



Leading Through Innovation

SOLID CARBIDE

DREAM DRILLS -MQL TYPE

DREAM DRILLS - MQL TYPE

- Minimum Quantity Lubrication Drilling Deep Holes (10×D ~ 40×D)
- Minimalmengenschmierung Tieflochbohren (10×D ~ 40×D)

SELECTION GUIDE



SERIES
DRILLING DEPTH
LENGTH
SIZE MIN
SIZE MAX
PAGE

DH510	DH515	DH520
10XD	15XD	20XD
EXTRA LONG	EXTRA LONG	EXTRA LONG
D3.0	D3.0	D3.0
D14.0	D12.0	D10.0
A160	A161	

SURFACE TREATMENT

TiAIN		
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SOLID CARBIDE
DREAM DRILLS
MQL TYPE

Minimum Quantity Lubrication
Drilling Deep Holes (10×D ~ 30×D)



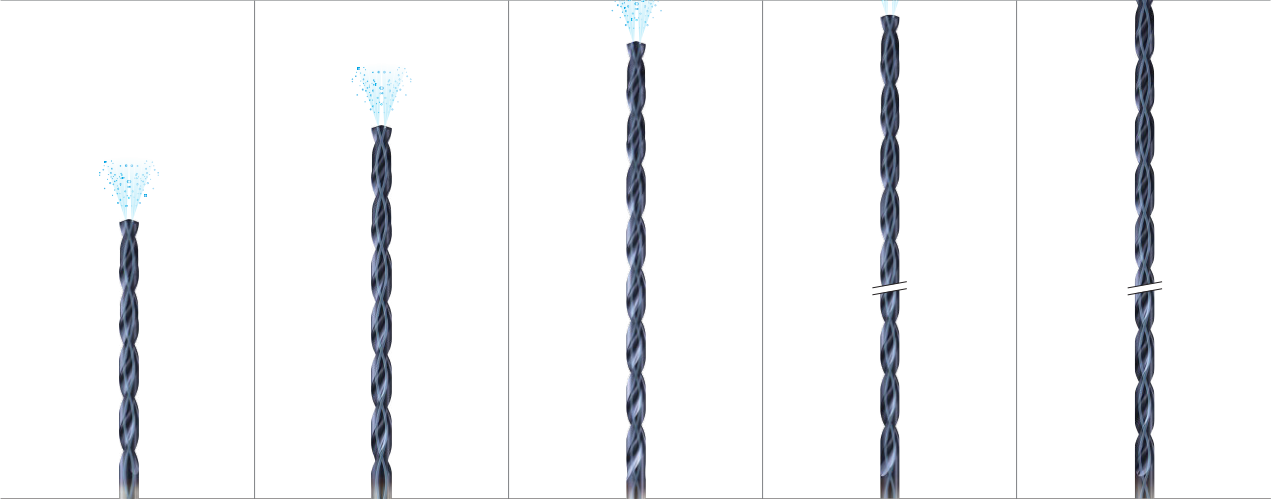
◎ : Excellent ○ : Good

Recommended cutting conditions : p. A164

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc			
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	◎	◎
	2		About 0.45% C	Annealed	190	13	◎	◎	◎
	3		About 0.45% C	Quenched & Tempered	250	25	○	○	○
	4		About 0.75% C	Annealed	270	28			
	5		About 0.75% C	Quenched & Tempered	300	32			
	6	Low alloy steel		Annealed	180	10	◎	◎	◎
	7			Quenched & Tempered	275	29	○	○	○
	8			Quenched & Tempered	300	32	○	○	○
	9			Quenched & Tempered	350	38			
	10	High alloyed steel, and tool steel		Annealed	200	15	○	○	○
	11			Quenched & Tempered	325	35	○	○	○
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15			
	13		Martensitic	Quenched & Tempered	240	23			
	14		Austenitic		180	10			
K	15	Grey cast iron	Pearlitic / ferritic		180	10	◎	◎	◎
	16		Pearlitic (Martensitic)		260	26	○	○	○
	17	Nodular cast iron	Ferritic		160	3	◎	◎	◎
	18		Pearlitic		250	25	○	○	○
	19	Malleable cast iron	Ferritic		130		◎	◎	◎
	20		Pearlitic		230	21	○	○	○
N	21	Aluminum-wrought alloy	Not Curable		60				
	22		Curable Hardened		100				
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75				
	24		≤ 12% Si, Curable Hardened		90				
	25		> 12% Si, Not Curable		130				
	26	Copper and Copper Alloys	Cutting Alloys, PB>1%		110				
	27		CuZn, CuSnZn (Brass)		90				
	28	Non Metallic Materials	CuSn, lead-free copper and electrolytic copper		100				
	29		Duroplastic, Fiber Reinforced Plastic						
	30		Rubber, Wood, etc.						
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15			
	32			Cured	280	30			
	33		Ni or Co Based	Annealed	250	25			
	34			Cured	350	38			
	35			Cast	320	34			
	36	Titanium Alloys	Pure Titanium		400 Rm				
	37		Alpha + Beta Alloys Hardened		1050 Rm				
H	38	Hardened steel			550	55			
	39				630	60			
	40	Chilled Cast Iron			400	42			
	41	Hardened Cast Iron			550	55			

