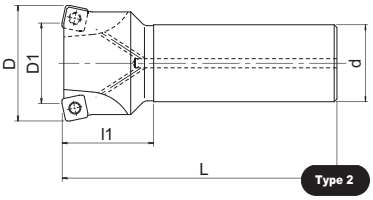
HIGH PERFORMANCE
- Högmatnings fräs med vändskär
- Rakt skaft

ALTO RENDIMIENTO
- Fresa de gran avance
- Mango cilíndrico

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Фреза с высокой подачей
- Цилиндрический хвостовик







EDP	Type	Designation	D1	D	Z△	d	L	l1	Appl. Inserts	Type	Stock	Price
7800700	Short	PHC09R025SS25-2S	13,2	25	2	25	140	60		1	○	
7800701	Short	PHC09R025SS25-3S	13,2	25	3	25	140	60		1	●	
7800716	Short	PHC09R028SS25-3S	16,2	28	3	25	140	40		2	○	
7800717	Short	PHC09R030SS32-3S	18,2	30	3	32	150	70		1	○	
7800702	Short	PHC09R032SS32-3S	20,2	32	3	32	150	70		1	●	
7800718	Short	PHC09R035SS32-3S	23,2	35	3	32	150	50		2	○	
7800703	Short	PHC09R040SS32-4S	28,2	40	4	32	150	50		2	●	
7800719	Short	PHC09R040SS42-4S	28,2	40	4	42	150	50		1	○	
7800704	Long	PHC09R025SS25-2L	13,2	25	2	25	200	120		1	○	
7800705	Long	PHC09R025SS25-3L	13,2	25	3	25	200	120		1	○	
7800720	Long	PHC09R028SS25-3L	16,2	28	3	25	200	40	SDMT09-	2	○	
7800721	Long	PHC09R030SS32-3L	18,2	30	3	32	200	120	①	1	○	
7800706	Long	PHC09R032SS32-3L	20,2	32	3	32	200	120		1	○	
7800722	Long	PHC09R035SS32-3L	23,2	35	3	32	200	50		2	○	
7800707	Long	PHC09R040SS32-4L	28,2	40	4	32	250	50		2	○	
7800723	Long	PHC09R040SS42-3L	28,2	40	3	42	250	70		1	○	
7800724	Extra long	PHC09R025SS25-2LL	13,2	25	2	25	300	180		1	○	
7800725	Extra long	PHC09R028SS25-2LL	16,2	28	2	25	300	40		2	○	
7800726	Extra long	PHC09R030SS32-2LL	18,2	30	2	32	300	180		1	○	
7800727	Extra long	PHC09R032SS32-2LL	20,2	32	2	32	300	180		1	○	
7800728	Extra long	PHC09R035SS32-2LL	23,2	35	2	32	300	50		2	○	
7800729	Extra long	PHC09R040SS42-2LL	28,2	40	2	42	300	70		1	○	
7800730	Short	PHC12R030SS32-2S	13,4	30	2	32	150	70		1	○	
7800708	Short	PHC12R032SS32-2S	15,4	32	2	32	150	70		1	●	
7800731	Short	PHC12R035SS32-3S	18,4	35	3	32	150	50		2	○	
7800709	Short	PHC12R040SS32-3S	23,4	40	3	32	150	50		2	●	
7800732	Short	PHC12R040SS42-3S	23,4	40	3	42	150	50		1	○	
7800710	Short	PHC12R050SS42-4S	33,4	50	4	42	150	50		2	○	
7800711	Short	PHC12R063SS42-5S	46,4	63	5	42	150	50		2	○	
7800733	Long	PHC12R030SS32-2L	13,4	30	2	32	200	120		1	○	
7800712	Long	PHC12R032SS32-2L	15,4	32	2	32	200	120	SXMT12-	1	○	
7800734	Long	PHC12R035SS32-3L	18,4	35	3	32	200	50	②	2	○	
7800713	Long	PHC12R040SS32-3L	23,4	40	3	32	250	50		2	○	
7800735	Long	PHC12R040SS42-3L	23,4	40	3	42	250	70		1	○	
7800714	Long	PHC12R050SS42-4L	33,4	50	4	42	250	50		2	○	
7800715	Long	PHC12R063SS42-5L	46,4	63	5	42	250	50		2	○	
7800736	Extra long	PHC12R030SS32-2LL	13,4	30	2	32	300	180		1	○	
7800737	Extra long	PHC12R032SS32-2LL	15,4	32	2	32	300	180		1	○	
7800738	Extra long	PHC12R035SS32-2LL	18,4	35	2	32	300	50		2	○	
7800739	Extra long	PRC12R040SS42-2LL	23,4	40	2	42	300	70		1	○	

Z△= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

For Applicable insert type, see page F.23

● Delivery from stock
○ Available on short notice

PHC SS Screw Fit



HIGH PERFORMANCE
- High Feed Radius Cutter
- Screw fit type

HIGH PERFORMANCE
- Hochvorschubsfräser
- Zylinderschaft

ALTA PRESTAZIONE
- Fresa alto avanzamento
- Sistema modulare

HAUTE PERFORMANCE
- Fraise grandes avances
- tête vissée

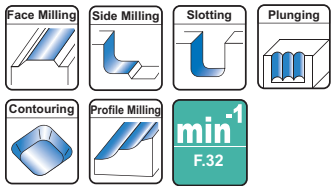
HIGH PERFORMANCE
- High feed radiusfræser
- Indskruningstype

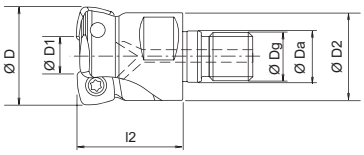
HIGH PERFORMANCE
- Högmatnings fräs med vändskär
- Med gänginfästning

ALTO RENDIMIENTO
- Fresa de gran avance
- Cabeza roscada

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Фреза с высокой подачей
- Резьбовая головка

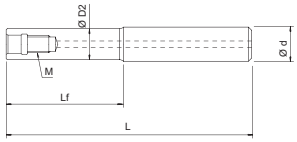
GO TO LIVE STOCK CHECK





EDP	Designation	D1	D	ZΔ	Da	Dg	l2	D2	Appl. Inserts	Stock	Price
7801500	PHC09R025SF12-3	13,2	25	3	12,5	12	35	23		●	
7801501	PHC09R028SF12-3	16,2	28	3	12,5	12	35	23		●	
7801502	PHC09R030SF16-3	18,2	30	3	17	16	40	28	SDMT09-	●	
7801503	PHC09R032SF16-3	20,2	32	3	17	16	40	28	①	●	
7801504	PHC09R035SF16-3	23,2	35	3	17	16	40	28		●	
7801505	PHC09R040SF16-4	28,2	40	4	17	16	40	28		●	
7801506	PHC12R030SF16-2	13,4	30	2	17	16	40	28		●	
7801507	PHC12R032SF16-2	15,4	32	2	17	16	40	28	SXMT12-	●	
7801508	PHC12R035SF16-3	18,4	35	3	17	16	40	28	②	●	
7801509	PHC12R040SF16-3	23,4	40	3	17	16	40	28		●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок



Straight arbor with steel shank

EDP	Designation	d	D2	M	L	Lf	Stock	Price
7801900	SF-M08SS16-15	16	14,5	8	95	15	○	
7801901	SF-M10SS20-20	20	18	10	120	20	○	
7801902	SF-M12SS25-35	25	23	12	135	35	○	
7801903	SF-M16SS32-35	32	28	16	155	35	○	

Straight arbor with carbide shank

EDP	Designation	d	D2	M	L	Lf	Stock	Price
7801910	SF-M08SS16-55CS	16	14,5	8	115	55	○	
7801911	SF-M08SS16-85CS	16	14,5	8	145	85	○	
7801912	SF-M10SS20-70CS	20	18	10	140	70	○	
7801913	SF-M10SS20-110CS	20	18	10	180	110	○	
7801914	SF-M12SS25-90CS	25	23	12	170	90	○	
7801915	SF-M12SS25-140CS	25	23	12	220	140	○	
7801916	SF-M16SS32-120CS	32	28	16	220	120	○	
7801917	SF-M16SS32-190CS	32	28	16	290	190	○	

For Applicable insert type, see page F.23



HIGH PERFORMANCE
- High Feed Radius Cutter
- Bore Type

HIGH PERFORMANCE
- Hochvorschubsfräser
- Aufnahmebohrung

ALTA PRESTAZIONE
- Fresa alto avanzamento
- A manicotto

HAUTE PERFORMANCE
- Fraise grandes avances
- Trou lisse

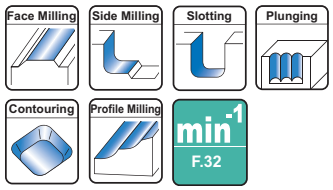
HIGH PERFORMANCE
- High feed radiusfræser
- Til dorn

HIGH PERFORMANCE
- Högmatnings fräs med vändskär
- Med skruvfäste

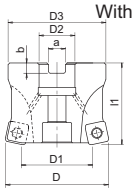
ALTO RENDIMIENTO
- Fresa de gran avance
- Hueca

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Фреза с высокой подачей
- Насадная

GO TO LIVE STOCK CHECK

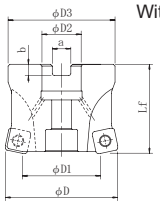


With coolant hole



Type 1

With coolant hole



Type 2

EDP	Designation	D1	D	Z△	l1	D3	D2	a	b	Appl. Inserts	Type	Stock	Price
7800600	PHC09R040M16-4	28,2	40	4	40	38	16	8,4	5,6		1	○	
7800601	PHC09R050M22-5	38,2	50	5	50	47	22	10,4	6,3	SDMT09-	2	●	
7800605	PHC09R050M22.2-5	38,2	50	5	50	47	22,225	8	5	①	2	○	
7800602	PHC09R052M22-5	40,2	52	5	50	47	22	10,4	6,3		2	●	
7800603	PHC09R063M22-6	51,2	63	6	50	60	22	10,4	6,3		2	●	
7800606	PHC09R063M22.2-6	51,2	63	6	50	60	22,225	8	5		2	○	
7800604	PHC09R066M22-7	54,2	66	7	50	60	22	10,4	6,3		2	●	
7800607	PHC12R040M16-3	23,4	40	3	40	38	16	8,4	5,6		2	○	
7800608	PHC12R050M22-4	33,4	50	4	50	47	22	10,4	6,3		2	●	
7800614	PHC12R050M22.2-4	33,4	50	4	50	47	22,225	8	5		2	○	
7800609	PHC12R052M22-4	35,4	52	4	50	47	22	10,4	6,3	SXMT12-	2	●	
7800610	PHC12R063M22-5	46,4	63	5	50	60	22	10,4	6,3	②	2	●	
7800615	PHC12R0063M22.2-5	46,4	63	5	50	60	22,225	8	5		2	○	
7800611	PHC12R066M22-6	49,4	66	6	50	60	22	10,4	6,3		2	●	
7800612	PHC12R080M27-7	63,4	80	7	50	76	27	12,4	7		2	○	
7800616	PHC12R080M31.7-7	63,4	80	7	63	76	31,75	12,7	8		2	○	
7800613	PHC12R100M32-8	83,4	100	8	63	96	32	14,4	8		2	○	
7800617	PHC12R100M31.7-8	83,4	100	8	63	96	31,75	12,7	8		2	○	

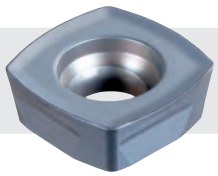
» Phoenix PHC

Phoenix High Feed Radius Cutter Series — Phoenix High feed Cutter



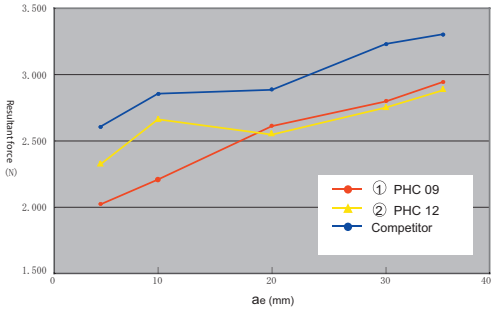
Ideal configuration for rough milling

- Economical four-corner type
- A breaker shape that enhances cutting performance while ensuring the rigidity of the cutter



Processing data of PHC dia 50: Cutting force is reduced by changing the depth of cut (ae)

Tool	PHC09R050M22-5 5 flutes	PHC12R050M22-4 4 flutes
Insert (grade)	SDMT09T308SR-GM (XP3035)	SXMT120410SR-GM (XP3035)
Work Material	S50C	
Cutting Speed	180 m/min (1.150 min-1)	
Feed	5.000 mm/min	
Depth of Cut	ap=1 mm ae=5,10,20,30,35 mm	
Width of Cut	200 mm	
Coolant	Dry	
Machine	BT50 Vertical Machining Center	



Number of flutes making simultaneous contact through changes in the depth of cut (ae)

	5mm	10mm	20mm	30mm	35mm
PHC 09 (type)	1 (flute)	2 (flutes)	3 (flutes)	3 (flutes)	4 (flutes)
PHC 12 (type)	1 (flute)	2 (flutes)	2 (flutes)	3 (flutes)	3 (flutes)

Even if the depth of cut (ae) is increased for the PHC09 with cross pitch, the design of the cutting edge suppresses the cutting force.
This suppresses the load and vibrations imparted on the machine, enabling high efficiency machining.

The PHC exhibited a lower cutting force compared to the competitor's product!
Proper tool selection
PHC 09 Multiple cutters for highly efficient milling.PHC 12 For milling intermittently or with a long tool projection

PHC-SS



Applicable insert for High Feed Radius Cutter

Wendeplatten, Hochvorschubsfräser PHC

Inserti applicabili per fresa ad alto avanzamento

Choix de plaquettes pour la grande avance

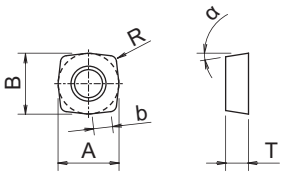
Anvendelige vendeskær til high feed radiusfræser

Utbytbara vändskär för högmatningsfräs

Plaquitas para fresa de gran avance

Сменные пластинки для фрезы с высокой подачей





GO TO LIVE STOCK CHECK

GO TO LIVE STOCK CHECK

GO TO LIVE STOCK CHECK

GO TO LIVE STOCK CHECK

GO TO LIVE STOCK CHECK

	Designation	Nb. of Cutting edges	Insert Size					Grade of Coated Materials					Price
			A X B	T	α	R	b	XP2040	XP3035	XC1015	XC5035	XC5040	
①	SDMT09T308SR-GM	4	9,52x9,52	3,97	15°	0,8	1,9	7813020	7814020	7812020			
	SDMT09T308ER-SM	4	9,52x9,52	3,97	15°	0,8	1,9				7815021	7816021	
②	SXMT120410SR-GM	4	12,7x12,7	4,76	9°	1	1,3	7813022	7814022	7812022			
	SXMT120410ER-SM	4	12,7x12,7	4,76	9°	1	1,3				7815023	7816023	

■ Recommanded Materials by Applications

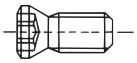
◉ First recommended material
○ Second recommended material

Inserts are all sold 10 pieces per package

Inserts Grades	Chip Breaker	Coolant	P	M	K	N	S	H
XP2040	GM	–	○					◉
		yes		◉			○	
XP3035	GM	–	◉	○	○			
XC1015	GM	–			◉			
XC5035	SM	–		◉				○
		yes		○			○	
XC5040	SM	yes		○			◉	○

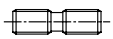
GM:Middle Cutting
SM:Heat Resistance Alloy

Accessories



Clamping Screw

EDP	Designation	Appl. Inserts	App. Cutters	Stock	Price
7808111	FS35572 (Torx 15)	① SDMT09...	PHC SS/SF Ø 25	●	
7808112	FS35586 (Torx 15)	① SDMT09...	PHC SS/SF Ø 28~40 PHC BORE Ø 40~66	●	
7808113	FS45510 (Torx 20)	② SXMT12...	PHC SS/SF Ø 32~63 PRC BORE Ø 40~100	●	



Power Screw

EDP	Designation	Appl. Inserts	Appl. Cutters	Stock	Price
7808150	PS0830 (M8x30)	① SDMT09... ② SXMT12...	PHC BORE Ø 40	●	



Wrench



EDP	Designation	Appl. Inserts	Appl. Cutters	Stock	Price
7808208	T15-D (Torx 15)	① SDMT09...	PHC SS/SF Ø 25~40 PHC BORE Ø 40~66	●	
7808209	T20-D (Torx 20)	② SXMT12...	PHC SS/SF Ø 32~63 PHC BORE Ø 40~100	●	



GO TO LIVE STOCK CHECK

HIGH PERFORMANCE
- Deep Feed Radius Cutter
- Shank Type

HIGH PERFORMANCE
- Torusfräser für maximale Zustellungen
- Zylinderschaft

ALTA PRESTAZIONE
- Fresa ad alta asportazione
- Stelo

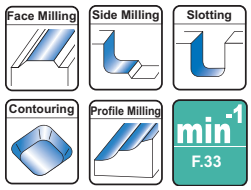
HAUTE PERFORMANCE
- Fraise grande avance torique
- Queue cylindrique

