



## WDO- DRILL SERIES

*New Name* WDO-3D

*New Name* WDO-5D

*New Name* WDO-10D

**NEW** WDO-15D

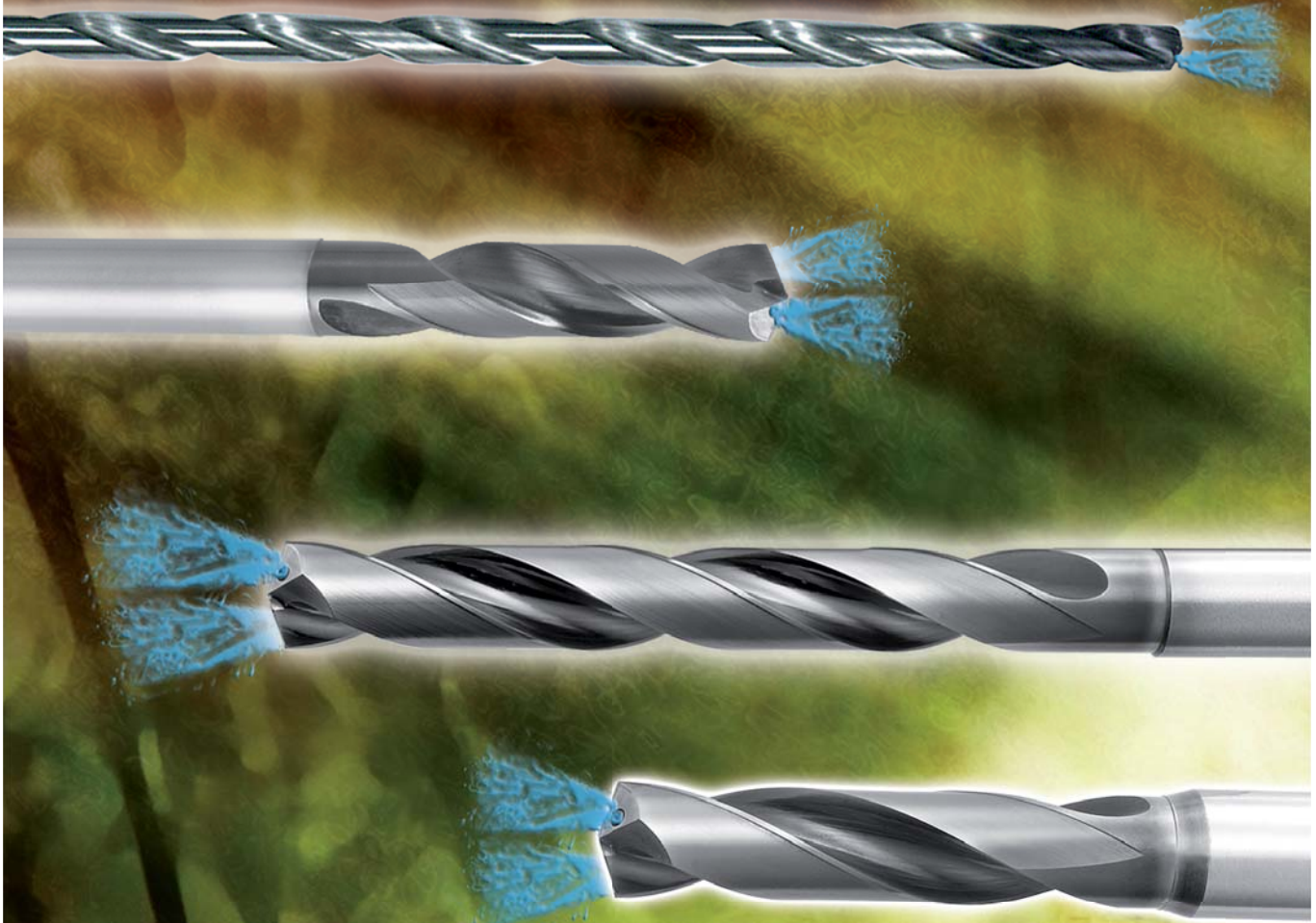
**NEW** WDO-20D

**NEW** WDO-30D

*New Name* WDO-PLT



# ECOLOGY DRILL


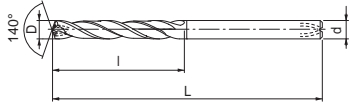


# WDO-Series

*Dawn of a new era of carbide drills!  
Low thrust, enhanced durability, and stable drilling have been achieved  
through the adoption of a new point form and a new coating!*