DHM10	DHM15	DHM20	DHM25	DHM30
10XD	15XD	20XD	25XD	30XD
EXTRA LONG	EXTRA LONG	EXTRA LONG	EXTRA LONG	EXTRA LONG
D3.0	D3.0	D3.0	D3.0	D3.0
D13.5	D12.0	D12.0	D10.0	D8.0
A162			A163	

TiAIN				
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◎	◎	◎	◎	◎	1
◎	◎	◎	◎	◎	2
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					41

DREAM DRILLS

- MQL TYPE

DH510

SERIES

CARBIDE, DREAM DRILLS MQL TYPE with COOLANT HOLES

EXTRA LONG

-  VOLLHARTMETALL DREAM SPIRALBOHRER MQL - TYPE mit KÜHLKANAL in GERADZÄHLIGER SCHAFTAUSFÜHRUNG
-  Forets DREAM DRILLS carbure Type MQL avec arrosage central, série extra-longue
-  PUNTE ELICOIDALI IN MD, DREAM DRILLS MQL (con fori di refrigerazione)

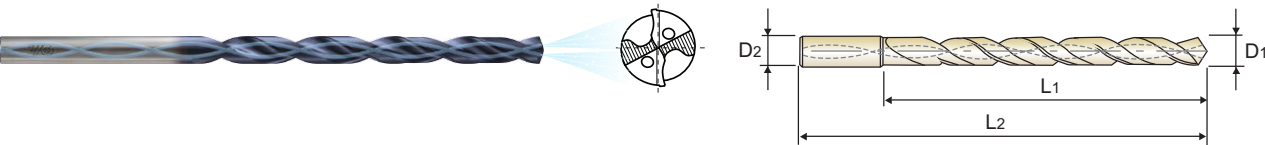
ÜBERLANG

EXTRA-LONGUE

EXTRA LUNGA

- ▶ 4-Facet Point for good centering capability
- ▶ Optimized special flutes are ideal for removing chips and for productive drilling
- ▶ Enhanced chip evacuation by polished flute upgraded TiAIN nano layer full coating
- ▶ MQL system compatible (Minimum Quantity Lubrication)

- ▶ 4-Facetten-Spitze für gute Zentrierfähigkeit
- ▶ Optimierte Spezialnuten für die ideale Spanabfuhr und zum produktiven Bohren
- ▶ Verbesserte Spanabfuhr durch hochglanzpolierte TiAIN-Nano-Vollbeschichtung
- ▶ MMS geeignet



					Unit : mm				
EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAIN	D ₁	D ₂	L ₁	L ₂	TiAIN	D ₁	D ₂	L ₁	L ₂
DH510030	3.0	3	39	90	DH510080	8.0	8	104	161
DH510033	3.3	4	46	97	DH510085	8.5	9	111	169
DH510035	3.5	4	46	97	DH510090	9.0	9	117	175
DH510040	4.0	4	52	103	DH510095	9.5	10	124	182
DH510042	4.2	5	59	112	DH510100	10.0	10	130	188
DH510045	4.5	5	59	112	DH510105	10.5	11	137	201
DH510050	5.0	5	65	118	DH510110	11.0	11	143	207
DH510055	5.5	6	72	127	DH510115	11.5	12	150	215
DH510060	6.0	6	78	133	DH510120	12.0	12	156	221
DH510065	6.5	7	85	141	DH510125	12.5	13	163	229
DH510068	6.8	7	91	147	DH510130	13.0	13	169	235
DH510070	7.0	7	91	147	DH510135	13.5	14	176	243
DH510075	7.5	8	98	155	DH510140	14.0	14	182	249