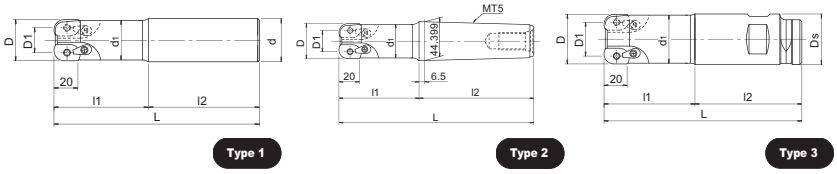
HIGH PERFORMANCE
- Deep feed radiusfræser
- cylindrisk skaft

HIGH PERFORMANCE
- Avverknings och hörnradie vändskärsfräs
- Rakt skaft

ALTO RENDIMIENTO
- Fresa de gran avance con radio
- Con mango

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Фреза с высокой подачей и увеличенной глубиной резания
- Цилиндрический хвостовик





EDP	Type	Designation	D1	D	Z△	d	L	l1	d1	l2	Type	Stock	Price
7800000	Regular	PDR20R040SS42-2S	20	40	2	42	150	50	38,9	100	1	○	
7800001	Regular	PDR20R040MT5M16-2S	20	40	2	MT5-M16	256	120	38,9	136	2	○	
7800003	Regular	PDR20R040MT5M24-2S	20	40	2	MT5-M24	256	120	38,9	136	2	○	
7800004	Regular	PDR20R050SS42-3S	30	50	3	42	150	50	48,5	100	1	○	
7800005	Regular	PDR20R050MT5M16-3S	30	50	3	MT5-M16	256	120	48,5	136	2	○	
7800007	Regular	PDR20R050MT5M24-3S	30	50	3	MT5-M24	256	120	48,5	136	2	○	
7800008	Regular	PDR20R050CN50.8-3S	30	50	3	CN50.8	150	65	48,5	85	3	○	
7800009	Long	PDR20R040SS42-2L	20	40	2	42	250	150	38,9	100	1	○	
7800010	Long	PDR20R040MT5M16-2L	20	40	2	MT5-M16	306	170	38,9	136	2	○	
7800012	Long	PDR20R040MT5M24-2L	20	40	2	MT5-M24	306	170	38,9	136	2	○	
7800013	Long	PDR20R050SS42-3L	30	50	3	42	250	150	48,5	100	1	○	
7800014	Long	PDR20R050MT5M16-3L	30	50	3	MT5-M16	306	170	48,5	136	2	○	
7800016	Long	PDR20R050MT5M24-3L	30	50	3	MT5-M24	306	170	48,5	136	2	○	
7800017	Long	PDR20R050CN50.8-3L	30	50	3	CN50.8	250	165	48,5	85	3	○	

» Phoenix PDR

Phoenix High Feed Radius Cutter Series Phoenix Deep feed Radius

Solves traditional machining problems

Issues with traditional high-efficiency cutting tools

- There is no radius tool that can perform large depths of cut.
- Large variances in removal damage the tool.
- The depth of cut is so small for black surface areas that air cutting becomes common.



Depth of cut is needed… but we don't want to reduce efficiency.

Leading low depth of cut, high feed radius roughing tools

● Delivery from stock
○ Available on short notice

PDR BORE



HIGH PERFORMANCE
- Deep Feed Radius Cutter
- Bore Type

HIGH PERFORMANCE
- Torusfräser für maximale Zustellungen
- Aufnahmebohrung

ALTA PRESTAZIONE
- Fresa ad alta asportazione
- A manicotto

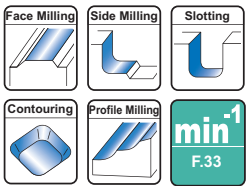
HAUTE PERFORMANCE
- Fraise grande avance torique
- Trou lisse

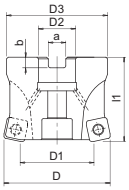
HIGH PERFORMANCE
- Deep feed radiusfræser
- Til dorn

HIGH PERFORMANCE
- Avverknings och hörnradie vändskärsfräs
- Med skruvfäste

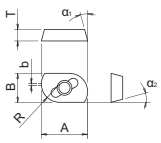
ALTO RENDIMIENTO
- Fresa de gran avance con radio
- Hueca

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Фреза с высокой подачей и увеличенной глубиной резания
- Насадная





EDP	Type	Designation	D1	D	Z△	l1	D3	D2	a	b	Stock	Price
7800057	For Metric holes	PDR20R063M22-3	43	63	3	63	60	22	10,4	6,3	○	
7800058	For Metric holes	PDR20R063M22-4	43	63	4	63	60	22	10,4	6,3	○	
7800059	For Metric holes	PDR20R080M27-4	60	80	4	63	76	27	12,4	7	○	
7800060	For Metric holes	PDR20R080M27-5	60	80	5	63	76	27	12,4	7	○	
7800061	For Metric holes	PDR20R100M32-5	80	100	5	63	96	32	14,4	8	○	
7800062	For Metric holes	PDR20R100M32-6	80	100	6	63	96	32	14,4	8	○	
7800063	For Metric holes	PDR20R125M40-6	105	125	6	63	100	40	16,4	9	○	



Applicable insert for Deep Feed Radius Cutter

Wendeplatten, für Torusfräser für maximale Zustellungen

Inserti applicabili per fresa ad alta asportazione

Choix de plaquettes pour fraise grande avance torique

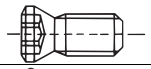
Anvendelige vendeskær til deep feed feed radiusfræser

Utbytbara vändskär för Avverknings och hörnradie vändskärsfräs

Plaquitas para fresa de gran avance con radio

Фреза с высокой подачей и увеличенной глубиной резания

Designation	Nb. of Cutting edges	Insert Size						Grade of Coated Materials	Price
		A X B	T	α1	α2	R	b	XP3930	
ADMT2006100PDR-GM	2	24,18x16	6,35	15°	15°	10	1	7810000	

Accessories	EDP	Designation	Stock	Price
 Clamping Screw	7808001	CSPB-5 (Torx 20)	○	
 T-Handle Wrench	7808000	20IP-T	○	
Metal weight set (washer)	7808002	CSY-20	○	

Variable negative form for edge rigidity
→prevention of breakage

Spiral tool form
→reduction in cutting force

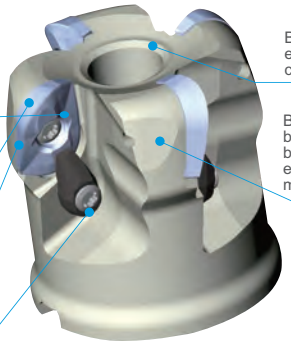


cutting tool capable of finish milling thanks to the wiping edge

Ideal chip formation when depth of cut is between 2-5mm (corner radius 10)

A cutting tool capable of side machining

Uses double clamping



Bottom relief (3,5mm) enable to approach casting rough surface

Body rigidity has been increased because of the enlarged back metal

■ The work of a ball, cut by a radius!



In heavy roughing (contoured machining), machining steps become larger based on the depth of cut. Usually, the effect on the next cutting tool is great, and as machining processes are added, the overall production time increases. However, the tool form of the PDR is designed to increase the removal and leave stepovers similar to ball end mills while still maintaining the rigidity of a radius end mill. Roughing of contoured lines is restricted to ap3mm. Also, a diameter of φ50mm or less is recommended.

The PDR can cut what was until now considered the work of ball end mills.



HIGH PERFORMANCE
- Drill
- 2 flutes

HIGH PERFORMANCE
- Bohrer
- 2 Schneiden

ALTA PRESTAZIONE
- Foratura
- 2 denti

HAUTE PERFORMANCE
- Foret
- 2 lèvres

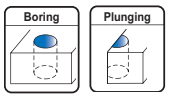
HIGH PERFORMANCE
- Boring
- 2 skær

HIGH PERFORMANCE
- Borr
- 2 skär

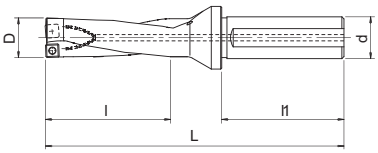
ALTO RENDIMIENTO
- Taladrado
- 2 labios

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ
- Сверло
- 2-зуба

GO TO LIVE STOCK CHECK

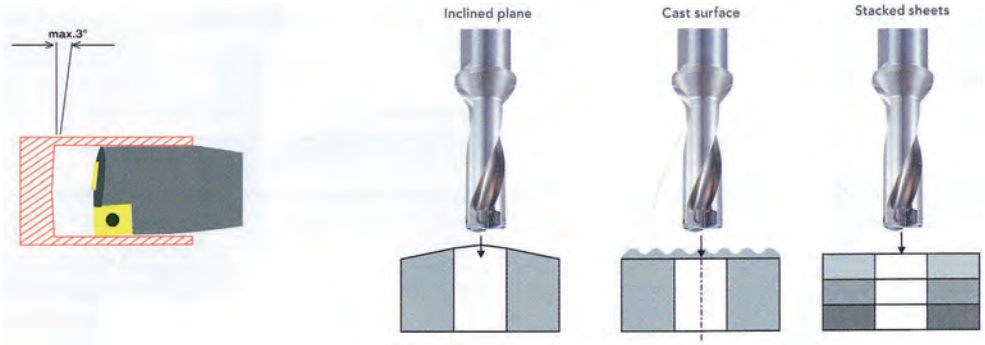


min^{-1} F.34



EDP	Designation	D	L	l	l1	d	Appl. Inserts	Stock	Price
7800100	PHP140FS20M04-3D	14	116	42	50	20		●	
7800101	PHP145FS20M04-3D	14,5	119	45	50	20		●	
7800102	PHP150FS20M04-3D	15	119	45	50	20	①	●	
7800103	PHP155FS20M04-3D	15,5	122	48	50	20		●	
7800104	PHP160FS20M04-3D	16	122	48	50	20		●	
7800105	PHP165FS20M05-3D	16,5	125	51	50	20		●	
7800106	PHP170FS20M05-3D	17	125	51	50	20	②	●	
7800107	PHP175FS25M05-3D	17,5	134	54	56	25		●	
7800108	PHP180FS25M05-3D	18	134	54	56	25		●	
7800109	PHP185FS25M06-3D	18,5	137	57	56	25		●	
7800110	PHP190FS25M06-3D	19	137	57	56	25		●	
7800111	PHP195FS25M06-3D	19,5	140	60	56	25	③	●	
7800112	PHP200FS25M06-3D	20	140	60	56	25		●	
7800113	PHP205FS25M06-3D	20,5	143	63	56	25		●	
7800114	PHP210FS25M07-3D	21	143	63	56	25		●	
7800115	PHP215FS25M07-3D	21,5	146	66	56	25		●	
7800116	PHP220FS25M07-3D	22	146	66	56	25		●	
7800117	PHP225FS25M07-3D	22,5	149	69	56	25	④	●	
7800118	PHP230FS25M07-3D	23	149	69	56	25		●	
7800119	PHP235FS32M07-3D	23,5	156	72	60	32		●	
7800120	PHP240FS32M07-3D	24	156	72	60	32		●	
7800121	PHP245FS32M08-3D	24,5	159	75	60	32		●	
7800122	PHP250FS32M08-3D	25	159	75	60	32		●	
7800123	PHP255FS32M08-3D	25,5	162	78	60	32		●	
7800124	PHP260FS32M08-3D	26	162	78	60	32	⑤	●	
7800125	PHP265FS32M08-3D	26,5	165	81	60	32		●	
7800126	PHP270FS32M08-3D	27	165	81	60	32		●	
7800127	PHP280FS32M08-3D	28	168	84	60	32		●	
7800128	PHP290FS32M10-3D	29	171	87	60	32		●	
7800130	PHP300FS32M10-3D	30	179	90	60	32	⑥	●	
7800131	PHP310FS32M10-3D	31	182	93	60	32		●	
7800132	PHP320FS32M10-3D	32	185	96	60	32		●	
7800133	PHP330FS40M10-3D	33	196	99	68	40		○	
7800134	PHP340FS40M10-3D	34	199	102	68	40		○	
7800135	PHP350FS40M12-3D	35	202	105	68	40		○	
7800136	PHP360FS40M12-3D	36	205	108	68	40	⑦	○	
7800137	PHP370FS40M12-3D	37	218	111	68	40		○	
7800138	PHP380FS40M12-3D	38	221	114	68	40		○	
7800139	PHP390FS40M12-3D	39	224	117	68	40		○	
7800140	PHP400FS40M12-3D	40	227	120	68	40		○	

Point angle shape increases the machining range



● Delivery from stock
○ Available on short notice



Applicable insert for PHP drill

Wendeplatten, Bohrer PHP

Inserti applicabili per punta PHP

Choix de plaquettes pour le perçage

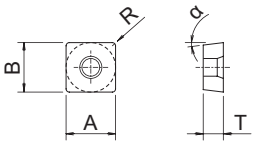
Anvendelige skær til PHP bor

Utbytbara vändskär för korthålsborr

Plaquitas para broca PHP

Сменные пластинки для PHP сверла





GO TO LIVE STOCK CHECK

GO TO LIVE STOCK CHECK

	Designation	Nb. of Cutting edges	Appl. Cutter Dia.	Insert Size				Grade of coated Materials		Price
				A X B	T	α	R	XP9040	XP9025	
1	SCMT042204-DM	4	14 ~16	4,8x 4,8	2,2	7°	0,4	7818001	7817001	
2	SCMT052404-DM	4	16,5~18	5,4x 5,4	2,4	7°	0,4	7818002	7817002	
3	SCMT062806-DM	4	18,5~20,5	6,2x 6,2	2,8	7°	0,6	7818003	7817003	
4	SCMT073206-DM	4	21 ~24	7,2x 7,2	3,2	7°	0,6	7818004	7817004	
5	SCMT083608-DM	4	24,5~28	8,6x 8,6	3,6	7°	0,8	7818005	7817005	
6	SCMT104208-DM	4	29 ~34	10 x10	4,2	7°	0,8	7818006	7817006	
7	SCMT125008-DM	4	35 ~40	12,3x12,3	5	7°	0,8	7818007	7817007	

■ Recommanded Materials by Applications

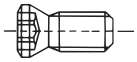
◉ First recommended material
○ Second recommended material

Inserts are all sold 10 pieces per package

Inserts Grades	Chip Breaker	Coolant	P	M	K	N	S
XP9040	DM	yes	◉	◉		◉	○
XC9025	DM	yes	○	○	◉	○	

DM : Center cutting Type Drill

Accessories



Clamping Screw

EDP	Designation	Appl. Inserts	Stock	Price
7808100	FS18538 (Torx 6)	① SCMT042204-DM	●	
7808102	FS20540 (Torx 6)	② SCMT052404-DM	●	
7808104	FS22550 (Torx 7)	③ SCMT062806-DM	●	
7808108	FS25560 (Torx 8)	④ SCMT073206-DM	●	
7808110	FS30573 (Torx 8)	⑤ SCMT083608-DM	●	
7808111	FS35572 (Torx 15)	⑥ SCMT104208-DM	●	
7808113	FS45510 (Torx 20)	⑦ SCMT125008-DM	○	



Wrench

EDP	Designation	Appl. Inserts		Stock	Price
7808203	T6-D (Torx 6)	① SCMT042204-DM	② SCMT052404-DM	●	
7808204	T7-D (Torx 7)	③ SCMT062806-DM	-	●	
7808205	T8-D (Torx 8)	④ SCMT073206-DM	⑤ SCMT083608-DM	●	
7808208	T15-D (Torx 15)	⑥ SCMT104208-DM	-	●	
7808209	T20-D (Torx 20)	⑦ SCMT125008-DM	-	○	

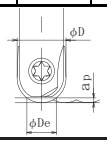
Finish Ball nose cutter - Kugelfräser für Schlichtbearbeitungen - Fresa sferica di finitura - Finition hémisphérique - Radiusfræser til sletbearbejdning - Fullradiefräs för finishing, 2-skär - Fresa de punta esférica para acabado - Чистовая сферическая фреза

■ Depth of Cut and Actual Cutting Diameter

(Unit : mm)

ap		(φDe)														
D	R	0,1	0,2	0,3	0,4	0,5	0,8	1	1,5	2	2,5	3	3,5	4	4,5	5
8	4	1,8	2,5	3	3,5	3,9	4,8									
10	5	2	2,8	3,4	3,9	4,4	5,4	6	7,1							
12	6	2.2	3,1	3,7	4,3	4,8	6	6,6	7,9	8,9						
16	8	2,5	3,6	4,3	5	5,6	7	7,7	9,3	10,6	11,6					
20	10	2,8	4	4,9	5,6	6,2	7,8	8,7	10,5	12	13,2	14,3	15,2			
25	12.5	3,2	4,5	5,4	6,3	7	8,8	9,8	11,9	13,6	15	16,2	17,3	18,3		
30	15	3,5	4,9	6	6,9	7,7	9,7	10,8	13,1	15	16,6	18	19,3	20,4	21,4	22,4

How to determine actual cutting diameter



$$De=2\sqrt{ap\times(D-ap)}$$

■Recommended conditions PFB-SP

Material			hardness	Vc (m/min)	ap (mm)	fz (mm/t) D			
						φ 8	φ 10, 12	φ 16, 20	φ 25, 30
P	Mild Steels-Carbon Steels	(SS400,S10C)	～180HB	300 (200～400)	0,02D	0,1	0,12	0,14	0,18
	Carbon Steels-Alloy Steels	(S50C,SCM440)	～280HB	300 (200～400)	0,02D	0,07	0,1	0,12	0,14
	Die Steels	(SKD11,SKD61)	～280HB	250 (150～350)	0,02D	0,07	0,1	0,12	0,14
M	Stainless Steels	(SUS304、SUS420)	～250HB	250 (150～350)	0,02D	0,07	0,12	0,14	0,17
K	Cast Iron	(FC250)	～300N/mm^2	400 (300～500)	0,02D	0,12	0,14	0,18	0,22
	Ductile Cast Iron	(FCD400)	～600N/mm^2	300 (200～400)	0,02D	0,1	0,12	0,14	0,18
N	Aluminium Alloy	(A7075)	～13%Si	500 (400～600)	0,03D	0,12	0,14	0,18	0,22
S	Heat Resistant Alloys	(Inconel 718)	–	50 (20～80)	0,015D	0,04	0,05	0,06	0,06
	Titanium Alloy	(Ti-6Al-4V)	–	90 (40～120)	0,02D	0,06	0,08	0,11	0,13
H	Pre-hardened Steel	(NAK80・STAVAX)	40～43HRC	200 (100～300)	0,015D	0,06	0,07	0,08	0,1
	Steel for Die Casting	(DAC55・DH31)	43～48HRC	180 (90～200)	0,015D	0,05	0,06	0,07	0,07
	Hardened Steels	(SKD11)	50～60HRC	150 (100～250)	0,01D	0,05	0,06	0,07	0,07

These numbers are typical values shown in the actual cutting speed. Please adjust accordingly to suit process environments.