<p><b>HIGH PERFORMANCE</b></p> <p>■ Coolant through</p> <p><b>3 D drilling</b></p>	<p><b>HIGH PERFORMANCE</b></p> <p>■ Mit innerer Kühlmittelzufuhr</p> <p><b>3 D Bohren</b></p>	<p><b>ALTA PRESTAZIONE</b></p> <p>■ Fori di lubrificazione centrali</p> <p><b>3 D foratura</b></p>	<p><b>HAUTE PERFORMANCE</b></p> <p>■ Avec arrosage central</p> <p><b>Forage 3 D</b></p>
<p><b>HIGH PERFORMANCE</b></p> <p>■ Kõlekanaal</p> <p><b>3 D boring</b></p>	<p><b>HIGH PERFORMANCE</b></p> <p>■ Kylkanaler</p> <p><b>3 D borring</b></p>	<p><b>ALTAS PRESTACIONES</b></p> <p>■ Refrigeración interna</p> <p><b>Taladrado 3 D</b></p>	<p><b>Высокая производительность</b></p> <p>■ С каналами для СОЖ</p> <p><b>Сверление глубиной 3 D</b></p>

EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
8630280	2,8	66	17	3	●		48152082	8,2	101	41	10	●	
8630290	2,9	66	18	3	●		48152083	8,3	101	42	10	●	
8630300	3,0	66	18	3	●		48152084	8,4	101	42	10	●	
8630310	3,1	74	19	4	●		48152085	8,5	101	43	10	●	
8630320	3,2	74	20	4	●		48152086	8,6	101	43	10	●	
8630330	3,3	74	20	4	●		48152087	8,7	101	43	10	●	
8630340	3,4	74	21	4	●		48152088	8,8	101	44	10	●	
8630350	3,5	74	21	4	●		48152089	8,9	101	45	10	●	
8630360	3,6	74	22	4	●		48152090	9,0	101	45	10	●	
8630370	3,7	74	23	4	●		8630910	9,1	106	46	10	●	
8630380	3,8	74	23	4	●		8630920	9,2	106	46	10	●	
8630390	3,9	74	24	4	●		8630930	9,3	106	47	10	●	
8630400	4,0	74	24	4	●		8630940	9,4	106	47	10	●	
8630410	4,1	80	25	5	●		8630950	9,5	106	48	10	●	
8630420	4,2	80	26	5	●		8630960	9,6	106	48	10	●	
8630430	4,3	80	26	5	●		8630970	9,7	106	49	10	●	
8630440	4,4	80	27	5	●		8630980	9,8	106	49	10	●	
8630450	4,5	80	27	5	●		8630990	9,9	106	50	10	●	
8630460	4,6	80	28	5	●		8631000	10,0	106	50	10	●	
8630470	4,7	80	29	5	●		48152101	10,1	113	51	12	●	
8630480	4,8	80	29	5	●		48152102	10,2	113	51	12	●	
8630490	4,9	80	30	5	●		48152103	10,3	113	52	12	●	
8630500	5,0	80	25	5	●		48152104	10,4	113	52	12	●	
8630510	5,1	82	26	6	●		48152105	10,5	113	53	12	●	
8630520	5,2	82	26	6	●		48152106	10,6	113	53	12	●	
8630530	5,3	82	27	6	●		48152107	10,7	113	54	12	●	
8630540	5,4	82	27	6	●		48152108	10,8	113	54	12	●	
8630550	5,5	82	28	6	●		48152109	10,9	113	55	12	●	
8630560	5,6	82	28	6	●		48152110	11,0	113	55	12	●	
8630570	5,7	82	29	6	●		8631110	11,1	120	56	12	●	
8630580	5,8	82	29	6	●		8631120	11,2	120	56	12	●	
8630590	5,9	82	30	6	●		8631130	11,3	120	57	12	●	
8630600	6,0	82	30	6	●		8631140	11,4	120	57	12	●	
48152061	6,1	88	31	8	●		8631150	11,5	120	58	12	●	
48152062	6,2	88	31	8	●		8631160	11,6	120	58	12	●	
48152063	6,3	88	32	8	●		8631170	11,7	120	59	12	●	
48152064	6,4	88	32	8	●		8631180	11,8	120	59	12	●	
48152065	6,5	88	33	8	●		8631190	11,9	120	60	12	●	
48152066	6,6	88	33	8	●		8631200	12,0	120	60	12	●	
48152067	6,7	88	34	8	●		48152125	12,5	128	63	14	●	
48152068	6,8	88	34	8	●		48152130	13,0	128	65	14	●	
48152069	6,9	88	35	8	●		8631350	13,5	134	68	14	●	
48152070	7,0	88	35	8	●		8631400	14,0	134	70	14	●	
8630710	7,1	94	36	8	●		48152145	14,5	140	73	16	●	
8630720	7,2	94	36	8	●		48152150	15,0	140	75	16	●	
8630730	7,3	94	37	8	●		8631550	15,5	145	78	16	●	
8630740	7,4	94	37	8	●		8631600	16,0	145	80	16	●	
8630750	7,5	94	38	8	●		48152165	16,5	150	83	18	●	
8630760	7,6	94	38	8	●		48152170	17,0	150	85	18	●	
8630770	7,7	94	39	8	●		8631750	17,5	155	88	18	●	
8630780	7,8	94	39	8	●		8631800	18,0	155	90	18	●	
8630790	7,9	94	40	8	●		48152185	18,5	160	93	20	●	
8630800	8,0	94	40	8	●		48152190	19,0	160	95	20	●	
48152081	8,1	101	41	10	●		8631950	19,5	165	98	20	●	
							8632000	20,0	165	100	20	●	