		P										M			K								
ISO	Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron			
VDI 3323		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc		13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25		21		
HB		125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommended		⊙	⊙	○			⊙	○	○		○	○				⊙	○	⊙	○	⊙	○		
ISO	Material Description	N										S					H						
		Aluminum-wrought alloy			Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron	
VDI 3323		21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc												15	30	25	38	34			55	60	42	55	
HB		60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
Recommended																							

A160 phone:+82-32-526-0909, www.yg1.solutions, E-mail:yg1@yg1.solutions

YG-1 CO., LTD.

DREAM DRILLS

- MQL TYPE

DH515

SERIES

DH520

SERIES

CARBIDE, DREAM DRILLS MQL TYPE with COOLANT HOLES

EXTRA LONG

-  VOLLHARTMETALL DREAM SPIRALBOHRER MQL - TYPE mit KÜHLKANAL in GERADZÄHLIGER SCHAFTAUSFÜHRUNG
-  Forets DREAM DRILLS carbure Type MQL avec arrosage central, série extra-longue
-  PUNTE ELICOIDALI IN MD, DREAM DRILLS MQL (con fori di refrigerazione)

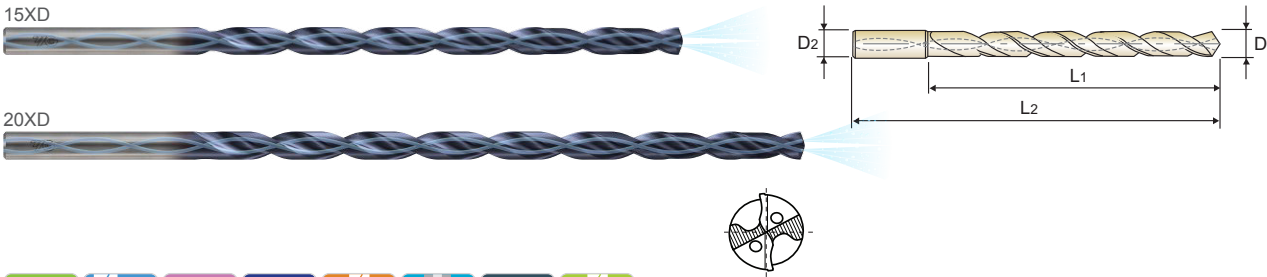
ÜBERLANG

EXTRA-LONGUE

EXTRA LUNGA

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- ▶ MMS geeignet



DH515					DH520				
EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAIN	D ₁	D ₂	L ₁	L ₂	TiAIN	D ₁	D ₂	L ₁	L ₂
DH515030	3.0	3	54	105	DH520030	3.0	3	69	120
DH515035	3.5	4	63	114	DH520035	3.5	4	81	132
DH515040	4.0	4	72	123	DH520040	4.0	4	92	143
DH515045	4.5	5	81	134	DH520045	4.5	5	104	157
DH515050	5.0	5	90	143	DH520050	5.0	5	115	168
DH515055	5.5	6	99	154	DH520055	5.5	6	127	182
DH515060	6.0	6	108	163	DH520060	6.0	6	138	193
DH515070	7.0	7	126	182	DH520070	7.0	7	161	217
DH515080	8.0	8	144	201	DH520080	8.0	8	184	241
DH515090	9.0	9	162	220	DH520090	9.0	9	207	265
DH515100	10.0	10	180	238	DH520100	10.0	10	230	288
DH515120	12.0	12	216	281					

© : Excellent ○ : Good																						
ISO	P										M			K								
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	15	26	3	25		21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommended	◎	◎	○			◎	○	○		○	○				◎	○	◎	○	◎	○		
ISO	N										S					H						
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc											15	30	25	38	34			55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
Recommended																						

YG-1 CO., LTD.