■Recommended conditions PFB-D

Material			hardness	Vc (m/min)	ap (mm)	fz (mm/t) D			
						φ 8	φ 10, 12	φ 16, 20	φ 25, 30
N	Aluminium Alloy	(A7075)	～13% Si	500 (400～600)	0,03D	0,15	0,18	0,23	0,27
	Copper Alloy	(C1100)	–	300 (200～400)	0,03D	0,11	0,13	0,17	0,2
	Graphite		–	500 (400～600)	0,03D	0,14	0,17	0,21	0,25
	CFRP		–	400 (300～500)	0,03D	0,11	0,13	0,17	0,2

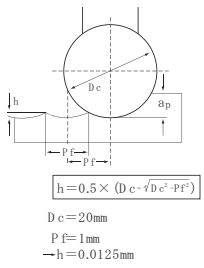
These numbers are typical values shown in the actual cutting speed. Please adjust accordingly to suit process environments.

■ Recommended Pick Feed and resulting Surface Finish

(unit : mm)

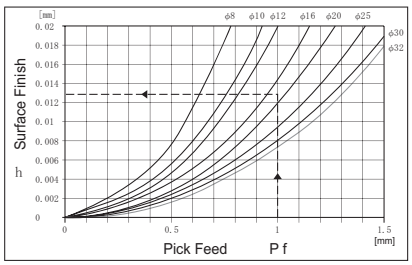
Diameter Dc	Pick Feed Pf	Surface Finish h
8	0. 5	0. 008
10	0. 6	0. 009
12	0. 7	0. 01
16	0. 8	0. 01
20	1	0. 012
25	1. 2	0. 014
30	1. 3	0. 014

■ Theoretical Surface Finish



$$h=0.5\times(Dc-\sqrt{Dc^2-Pf^2})$$

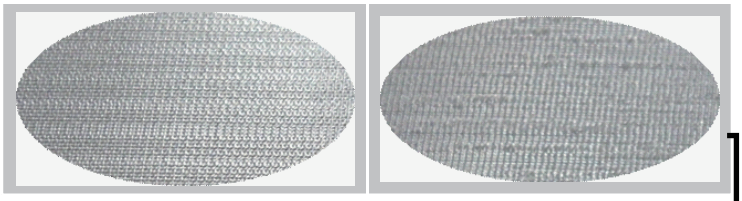
Dc=20mm
Pf=1mm
→h=0.0125mm



PFB has Improved Surface Finish

PFB has no tearing on flat surface

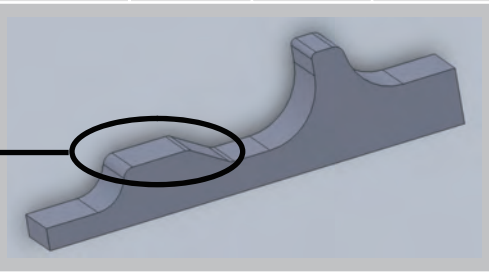
PFB	Competitor



Machining Method	Product	2 4 6 8 10 (μm)	RZ (μm)
Copy Milling Flat Surface	PFB		6.171
	A		10.93
	B		6.021
	C		7.798
	D		6.963
Machining Method	Product	0.5 1 1.5 2 2.5 (μm)	RZ (μm)
Copy Milling Slanted Surface	PFB		1.967
	A		2.098
	B		2.083
	C		2.541
	D		1.827
Machining Method	Product	0.5 1 1.5 2 2.5 (μm)	RZ (μm)
Copy Milling Radial Surface	PFB		1.98
	A		1.9
	B		2.183
	C		2
	D		2.508

■ **Machining Environment**

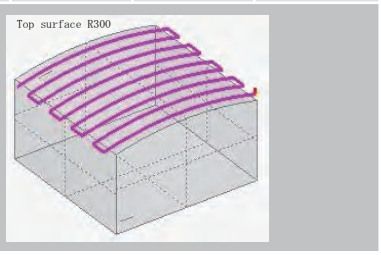
Machining Detail		Machining Parameters	
Size	R10	Name of Part	Sample model
Overhang	80mm	Material	S50C
Speed	8,000min⁻¹	Machining Method	Copy Milling
Feed	3,200mm/min	Machining Type	Horizontal Machine
ap	0.3mm	Holder Size	BT50
Pf	0.3mm	Coolant Size	Water Soluble



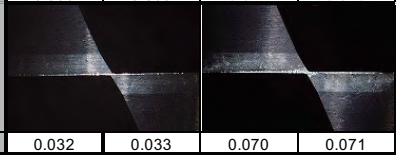
PFB has doubled Tool Life

Comparison of tool wear after 200M of machining

Machining Detail		Machining Parameters	
Size	R10	Name of Part	Blade
Overhang	110mm	Material	SUH600
Speed	1,500min⁻¹	Machining Method	Copy Milling
Feed	2,000mm/min	Machining Type	Vertical Machining Center
ap	0.2mm	Holder Size	BT40
Pf	1mm	Coolant Size	Water Soluble



■ **Amount of Wear**

Machined Time	70 minutes		140 minutes	
Machined Length	100m		200m	
PFB				
Wear (mm)	0.033	0.030	0.041	0.043
Competitor				
Wear (mm)	0.032	0.033	0.070	0.071

90° Shoulder cutter - 90 ° Schulterfräser - 90° Spallamento retto - Surfacer dresser à 90° -
90° vendeskærsfræser - 90° vändskärsfräs - Fresa de 90° para escuadrar - Торцевая фреза 90°

	Work Material	Tensil Strength Hardness	Insert Grade	Insert Size							
				ZD·T11···				ZDKT15···			
				ap:10mm ae:0,2D		ap:3mm ae:1,0D		ap:14mm ae:0,2D		ap:5mm ae:1,0D	
				Vc (m/min) Milling Speed	fz(mm/t) Feed / Tooth	Vc (m/min) Milling Speed	fz(mm/t) Feed / Tooth	Vc (m/min) Milling Speed	fz(mm/t) Feed / Tooth	Vc (m/min) Milling Speed	fz(mm/t) Feed / Tooth
P	Mild Steels-Carbon Steels (SS400-S10C)	~180HB	XP3035	180 (100 ~ 250)	0,25 (0,2 ~ 0,5)	180 (100 ~ 250)	0,12 (0,05 ~ 0,2)	180 (100 ~ 250)	0,3 (0,2 ~ 0,6)	180 (100 ~ 250)	0,15 (0,05 ~ 0,25)
P	Carbon Steels-Alloy Steels (S50C-SCM440)	~280HB	XP3035	180 (100 ~ 250)	0,2 (0,15 ~ 0,4)	180 (100 ~ 250)	0,11 (0,05 ~ 0,2)	180 (100 ~ 250)	0,25 (0,15 ~ 0,5)	180 (100 ~250)	0,12 (0,05 ~ 0,2)
P	Die Steels (SKD11-SKD61)	~280HB	XP3035	150 (80 ~ 200)	0,2 (0,15 ~ 0,4)	150 (80 ~ 200)	0,1 (0,05 ~ 0,18)	150 (80 ~ 200)	0,25 (0,15 ~ 0,5)	150 (80 ~ 200)	0,12 (0,05 ~ 0,2)
M	Stainless Steels(Dry) (SUS304-SUS420)	~250HB	XP2040	150 (80 ~ 200)	0,18 (0,15 ~ 0,4)	150 (80 ~ 200)	0,1 (0,05 ~ 0,18)	150 (80 ~ 200)	0,2 (0,15 ~ 0,45)	150 (80 ~ 200)	0,12 (0,05 ~ 0,2)
M	Stainless Steels(Wet) (SUS304-SUS420)	~250HB	XC5035	80 (60 ~ 120)	0,18 (0,15 ~ 0,4)	80 (60 ~ 120)	0,1 (0,05 ~ 0,18)	80 (60 ~ 120)	0,2 (0,15 ~ 0,45)	80 (60 ~ 120)	0,12 (0,05 ~ 0,2)
K	Cast Iron (FC250)	~350N/mm²	XC1015	180 (100 ~ 300)	0,25 (0,15 ~ 0,5)	180 (100 ~ 300)	0,12 (0,05 ~ 0,2)	180 (100 ~ 300)	0,3 (0,2 ~ 0,6)	180 (100 ~ 300)	0,15 (0,05 ~ 0,25)
K	Ductile Cast Iron (FCD400)	~800N/mm²	XC1015	180 (100~250)	0,15 (0,1 ~ 0,4)	180 (100 ~ 250)	0,12 (0,05 ~ 0,2)	180 (100 ~ 250)	0,2 (0,15 ~ 0,5)	180 (100 ~ 250)	0,15 (0,05 ~ 0,25)
N	Aluminum Alloys	~13%Si	CK010	300 (200 ~ 1500)	0,3 (0,2 ~ 0,5)	300 (200 ~ 1.500)	0,15 (0,1 ~ 0,25)	300 (200 ~ 1500)	0,35 (0,2 ~ 0,6)	300 (200 ~ 1500)	0,18 (0,1 ~ 0,3)
S	Heat Resistant Alloys (Inconel 718)	–	XC5040	35 (25 ~ 60)	0,15 (0,1 ~ 0,3)	35 (25 ~ 60)	0,1 (0,05 ~ 0,15)	35 (25 ~ 60)	0,2 (0,1 ~ 0,3)	35 (25 ~ 60)	0,12 (0,05 ~ 0,15)
S	Titanium Alloy (Ti-6Al-4V)	–	XC5040	40 (30 ~ 120)	0,18 (0,1 ~ 0,35)	40 (30 ~ 120)	0,1 (0,08 ~ 0,25)	40 (30 ~ 120)	0,22 (0,1 ~ 0,35)	40 (30 ~120)	0,12 (0,08 ~0,25)
H	Pre-hardened Steel (NAK80)	40~43HRC	XP2040	100 (40 ~ 150)	0,18 (0,1~ 0,3)	90 (40~150)	0,1 (0,08~0,2)	100 (40~150)	0,22 (0,1~0,35)	90 (40~150)	0,12 (0,08~0,25)
H	Steel for Die Casting (DAC55-DH31)	43~48HRC	XP2040	80 (40 ~ 120)	0,12 (0,08~0,2)	70 (40~120)	0,08 (0,06~0,15)	80 (40~120)	0,15 (0,08~0,25)	70 (40~120)	0,1 (0,06~0,2)
H	Hardened Steels (SKD11)	50~55HRC	XP2040	60 (40 ~90)	0,1 (0,05~0,2)	50 (40~90)	0,06 (0,05~0,1)	60 (40~90)	0,12 (0,05~0,2)	50 (40~90)	0,08 (0,05~0,12)

■Recommanded Materials by Applications

Inserts Grades	Chip Breaker	Coolant	P	M	K	N	S	H
CK010	NM	–			○	◎		
XP3035	GL GM	–	◎	○	○			
XP2040	GL GM	–	○					◎
		yes		◎			○	
XC1015	GM	–			◎			
XC5035	SM	–		◎				○
		yes		○			○	
XC5040	SM	yes		○			◎	○

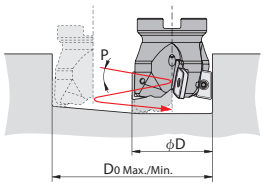
◎ First recommended material
○ Second recommended material

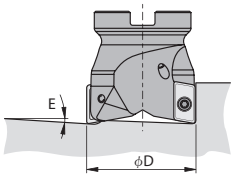
GL:Light Cutting GM:Middle Cutting NM:Aluminum SM:Heat Resistance Alloy

Maximum Ramping angle (E)

OSG Phoenix
Information
The Phoenix packaging is environmentally friendly as it uses a case made of recycled plastic.







Insert Size	ZD·T11···				ZDKT15···			
(mm) D	Ramping Angle E	Helical Milling(mm) Do Min.	Helical Milling(mm) Do Max.	Helical Angle P	Ramping Angle E	Helical Milling(mm) Do Min.	Helical Milling(mm) Do Max.	Helical Angle P
16	10,8°	18	29	9,5°	-	-	-	-
18	9,1°	-	33	7°	-	-	-	-
20	9,8°	30	37	7°	-	-	-	-
22	6,3°	34	41	4,3°	-	-	-	-
25	7,5°	40	47	4,5°	9,5°	37	48	7,5°
28	6,3°	46	53	3,9°	8,3°	39	54	5,6°
30	5,5°	50	57	3,4°	7,4°	43	58	5,3°
32	4,8°	53	61	3,2°	6,8°	47	62	5°
35	3,2°	60	67	2,5°	5,9°	53	68	3,8°
40	2,9°	72	77	2,2°	5,1°	63	78	3,2°
50	2,2°	93	98	1,7°	2,5°	86	98	2,5°
63	1,8°	118	123	1,5°	2,5°	111	124	1,5°
80	1,4°	152	157	1°	2°	147	158	1,3°
100	-	-	-	-	1,5°	190	198	1,1°
125	-	-	-	-	0,9°	240	248	0,9°

Radius cutter - Rundplattenfräser - Fresa con insero tondo - Fraise plaquettes rondes -
Radius fræser - Vändskärsfräs med runda skär - Fresa tórica - Торовая фреза