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применения								
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	TiAl	Inc
○	◎	◎	○		○	○	◎	

● Delivery from stock  
○ Available on short notice

# WDO-5D



**NEW name**



## 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

■ Kõlekanneler

5 D boring

## HIGH PERFORMANCE

■ Kylvkanaler

5 D borring

## ALTAS PRESTACIONES

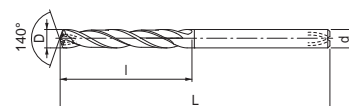
■ Refrigeración interna

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	TiAl	Inc
○	☉	☉	○		○	○	☉	

● Delivery from stock  
○ Available on short notice





**NEW name**



### 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 borming i stål

Extra lång step fri borming  
10 D



### ALTAS PRESTACIONES

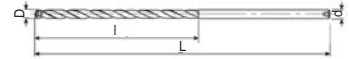
■ Para taladrado profundo en acero

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								
Cs≤0.2%	0.25<Cs≤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	TiAl	Inc
	◎	◎						

● Delivery from stock  
○ Available on short notice

# WDO-15D

CARBIDE

WDI

30°

FIT

140°

Ø3 -0.005 -0.024

Ø3.1 - 06 -0.01 -0.032

Ø6.1 - 010 -0.015 -0.04

Ø10.1 - 012 -0.02 -0.05

R

**NEW**



### 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 borning i stål

Extra lång step fri borning  
15 D

### ALTAS PRESTACIONES

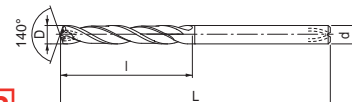
■ Para taladrado profundo en acero

Extra-larga taladrado ininterrumpido  
15 D

### Высокая производительность

■ Для глубокого сверления в стали

Непрерывное сверление глубиной  
15 D



**AVAILABLE FEBRUARY 2012**

EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
48150030	3,0	105	55	3	●		48150076	7,6	195	145	8	○	
48150031	3,1	125	60	4	○		48150077	7,7	195	145	8	○	
48150032	3,2	125	60	4	○		48150078	7,8	195	145	8	○	
48150033	3,3	125	60	4	○		48150079	7,9	195	145	8	○	
48150034	3,4	125	65	4	○		48150080	8,0	195	145	8	●	
48150035	3,5	125	65	4	●		48150081	8,1	210	155	10	○	
48150036	3,6	125	65	4	○		48150082	8,2	210	155	10	○	
48150037	3,7	125	65	4	○		48150083	8,3	210	155	10	○	
48150038	3,8	125	75	4	○		48150084	8,4	210	155	10	○	
48150039	3,9	125	75	4	○		48150085	8,5	210	155	10	●	
48150040	4,0	125	75	4	●		48150086	8,6	210	160	10	○	
48150041	4,1	140	75	6	○		48150087	8,7	210	160	10	○	
48150042	4,2	140	75	6	○		48150088	8,8	210	160	10	○	
48150043	4,3	140	85	6	○		48150089	8,9	210	160	10	○	
48150044	4,4	140	85	6	○		48150090	9,0	210	160	10	●	
48150045	4,5	140	85	6	●		48150091	9,1	240	170	10	○	
48150046	4,6	140	85	6	○		48150092	9,2	240	170	10	○	
48150047	4,7	140	85	6	○		48150093	9,3	240	170	10	○	
48150048	4,8	140	90	6	○		48150094	9,4	240	170	10	○	
48150049	4,9	140	90	6	○		48150095	9,5	240	170	10	○	
48150050	5,0	140	90	6	●		48150096	9,6	240	180	10	○	
48150051	5,1	160	95	6	○		48150097	9,7	240	180	10	○	
48150052	5,2	160	95	6	○		48150098	9,8	240	180	10	○	
48150053	5,3	160	95	6	○		48150099	9,9	240	180	10	○	
48150054	5,4	160	110	6	○		48150100	10,0	240	180	10	●	
48150055	5,5	160	110	6	●		48150101	10,1	260	190	12	○	
48150056	5,6	160	110	6	○		48150102	10,2	260	190	12	○	
48150057	5,7	160	110	6	○		48150103	10,3	260	190	12	○	
48150058	5,8	160	110	6	○		48150104	10,4	260	190	12	○	
48150059	5,9	160	110	6	○		48150105	10,5	260	190	12	○	
48150060	6,0	160	110	6	●		48150106	10,6	260	190	12	○	
48150061	6,1	175	120	8	○		48150107	10,7	260	200	12	○	
48150062	6,2	175	120	8	○		48150108	10,8	260	200	12	○	
48150063	6,3	175	120	8	○		48150109	10,9	260	200	12	○	
48150064	6,4	175	120	8	○		48150110	11,0	260	200	12	●	
48150065	6,5	175	120	8	●		48150111	11,1	280	210	12	○	
48150066	6,6	175	120	8	○		48150112	11,2	280	210	12	○	
48150067	6,7	175	120	8	○		48150113	11,3	280	210	12	○	
48150068	6,8	175	125	8	○		48150114	11,4	280	210	12	○	
48150069	6,9	175	125	8	○		48150115	11,5	280	210	12	○	
48150070	7,0	175	125	8	●		48150116	11,6	280	210	12	○	
48150071	7,1	195	135	8	○		48150117	11,7	280	210	12	○	
48150072	7,2	195	135	8	○		48150118	11,8	280	210	12	○	
48150073	7,3	195	135	8	○		48150119	11,9	280	215	12	○	
48150074	7,4	195	135	8	○		48150120	12,0	280	215	12	●	
48150075	7,5	195	135	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	TiAl	Inc
	◎	◎						

● Delivery from stock  
○ Available on short notice

**WDO-20D** CARBIDE WDI 30° FIT 140° 03 -0.005 -0.024 03,1 - 06 -0.01 -0.032 06,1 - 010 -0.015 -0.04 010,1 - 012 -0.02 -0.05 R

