



## Punte Metallo Duro Extra lunghe per forature profonde c/fori lubrificazione

101 New drills  
**NEW SIZES**  
D2 - D12 in 10xD

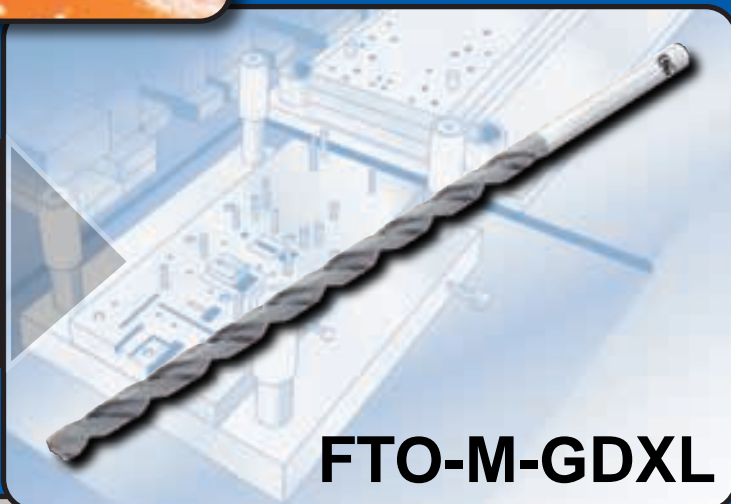
### FTO-GDXL



- *Per forature profonde su Leghe di Acciai e Ghisa*

- 10 x D D2 ~ D12
- 15 x D D3 ~ D10
- 20 x D D4 ~ D10
- 30 x D D5 ~ D8

- *Per forature profonde Stampi*
- *oltre 45 HRC*
- 20 x D D4 ~ D10



### FTO-M-GDXL

### CAO-GDXL



- *Per forature profonde su Rame e Leghe di Alluminio.*

- 15 x D D3 ~ D10
- 20 x D D4 ~ D10
- 30 x D D5 ~ D8

For Steels,  
Alloy steels,  
Cast irons!

- ✦ HIGH PERFORMANCE
- ✦ Solid Carbide
- ✦ For deep drilling in steel
- ✦ DIN shank
- ✦ *Non step drilling 10 D*

- ✦ HIGH PERFORMANCE
- ✦ Vollhartmetall
- ✦ Für Tiefbohren in Stahl
- ✦ DIN Schaft
- ✦ *Ohne Step 10 D*

- ✦ ALTA PRESTAZIONE
- ✦ Carburo monoblocco
- ✦ Foratura profonda
- ✦ Gambo DIN
- ✦ *Foratura continua 10 D*

- ✦ HAUTE PERFORMANCE
- ✦ Carbure monobloc
- ✦ Pour le perçage profond dans les aciers
- ✦ Queue DIN
- ✦ *Perçage sans déburrage sur 10 D*