	Work Material	Tensil Strength Hardness	insert Grade	Vc (m/min) Milling Speed	Insert Size RPH.10.. fz (mm/t) Feed /Tooth	RPH.10.. ap (mm) Depth of Cut	RPH.12.. fz (mm/t) Feed /Tooth	RPH.12.. ap (mm) Depth of Cut	RPH.16.. fz (mm/t) Feed / Tooth	RPH.16.. ap (mm) Depth of Cut
P	Mild Steels-Carbon Steels (SS400-S10C)	~180HB	XP3035	200 (100 ~ 300)	0,25 (0,1 ~ 0,35)	2	0,3 (0,1 ~ 0,4)	2,4	0,35 (0,1 ~ 0,5)	3,2
	Carbon Steels-Alloy Steels (S50C-SCM440)	~280HB		180 (100 ~ 250)	0,2 (0,1 ~ 0,3)	2	0,25 (0,1 ~ 0,35)	2,4	0,3 (0,1 ~0,45)	3,2
	Die Steels (SKD11-SKD61)	~280HB		150 (80 ~ 200)	0,2 (0,1 ~ 0,3)	2	0,25 (0,1 ~ 0,35)	2,4	0,3 (0,1 ~0,45)	3,2
M	Stainless Steels (SUS304-SUS420)	~250HB	XP2040 XC5035	200 (100 ~ 280)	0,25 (0,1 ~ 0,35)	2	0,3 (0,1 ~ 0,4)	2,4	0,35 (0,1 ~ 0,5)	3,2
K	Cast Iron (FC250)	~350N/mm²	XC1015	220 (100 ~ 350)	0,25 (0,05 ~ 0,4)	2	0,3 (0,1 ~ 0,5)	2,4	0,35 (0,1 ~ 0,6)	3,2
	Ductile Cast Iron (FCD400)	~800N/mm²	XC1015	150 (100 ~ 220)	0,2 (0,1 ~ 0,3)	2	0,25 (0,1 ~ 0,35)	2,4	0,3 (0,1 ~0,45)	3,2
N	Aluminum Alloys	~13%Si	CK010	600 (300 ~ 1.500)	0,4 (0,2 ~ 0,8)	2	0,6 (0,2 ~ 1)	2,4	0,8 (0,3 ~ 1,5)	3,2
S	Heat Resistant Alloys (Inconel 718)	–	XC5040	40 (25 ~ 60)	0,15 (0,05 ~ 0,25)	2	0,2 (0,05 ~ 0,3)	2,4	0,25 (0,05 ~ 0,4)	3,2
	Titanium Alloy (Ti-6Al-4V)	–	XC5040	80 (50 ~ 120)	0,2 (0,1 ~ 0,3)	2	0,25 (0,1 ~ 0,35)	2,4	0,3 (0,1 ~0,45)	3,2
H	Pre-hardened Steel (NAK80)	40~43HRC	XP2040	120 (40 ~ 150)	0,15 (0,05 ~ 0,25)	1,5	0,2 (0,05 ~ 0,3)	1,5	0,25 (0,05 ~ 0,4)	1,5
	Steel for Die Casting (DAC55-DH31)	43~48HRC		80 (40 ~ 120)	0,15 (0,05 ~ 0,25)	1	0,2 (0,05 ~ 0,3)	1	0,25 (0,05 ~ 0,4)	1
	Hardened Steels (SKD11)	50~55HRC		60 (30 ~ 90)	0,15 (0,05 ~ 0,25)	0,5	0,2 (0,05 ~ 0,3)	0,5	0,25 (0,05 ~ 0,4)	0,5

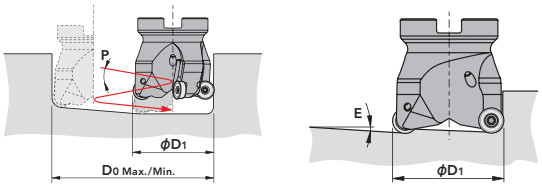
■ Recommanded Materials by Applications

Inserts Grades	Chip Breaker	Coolant	P	M	K	N	S	H
CK010	NM	–			○	◎		
XP3035	–	–	◎	○	○			
XP2040	GL	–	○					◎
		yes		◎			○	
XC1015	–	–			◎			
XC5035	SM	–		◎				○
		yes		○			○	
XC5040	SM	yes		○			◎	○

◎ First recommended material
○ Second recommended material

GL:Light Cutting GM:Middle Cutting NM:Aluminum SM:Heat Resistance Alloy

Maximum Ramping angle (E)



Insert Size	RPH·10···			RPH·12···			RPH·16···		
(mm) D	Ramping Angle E	Helical Milling(mm) D0 min.	Helical Milling(mm) D0 max.	Ramping Angle E	Helical Milling(mm) D0 min.	Helical Milling(mm) D0 max.	Ramping Angle E	Helical Milling(mm) D0 min.	Helical Milling(mm) D0 max.
20	36,5°	24	40	–	–	–	–	–	–
25	17°	32	50	–	–	–	–	–	–
30	10°	42	60	10,3°	38	60	–	–	–
32	9,8°	46	64	10,1°	42	64	–	–	–
40	–	–	–	7,5°	58	80	12,5°	50	80
50	–	–	–	5,2°	78	100	8,4°	70	100
52	–	–	–	4,9°	82	104	–	–	–
63	–	–	–	3,8°	104	126	5,7°	96	126
66	–	–	–	–	–	–	5,3°	102	132
80	–	–	–	2,7°	138	160	4°	130	160
100	–	–	–	2°	178	200	3°	170	200

PHC

High feed radius cutter - Hochvorschubsfräser - Fresa alto avanzamento - Fraise grandes avances -
High feed radiusfræser - Högmatnings fräs med vändskär - Fresa de gran avance - Фреза с высокой подачей

	Work Material	Tensil Strength Hardness	Insert Grade	Vc (m/min) Milling Speed	Insert Size							
					SDMT09···				SXMT12···			
					fz (mm/t) Feed /Tooth	ap (mm) Depth of Cut			fz (mm/t) Feed /Tooth	ap (mm) Depth of Cut		
						L/D=2	L/D=3	L/D=4		L/D=2	L/D=3	L/D=4
P	Mild Steels-Low Carbon Steels (SS400-S10C)	~180HB	XP3035	180 (60 ~250)	0,8 (0,3~1,8)	1	0,8	0,5	1,25 (0,5~3,2)	1,2	1,2	1
P	Carbon Steels-Alloy Steels (S50C-SCM440)	~280HB		180 (60 ~250)	0,8 (0,3~1,5)	1	0,8	0,5	1,25 (0,5~ 3)	1,2	1,2	1
P	Die Steels (SKD11-SKD61)	~280HB		180 (60 ~250)	0,8 (0,3~1,5)	0,8	0,6	0,4	1,25 (0,5~ 3)	1,2	1,2	1
M	Stainless Steels (SUS304-SUS420)	~250HB	XP2040 XC5035	120 (90 ~180)	0,5 (0,3~1,5)	0,8	0,6	0,4	1 (0,5~2,5)	1,2	1	1
K	Cast Iron (FC250)	~350N/mm²	XC1015	200 (100~300)	1 (0,5~1,8)	1	0,8	0,5	1,5 (0,5~3,5)	1,5	1,5	1
K	Ductile Cast Iron (FCD400)	~800N/mm²	XC1015	180 (100~250)	0,9 (0,5~1,5)	1	0,8	0,5	1,35 (0,5~ 3)	1,2	1,2	0,9
S	Heat Resistant Alloys (Inconel 718)	–	XC5040	30 (25 ~ 60)	0,4 (0,2~0,8)	0,5	0,5	0,4	0,5 (0,2~ 1)	1	1	0,8
S	Titanium Alloy (Ti-6Al-4V)	–	XC5040	80 (50 ~120)	0,5 (0,3~ 1)	0,5	0,5	0,3	0,7 (0,3~1,2)	0,8	0,8	0,4
H	Pre-hardened Steel (NAK80)	40~43HRC	XP2040	120 (40 ~150)	0,5 (0,2~ 1)	0,5	0,5	0,3	0,8 (0,3~1,5)	1	1	0,5
H	Steel for Die Casting (DAC55-DH31)	43~48HRC		90 (40 ~120)	0,4 (0,2~0,8)	0,5	0,5	0,3	0,7 (0,3~1,2)	0,7	0,7	0,5
H	Hardened Steels (SKD11)	50~55HRC		60 (40 ~ 90)	0,3 (0,2~0,7)	0,3	0,3	0,2	0,5 (0,3~0,8)	0,5	0,5	0,4

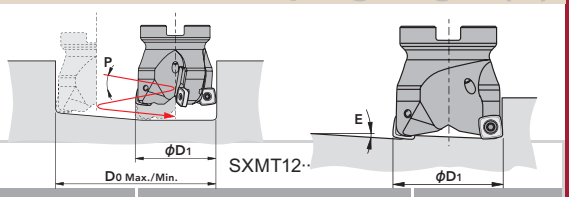
■Recommanded Materials by Applications

Inserts Grades	Chip Breaker	Coolant	P	M	K	S	H
XP3035	GM	–	◎	○	○		
XP2040	GM	–	○				◎
		yes		◎		○	
XC1015	GM	–			◎		
XC5035	SM	–		◎			○
		yes		○		○	
XC5040	SM	yes		○		◎	○

◎ First recommended material
○ Second recommended material

GL:Light Cutting GM:Middle Cutting NM:Aluminum SM:Heat Resistance Alloy

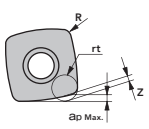
Maximum Ramping angle (E)



Insert Size	SDMT09···			SXMT12···			
(mm) D	Ramping Angle E	Helical Milling(mm) D0 min.	Helical Milling(mm) D0 max.	Helical Angle P	Ramping Angle E	Helical Milling(mm) D0 min.	Helical Milling(mm) D0 max.	Helical Angle P
25	3,6°	35	48	3,1°	–	–	–	–
28	2,6°	41	54	2,1°	–	–	–	–
30	2,2°	45	58	1,9°	7,9°	40	58	6,5°
32	2°	49	62	1,7°	7,2°	44	62	6,1°
35	1,6°	55	68	1,1°	4,6°	50	68	3,9°
40	1,2°	65	78	1°	2,9°	69	78	2,5°
50	0,9°	85	98	0,8°	1,5°	80	98	1,3°
52	0,8°	89	102	0,7°	1,5°	84	102	1,3°
63	0,8°	111	124	0,7°	1,1°	106	124	0,9°
66	0,7°	117	130	0,6°	1,1°	112	130	0,9°
80	–	–	–	–	1,3°	140	158	1,1°
100	–	–	–	–	0,7°	180	198	0,6°

■Flute shape definitions for the purpose of creating a program

Insert Size	R	ap Max.	R rt	Z
SDMT09···	0,8	1	2	0,7
SXMT12···	1	2	3	1,15



For machining purposes, create machining programs for the respective simulated R radius cutters.

High feed radius cutter - Hochvorschubsfräser - Fresa alto avanzamento - Fraise grandes avances -
High feed radiusfræser - Högmatnings fräs med vändskär - Fresa de gran avance - Фреза с высокой подачей

	Work Material	Tensil Strength Hardness	Vc (m/min) Milling Speed	PDR SS/MT/CN			PDR BORE				
				fz (mm/t) Feed Per Tooth	ap (mm) Depth of Cut		fz (mm/t) Feed Per Tooth	ap (mm) Depth of Cut			
					120	170		100	200	300	400
P	Mild Steels·Low Carbon Steels (SS400-S10C)	~180HB	180 (90~220)	0,7(0,3~1)	3	2	0,6(0,3~1)	3	3	2	2
P	Carbon Steels·Alloy Steels (S50C-SCM440)	~280HB	180 (90~220)	0,7(0,3~1)	3	2	0,6(0,3~1)	3	3	2	2
P	Die Steels (SKD11-SKD61)	~280HB	150 (90~180)	0,6(0,3~1)	3	2	0,5(0,3~1)	3	2	2	2
K	Cast Iron (FC250)	~350N/mm²	180 (100~250)	0,8(0,3~1,5)	3	3	0,7(0,3~1,5)	3	3	2	2
K	Ductile Cast Iron (FCD400)	~800N/mm²	150 (100~250)	0,7(0,3~1,2)	3	3	0,6(0,3~1,2)	3	3	2	2

■ Recommanded Materials by Applications

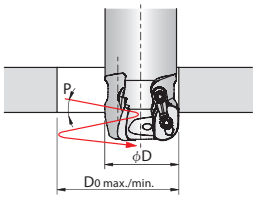
◎ First recommended material
○ Second recommended material

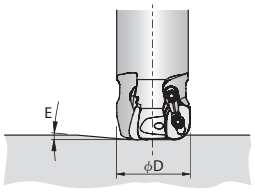
Inserts Grad	Chip Breake	Coolant	P	K
XP3930	GM	–	◎	◎

GM = General use

Maximum Ramping angle (E)

(mm) D	Ramping Angle E	Helical Milling(mm)		Z Plunging(mm)
		Do min.	Do max.	
40	5˚	50	78	3
50	3˚	70	98	3
63	2˚	96	124	3
80	1˚	130	158	3
100	0,5˚	170	198	3
125	0,5˚	220	248	3





1. Long chips may occur in the beginning of the milling process. 2. The amount of feed should be within 40-70% of the recommended milling conditions. 3. To advance without dropping the feed rate, set an angle of less than 1˚ . 4. We recommend using air blow.	1. Truciolo lungo può avvenire all'inizio del processo di fresatura 2. L'avanzamento deve essere mantenuto tra 40-70% delle condizioni raccomandate 3. Per lavorare senza diminuire l'avanzamento d'entrata, impostare un angolo di meno di 1 ° 4. Si consiglia di utilizzare raffreddamento ad aria
1. Lange Späne können am Anfang der Fräsbearbeitung auftreten. 2. Die Schnittgeschwindigkeit sollte 40-70% der empfohlenen Schnittdaten betragen. 3. Wenn Sie beim Anfahren den Rampenwinkel kleine 1° wählen müssen Sie die Schnittdaten nicht reduzieren. 4. Wir empfehlen Druckluft zu benutzen.	1. Les copeaux longs peuvent se produire dans le début du processus de fraisage 2. La vitesse de coupe doit être au moins de 40 à70% des conditions recommandées 3. Augmenter sans baisser l'avance et utiliser un angle de moins de 1 ° 4. Nous vous recommandons l'air soufflé
1. Lange spåner kan opstå i begyndelsen af bearbejdningen 2. Tilspændingen skal være indenfor 40-70% af de anbefalede skæredata 3. Er rampevinklen lig eller mindre end 1° nedsættes tilspændingen ikke 4. Vi anbefaler luftkøling	1. Långa spånor kan förekomma i början av fräsprocessen 2. Matningen bör ligga inom 40-70% av de rekommenderade villkoren 3. För att inte minska matningen, sätt rampvinkeln till 1 ° eller mindre 4. Vi rekommenderar luftkylning
1. Al inicio del proceso de fresado pueden producirse virutas largas 2. El avance debería ser entre 40 ý 70% del recomendado 3. Para no reducir el avance el ángulo de rampa debería ser menor a 1º 4. Recomendable aire soplado.	1. Длинная стружка может образовываться в начале фрезерования 2. Величина подачи должна быть в пределах 40-70% от рекомендованной 3. Для врезания без снижения подачи, установите угол врезания меньше 1° 4. Мы рекомендуем обдув воздухом

PHP

Drill - Wendeplattenbohrer - Punta - Forets plaquettes -
Bor - Korthålsborr - Broca - Сверление

	Work Material	Tensil Strength・Hardness	Drilling Speed Vc (m/min)	Feed Rate (mm/rev) ø14~ø20.5	ø21~ø28	ø29~ø34	ø35~ø40
P	Mild Steels·Carbon Steels CK 15 St. 52-3	~180HB	200 (150 ~ 250)	0,09 (0,06 ~ 0,13)	0,13 (0,10 ~ 0,18)	0,18 (0,13 ~ 0,21)	0,25 (0,20 ~ 0,27)
P	Carbon Steels·Alloy Steels Cf 53 42CrMo4	~280HB	160 (100 ~ 220)	0,09 (0,06 ~ 0,13)	0,13 (0,10 ~ 0,18)	0,18 (0,13 ~ 0,21)	0,25 (0,20 ~ 0,27)
P	Die Steels X40CrMoV5 1	~280HB	140 (80 ~ 180)	0,08 (0,05 ~ 0,12)	0,12 (0,06 ~ 0,15)	0,14 (0,09 ~ 0,18)	0,15 (0,10 ~ 0,20)
M	Stainless Steels (SUS304 - SUS420)	~250HB	150 (100 ~ 180)	0,08 (0,05 ~ 0,12)	0,10 (0,06 ~ 0,12)	0,15 (0,10 ~ 0,17)	0,18 (0,15 ~ 0,20)
K	Cast Iron GG 25	~350N/mm²	150 (100 ~ 180)	0,09 (0,06 ~ 0,13)	0,13 (0,10 ~ 0,18)	0,18 (0,13 ~ 0,21)	0,25 (0,20 ~ 0,27)
K	Ductile Cast Iron GGG 40	~800N/mm²	130 (80 ~ 150)	0,09 (0,06 ~ 0,13)	0,12 (0,08 ~ 0,16)	0,16 (0,1 ~ 0,20)	0,20 (0,15 ~ 0,25)
N	Aluminum Alloys	~13%Si	220 (100 ~ 800)	0,09 (0,06 ~ 0,20)	0,13 (0,10 ~ 0,25)	0,18 (0,13 ~ 0,30)	0,25 (0,20 ~ 0,35)
S	Heat Resistant Alloys(Wet) (Inconel 718)	–	30 (15 ~ 50)	0,04 (0,02 ~ 0,06)	0,06 (0,03 ~ 0,10)	0,08 (0,04 ~ 0,12)	0,10 (0,06 ~ 0,14)
S	Titanium Alloy(Wet) (Ti-6Al-4V)	–	60 (30 ~ 100)	0,06 (0,04 ~ 0,08)	0,08 (0,06 ~ 0,12)	0,10 (0,08 ~ 0,15)	0,12 (0,10 ~ 0,15)

■ Recommended Materials by Application

◎ First recommended material
○ Second recommended material

Inserts Grades	Chip Breaker	Use of Coolant	P	M	K	N	S
XP9040	DM	Yes	◎	◎		◎	○
XC9025	DM	Yes	○	○	◎	○	

DM:Center Cutting Type Drill

1. The indicated speeds and feeds are for water soluble oil.
2. Suitable cutting fluid is water soluble high density oil (less than 20 times dilution).
3. Using non-water soluble oil is not recommended.
4. These conditions are for drilling depth less than 3 times the drill diameter.
5. Inserts should be attached to the holder tightly in a very neat condition.
6. Fasten the work material to reduce the possibility of work deformation, deflection of machined surface, or vibration.
7. A clogged oil hole can lead to a breakage. Make sure that a filter is attached to the oil feeder.