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A161

CARBIDE

HSS

i-ONE
DRILLS

i-DREAM
DRILLS

DREAM
DRILLS
-PRO

DREAM
DRILLS
X

DREAM
DRILLS
-GENERAL

DREAM
DRILLS
-HIGH FEED

DREAM
DRILLS
-FLAT BOTTOM

DREAM
DRILLS
-INOX

DREAM
DRILLS
-ALU

DREAM
DRILLS
-MQL

DREAM DRILLS
for HIGH
HARDENED STEELS

GENERAL
CARBIDE
DRILLS

MULTI-1
DRILLS

HPD
DRILLS

GOLD-P
DRILLS

SUPER-GP
DRILLS

STRAIGHT
SHANK
DRILLS

TAPER SHANK
DRILLS

NC-
SPOTTING
DRILLS

CENTER
DRILLS

SPADE
DRILLS

REAMERS

COUNTER
SINKS

COUNTER
BORES

Y/G DREAM DRILLS - MQL TYPE

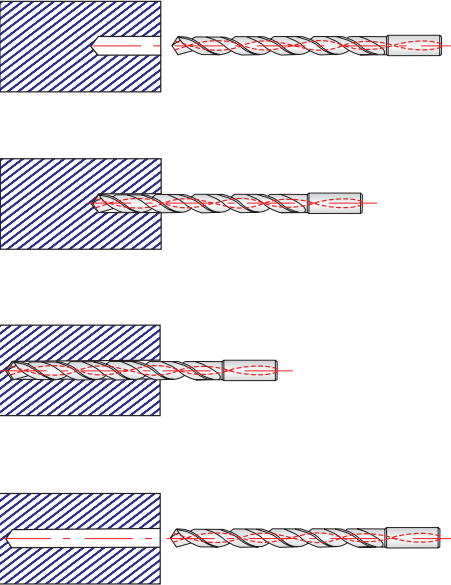
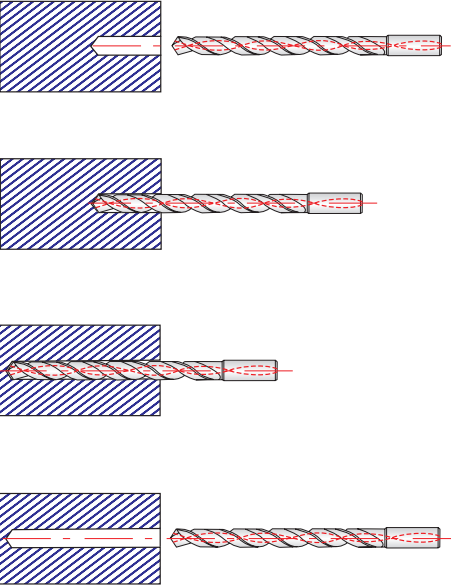
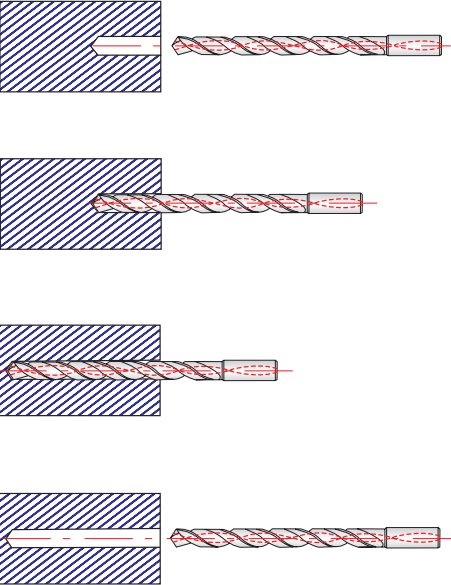
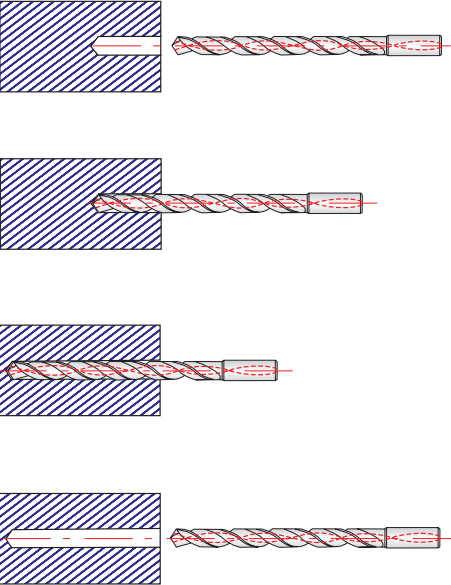
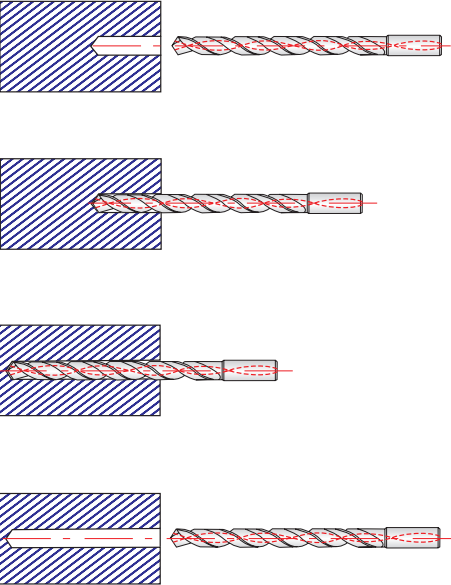
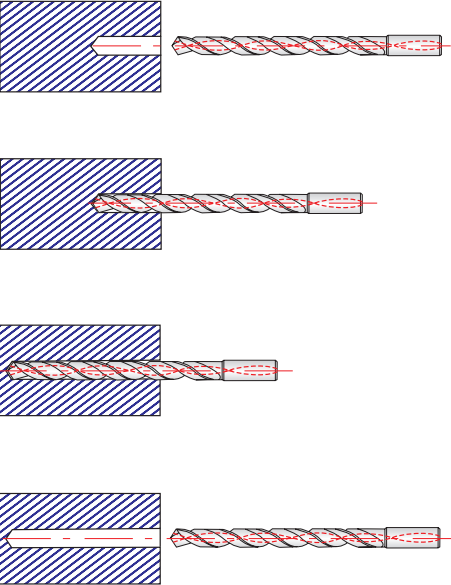
**RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER**