FTO-GDXL



■ 10 X D

EDP	D	L	l	d	€
NEW 48149020	2X10D	75	26	3	.
NEW 48149021	2.1X10D	75	33	3	.
NEW 48149022	2.2X10D	75	33	3	.
NEW 48149023	2.3X10D	75	33	3	.
NEW 48149024	2.4X10D	75	33	3	.
NEW 48149025	2.5X10D	75	33	3	.
NEW 48149026	2.6X10D	90	40	3	.
NEW 48149027	2.7X10D	90	40	3	.
NEW 48149028	2.8X10D	90	40	3	.
NEW 48149029	2.9X10D	90	40	3	.
NEW 48149030	3x10D	90	40	3	.
NEW 48149031	3.1x10D	100	45	4	.
NEW 48149032	3.2x10D	100	45	4	.
NEW 48149033	3.3x10D	100	45	4	.
NEW 48149034	3.4x10D	100	50	4	.
NEW 48149035	3.5x10D	100	50	4	.
NEW 48149036	3.6x10D	100	50	4	.
NEW 48149037	3.7x10D	100	50	4	.
NEW 48149038	3.8x10D	100	50	4	.
NEW 48149039	3.9x10D	100	50	4	.
NEW 48149040	4x10D	100	50	4	.
NEW 48149041	4.1x10D	115	55	6	.
NEW 48149042	4.2x10D	115	55	6	.
NEW 48149043	4.3x10D	115	60	6	.
NEW 48149044	4.4x10D	115	60	6	.
NEW 48149045	4.5x10D	115	60	6	.
NEW 48149046	4.6x10D	115	60	6	.
NEW 48149047	4.7x10D	115	65	6	.
NEW 48149048	4.8x10D	115	65	6	.
NEW 48149049	4.9x10D	115	65	6	.
NEW 48149050	5x10D	115	65	6	.
NEW 48149051	5.1x10D	128	70	6	.
NEW 48149052	5.2x10D	128	70	6	.
NEW 48149053	5.3x10D	128	70	6	.
NEW 48149054	5.4x10D	128	78	6	.
NEW 48149055	5.5x10D	128	78	6	.
NEW 48149056	5.6x10D	128	78	6	.
NEW 48149057	5.7x10D	128	78	6	.
NEW 48149058	5.8x10D	128	78	6	.
NEW 48149059	5.9x10D	128	78	6	.
NEW 48149060	6x10D	128	78	6	.
NEW 48149061	6.1x10D	140	87	8	.
NEW 48149062	6.2x10D	140	87	8	.
NEW 48149063	6.3x10D	140	87	8	.
NEW 48149064	6.4x10D	140	87	8	.
NEW 48149065	6.5x10D	140	87	8	.
NEW 48149066	6.6x10D	140	87	8	.
NEW 48149067	6.7x10D	140	87	8	.
NEW 48149068	6.8x10D	140	90	8	.
NEW 48149069	6.9x10D	140	90	8	.
NEW 48149070	7x10D	140	90	8	.

■ 10 X D

EDP	D	L	l	d	€
NEW 48149071	7.1x10D	155	100	8	.
NEW 48149072	7.2x10D	155	100	8	.
NEW 48149073	7.3x10D	155	100	8	.
NEW 48149074	7.4x10D	155	100	8	.
NEW 48149075	7.5x10D	155	100	8	.
NEW 48149076	7.6x10D	155	105	8	.
NEW 48149077	7.7x10D	155	105	8	.
NEW 48149078	7.8x10D	155	105	8	.
NEW 48149079	7.9x10D	155	105	8	.
NEW 48149080	8x10D	155	105	8	.
NEW 48149081	8.1x10D	165	110	10	.
NEW 48149082	8.2x10D	165	110	10	.
NEW 48149083	8.3x10D	165	110	10	.
NEW 48149084	8.4x10D	165	110	10	.
NEW 48149085	8.5x10D	165	110	10	.
NEW 48149086	8.6x10D	165	115	10	.
NEW 48149087	8.7x10D	165	115	10	.
NEW 48149088	8.8x10D	165	115	10	.
NEW 48149089	8.9x10D	165	115	10	.
NEW 48149090	9x10D	165	115	10	.
NEW 48149091	9.1x10D	190	125	10	.
NEW 48149092	9.2x10D	190	125	10	.
NEW 48149093	9.3x10D	190	125	10	.
NEW 48149094	9.4x10D	190	125	10	.
NEW 48149095	9.5x10D	190	125	10	.
NEW 48149096	9.6x10D	190	130	10	.
NEW 48149097	9.7x10D	190	130	10	.
NEW 48149098	9.8x10D	190	130	10	.
NEW 48149099	9.9x10D	190	130	10	.
NEW 48149100	10x10D	190	130	10	.
NEW 48149101	10.1x10D	205	140	12	.
NEW 48149102	10.2x10D	205	140	12	.
NEW 48149103	10.3x10D	205	140	12	.
NEW 48149104	10.4x10D	205	140	12	.
NEW 48149105	10.5x10D	205	140	12	.
NEW 48149106	10.6x10D	205	140	12	.
NEW 48149107	10.7x10D	205	140	12	.
NEW 48149108	10.8x10D	205	145	12	.
NEW 48149109	10.9x10D	205	145	12	.
NEW 48149110	11x10D	205	145	12	.
NEW 48149111	11.1x10D	215	155	12	.
NEW 48149112	11.2x10D	215	155	12	.
NEW 48149113	11.3x10D	215	155	12	.
NEW 48149114	11.4x10D	215	155	12	.
NEW 48149115	11.5x10D	215	155	12	.
NEW 48149116	11.6x10D	215	155	12	.
NEW 48149117	11.7x10D	215	155	12	.
NEW 48149118	11.8x10D	215	155	12	.
NEW 48149119	11.9x10D	215	155	12	.
NEW 48149120	12x10D	215	155	12	.