1. La velocità e avanzamento indicati si riferiscono a lavorazioni con emulsione solubile in acqua
2. Opportuno fluido di taglio è emulsione solubile in acqua ad alta densità (inferiore a 20volte di diluizione)
3. Utilizzo di olio non solubile in acqua non è raccomandato
4. Queste condizioni sono per profondità di foratura inferiore a 3 volte il diametro
5. Gli Inserti dovrebbero essere applicati al corpo ermeticamente in una condizione molto pulita
6. Fissare il materiale di lavoro per ridurre la possibilità di deformazione, deviazione o vibrazione di superficie lavorata
7. Un foro di lubrificazione ostruito può portare alla rottura. Assicurarsi che sia applicato un filtro al sistema di refrigerazione.

1. Die angegebenen Schnittdaten sind für die Verwendung von Emulsion.
2. Die geeignete Emulsion sollte weniger als 20% Fettgehalt haben.
3. Die Benützung von Schneidöl wird nicht empfohlen.
4. Die angegebenen Schnittdaten sind für Bearbeitungen kleiner 3xD
5. Die Wendeschneidplatten sollten präzise im Halter fixiert werden.
6. Um Vibrationen und Rattermarken an der Werkstückoberfläche zu vermeiden empfehlen wir eine sehr starre Werkstückspannung.
7. Ein verschmutzte innere Kühlmittelzufuhr kann zum Werkzeugbruch führen. Bitte Kühlmittelfilter verwenden.

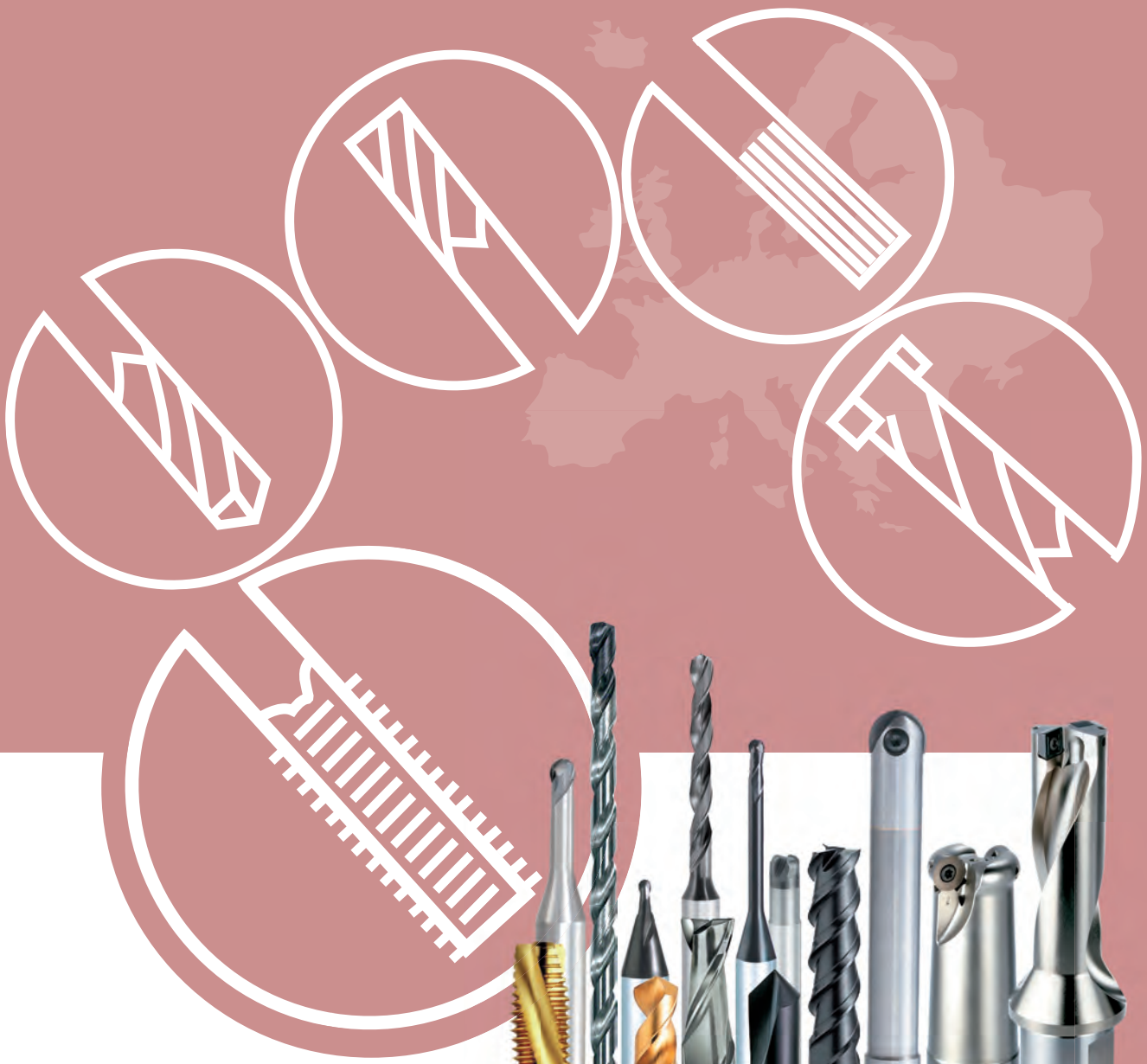
1. Les vitesses indiquées sont avec l'utilisation d'huile soluble.
2. Un fluide de coupe à forte densité d'huile est recommandé
3. L'usinage à sec n'est pas recommandé
4. Ces conditions sont pour le perçage inférieur ou égal à 3xD
5. Les plaquettes doivent etre montées sur un support propre et en bonne état
6. Bien monter et bien serrer la pièce à usiner reduit les riques de déformation matière ,améliore la qualité de l'usinage, réduit les vibrations et les casses d'outils
7. L'obstruction d'un trou d'huile peut entrainer la rupture de l'outil, assurez vous de la qualité de filtration de votre dispositif de lubrification

1. De indikerede skæredata er ved brug af vandbaseret emulsion
2. Passende kølemiddel er vandbaseret med høj densitet (fortyndet mindre end 20 gange)
3. Ikke vandbaseret kølemiddel anbefales ikke
4. Disse skæredata er for boredybde mindre end 3 gange diameter
5. Fastspænd kun vendeskær i god kondition
6. Fastgør emnematerialet sikkert for at undgå deformation, vibrationer og lign.
7. Et tilstoppet kølehul kan forårsage brud. Sørg for at kølemidlet er filtreret

1. Den angivna varvtal och matningar är för vattenlbaserad emulsion
2. Lämplig skärvätska är vattenlösligt hög densitet olja (mindre än 20 gånger utspädning)
3. Ej vattenbaserad klmedel rekommenderas
4. Denna skärdata är för borrdjup mindre än 3xD
5. Använd endast vändskär som är i god kondition
6. Fäst arbetsstycket ordentligt för att undvika deformation, vibrationer och liknande.
7. Ett igensatt kylkanal kan orsaka brott. Filtrera helst kylvätskan

1. Las velocidades y avances recomendados son para taladrina
2. El refrigerante adecuado es taladrina concentrada al menos el 5%
3. No se recomienda utilizar aceite de corte
4. Condiciones de corte para taladrar menos de 3 veces el diámetro de corte
5. Las plaquitas deben estar fuertemente fijadas en alojamiento limpio
6. Fijar la pieza de forma que no permita la deformación, flexión de la cara mecanizada o vibración
7. El agujero de refrigeración obstruido puede producir rotura. Asegúrese la aportación de refrigerante filtrado

1. Указанные скорость и подача для охлаждения эмульсией
2. Наиболее подходящая СОЖ — водная эмульсия высокой плотности (разбавление менее, чем 1/20)
3. Использование не водной эмульсии не рекомендуется
4. Указанные скорость и подача для сверления глубиной меньше чем 3 диаметра
5. Сменные пластинки должны быть прикреплены к оправке плотно и очень аккуратно
6. Закрепите обрабатываемый материал, чтобы уменьшить возможность смещения, деформации или вибрации
7. Засорение отверстий для охлаждения может привести к поломке. Убедитесь, что фильтр СОЖ установлен и исправен



$$Vc = \frac{\pi \cdot D \cdot n}{1000} \qquad n = \frac{Vc \cdot 1000}{\pi \cdot D}$$

$$Vf = fz \cdot n \cdot z \qquad fn = fz \cdot z$$

$$fz = \frac{Vf}{n \cdot z}$$

$$Q = \frac{ae \cdot ap \cdot Vf}{1000}$$

TOKO-TON SPIRIT

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DEVIATIONS OF FITS JIS B0401 EXTRACT

Deviation of Shafts to be Used in Commonly Used Fits (Unit µm)

Basic size step mm		WORK MATERIAL Tolerance zone class of shaft																			
Over	Up to	e7	e8	e9	f6	f7	f8	g5	g6	h5	h6	h7	h8	h9	js5	js6	js7	k5	k6	m5	m6	n6
—	3	−14 −24	−14 −28	−14 −39	−6 −12	−6 −16	−6 −20	−2 −6	−2 −8	0 −4	0 −6	0 −10	0 −14	0 −25	± 2	±3	± 5	+4 0	+6 0	+6 +2	+8 +2	+10 +4
3	6	−20 −32	−20 −38	−20 −50	−10 −18	−10 −22	−10 −28	−4 −9	−4 −12	0 −5	0 −8	0 −12	0 −18	0 −30	± 2.5	±4	± 6	+6 +1	+9 +1	+9 +4	+12 +4	+16 +8
6	10	−25 −40	−25 −47	−25 −61	−13 −22	−13 −28	−13 −35	−5 −11	−5 −14	0 −6	0 −9	0 −15	0 −22	0 −36	± 3	±4.5	± 7	+7 +1	+10 +1	+12 +6	+15 +6	+19 +10
10	14	−32 −50	−32 −59	−32 −75	−16 −27	−16 −34	−16 −43	−6 −14	−6 −17	0 −8	0 −11	0 −18	0 −27	0 −43	± 4	±5.5	± 9	+9 +1	+12 +1	+15 +7	+18 +7	+23 +12
14	18																					
18	24	−40 −61	−40 −73	−40 −92	−20 −33	−20 −41	−20 −53	−7 −16	−7 −20	0 −9	0 −13	0 −21	0 −33	0 −52	± 4.5	±6.5	± 10	+11 +2	+15 +2	+17 +8	+21 +8	+28 +15
24	30																					
30	40	−50 −75	−50 −89	−50 −112	−25 −41	−25 −50	−25 −64	−9 −20	−9 −25	0 −11	0 −16	0 −25	0 −39	0 −62	± 5.5	±8	± 12	+13 +2	+18 +2	+20 +9	+25 +9	+33 +17
40	50																					
50	65	−60 −90	−60 −106	−60 −134	−30 −49	−30 −60	−30 −76	−10 −23	−10 −29	0 −13	0 −19	0 −30	0 −46	0 −74	± 6.5	±9.5	± 15	+15 +2	+21 +2	+24 +11	+30 +11	+39 +20
65	80																					
80	100	−72 −107	−72 −126	−72 −159	−36 −58	−36 −71	−36 −90	−12 −27	−12 −34	0 −15	0 −22	0 −35	0 −54	0 −87	± 7.5	±11	± 17	+18 +3	+25 +3	+28 +13	+35 +13	+45 +23
100	120																					
120	140	−85 −125	−85 −148	−85 −185	−43 −68	−43 −83	−43 −106	−14 −32	−14 −39	0 −18	0 −25	0 −40	0 −63	0 −100	± 9	±12.5	± 20	+21 +3	+28 +3	+33 +15	+40 +15	+52 +27
140	160																					
160	180																					
180	200	−100 −146	−100 −172	−100 −215	−50 −79	−50 −96	−50 −122	−15 −35	−15 −44	0 −20	0 −29	0 −46	0 −72	0 −115	±10	±14.5	± 23	+24 +4	+33 +4	+37 +17	+46 +17	+60 +31
200	225																					
225	250																					

In every step given in the table the value on the upper side shows the upper deviation and the value on the lower side the lower deviation.

Deviation of Holes to be Used in Commonly Used Fits (Unit µm)

Basic size step mm		Tolerance zone class of hole																			
Over	Up to	E7	E8	E9	F6	F7	F8	G6	G7	H6	H7	H8	H9	H10	JS6	JS7	K6	K7	M6	M7	N6	N7
—	3	+24 +14	+28 +14	+39 +14	+12 +6	+16 +6	+20 +6	+8 +2	+12 +2	+6 0	+10 0	+14 0	+25 0	+40 0	±3	± 5	0 −6	0 −10	−2 −8	−2 −12	−4 −10	−4 −14
3	6	+32 +20	+38 +20	+50 +20	+18 +10	+22 +10	+28 +10	+12 +4	+16 +4	+8 0	+12 0	+18 0	+30 0	+48 0	±4	± 6	+2 −6	+3 −9	−1 −9	0 −12	−5 −13	−4 −16
6	10	+40 +25	+47 +25	+61 +25	+22 +13	+28 +13	+35 +13	+14 +5	+20 +5	+9 0	+15 0	+22 0	+36 0	+58 0	±4.5	± 7	+2 −7	+5 −10	−3 −12	0 −15	−7 −16	−4 −19
10	14	+50 +32	+59 +32	+75 +32	+27 +16	+34 +16	+43 +16	+17 +6	+24 +6	+11 0	+18 0	+27 0	+43 0	+70 0	±5.5	± 9	+2 −9	+6 −12	−4 −15	0 −18	−9 −20	−5 −23
14	18																					
18	24	+61 +40	+73 +40	+92 +40	+33 +20	+41 +20	+53 +20	+20 +7	+28 +7	+13 0	+21 0	+33 0	+52 0	+84 0	±6.5	±10	+2 −11	+6 −15	−4 −17	0 −21	−11 −24	−7 −28
24	30																					
30	40	+75 +50	+89 +50	+112 +50	+41 +25	+50 +25	+64 +25	+25 +9	+34 +9	+16 0	+25 0	+39 0	+62 0	+100 0	±8	±12	+3 −13	+7 −18	−4 −20	0 −25	−12 −28	−8 −33
40	50																					
50	65	+90 +60	+106 +60	+134 +60	+49 +30	+60 +30	+76 +30	+29 +10	+40 +10	+19 0	+30 0	+46 0	+74 0	+120 0	±9.5	±15	+4 −15	+9 −21	−5 −24	0 −30	−14 −33	−9 −39
65	80																					
80	100	+107 +72	+126 +72	+159 +72	+58 +36	+71 +36	+90 +36	+34 +12	+47 +12	+22 0	+35 0	+54 0	+87 0	+140 0	±11	±17	+4 −18	+10 −25	−6 −28	0 −35	−16 −38	−10 −45
100	120																					
120	140	+125 +85	+148 +85	+185 +85	+68 +43	+83 +43	+106 +43	+39 +14	+54 +14	+25 0	+40 0	+63 0	+100 0	+160 0	±12.5	± 20	+4 −21	+12 −28	−8 −33	0 −40	−20 −45	−12 −52
140	160																					
160	180																					
180	200	+146 +100	+172 +100	+215 +100	+79 +50	+96 +50	+122 +50	+44 +15	+61 +15	+29 0	+46 0	+72 0	+115 0	+185 0	±14.5	±23	+5 −24	+13 −33	−8 −37	0 −46	−22 −51	−14 −60
200	225																					
225	250																					

In every step given in the table the value on the upper side shows the upper deviation and the value on the lower side the lower deviation.