**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 boring i stål

**Extra lång step fri boring 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**

**AVAILABLE FEBRUARY 2012**

EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
48200030	3,0	120	70	3	●		48200076	7,6	230	180	8	○	
48200031	3,1	140	80	4	○		48200077	7,7	230	180	8	○	
48200032	3,2	140	80	4	○		48200078	7,8	230	180	8	○	
48200033	3,3	140	80	4	○		48200079	7,9	230	180	8	○	
48200034	3,4	140	85	4	○		48200080	8,0	230	180	8	●	
48200035	3,5	140	85	4	●		48200081	8,1	260	195	8	○	
48200036	3,6	140	85	4	○		48200082	8,2	260	195	10	○	
48200037	3,7	140	85	4	○		48200083	8,3	260	195	10	○	
48200038	3,8	140	90	4	○		48200084	8,4	260	195	10	○	
48200039	3,9	140	90	4	○		48200085	8,5	260	195	10	●	
48200040	4,0	140	90	4	●		48200086	8,6	260	210	10	○	
48200041	4,1	165	100	6	○		48200087	8,7	260	210	10	○	
48200042	4,2	165	100	6	○		48200088	8,8	260	210	10	○	
48200043	4,3	165	110	6	○		48200089	8,9	260	210	10	○	
48200044	4,4	165	110	6	○		48200090	9,0	260	210	10	●	
48200045	4,5	165	110	6	●		48200091	9,1	290	220	10	○	
48200046	4,6	165	110	6	○		48200092	9,2	290	220	10	○	
48200047	4,7	165	110	6	○		48200093	9,3	290	220	10	○	
48200048	4,8	165	115	6	○		48200094	9,4	290	220	10	○	
48200049	4,9	165	115	6	○		48200095	9,5	290	220	10	○	
48200050	5,0	165	115	6	●		48200096	9,6	290	230	10	○	
48200051	5,1	190	120	6	○		48200097	9,7	290	230	10	○	
48200052	5,2	190	120	6	○		48200098	9,8	290	230	10	○	
48200053	5,3	190	120	6	○		48200099	9,9	290	230	10	○	
48200054	5,4	190	140	6	○		48200100	10,0	290	230	10	●	
48200055	5,5	190	140	6	●		48200101	10,1	310	250	12	○	
48200056	5,6	190	140	6	○		48200102	10,2	310	250	12	○	
48200057	5,7	190	140	6	○		48200103	10,3	310	250	12	○	
48200058	5,8	190	140	6	○		48200104	10,4	310	250	12	○	
48200059	5,9	190	140	6	○		48200105	10,5	310	250	12	○	
48200060	6,0	190	140	6	●		48200106	10,6	310	250	12	○	
48200061	6,1	210	155	8	○		48200107	10,7	310	250	12	○	
48200062	6,2	210	155	8	○		48200108	10,8	310	250	12	○	
48200063	6,3	210	155	8	○		48200109	10,9	310	250	12	○	
48200064	6,4	210	155	8	○		48200110	11,0	310	250	12	●	
48200065	6,5	210	155	8	●		48200111	11,1	330	270	12	○	
48200066	6,6	210	155	8	○		48200112	11,2	330	270	12	○	
48200067	6,7	210	155	8	○		48200113	11,3	330	270	12	○	
48200068	6,8	210	160	8	○		48200114	11,4	330	270	12	○	
48200069	6,9	210	160	8	○		48200115	11,5	330	270	12	○	
48200070	7,0	210	160	8	●		48200116	11,6	330	270	12	○	
48200071	7,1	230	170	8	○		48200117	11,7	330	270	12	○	
48200072	7,2	230	170	8	○		48200118	11,8	330	270	12	○	
48200073	7,3	230	170	8	○		48200119	11,9	330	270	12	○	
48200074	7,4	230	170	8	○		48200120	12,0	330	270	12	●	
48200075	7,5	230	170	8	●								

Applications - Anwendungen - Applicazioni - Applications - Applikation - Applikation - Aplicaciones - Применение								
Cs<0.2%	0.25<Cs<0.4%	Cs≥0.45%	SCM	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	SUS
◎	◎	◎	◎	○				○
SKD	GG	GGG	Cu	Al	AC	Ti	TiAl	Inc
	◎	◎						

# WDO-30D



**NEW**



## 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 borning i stål

Extra lång step fri borning 30 D

## ALTAS PRESTACIONES

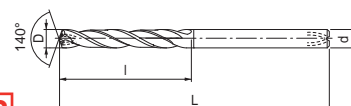
- Para taladrado profundo en acero

Extra-larga taladrado ininterrumpido 30 D

## Высокая производительность

- Для глубокого сверления в стали

Непрерывное сверление глубиной 30 D



**AVAILABLE FEBRUARY 2012**

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	TiAl	Inc
	◎	◎						

**NEW name**



### 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

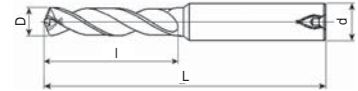
■ Pilot borrh für FTO-GDXL, FTO-M-GDXL, FTO-H-GDXL, CAO-GDXL