FTO-GDXL

✦ HIGH PERFORMANCE  
✦ Solid Carbide  
✦ For deep drilling in steel

✦ HIGH PERFORMANCE  
✦ Vollhartmetall  
✦ Für Tiefbohren in Stahl

✦ ALTA PRESTAZIONE  
✦ Carburo micrograna  
✦ Per foratura profonda

✦ HAUTE PERFORMANCE  
✦ Carbure submicrograins  
✦ Pour le perçage profond dans les aciers

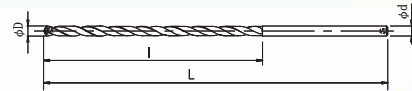
✦ Non step drilling 15 D, 20 D, 30 D

✦ Ohne Step 15 D, 20 D, 30 D

✦ Foratura continua 15 D, 20 D, 30 D

✦ Forage en continu 15 D, 20 D, 30 D

FTO-GDXL



■ 15 X D

EDP	D	L	I	d	€
8568130	3 x15 D	95	55	3	.
8568140	4 x15 D	115	75	4	.
8568150	5 x15 D	135	90	5	.
8568160	6 x15 D	155	110	6	.
8568165	6,5x15 D	175	120	7	.
8568170	7 x15 D	175	125	7	.
8568180	8 x15 D	195	145	8	.
8568185	8,5x15 D	210	155	9	.
8568200	10 x15 D	240	180	10	.

■ 20 X D

EDP	D	L	I	d	€
8568340	4 x20 D	130	90	4	.
8568345	4,5x20 D	160	110	5	.
8568350	5 x20 D	160	120	5	.
8568355	5,5x20 D	185	140	6	.
8568360	6 x20 D	185	140	6	.
8568365	6,5x20 D	210	155	7	.
8568370	7 x20 D	210	160	7	.
8568380	8 x20 D	230	180	8	.
8568385	8,5x20 D	260	195	9	.
8568400	10 x20 D	290	230	10	.

■ 30 X D

EDP	D	L	I	d	€
8568450	5 x30 D	215	165	5	.
8568455	5,5x30 D	230	180	6	.
8568460	6 x30 D	230	180	6	.
8568465	6,5x30 D	280	215	7	.
8568470	7 x30 D	280	230	7	.
8568480	8 x30 D	315	265	8	.

Forme del truciolo

Eccellente evacuazione del truciolo data dalla speciale geometria

Utensile	FTO-GDXL
Dimensione	D = 5 mm I = 115 mm L = 165 mm
Materiale	42CrMo4
Avanzamento	0,2 ~ 0,5mm/U
Profondità	100mm (Foro cieco)
Refrigerante	Emulsion
Macchina	Centro Lavoro Verticale

Feed	Vc	80m/min	100m/min	120m/min
		0,5mm/Rev		
0,4mm/Rev				
0,3mm/Rev				
0,2mm/Rev				

Applications - Anwendungen - Applicazioni - Applications

FTO-GDXL	C <sub>s</sub> ≤0,2%	0,25<C <sub>s</sub> ≤0,4%	C <sub>s</sub> ≥0,45%	SCM	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	SUS
	●	●	●	●	●	○	○		○
	SKD	GG	GGG	Cu	Al	AC	Ti	TiAl	Inl

Over  
45 HRC

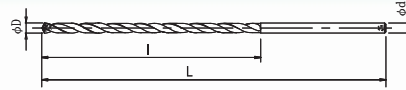
- ✦ HIGH PERFORMANCE
- ✦ Carbide micro grain
- ✦ For deep drilling in dies
- ✦ 20 D drilling