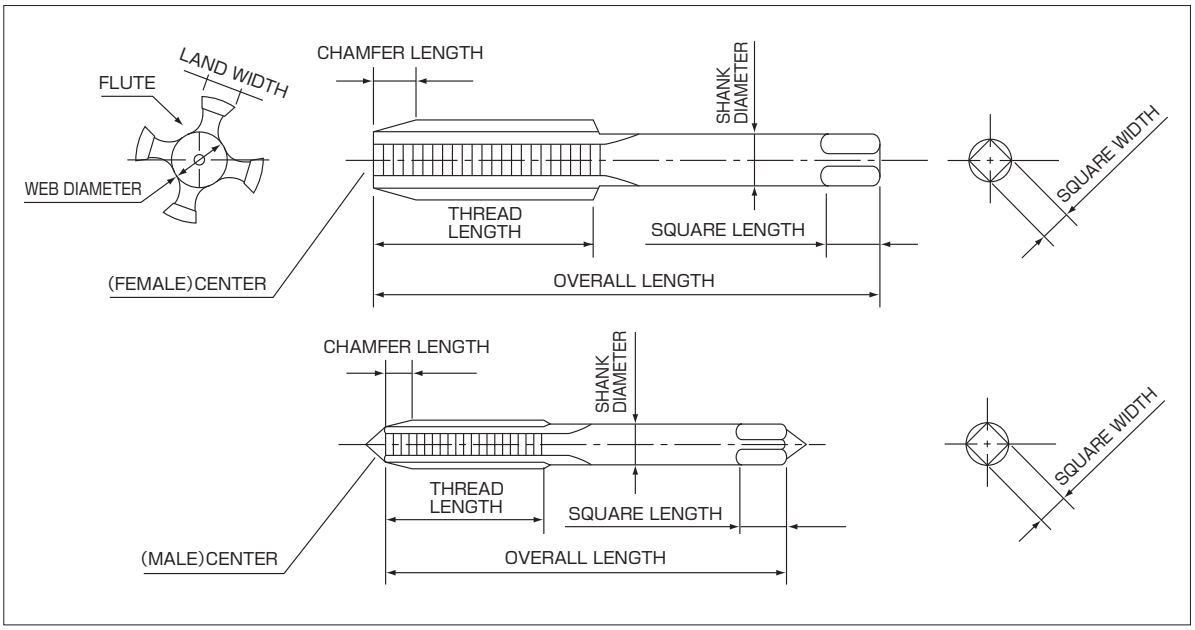
Approximate relationship between various hardness scales

Hardness				Traction	
HRA	HRC	HV	HB	Kgf/mm ^{2}	N/mm ^{2} ou Mpa
		120	114	*42*	*410*
		125	119	*43*	*420*
		130	123	*45*	*440*
		135	128	*46*	*450*
		140	133	*48*	*470*
		145	138	*49*	*480*
		150	142	*51*	*500*
		155	147	*52*	*510*
		160	152	*54*	*530*
		165	157	*55*	*540*
		170	161	*56*	*550*
		175	166	*58*	*570*
		180	171	*59*	*580*
		185	176	*61*	*600*
		190	180	*62*	*610*
		195	185	*64.5*	*630*
		200	190	*66.5*	*650*
		205	195	*67.5*	*660*
		210	199	*69.5*	*680*
		215	204	*70.5*	*690*
		220	209	*72.5*	*710*
		225	214	*73.5*	*720*
		230	218	*75.5*	*740*
		235	223	*76.5*	*750*
60.7	20.5	240	228	*78.5*	*770*
61.2	21.5	245	233	*79.5*	*780*
61.6	22.0	250	237	*81.5*	*800*
62.4	24.0	260	247	*84.5*	*830*
63.1	25.5	270	256	*88*	*860*
63.8	27.0	280	266	*91*	*890*
64.5	28.5	290	275	*95*	*930*
65.2	30.0	300	285	*98*	*960*
65.8	31.0	310	294	*101*	*990*
66.4	32.0	320	304	*104*	*1020*
67.0	33.5	330	313	*108*	*1060*
67.6	34.5	340	323	*111*	*1090*
68.1	35.5	350	332	*114*	*1120*
68.7	36.5	360	342	*118*	*1160*
69.2	37.5	370	351	*121*	*1190*
69.8	39.0	380	361	*124*	*1220*
70.3	40.0	390	370	*129*	*1260*
70.8	41.0	400	380	*132*	*1290*
71.4	42.0	410	389	*136*	*1330*
71.8	42.5	420	399	*139*	*1360*
72.3	43.5	430	408	*143*	*1400*
72.8	44.5	440	418	*146*	*1430*
73.3	45.5	450	427	*150*	*1470*
73.6	46.0	460	*432*	*153*	*1500*
74.1	47.0	470	*442*	*157*	*1540*
74.5	47.5	480	*450*	*160*	*1570*
74.9	48.5	490	*456*	*164*	*1610*
75.3	49.0	500	*466*	*168*	*1650*
75.7	50.0	510	*475*	*171*	*1680*
76.1	50.5	520	*483*	*175*	*1720*
76.4	51.0	530	*492*	*180*	*1760*
76.7	51.5	540	*500*	*183*	*1790*
77.0	52.5	550	*509*	*187*	*1830*
77.4	53.0	560	*517*	*191*	*1870*
77.8	53.5	570	*526*	*195*	*1910*
78.0	54.0	580	*535*	*198*	*1940*
78.4	54.5	590	*543*	*202*	*1980*
78.6	55.0	600	*552*	*206*	*2020*
79.2	56.5	620	*569*	*214*	*2100*
79.8	57.5	640	*586*	*222*	*2180*
80.3	58.5	660			
80.8	59.0	680			
81.3	60.0	700			
81.8	61.0	720			
82.2	62.0	740			
82.6	62.5	760			
83.0	63.5	780			
83.4	64.0	800			
83.8	64.5	820			
84.1	65.5	840			
84.4	66.0	860			
84.7	66.5	880			
85.0	67.0	900			
85.3	67.5	920			
85.6	68.0	940			

TAPS

Tap Information

TERMINOLOGY

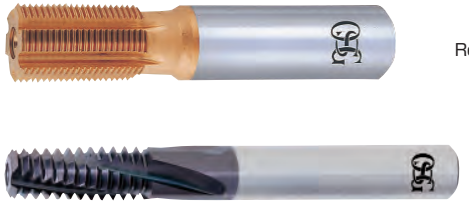


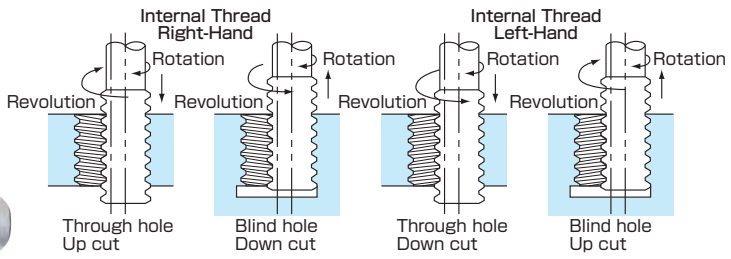
TYPE OF TAPS & FEATURES

Type	Features	Application
Spiral Fluted Taps 	- Spiral flute - Chips flow out against tapping direction(ejected from holes) - Lower tapping torque and applicable for tapping to the bottom of holes - Good cutting action	- For blind holes - Materials where chips come out continuously in coil shape
Spiral Pointed Taps 	- Spiral point(Chip Drive) - Pushes chips forward with low cutting torque - Shallow and unique flute form provides strong structure - Good cutting action	- For through holes - Materials where chips come out continuously in coil shape - High speed tapping
Fluteless Taps Forming Taps 	- Fluteless - Taps do not produce chips - Precise uniformity of tapped thread limit - Excellent rigidity	- For both through & blind holes - Materials with Formability
Straight Fluted Taps Hand Taps 	- Straight flute - Strong cutting edges - Applicable for various cuttig conditions - Easy to re-grind	- For both through & blind holes (short thread depth only) - Materials where chips come out in powder form - Hard materials

THREAD MILLING by CNC SIMULTANEOUS THREE-AXIS CONTROL

The OSG Thread Milling Cutter are designed for thread milling with 3 axis CNC controlled machines.Thread processing is accomplished by advancing one pitch feed per revolution in the axial direction, utilizing planet-like rotation and revolution.

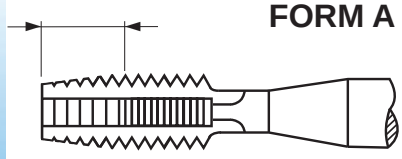




TAPS

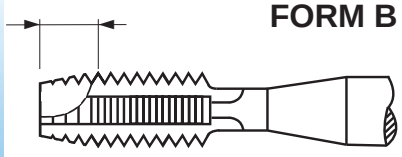
Chamfer Forms

FORM A



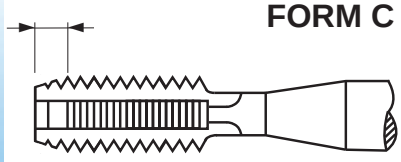
- Long
- 6 - 8 threads
- For short through holes
- Increases the torque and thus the danger of breakage

FORM B



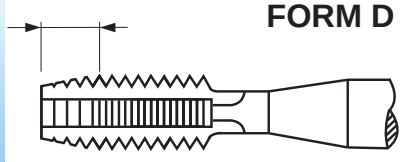
- Medium
- 3,5 - 5,5 threads
- With spiral point, useful for through holes
- For all through holes and deep tapping holes
- Efficient in tough and tough hard materials

FORM C



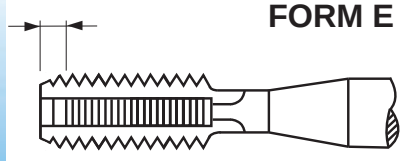
- Short
- 2 - 3 threads
- For blind holes
- Generaly for aluminium, grey cast iron and brass

FORM D



- Medium
- 3,5 - 5 threads
- For through and blind holes with sufficient run-out

FORM E



- Extremely short
- 1,5 - 2 threads
- For blind holes with little run-out depth

TAPS

GUIDE TO TAP DRILL SIZES
RECOMMENDED DRILL SIZES FOR TAPPING

M

According to DIN 13 and DIN-ISO 965-1

Dia	P	
M 1	0,25	0,75
M 1,1	0,25	0,85
M 1,2	0,25	0,95
M 1,4	0,3	1,10
M 1,6	0,35	1,25
M 1,7	0,35	1,35
M 1,8	0,35	1,45
M 2	0,4	1,60
M 2,2	0,45	1,75
M 2,3	0,4	1,85
M 2,5	0,45	2,05
M 2,6	0,45	2,15
M 3	0,5	2,50
M 3,5	0,6	2,90
M 4	0,7	3,30
M 4,5	0,75	3,70
M 5	0,8	4,20
M 6	1	5,00
M 7	1	6,00
M 8	1,25	6,80
M 9	1,25	7,80
M 10	1,5	8,50
M 11	1,5	9,50
M 12	1,75	10,20
M 14	2	12,00
M 16	2	14,00
M 18	2,5	15,50
M 20	2,5	17,50
M 22	2,5	19,50
M 24	3	21,00
M 27	3	24,00
M 30	3,5	26,50
M 33	3,5	29,50
M 36	4	32,00
M 39	4	35,00
M 42	4,5	37,50
M 45	4,5	40,50
M 48	5	43,00
M 52	5	47,00
M 56	5,5	50,50
M 60	5,5	54,50
M 64	6	58,00
M 68	6	62,00

MF

According to DIN 13 and DIN-ISO 965-1

Dia	P	
M 2	0,25	1,75
M 2,2	0,25	1,95
M 2,3	0,25	2,05
M 2,5	0,35	2,15
M 3	0,25	2,75
M 3	0,35	2,65
M 3,5	0,35	3,15
M 4	0,35	3,65
M 4	0,5	3,50
M 4,5	0,5	4,00
M 5	0,35	4,65
M 5	0,5	4,50
M 5	0,75	4,20
M 6	0,5	5,50
M 6	0,75	5,25
M 7	0,5	6,50
M 7	0,75	6,25
M 8	0,5	7,50
M 8	0,75	7,25
M 8	1	7,00
M 9	0,75	8,25
M 9	1	8,00
M 10	0,5	9,50
M 10	0,75	9,25
M 10	1	9,00
M 10	1,25	8,75
M 11	1	10,00
M 12	0,5	11,50
M 12	1	11,00
M 12	1,25	10,75
M 12	1,5	10,50
M 13	1	12,00
M 14	0,75	13,20
M 14	1	13,00
M 14	1,25	12,75
M 14	1,5	12,50
M 15	1	14,00
M 15	1,5	13,50
M 16	0,75	15,20
M 16	1	15,00
M 16	1,25	14,80
M 16	1,5	14,50
M 17	1	16,00
M 18	1	17,00
M 18	1,5	16,50
M 18	2	16,00
M 20	1	19,00
M 20	1,5	18,50
M 20	2	18,00
M 22	1	21,00
M 22	1,5	20,50

MF

According to DIN 13 and DIN-ISO 965-1

Dia	P	
M 22	2	20,00
M 24	1,5	22,50
M 24	2	22,00
M 25	1	23,00
M 25	1,5	23,50
M 26	1,5	24,50
M 27	1	26,00
M 27	1,5	25,50
M 27	2	25,00
M 28	1,5	26,50
M 28	2	26,00
M 30	1	29,00
M 30	1,5	28,50
M 30	2	28,00
M 32	1,5	30,50
M 32	2	30,00
M 33	1,5	31,50
M 33	2	31,00
M 34	1,5	32,50
M 35	1,5	33,50
M 36	1,5	34,50
M 36	2	34,00
M 36	3	33,00
M 38	1,5	36,50
M 39	1,5	37,50
M 39	2	37,00
M 39	3	36,00
M 40	1,5	38,50
M 40	2	38,00
M 40	3	37,00
M 42	1,5	40,50
M 42	2	40,00
M 42	3	39,00
M 45	1,5	43,50
M 45	2	43,00
M 45	3	42,00
M 48	1,5	46,50
M 48	2	46,00
M 48	3	45,00
M 50	1,5	48,50
M 50	2	48,00
M 50	3	47,00
M 52	1,5	50,50
M 52	2	50,00
M 52	3	47,00
M 56	1,5	54,50
M 56	2	54,00
M 56	3	53,00
M 58	1,5	56,50
M 60	1,5	66,50
M 60	2	58,00
M 60	3	57,00

MJ

According to DIN-ISO 5855

Dia	P	
MJ 3	0,5	2,60
MJ 4	0,7	3,40
MJ 5	0,8	4,30
MJ 6	1	5,10
MJ 8	1,25	6,90
MJ 10	1,5	8,70
MJ 12	1,75	10,50
MJ 16	2	14,30

GUIDE TO TAP DRILL SIZES
RECOMMENDED DRILL SIZES FOR TAPPING

UN

According to ASME B 1.1

Dia	P	
1 ⅛	8	25,40
1 ¼	8	28,50
1 ⅜	8	32,00
1 ½	8	35,00
1 ⅝	8	38,10
1 ¾	8	41,50
1 ⅞	8	44,45
2	8	48,00
2 ¼	8	54,00

UNC

According to ASME B 1.1

Dia	P	
Nr, 1	64	1,55
Nr. 2	56	1,85
Nr. 3	48	2,10
Nr. 4	40	2,35
Nr. 5	40	2,65
Nr. 6	32	2,85
Nr. 8	32	3,50
Nr. 10	24	3,90
Nr. 12	24	4,50
¼	20	5,10
5⁄16	18	6,60
⅜	16	8,00
7⁄16	14	9,40
½	13	10,80
9⁄16	12	12,20
⅝	11	13,50
¾	10	16,50
⅞	9	19,50
1	8	22,25
1 ⅛	7	25,00
1 ¼	7	28,00
1 ½	6	34,00
1 ¾	5	39,50
2	4,5	45,00

UNJC

According to ASME B 1.1 and ISO 3161

Dia	P	
Nr. 1	64	1,50
Nr. 2	56	1,80
Nr. 3	48	2,05
Nr. 4	40	2,30
Nr. 5	40	2,65
Nr. 6	32	2,80
Nr. 8	32	3,50
Nr. 10	24	3,90
Nr. 12	24	4,60
¼	20	5,20
5⁄16	18	6,70
⅜	16	8,10
7⁄16	14	9,50
½	13	10,90
9⁄16	12	12,30
⅝	11	13,70
¾	10	16,75

UNF

According to ASME B 1.1

Dia	P	
Nr. 0	80	1,25
Nr. 1	72	1,55
Nr. 2	64	1,85
Nr. 3	56	2,15
Nr. 4	48	2,40
Nr. 5	44	2,70
Nr. 6	40	2,95
Nr. 8	36	3,50
Nr. 10	32	4,10
Nr. 12	28	4,60
¼	28	5,50
5⁄16	24	6,90
⅜	24	8,50
7⁄16	20	9,90
½	20	11,50
9⁄16	18	12,90
⅝	18	14,50
¾	16	17,50
⅞	14	20,40
1	12	23,25
1 ⅛	12	26,50
1 ¼	12	29,50
1 ⅜	12	33,00
1 ½	12	36,10

UNJF

According to ASME B1.15 and ISO 3161

Dia	P	
Nr, 0	80	1,25
Nr, 1	72	1,55
Nr. 2	64	1,85
Nr. 3	56	2,10
Nr. 4	48	2,40
Nr. 5	44	2,70
Nr. 6	40	2,95
Nr. 8	36	3,60
Nr. 10	32	4,15
Nr. 12	28	4,70
¼	28	5,60
5⁄16	24	7,00
⅜	24	8,60
7⁄16	20	10,00
½	20	11,50
9⁄16	18	13,00
⅝	18	14,50

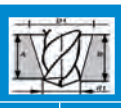
UNEF

According to ASME B 1.1

Dia	P	
¼	32	5,55
5⁄16	32	7,10
⅜	32	8,80
7⁄16	28	10,20
½	28	11,80
9⁄16	24	13,20
⅝	24	14,80