### 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

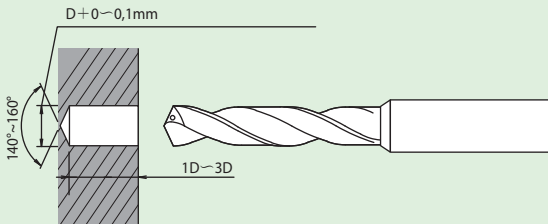


EDP	D	L	l	d	Stock	Price	EDP	D	L	l	d	Stock	Price
8568903	3,03	65	15	3	●		8568907	7,03	85	35	7	●	
8568923	3,53	70	18	4	●		8568908	8,03	90	40	8	●	
8568904	4,03	70	20	4	●		8568928	8,53	95	43	9	●	
8568924	4,53	75	23	5	●		8568909	9,03	95	45	9	●	
8568905	5,03	75	25	5	●		8568910	10,03	100	50	10	●	
8568925	5,53	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)

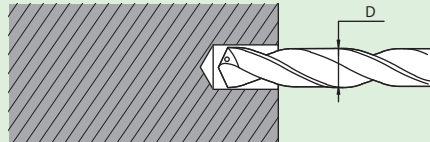
- For a pilot hole, select 0-0,1mm larger size drill than extra long drill.



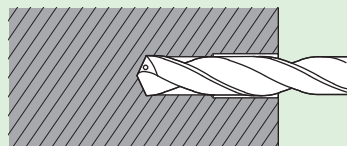
★ When working on a curved surface, use the FX-ZDS (end mill for counterboring) to counterbore a pilot hole.



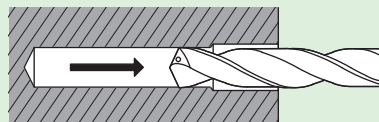
② Insert the extra long drill into a pilot hole with zero or low revolution.



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								
Cs<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	TiAl	Inc
○	◎	◎						