- ✦ HIGH PERFORMANCE
- ✦ Feinstkom
- ✦ Für Tiefbohren in Formen
- ✦ 20 D Bohren

- ✦ ALTA PRESTAZIONE
- ✦ Carburo micrograna
- ✦ Per foratura profonda su stampi
- ✦ 20 D foratura

- ✦ HAUTE PERFORMANCE
- ✦ Carbure submicrograins
- ✦ Pour le perçage profond dans les matrices
- ✦ Perçage 20 D

FTO-M-GDXL



D < 4    D ≥ 4



■ 20 X D

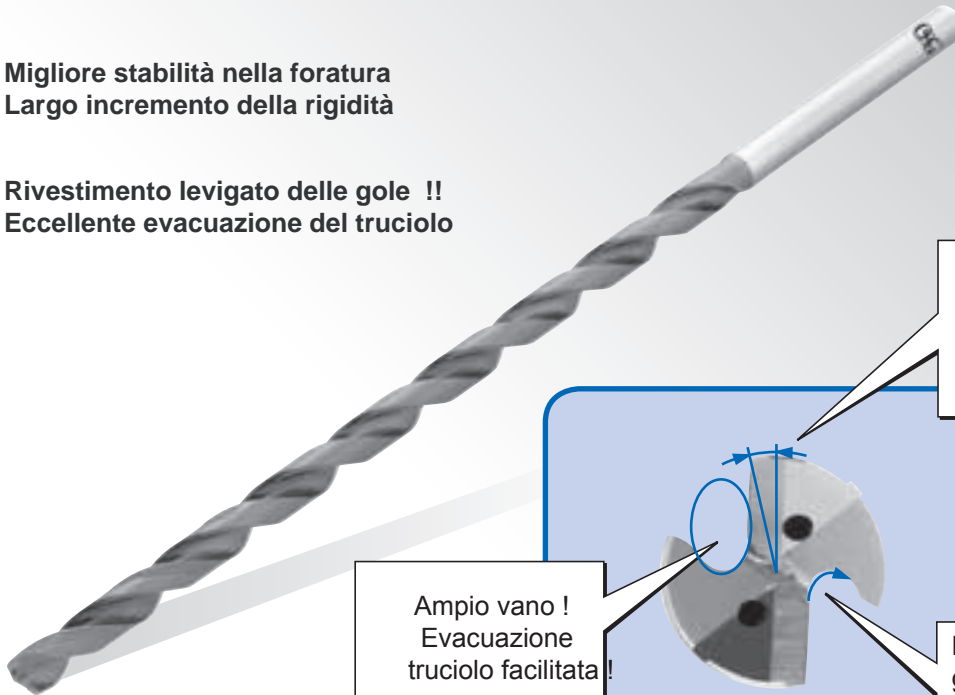
EDP	D	L	l	d	€
8568540	4 x 20 D	140	90	4	.
8568550	5 x 20 D	165	115	5	.
8568560	6 x 20 D	190	140	6	.

■ 20 X D

EDP	D	L	l	d	€
8568580	8 x 20 D	230	180	8	.
8568600	10x 20 D	280	230	10	.

FTO-M-GDXL

- Prodotto in metallo duro a micro grana ultra fine resistente a scheggiatura e rottura !
- Migliore stabilità nella foratura  
Largo incremento della rigidità
- Rivestimento levigato delle gole !!  
Eccellente evacuazione del truciolo



Ampio vano !  
Evacuazione  
truciolo facilitata !

Eccellente taglio !  
Resiste a scheggiature !  
Resiste a rotture !

La geometria della  
gola evacua il truciolo  
verso l'interno !  
Eccellente rottura  
del truciolo !