DH510, DH515, DH520, DHM10, DHM15, DHM20, DHM25, DHM30 SERIES

with COOLANT HOLES

Vc = m/min.
RPM = rev./min.
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc		Parameter	Drill Diameter (mm)								
			10xD 20xD	25xD 30xD		3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	
P	1	Non-alloy steel	120	100	RPM(10xD-20xD)	12730	9550	7640	6370	4770	3820	3180	2730	
					RPM(25xD-30xD)	10610	7960	6370	5310	3980	3180	2650	2270	
					FEED	0.08-0.12	0.10-0.14	0.12-0.18	0.14-0.20	0.18-0.24	0.20-0.26	0.22-0.26	0.25-0.31	
	2		100	80	RPM(10xD-20xD)	10610	7960	6370	5310	3980	3180	2650	2270	
					RPM(25xD-30xD)	8490	6370	5090	4240	3180	2550	2120	1820	
					FEED	0.08-0.12	0.10-0.14	0.12-0.18	0.14-0.20	0.18-0.24	0.20-0.26	0.22-0.26	0.25-0.31	
	3		80	65	RPM(10xD-20xD)	8490	6370	5090	4240	3180	2550	2120	1820	
					RPM(25xD-30xD)	6900	5170	4140	3450	2590	2070	1720	1480	
					FEED	0.06-0.10	0.08-0.12	0.10-0.16	0.12-0.18	0.14-0.20	0.16-0.22	0.18-0.24	0.20-0.26	
	6	Low alloy steel	100	100	RPM(10xD-20xD)	10610	7960	6370	5310	3980	3180	2650	2270	
					RPM(25xD-30xD)	10610	7960	6370	5310	3980	3180	2650	2270	
					FEED	0.08-0.12	0.10-0.14	0.12-0.18	0.14-0.20	0.18-0.24	0.20-0.26	0.22-0.26	0.25-0.31	
7	70		60	RPM(10xD-20xD)	7430	5570	4460	3710	2790	2230	1860	1590		
				RPM(25xD-30xD)	6370	4770	3820	3180	2390	1910	1590	1360		
				FEED	0.06-0.10	0.08-0.12	0.10-0.16	0.12-0.18	0.14-0.20	0.16-0.22	0.18-0.24	0.20-0.26		
8	55		50	RPM(10xD-20xD)	5840	4380	3500	2920	2190	1750	1460	1250		
				RPM(25xD-30xD)	5310	3980	3180	2650	1990	1590	1330	1140		
				FEED	0.06-0.10	0.08-0.12	0.10-0.16	0.12-0.18	0.14-0.20	0.16-0.22	0.18-0.24	0.20-0.26		
10	High alloyed steel, and tool steel	60	50	RPM(10xD-20xD)	6370	4770	3820	3180	2390	1910	1590	1360		
				RPM(25xD-30xD)	5310	3980	3180	2650	1990	1590	1330	1140		
				FEED	0.05-0.09	0.07-0.11	0.08-0.14	0.10-0.16	0.12-0.18	0.14-0.20	0.16-0.22	0.18-0.24		
11		50	45	RPM(10xD-20xD)	5310	3980	3180	2650	1990	1590	1330	1140		
				RPM(25xD-30xD)	4770	3580	2860	2390	1790	1430	1190	1020		