NPT

According to ASME B1.20.1 taper 1:16

Dia	P				
		D	D2	D3	Depth
1⁄16	27	6,15	5,95	6,39	10,70
⅛	27	8,40	8,31	8,74	10,80
¼	18	11,10	10,73	11,36	15,60
⅜	18	14,30	14,15	14,80	16,00
½	14	17,90	17,47	19,32	20,80
¾	14	23,30	22,79	23,67	21,30
1	11 ½	29,00	28,64	29,69	25,60
1 ¼	11 ½	37,70	37,37	38,45	26,10
1 ½	11 ½	43,70	43,44	44,52	26,10
2	11 ½	55,60	55,45	56,56	26,50
2 ½	8	66,30	66,14	67,62	36,30
3	8	82,30	81,90	83,52	38,50

TAPS

GUIDE TO TAP DRILL SIZES
RECOMMENDED DRILL SIZES FOR TAPPING

Pg

According to DIN 40430

Dia	P	
7	20	11,40
9	18	14,00
11	18	17,25
13,5	18	19,00
16	18	21,25
21	16	27,00
29	16	35,50
36	16	45,50
42	16	52,50
48	16	58,00

Tr

According to ISO

Dia	P	
8	1,5	6,60
9	2	7,20
10	2	8,20
11	3	8,25
12	3	9,25
14	3	11,25
16	4	12,25
18	4	14,25
20	4	16,25
22	5	17,25
24	5	19,25
26	5	21,25
28	5	23,25
30	6	24,25
32	6	26,25
34	6	28,25
36	6	30,25
38	7	31,50
40	7	33,50
42	7	35,50
44	7	37,50
46	8	38,50
48	8	40,50
50	8	42,50

G

According to DIN EN ISO 228

Dia	P	
1/16	28	6,80
1/8	28	8,70
1/4	19	11,80
3/8	19	15,25
1/2	14	19,00
5/8	14	21,00
3/4	14	24,50
7/8	14	28,25
1	11	30,75
1 1/8	11	35,50
1 1/4	11	39,50
1 3/8	11	41,90
1 1/2	11	45,25
1 3/4	11	51,00
2	11	57,00
2 1/4	11	63,00
2 1/2	11	72,60
3	11	85,00

BSW

According to BS 84

Dia	P	
1/16	60	1,20
3/32	48	1,90
1/8	40	2,50
5/32	32	3,10
3/16	24	3,60
7/32	24	4,50
1/4	20	5,00
5/16	18	6,50
3/8	16	7,90
7/16	14	9,20
1/2	12	10,50
9/16	12	12,00
5/8	11	13,40
3/4	10	16,40
7/8	9	19,25
1	8	22,00
1 1/8	7	24,75
1 1/4	7	27,50
1 3/8	6	30,00
1 1/2	6	33,50
1 5/8	5	35,50
1 3/4	5	39,00
1 7/8	4 1/2	41,50
2	4 1/2	44,50

BSF

According to BS 84

Dia	P	
3/16	32	4,00
7/32	28	4,60
1/4	26	5,30
5/16	22	6,70
3/8	20	8,20
7/16	18	9,60
1/2	16	11,00
9/16	16	12,60
5/8	14	14,00
3/4	12	16,80
7/8	12	19,80
1	10	22,70
1 1/8	9	25,50
1 1/4	9	28,50
1 3/8	8	31,50
1 1/2	8	34,50
1 5/8	8	37,50

Rp

According to DIN EN 10226-2

Dia	P	
1/16	28	6,55
1/8	28	8,60
1/4	19	11,50
3/8	19	15,00
1/2	14	18,50
5/8	14	20,50
3/4	14	24,00
1	11	30,25
1 1/4	11	39,00
1 1/2	11	45,00
2	11	56,50
2 1/2	11	72,20
3	11	85,00

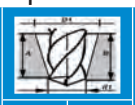
BA

According to BS 949 part 2

Dia	P	
0	1	5,10
1	0,9	4,50
2	0,81	4,00
3	0,73	3,40
4	0,66	3,00
5	0,59	2,60
6	0,53	2,30
7	0,48	2,00
8	0,43	1,80
9	0,39	1,50
10	0,35	1,30
11	0,31	1,20
12	0,28	1,00
13	0,25	0,95
14	0,23	0,75

Rc

According to DIN EN 10226-2 taper 1/16

Dia	P	 d1	D1	A	B min
1/16	28	6,30	6,49	8,31	10,00
1/8	28	8,30	8,50	8,31	10,10
1/4	19	11,00	11,35	12,37	15,00
3/8	19	14,50	14,85	12,77	15,40
1/2	14	18,10	18,49	16,83	20,50
3/4	14	23,50	23,98	18,13	21,80
1	11	29,60	30,11	21,42	26,00
1 1/4	11	38,10	38,78	23,72	28,30
1 1/2	11	44,00	44,67	23,72	28,30
2	11	55,60	56,48	28,02	32,60
2 1/2	11	71,10	72,00	31,32	37,10
3	11	83,60	84,71	34,42	40,20

TAPS

GUIDE TO TAP DRILL SIZES
RECOMMENDED DRILL SIZES FOR FLUTELESS TAPS

M

According to DIN 13 and
DIN-ISO 965-1

Dia	P	6 HX		6 GX		7 GX	
		Min.	Max.	Min.	Max.	Min.	Max.
1	0,25	0,87	0,89	-	-	-	-
1,2	0,25	1,07	1,09	-	-	-	-
1,4	0,3	1,244	1,263	-	-	-	-
2	0,4	1,82	1,84	1,85	1,88	-	-
2,2	0,45	2,01	2,04	2,02	2,06	-	-
2,5	0,45	2,31	2,34	2,32	2,36	-	-
3	0,5	2,77	2,81	2,79	2,84	2,81	2,85
3,5	0,6	3,23	3,27	3,24	3,30	-	-
4	0,7	3,66	3,72	3,69	3,73	3,71	3,77
5	0,8	4,61	4,68	4,65	4,71	4,66	4,73
6	1	5,51	5,59	5,55	5,63	5,56	5,64
8	1,25	7,37	7,45	7,40	7,47	7,42	7,50
10	1,5	9,24	9,33	9,26	9,35	9,30	9,39
12	1,75	11,10	11,20	11,14	11,24	11,17	11,28
14	2	12,96	13,08	13,00	13,12	13,04	13,16
16	2	14,96	15,08	15,00	15,12	15,04	15,16
18	2,5	16,66	16,81				
20	2,5	18,66	18,81				
22	2,5	20,66	20,81				
24	3	22,39	22,56				
27	3	25,39	25,56				
30	3,5	28,09	28,28				
33	3,5	31,09	31,28				
36	4	33,80	34,01				
39	4	36,80	37,01				
42	4,5	39,52	39,73				
45	4,5	42,52	42,73				

MF

According to DIN 13 and
DIN-ISO 965-1

Dia	P	6 HX	
		Min.	Max.
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
8	1	7,50	7,56
10	1	9,50	9,56
10	1,25	9,35	9,43
12	1	11,50	11,56
12	1,25	11,35	11,43
12	1,5	11,21	11,30
14	1,5	13,25	13,34
16	1,5	15,25	15,34
18	1,5	17,25	17,34
20	1,5	19,25	19,34

GUIDE TO TAP DRILL SIZES
RECOMMENDED DRILL SIZES FOR WIRE INSERT TAPS

EG M

According to DIN 8140

Dia	P	
2	0,4	2,10
2,5	0,45	2,60
3	0,5	3,10
4	0,7	4,20
5	0,8	5,20
6	1	6,30
8	1,25	8,40
10	1,5	10,50

EG UNC

Dia	P	
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
Nr. 4	40	3,00
Nr. 6	32	3,70
Nr. 8	32	4,40

EG UNF

Dia	P	
-	-	-
-	-	-
Nr. 10	32	5,00
¼	28	6,60
5⁄16	24	8,20
⅜	24	9,80
7⁄16	20	11,50
½	20	13,10

TAPS

Trouble shooting

Problem		Tap			Operating Conditions	
	Specific Problem	Selection	Designed Spec.	Regrinding	Machine Used	Tooling
Oversize Pitch Diameter	Incorrect tap selection	1.Select tap of appropriate limit. 2.Increase chamfer length. 3.Select con-eccentric relief tap.	1.Reduce rake angle. 2.Increase margin width of thread. 3.Correct relief angle of chamfer section.			
	Chip packing	1.Select POT/SFT/XPF/NRT 2.Select tap with oil hole.	1.Reduce number of flutes to provide extra chip room.			
	Incorrect operating conditions				Adjust machine capacity (drive force) to appropriate level.	1.Use floating type tap holder. 2.Avoid runout of spindle.
	Galling	1.Select surface-treatment (steam oxide or coating). 2.Select tap with oil hole.	1.Apply steam oxide treatment. 2.Adjust rake angle to suit tapped material. 3.Shorten thread length of tap.			
	Incorrect tap regrinding			1.The land must be accurately indexed. 2.Reduce run-out of chamfer section. 3.Make sure that rake angle and primary relief angle are not too large. 4.Make sure that land width is not excessively thin. 5.Remove burrs.		
Undersize Pitch Diameter	Incorrect tap selection	Select oversize tap. (a)Tapping material: Materials with low over size margin, such as copper alloy, aluminum alloy and cast iron (b)Shape of tapping material: Hollow materials and mild sheet steels with punched holes which have ""a spring back"" action after tapping	1.Adjust primary relief angle to appropriate level. 2.Increase rake angle.	Shorten regrinding intervals.		
	Damaged internal thread					
	Left-over chips		Improve sharpness of cutting edges to prevent spare chips.			
Torn or rough Thread	Incorrect tap selection	Select tap with long chamfer length.	1.Adjust rake angle to suit tapped material. 2.Reduce margin width. 3.Shorten effective thread length.			
	Galling	1.Select tap with thread relief. 2.Select surface-treatment (steam oxide or coating). 3.Select tap with oil hole.	1.Reduce land width. 2.Shorten effective thread length.	1.The flutes must be accurately indexed. 2.Reduce runout of rake angle. 3.Pay special attention to heat build up on the cutting edge.		
	Chip packing	Select spiral pointed or spiral fluted taps.				

TAPS

Trouble shooting

Operating Conditions		Work Material			Other
Tapping Conditions	Cutting Lubricant	Hardness	Dimension	Drill Hole	
	Change lubricant type and lubricating method.			1.Make drill hole diameter as large as possible. 2.In the case of blind holes, make it as deep as possible.	
1.Adjust tapping speed to appropriate level. 2.Adjust feed speed to appropriate level to prevent torn or rough thread. 3.Use forced feed (lead feed) tapper.				1.Prevent misalignment with drill hole 2.Chamfer entrance of the drilled hole.	
1.Reduce tapping speed.	Replace lubricant with one that has higher anti-galling properties.				
			Select oversize tap. (a)Tapping material: Materials with low over size margin, such as copper alloy, aluminum alloy and cast iron (b)Shape of tapping material: Hollow materials and mild sheet steels with punched holes which have a "spring back" action after tapping.		
Adjust reverse speed to an appropriate level, to avoid damage at entrance of tapped thread on the way out of the hole.					
					Before gauge check, be sure to remove chips completely.
Reduce tapping speed.	1.Review lubricant type and lubricating supply method. 2.Correct lubricant change/ replenishment intervals. 3.Prevent entry of other oils such as operating oil. 4.Filtrate oil stored in tank.			Make drill hole diameter as large as possible.	Remove chips generated in previous process.
Make drill hole as large as possible.	Review lubricant type and lubricating method.			Make drill hole diameter as large as possible.	

TAPS

Trouble shooting

Problem		Tap			Operating Conditions	
	Specific Problem	Selection	Designed Spec.	Regrinding	Machine Used	Tooling
Torn rough Thread	Incorrect operating conditions				Switch to pitch feed mode.	- Avoid runout of spindle. - Use a floating type tapholder.
	Incorrect tap regrinding			- The land must be accurately indexed. - Reduce run-out of chamfer section. - Make sure these are no womout areas. - Shorten regrinding intervals.		
Jagged Thread	Incorrect tap selection		- Reduce rake angle. - Reduce amount of thread relief.	- Make sure that land width is not excessively thin. - Do not regrind flutes.		- Use a floating type tap holder. - Avoid runout of spindle.
Breakage	Chip paking	Use spiral pointed, spiral fluted or forming taps.	- Enlarge chip room. - Increase chamfer length.			
	Galling	Select surface-treatment (stream oxide or coating).		Make sure there are no worm-out areas.		
	Excessive tapping torque	Select tap with long chamfer length.	- Increase rake angle to improve cutting sharpness. - Increase amount of thread relief and reduce land width to reduce friction torque.	- Make sure there are no worm-out areas. - Shorten regrinding intervals		
	Incorrect operating conditions				Avoid inconsistent feed rate.	- Use tap holder that has torque adjustment function. - Use a floating type tap holder.
Chipping	Incorrect tap selection		- Reduce thread length. - Change tool material. - Reduce hardness of the tap. - Increase chamfer length.	- Make sure there are no worm-out areas. - Make sure that land width is not excessively thin.		
	Incorrect operating selections				Avoid inconsistent feed rate.	- When tapping hole, do not reverse rotation suddently. - Use floating type tap holder
Excessive wear	Incorrect tap selection	Select surface-treatment (stream oxide or coating). - Select High-Speed Steel tap that contains high vanadium or powder metal tap.	If tapping is hard, improve tool material or apply surface treatment.	- Make sure that rake angle is not too large. - Avoid tapping burn.		
	Incorrect operating selections					
Galling	Excessive frictional heat		- Increase amount of thread relief. - Reduce land width.			

TAPS

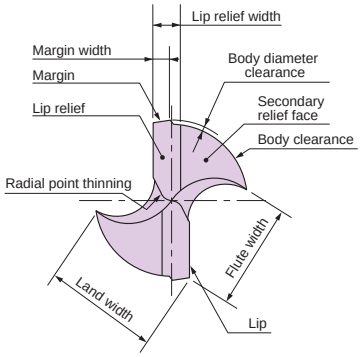
Trouble shooting

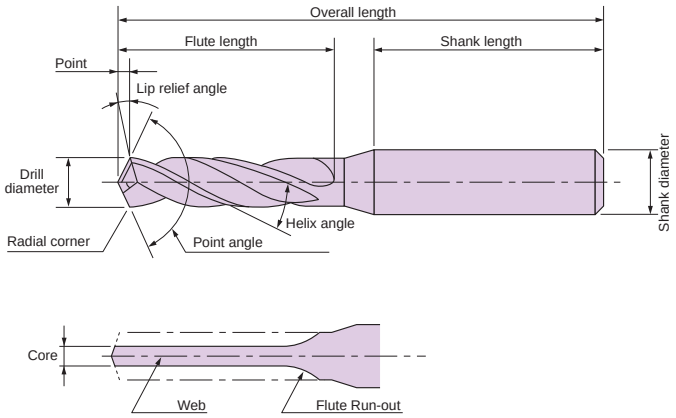
Operating Conditions		Work Material			Other
Tapping Conditions	Cutting Lubricant	Hardness	Dimension	Drill Hole	
	Review lubricant type and lubricating method.	Pay special attention to changes and variations in tapping material, hardness and structure.		- Avoid misalignment and indication from drilled hole. -Avoid work hardening of the hole after tapping	
Reduce tapping speed.	Review lubricant type and lubricating method.		- Hold work material more securely. - Pay special attention to thickness of work material.		
				- Make hole for blind hole as deep as possible. - Correct inclinaison of drilled hole.	- Remove chips collected in drilled hole and around tapping areas in previous process. - Keep space removal of chips.
- Reduce tapping speed - Avoid misalignment between tap and drilled hole as well as inclinaison of drilled hole. - Avoid hitting bottom of the drilled hole with tap.		Pay special attention to changes and variations in tapping material, hardness and structure.		- Avoid missalignment and inclinaison for drilled hole. - Avoid work hardening of the hole after tapping. - Remove chips generated in previous process.	
- Reduce tapping speed - Avoid misalignment between tap and drilled hole as well as inclinaison of drilled hole.	Use lubricant that has higher anti-galling properies	Pay special attention to changes and variations in tapping material, hardness and structure.		- Avoid missalignment and inclinaison for drilled hole. - Avoid work hardening of the hole after tapping.	
- Reduce tapping speed - Avoid work hardening of the hole after tapping.	Review lubricant type and lubricating method.	Pay special attention to changes and variations in tapping material, hardness and structure.		- Make hole as large possible. - In the case of a blind hole make it as deep as possible. - Avoid work hardening of the hole after tapping.	
Reduce tapping speed.	- Review lubricant type and lubricating method. - Correct lubricant change/ replenishment intervals. - Prevent entry of other oils such as operating oil. - Filtrate oil stored in tank.				