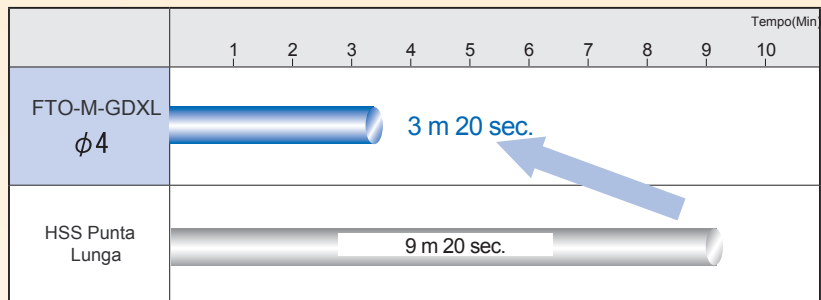
### Forme del truciolo con differenti avanzamenti

Utensile	FTO-M-GDXL D6	Avanz.	0,07mm/Rev	0,09mm/Rev	0,14mm/Rev
Materiale	DIN CK50	Truciolo			
Velocità	80m/min (4.246min <sup>-1</sup> )				
Profondità	120mm (Foro cieco)				
Macchina	Centro Lavoro Verticale				
		Criterio	×	×	△

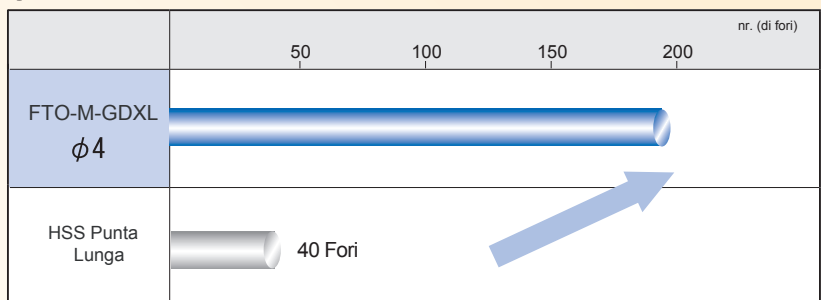
### Performance della FTO-M-GDXL

Utensile	FTO-M-GDXL
Misura	D = 4 mm l = 115 mm L = 165 mm
Materiale	1.2312
Velocità	50m/min (3.980min <sup>-1</sup> )
Avanzamento	478mm/min (0,12mm/U)
Profondità	100mm (Foro cieco)
Macchina	Centro Lavoro Verticale

#### ● Tempi di Foratura per foro



#### ● Durata



Applications - Anwendungen - Applicazioni - Applications									
FTO-M-GDXL	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	Inl

CAO-GDXL

- |  |   |   |  |
|--|---|---|--|
| <p>✦ <b>HIGH PERFORMANCE</b></p> <p>✦ Carbide micro grain</p> <p>✦ For deep drilling in Cu &amp; Al alloys</p> <p>✦ Non step drilling 15 D, 20 D, 30 D</p> | <p>✦ <b>HIGH PERFORMANCE</b></p> <p>✦ Feinstkom</p> <p>✦ Für tief bohren in Cu &amp; Al legierungen</p> <p>✦ Ohne Step 15 D, 20 D, 30 D</p> | <p>✦ <b>ALTA PRESTAZIONE</b></p> <p>✦ Carburo micrograna</p> <p>✦ Foratura profonda per Cu &amp; leghe di alluminio</p> <p>✦ Foratura continua 15 D, 20 D, 30 D</p> | <p>✦ <b>HAUTE PERFORMANCE</b></p> <p>✦ Carbure submicrograins</p> <p>✦ Pour le perçage profond dans les cuivres et alliages d'aluminium</p> <p>✦ Perçage sans débouillage 15 D, 20 D, 30 D</p> |
|--|---|---|--|

CAO-GDXL



■ 15 X D

EDP	D	L	l	d	€
8567130	3 x15 D	105	55	3	.
8567140	4 x15 D	125	75	4	.
8567150	5 x15 D	140	90	5	.
8567160	6 x15 D	160	110	6	.
8567165	6,5x15 D	175	120	7	.
8567170	7 x15 D	175	125	7	.
8567180	8 x15 D	195	145	8	.
8567190	9 x15 D	210	160	9	.
8567200	10 x15 D	240	180	10	.

■ 20 X D

EDP	D	L	l	d	€
8567340	4 x20 D	140	90	4	.
8567345	4,5x20 D	165	110	5	.
8567350	5 x20 D	165	115	5	.
8567355	5,5x20 D	190	140	6	.
8567360	6 x20 D	190	140	6	.
8567370	7 x20 D	210	160	7	.
8567380	8 x20 D	230	180	8	.
8567390	9 x20 D	260	210	9	.
8567400	10 x20 D	290	230	10	.