				FEED	0.04-0.08	0.06-0.10	0.07-0.13	0.08-0.14	0.10-0.16	0.12-0.18	0.13-0.19	0.15-0.21		
K	15	Grey cast iron	90	75	RPM(10xD-20xD)	9550	7160	5730	4770	3580	2860	2390	2050	
					RPM(25xD-30xD)	7960	5970	4770	3980	2980	2390	1990	1710	
					FEED	0.10-0.14	0.12-0.16	0.17-0.23	0.19-0.25	0.22-0.28	0.24-0.30	0.28-0.34	0.30-0.36	
	16		70	60	RPM(10xD-20xD)	7430	5570	4460	3710	2790	2230	1860	1590	
					RPM(25xD-30xD)	6370	4770	3820	3180	2390	1910	1590	1360	
					FEED	0.10-0.14	0.12-0.16	0.17-0.23	0.19-0.25	0.22-0.28	0.24-0.30	0.28-0.34	0.30-0.36	
	17		Nodular cast iron	100	80	RPM(10xD-20xD)	10610	7960	6370	5310	3980	3180	2650	2270
						RPM(25xD-30xD)	8490	6370	5090	4240	3180	2550	2120	1820
						FEED	0.10-0.14	0.12-0.16	0.17-0.23	0.19-0.25	0.22-0.28	0.24-0.30	0.28-0.34	0.30-0.36
	18	70		60	RPM(10xD-20xD)	7430	5570	4460	3710	2790	2230	1860	1590	
					RPM(25xD-30xD)	6370	4770	3820	3180	2390	1910	1590	1360	
					FEED	0.08-0.12	0.10-0.14	0.12-0.18	0.14-0.20	0.18-0.24	0.20-0.26	0.22-0.26	0.25-0.31	
19	Malleable cast iron	80	65	RPM(10xD-20xD)	8490	6370	5090	4240	3180	2550	2120	1820		
				RPM(25xD-30xD)	6900	5170	4140	3450	2590	2070	1720	1480		
				FEED	0.10-0.14	0.12-0.16	0.17-0.23	0.19-0.25	0.22-0.28	0.24-0.30	0.28-0.34	0.30-0.36		
20		70	55	RPM(10xD-20xD)	7430	5570	4460	3710	2790	2230	1860	1590		
				RPM(25xD-30xD)	5840	4380	3500	2920	2190	1750	1460	1250		
				FEED	0.08-0.12	0.10-0.14	0.12-0.18	0.14-0.20	0.18-0.24	0.20-0.26	0.22-0.26	0.25-0.31		



1. Guide Drilling should be done as Diameter +0.01~+0.1mm between 3xD and 5xD depth.
2. For Main Drilling, proceed with low RPM at Guide Drilling segment.
(RPM 300, FEED 400mm/min)
3. Just before the end of Guide Drilling segment, reduce feed to zero and increase the RPM according to Recommended Cutting Condition chart (See above).
4. After then, proceed main drilling by increasing feed without step drilling.
5. When coming out from Guide Drilling start point after drilling, RPM should be reduced as 300 and feed should be 1000 mm/min.
6. When coming out from Guide Drilling segment to the outside, the feed should be decreased as 50%.