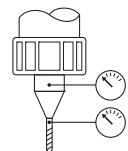
# Drilling Conditions

## WDO-3D/5D/PLT

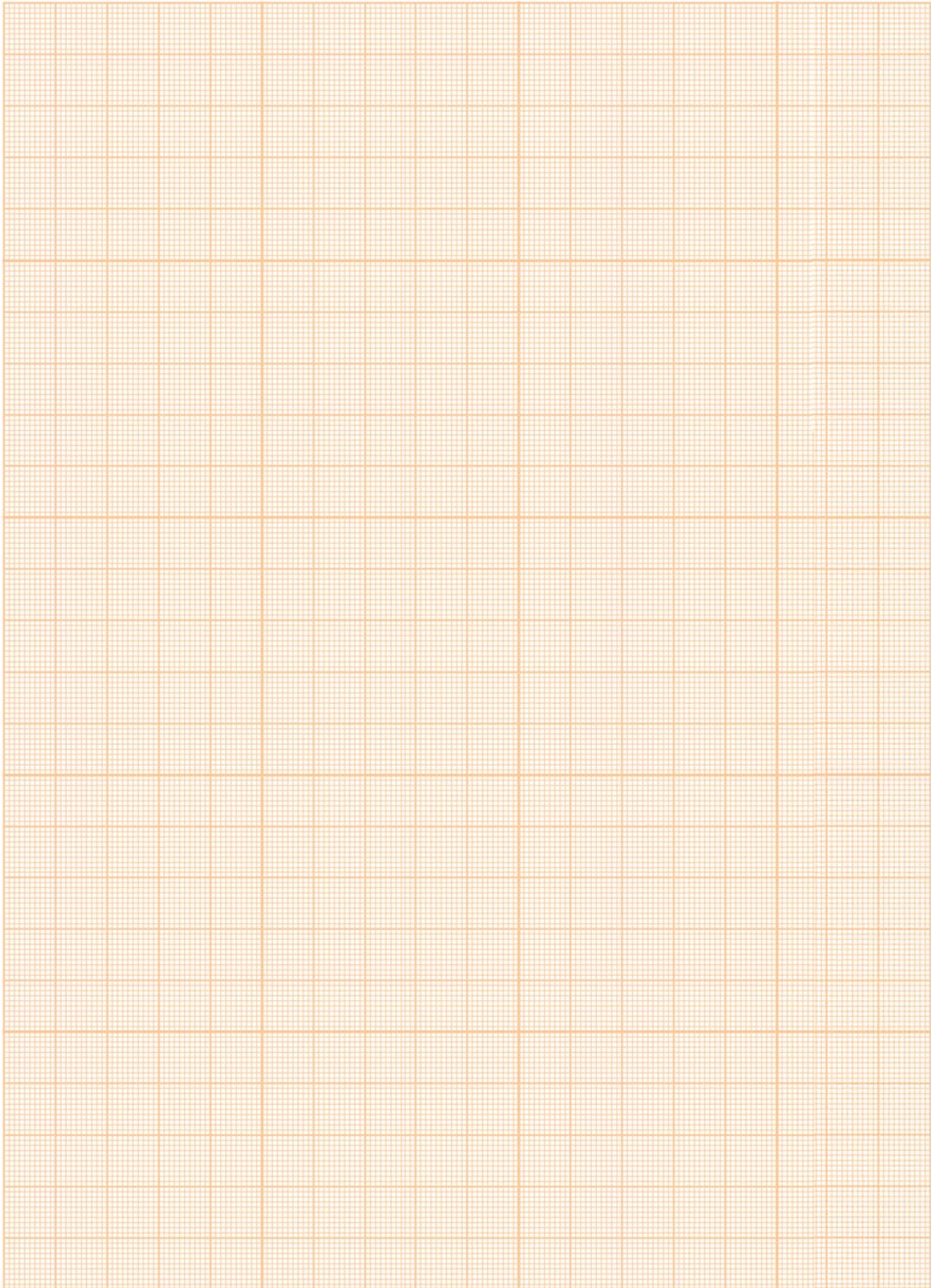
Vc	Carbon Steel S50C		Alloy Steel SCM440		Alloy Steel SCM440 - 30HRC		Cast Iron FC250		Ductile Cast IRON FCD700		Stainless Steels SUS304	
	S (min <sup>-1</sup> )	F (mm/rev)	S (min <sup>-1</sup> )	F (mm/rev)	S (min <sup>-1</sup> )	F (mm/rev)	S (min <sup>-1</sup> )	F (mm/rev)	S (min <sup>-1</sup> )	F (mm/rev)	S (min <sup>-1</sup> )	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

## WDO-10D/15D/20D/30D

Vc	Mild Steels Low Carbon Steels SS400 ■ S10C ~ 150HB ~ 500 N/mm <sup>2</sup>		Carbon Steels S35C ■ S50C ~ 210HB ~ 710 N/mm <sup>2</sup>		Alloy Steels SCM ■ SCr ■ SNCM 16 ~ 28HRC 710 ~ 900 N/mm <sup>2</sup>		Cast Iron FC250 ~ 350 N/mm <sup>2</sup>		Ductile Cast Iron FCD450 FCD600 400 ~ 600 N/mm <sup>2</sup>		Stainless Steels SUS400 400 ~ 800 N/mm <sup>2</sup>	
	S (min <sup>-1</sup> )	F (mm/rev.)	S (min <sup>-1</sup> )	F (mm/rev.)	S (min <sup>-1</sup> )	F (mm/rev.)	S (min <sup>-1</sup> )	F (mm/rev.)	S (min <sup>-1</sup> )	F (mm/rev.)	S (min <sup>-1</sup> )	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



1. The indicated speeds and feeds are for **water soluble oil or MQL**.
2. Suitable cutting fluid is water-soluble high density oil (less than 20 times dilution).
3. When using non-water soluble oil or water-emulsifiable (over 20 times dilution), reduce drilling speed by 30%.
4. These conditions are for **drilling depth less than 5 times the drill diameter**.
5. When inserting a drill into the machine, use a collet that does not have any scratches or dust located within internal bore. **Also, reduce deflection of drill to less than 0,02mm.**
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.



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