■ 30 X D

EDP	D	L	l	d	€
8567450	5 x30 D	215	165	5	.
8567455	5,5x30 D	250	200	6	.
8567460	6 x30 D	250	200	6	.
8567470	7 x30 D	280	230	7	.
8567480	8 x30 D	315	265	8	.

■ Foratura Non-step usando MQL di Refrigerante A6061 fino a 20 X D

Questa punta può forare alluminio usando refrigerante nebulizzato, si riscontra meno attrito ed una stabile foratura.

Misura	6 x 20D
Materiale	A6061
Profondità	120mm (Cieco)
Refrigerante	MQL
Macchina	Centro Lavoro Verticale

■ After 400 holes

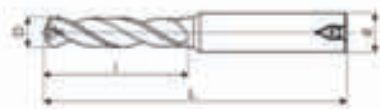
Drilling Speed	Feed Rate	Cutting Edge	Margin	Flute Face	Chip
130m/min	0,12mm/rev				
Wear Amount		0,030mm	0,068mm	0,227mm	
Drilling Speed	Feed Rate	Cutting Edge	Margin	Flute Face	Chip
200m/min	0,12mm/U				
Wear Amount		0,059mm	0,078mm	0,146mm	

1mm

Applications - Anwendungen - Applicazioni - Applications

CAO-GDXL	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	Inl
				●	●	○			

**Pilot - Drills FTO-PLT**



EDP	D	L	l	d	€
8568903	3.03	65	15	3	104,60
8568923	3.53	70	18	4	110,60
8568904	4.03	70	20	4	118,20
8568924	4.53	75	23	5	126,20
8568905	5.03	75	25	5	133,70
8568925	5.53	80	28	6	140,90
8568906	6.03	80	30	6	140,90

EDP	D	L	l	d	€
8568926	6.53	85	33	7	149,40
8568908	8.03	90	40	8	176,10
8568928	8.53	95	43	9	183,30
8568910	10.03	100	50	10	207,80
8568911	11.03	115	55	11	223,20
8568912	12.03	120	60	12	242,90

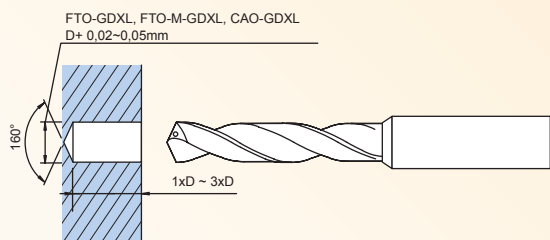
**Sizes**

Drill	Dia (mm)									
	2	4	6	8	10	12	14	16	18	20
FTO-GDS	Ø2,8 ~ Ø10,2									
FTO-GDN	Ø2,76 ~ Ø20									
FTO-PLT	Ø3,03 ~ Ø12,03									

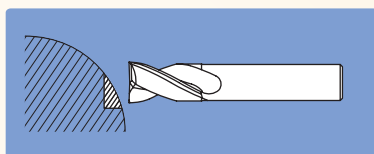
**Recommended operation**

**① FTO-PLT : Make a pilot hole.**

- For a pilot hole, select 0,02~0,05mm larger size drill than FTO-GDXL, FTO-M-GDXL, CAO-GDXL.
- Please select FTO-PLT, FTO-GDN or FTO-GDS as Pilot Drill.

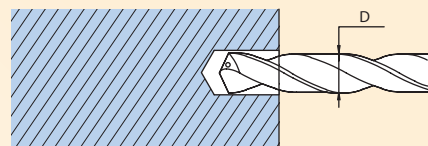


- When working on a curved surface, use the FX-ZDS.

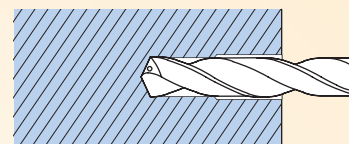


**② FTO-M-GDXL**

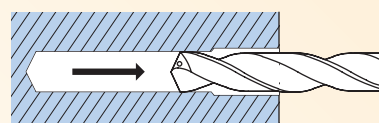
Insert the FTO-M-GDXL into a pilot hole with low speed.