SOLID CARBIDE

DREAM DRILLS
for HIGH HARDENED STEELS
DREAM DRILLS - FÜR HOCHGEHÄRTETE STÄHLE

- For High Hardened Steels (HRc50 to HRc70)
- Für hochgehärtete Stähle (HRc50 bis HRc70)

SELECTION GUIDE



SERIES	DH500
DRILLING DEPTH	3XD
LENGTH	SHORT
SIZE MIN	D2.6
SIZE MAX	D14.0
PAGE	A167
SURFACE TREATMENT	TiAIN

SOLID CARBIDE

DREAM DRILLS

for HIGH HARDENED STEELS

For High Hardened Steels (HRC50 to HRC70)



Please visit
globalyg1.com/mat
for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A167

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRC
P	1	Non-alloy steel	About 0.15% C	Annealed	125	
	2		About 0.45% C	Annealed	190	13
	3		About 0.45% C	Quenched & Tempered	250	25
	4		About 0.75% C	Annealed	270	28
	5		About 0.75% C	Quenched & Tempered	300	32
	6	Low alloy steel		Annealed	180	10
	7			Quenched & Tempered	275	29
	8			Quenched & Tempered	300	32
	9			Quenched & Tempered	350	38
	10	High alloyed steel, and tool steel		Annealed	200	15
	11			Quenched & Tempered	325	35
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15
	13		Martensitic	Quenched & Tempered	240	23
	14		Austenitic		180	10
K	15	Grey cast iron	Pearlitic / ferritic		180	10
	16		Pearlitic (Martensitic)		260	26
	17	Nodular cast iron	Ferritic		160	3
	18		Pearlitic		250	25
	19	Malleable cast iron	Ferritic		130	
	20		Pearlitic		230	21
N	21	Aluminum-wrought alloy	Not Curable		60	
	22		Curable Hardened		100	
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75	
	24		≤ 12% Si, Curable Hardened		90	
	25		> 12% Si, Not Curable		130	
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110	
	27		CuZn, CuSnZn (Brass)		90	
	28		CuSn, lead-free copper and electrolytic copper		100	
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic			
	30		Rubber, Wood, etc.			
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15
	32			Cured	280	30
	33			Annealed	250	25
	34		Ni or Co Based	Cured	350	38
	35			Cast	320	34
	36	Titanium Alloys	Pure Titanium		400 Rm	
	37		Alpha + Beta Alloys	Hardened	1050 Rm	
H	38	Hardened steel		Hardened	550	55
	39.1			Hardened	630	60
	39.3			Hardened		70
	40	Chilled Cast Iron		Cast	400	42
	41	Hardened Cast Iron		Hardened	550	55



DREAM DRILLS

for HIGH HARDENED STEELS

DH500 SERIES

CARBIDE, DREAM DRILLS for HIGH HARDENED STEELS (HRC50 ~ HRC70) **SHORT**

● VOLLHARTMETALL DREAM SPIRALBOHRER FÜR HOCHGEHARTETE STAHL E **KURZ**

● Forets DREAM DRILLS carbure pour Aciers Trempés (50 HRc ~ 70 HRc) **COURTE**

● PUNTE ELICOIDALI IN MD, DREAM DRILL - ACCIAI HRC50 - 70 **CORTA**

- Drilling for High Hardened Steels; Quenched Steels, Tempered Steels (under HRc70)