Trouble shooting

Informations

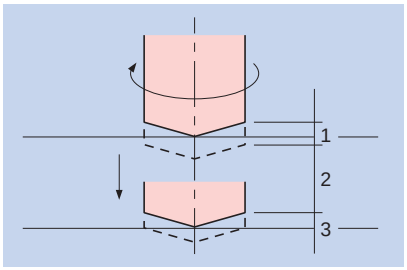
TERMINOLOGY





CHIP SHAPE

Conventional drills produce long curly chips, which can get tangled in the spindle or the workpiece. Thanks to it's unique point design, the EX-GOLD drill produces short, broken chips. This feature improves automated drilling operations as operators do not be need to beside the machine to manage chip ejection.





1. Top of hole
2. Middle of hole
3. Breakthrough

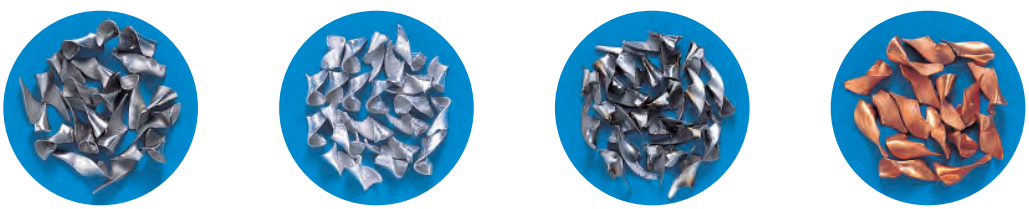
DIFFERENCES IN CHIP SHAPE

Cutting Conditions
Drill diameter : 12mm Work material : CK 45 Coolant: soluble oil (emulsion) Speed : 25m/min. Feed : 0.16mm/rev.



EX-GOLD drill | Conventional drill

CHIP SHAPES PRODUCED WITH EX-GOLD DRILL



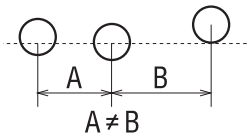
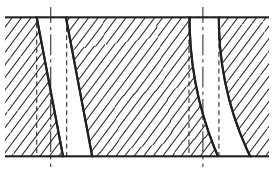
SUS304
EX-SUS-GDR dia 8,5
Speed : 18 m/min
Feed : 0,2 mm/rev

A7075
EX-SUS-GDR dia 8,5
Speed : 50 m/min
Feed : 0,45 mm/rev

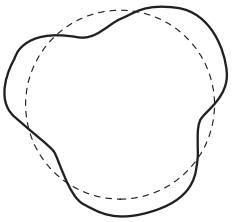
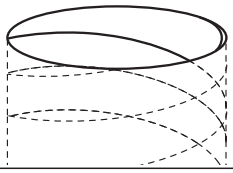
SCM440
VP-GDR dia 8,5
Speed : 32 m/min
Feed : 0,24 mm/rev

C1020
EX-SUS-GDR dia 8,5
Speed : 32 m/min
Feed : 0,24 mm/rev

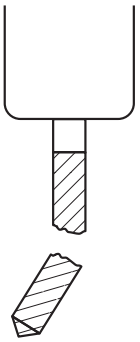
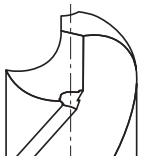
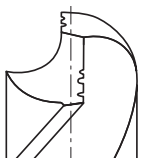
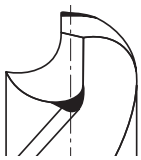
Trouble shooting

	Type of Trouble	Problem	Problem Origin / Solution(s)
Hole	Hole expansion	Large run out after attachment to the machine Large spindle run out	Check holder and/or select another one Check the spindle Check run out after fixing to the chuck
		Non-symmetric point angle Large lip height Run out of chisel edge	Regrind correctly Check precision after regrinding
	Irregular hole size	Non-symmetric point angle Large lip height Run out of chisel edge Major margin wear	Regrind correctly Check precision after regrinding
		Large run out after attachment to machine Loose hold Low work holding rigidity	Check holder and/or select another one Check the spindle Check run out after fixing to the chuck
		Feed rate is too high	Decrease the feed rate
		Not enough coolant	Change method of coolant supply, or increase volume
	Poor accuracy Irregular pitch 	Large run out after attachment to machine Large spindle run out	Check holder and/or select another one Check the spindle Check run out after fixing to the chuck
		Run out when cutting	Increase rigidity of tools and machines Increase work clamping rigidity Select a thinning for low cutting resistance Use centering Double-check that the work piece is horizontal Use a drill bush
		Poor alignment accuracy (lathing)	Check alignment before operation
	Bad hole perpendicularity 	Excessive tool wear	Regrind correctly
		Poor position accuracy	Increase position accuracy
		Non-symmetric point angle Large lip height Run out of chisel edge	Regrind correctly Check precision after regrinding
		Not enough drill rigidity	Use a more rigid drill
		Drilling surface is not horizontal Poor alignment accuracy (lathing)	The work piece must be horizontal or pre-drilled Use centering

Trouble shooting

	Type of Trouble	Problem	Problem Origin / Solution(s)
Hole	Bad cylindrical accuracy 	Non-symmetric point angle Large lip height Run out of chisel edge	Regrind correctly Check precision after regrinding
		Large run out after attachment to machine Large spindle run out Loose clamping of work material	Check holder and/or select another one Check the spindle Check work clamping after fixing to the machine
		Relief angle is too large	Regrind correctly
		Low drill rigidity	Use a more rigid drill
	Poor surface finish	Poor regrinding	Regrind correctly
		Not suitable coolant for the material Not enough coolant	Change method of coolant supply, or increase volume Select higher quality coolant
		Large run out after attachment to machineLarge spindle run out	Check holder and/or select another one Check the spindle
		Feed rate is too high	Reduce the feed rate
		Excessive wear on cutting edge Build up on margin is too large	Regrind correctly Use a coated tool
		Chip packing	Use the most suitable drill (consider flute form & helix angle) Change cutting conditions (feed rate, try step feed)
	Bad cylindrical shape 	Non-symmetric point angle Large lip height Run out of chisel edge Large margin wear	Regrind correctly Check precision after regrinding
		Feed rate is too low	Increase feed rate

Trouble shooting

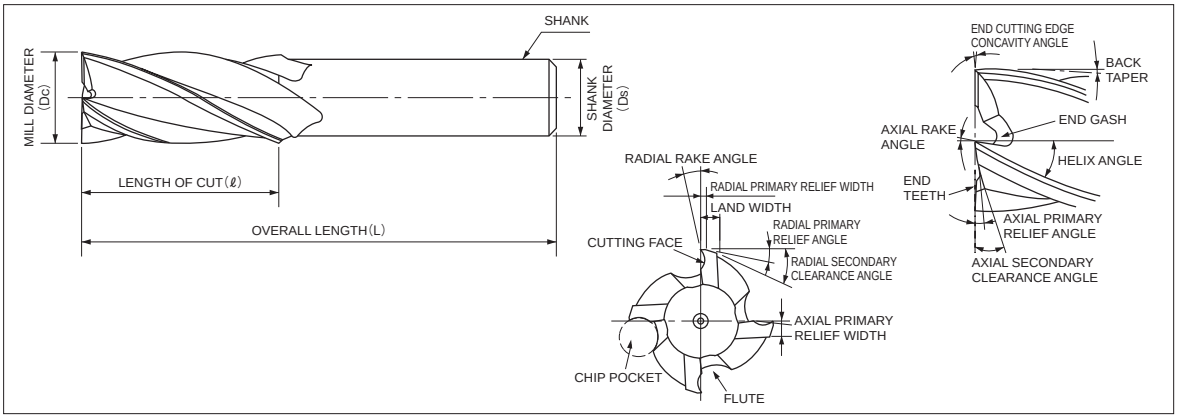
	Type of Trouble	Problem	Problem Origin / Solution(s)
Drill	Breakage 	Deflection and recess of machine and work material	Increase the rigidity of machine, drill and work clamping
		Relief angle is too small	Regrind precisely
		Feed rate is too high	Decrease the feed rate
		Excessive tool wear	Regrind
		Chip packing	Use the most suitable drill (consider flute form & helix angle) Change cutting conditions (feed rate, try step feed)
		Difficulty entering the material	Use a highly rigid tool and machine Increase work clamping rigidity Select a thinning for low cutting resistance Use centering The work piece should be horizontal Use drill bush
	Chipping of corner edge 	Inappropriate tool material	Use the most suitable tool material
		Uneven hardness distribution on the work material	Use the most suitable tool material Change cutting conditions (feed rate, drilling speed) or machining method
		Drilling speed or feed rate too high	Reduce drilling speed or feed rate
		Not enough coolant	Change coolant method and increase volume
	Chipping of cutting edge 	Large run out after attachment to machine Large spindle run out	Check holder and/or select another one Check the spindle Check run out after fixing to the chuck
		Drilling speed or feed rate	Reduce drilling or feed rate
		Relief angle is too small	Regrind correctly
		Tool not suitable for work material	Use the most suitable tool material
	Abnormal wear on the corner part 	Regrinding should have occurred earlier	Regrind sooner
		Poor alignment accuracy (lathing)	Check /adjust alignment before drilling
		Drilling speed or feed rate too high	Decrease the drilling speed
		Point shape is inappropriate	Select correct point dimensions
		Tool not suitable for work material	Use the most suitable tool material
		Inappropriate coolant type	

Trouble shooting

	Type of Trouble	Problem	Problem Origin / Solution(s)
Drill	Wear, chipping and crushing of the chisel edge	Feed rate is too high	Decrease feed rate
		Point shape is inappropriate	Select correct point dimensions
		Tool not suitable for work material	Choose suitable tool material
		Relief angle is too small	Regrind precisely
	Chipping of the margin	Bush size is too large	Select correct bush size
	Margin build-up Welding	High heat generation due to large wear on the cutting edge	Regrind correctly
		Coolant is not sufficient	Change coolant method and increase volume
		Coolant is not suitable	Change coolant
		Bad chip discharging Ductile material	Change drills or alter cutting conditions
	Tang breakage 	Shank slippage due to defect	Eliminate the defect
		Defective inner surface of morse taper holder	Change holders or correct the surface of the morse taper holder
		Inaccurate regrinding	Regrind correctly
	Chattering sounds	Relief angle is too large	Regrind correctly
		Low tool rigidity	Use a more rigid drill
	Chips roll around the drill	Long chips Chips are stuck in the flute	Change drill and cutting conditions
	One-sided wear	Poor alignment accuracy (lathing)	Check/adjust the alignment
		Large run out after attachment to machine	Decrease run out when fixing to the chuck

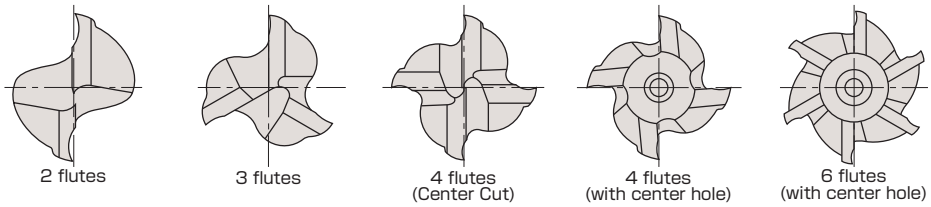
Informations

■TERMINOLOGY



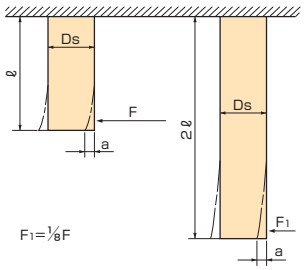
■NUMBER OF FLUTES

The number of flutes should be determined by the work material, dimensions of the work piece and milling conditions. In general, an end mill with a small number of flutes and large chip room is used for roughing, and an end mill with a large number of flutes is used for finishing.



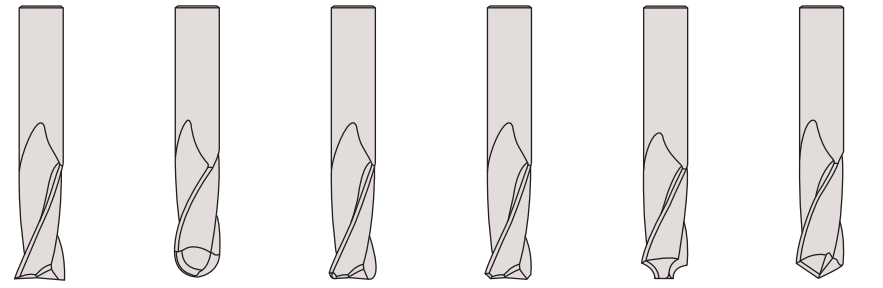
■LENGTH OF CUT

The shorter the end mill, the smaller the deflection and the stronger the rigidity. Because rigidity varies in proportion to length of cut by a factor to the power of 3 (for example, when the length of cut doubles, the rigidity decreases to 1/8), it is necessary to keep the length of cut as short as possible.



■END PROFILE

Stocked end profiles are typically square end ball nose and corner radius, Corner chamfer, corner rounding and drill nose end profiles can be supplied via special oder.



END MILLS

Trouble shooting

Problem Specific Problem	Cause	Solution
Chip packing	Too great cutting amount Not enough chip room Not enough coolant	Adjust feed or speed Use end mill with fewer flutes Apply more coolant. Use air pressure
Rough surface finish	Feed too fast Slow speed Too much wear Chip biting No end tooth concavity	Slow down to correct feed Use higher speed Regrind earlier stage Cut less amount per pass Add margin (touch primary with oilstone)
Burr	Too much wear on primary relief Incorrect conditions Impropoer cutting angle	Regrind sooner Correct milling conditions Change to correct cutting edge
No dimensional accuracy	Too tough conditions Lack of accuracy (machine & holder) Not enough rigidity (machine & holder) Not sufficient number of flutes	Change to easier condition Repair machine or holder Change machine or holder or condition Use end mill with geater number of flutes
No perpendicular side	Feed too fast Too geat cutting amount Too long flute length or long overall length Not sufficient number of flutes	Slow down to correct feed Reduce cutting amount Use proper length tool. Hold shank deeper Use end mill with greater number of flutes

Trouble shooting

Problem Specific Problem	Cause	Solution
Chipping	Feed too fast Feed too fast on first cut Not enough rigidity of machine tool & holder Loose tool holder Loose fixture (workpiece) Lack of rigidity (tool) Teeth too sharp	Slow down to propoer feed Slow down on first bite Change rigid machine tool or holder Tighten tool holder Tighten workpiece fixture Use shortest end mill available. Hold shank deeper. Try down cut. Change to lower cutting edge, primary relief
Wear	Speed too fast Hard material Bitting chips Improper feed spped (too slow) Improper cuuting angle Too low primary relief angle	Slow down, use more coolant Use higher grade, tool material, add surface treatment Change feed speed to change chip size or clear chips with coolant or air pressure Increase feed speed. Try down cut Change to correct cutting angle Change to larger relief angle
Breakage	Feed too fast Too large cuting amount Too long flute length or long overall length Too much wear	Slow down feed Adjust to smaller cutting amount per teeth Hold shank deeper, use shorter end mill Regrind at earlier stage
Chattering	Feed and speed too fast Not enough rigidity Too much relief angle Loose holder (workpiece) Cutting too deep) Too long flute length or long overall lenght	Correct feed and speed Use beter machine tool or holder or change conditions Change to smaller relief angle. Add margin (touch primary with oilstone) Hold workpiece tighter Correct to smaller cutting depth Hold shank deeper, use shorter end mill or try down cut
Short tool life (dull teeth)	Too much cutting friction Tough work material Improper cutting angle	Regrind at earlier stage Select premium tool Change cutting angle & primary

Extract of our General Sales Conditions

1. The conditions of sale hereafter are applicable whatever the general conditions of purchase of the customer. Any modification proposed by the parties must be by written agreement.

2. The order doesn't bind the vendor until a confirmation is sent by the vendor by e-mail. The sold goods will remain the property of the vendor, as long as the price has not have entirely been paid.

3. Delays to delivery will not result in any damages, indemnity or penalty for the vendor. The delivery times are given only as a rough guide and without guarantee.

4. All risks to which the goods are exposed during the transport are chargeable to the buyer, and this, whichever the modalities agreed.

5. For payments not received by the agreed periods, the sums due will be fully subjected to an interest of 1% per month until complete payment. In addition, a lump sum of 15% of the unpaid amounts, with a minimum of 100€, will be asked.

   In case the vendor should pay damages to the buyer for whatever causes, the damages will be limited to the repair of the damage duly undergone by the buyer, without being able to exceed 5 % of the value of the goods.

6. In the case of a dispute or if an amicable agreement cannot be reached, the vendor reserves the right to resort to the competent courts for his registered address

7. In case of honest or clerical errors, the vendor will accept items to be returned within 30 calendar days of the shipping date. A restocking fee of 20% will be applied for those requests that exceed 30 calendar days. The vendor will not accept returns of goods for those items that are more than 60 calendar days from the shipping date and for those that are non-European stocked items. Non-European stocked items are marked with white circles in the General Catalog Volume II.

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