**③ Increase 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.

Standard Drilling

FTO-GDXL

Work material	SCM (C≥0.3%) S50 • SCM440 710-1060N/mm <sup>2</sup>		GG FC250 250 ~ 350 N/mm <sup>2</sup>		GGG FCD700 400 ~ 700 N/mm <sup>2</sup>		SUS Serie SUS300 Serie SUS400		C≤0.2% (C<0,3%) SCr420 • SCM420 ~710 N/mm <sup>2</sup>	
	S <sub>c</sub> (min <sup>-1</sup> )	F <sub>c</sub> (mm/rev.)	S <sub>c</sub> (min <sup>-1</sup> )	F <sub>c</sub> (mm/rev.)	S <sub>c</sub> (min <sup>-1</sup> )	F <sub>c</sub> (mm/rev.)	S <sub>c</sub> (min <sup>-1</sup> )	F <sub>c</sub> (mm/rev.)	S <sub>c</sub> (min <sup>-1</sup> )	F <sub>c</sub> (mm/rev.)
Drilling speed	63~125m/min		63~125m/min		60~80m/min		50~80m/min		63~125m/min	
Ø	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

Standard Drilling

FTO-M-GDXL

Work material	SCM S50C		~ 35 HRC (C≥0.3%) SCM440 28~34 HRC		35 ~ 45 HRC SKD61 34 ~ 44 HRC		45 ~ 50 HRC SKD61 44 ~ 46 HRC	
	S <sub>c</sub> (min <sup>-1</sup> )	F <sub>c</sub> (mm/rev.)	S <sub>c</sub> (min <sup>-1</sup> )	F <sub>c</sub> (mm/rev.)	S <sub>c</sub> (min <sup>-1</sup> )	F <sub>c</sub> (mm/rev.)	S <sub>c</sub> (min <sup>-1</sup> )	F <sub>c</sub> (mm/rev.)
Drilling speed	70~90m/min		50~70m/min		40~60m/min		30~40m/min	
Ø	6.300	0,10~0,5	4.700	0,10~0,15	3.900	0,10~0,15	2.700	0,08~0,13
5	5.000	0,2~0,18	3.800	0,12~0,18	3.100	0,12~0,18	2.200	0,10~0,15
6	4.200	0,14~0,20	3.100	0,14~0,20	2.600	0,14~0,20	1.800	0,12~0,18
8	3.100	0,16~0,24	2.300	0,16~0,24	1.900	0,16~0,24	1.400	0,14~0,22
10	2.500	0,18~0,27	1.900	0,18~0,27	1.500	0,18~0,27	1.100	0,15~0,25

Standard Drilling

CAO-GDXL

Work material	AC ADC • AC		Al A20 • A70		Al A50 • A60		Cu C1020 • C1100		Cu CrCu	
	S <sub>c</sub> (min <sup>-1</sup> )	F <sub>c</sub> (mm/rev.)	S <sub>c</sub> (min <sup>-1</sup> )	F <sub>c</sub> (mm/rev.)	S <sub>c</sub> (min <sup>-1</sup> )	F <sub>c</sub> (mm/rev.)	S <sub>c</sub> (min <sup>-1</sup> )	F <sub>c</sub> (mm/rev.)	S <sub>c</sub> (min <sup>-1</sup> )	F <sub>c</sub> (mm/rev.)
Drilling speed	80~200m/min		60~120m/min		80~200m/min		80~200m/min		60~120m/min	
Ø	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

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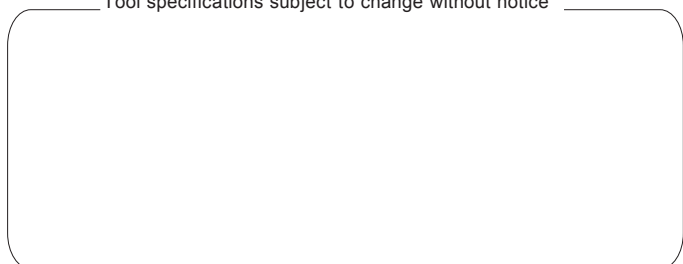
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