► Special geometry design for Hardened Steels

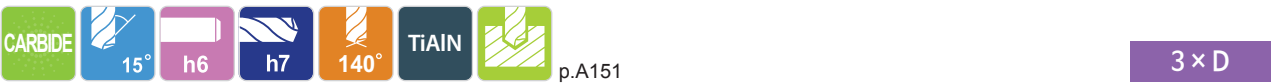
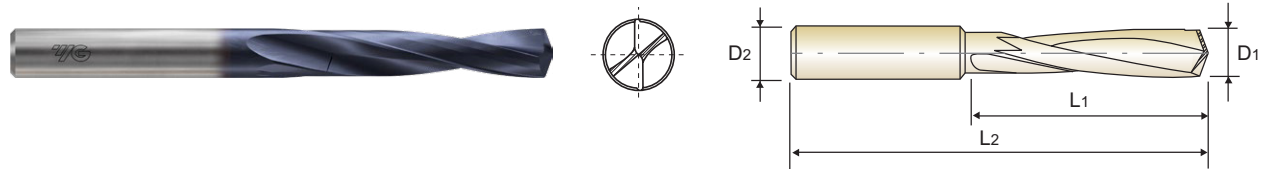
► Minimum of cutting load through special thinning

► Performing good chip removal and powerful drilling
- Bohren von hoch gehärteten Stählen, Vergütungsstähle, angelassenen Stählen bis HRc70

► Spezielle Bohrergeometrie für gehärtete Stähle

► Minimaler Schnedendruck durch spezielle Ausspitzung

► Gute Spanabfuhr und Hochleistungsbohren



						Unit : mm				
EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length		EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAIN	D1	D2	L1	L2		TiAIN	D1	D2	L1	L2
DH500026	2.6	3	14	44		DH500070	7.0	8	45	85
DH500030	3.0	3	16	46		DH500075	7.5	8	45	85
DH500033	3.3	4	18	48		DH500080	8.0	8	50	98
DH500034	3.4	4	20	50		DH500085	8.5	10	50	98
DH500035	3.5	4	20	50		DH500086	8.6	10	57	105
DH500040	4.0	4	22	52		DH500088	8.8	10	57	105
DH500042	4.2	6	25	65		DH500090	9.0	10	57	105
DH500043	4.3	6	28	68		DH500095	9.5	10	57	105
DH500044	4.4	6	28	68		DH500100	10.0	10	63	111
DH500045	4.5	6	28	68		DH500102	10.2	12	63	111
DH500050	5.0	6	32	72		DH500103	10.3	12	63	111
DH500051	5.1	6	32	72		DH500105	10.5	12	63	111
DH500052	5.2	6	32	72		DH500110	11.0	12	71	119
DH500055	5.5	6	35	75		DH500115	11.5	12	71	119
DH500060	6.0	6	35	75		DH500120	12.0	12	71	119
DH500065	6.5	8	40	80		DH500140	14.0	14	77	125
DH500068	6.8	8	45	85						
DH500069	6.9	8	45	85						

Recommended cutting conditions

EMPFOHLENE SCHNEIDPARAMETER

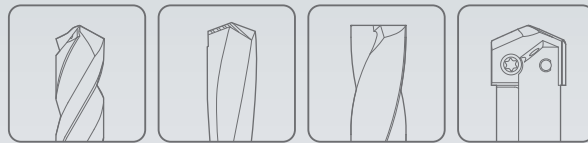
ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm)											
					2.5	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0			
H	38	Hardened steel	20	RPM	2550	2120	1590	1270	1060	800	640	530	450			
	39.1			FEED	0.01-0.03	0.01-0.03	0.01-0.04	0.01-0.04	0.01-0.05	0.01-0.05	0.01-0.05	0.01-0.06	0.01-0.06			
	39.3			RPM	1910	1590	1190	950	800	600	480	400	340			
			15	FEED	0.01-0.03	0.01-0.03	0.01-0.04	0.01-0.04	0.01-0.05	0.01-0.05	0.01-0.05	0.01-0.06	0.01-0.06			
			12	FEED	1530	1270	950	760	640	480	380	320	270			
					0.01-0.03	0.01-0.03	0.01-0.04	0.01-0.04	0.01-0.05	0.01-0.05	0.01-0.05	0.01-0.06	0.01-0.06			

◎ : Excellent ○ : Good

ISO	P										M				K							
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HRC		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25				
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommended																						
ISO	N										S						H					
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast iron		Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39.1	39.3	40	41
HRC											15	30	25	38	34			55	60	70	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630		400	550
Recommended																		◎	◎	◎		



Global Cutting Tool Leader **YG-1**



HOLEMAKING