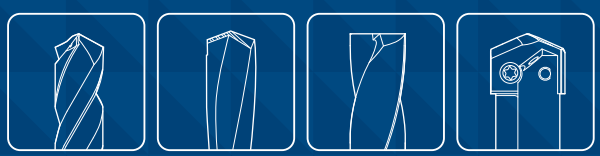
YU24
AMERICA
2024

ISO 9001 / ISO 14001

JAS-ANZ

YG

CUTTING TOOLS



SPT SUNCOAST INC.
PRECISION TOOLS
ESTABLISHED 1963

HOLEMAKING

YG YG-1 CO., LTD.

HOLEMAKING TOOLS

YG-1 CO., LTD.

Contents
HOLEMAKING TOOLS

YG-1 CO., LTD.

SELECTION GUIDE

YG

HOLEMAKING TOOLS

	I-ONE DRILLS (INSERTS)					
SERIES	Y101H	Y121H	Y141H	Y161H	Y181H	Y201H
POINT ANGLE	140°	140°	140°	140°	140°	140°
TOOL MATERIAL	CARBIDE	CARBIDE	CARBIDE	CARBIDE	CARBIDE	CARBIDE
SIZE MIN	.3937	.4724	.5512	.6299	.7087	.7874
SIZE MAX	.4688	.5472	.6260	.7047	.7835	.8622
PAGE	A30	A31	A32	A33	A34	A35
SURFACE TREATMENT	H-Coating					

Please visit globalyg1.com/mat for material search

◎ : Excellent
○ : Good

ISO	VDI 3323	Material Description	HB	HRc	Y101H	Y121H	Y141H	Y161H	Y181H	Y201H
P	1	Non-alloy steel	125		◎	◎	◎	◎	◎	◎
	2		190	13	◎	◎	◎	◎	◎	◎
	3		250	25	◎	◎	◎	◎	◎	◎
	4		270	28	◎	◎	◎	◎	◎	◎
	5		300	32	◎	◎	◎	◎	◎	◎
	6	Low alloy steel	180	10	◎	◎	◎	◎	◎	◎
	7		275	29	◎	◎	◎	◎	◎	◎
	8		300	32	◎	◎	◎	◎	◎	◎
	9		350	38	◎	◎	◎	◎	◎	◎
	10	High alloyed steel, and tool steel	200	15	◎	◎	◎	◎	◎	◎
	11		325	35	◎	◎	◎	◎	◎	◎
M	12	Stainless steel	200	15						
	13		240	23						
	14		180	10						
K	15	Grey cast iron	180	10	○	○	○	○	○	○
	16		260	26	○	○	○	○	○	○
	17	Nodular cast iron	160	3	○	○	○	○	○	○
	18		250	25	○	○	○	○	○	○
	19	Malleable cast iron	130		○	○	○	○	○	○
	20		230	21	○	○	○	○	○	○
N	21	Aluminum-wrought alloy	60							
	22		100							
	23	Aluminum-cast, alloyed	75							
	24		90							
	25		130							
	26	Copper and Copper Alloys (Bronze / Brass)	110							
	27		90							
	28		100							
	29	Non Metallic Materials Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.								
	30									
S	31	Heat Resistant Super Alloys	200	15						
	32		280	30						
	33		250	25						
	34		350	38						
	35		320	34						
	36	Titanium Alloys	400 Rm							
	37		1050 Rm							
H	38	Hardened steel	550	55						
	39		630	60						
	40	Chilled Cast Iron	400	42						
	41	Hardened Cast Iron	550	55						

I-ONE DRILLS (INSERTS)						I-ONE DRILLS (HOLDER)		
Y221H	Y241H	Y261H	Y281H	Y301H	Y321H	ZD*3	ZD*5	ZD*8
140°	140°	140°	140°	140°	140°			
CARBIDE	CARBIDE	CARBIDE	CARBIDE	CARBIDE	CARBIDE			
.8661	.9449	1.0236	1.1024	1.1811	1.2598			
.9409	1.0197	1.0984	1.1772	1.2559	1.3346			
A36	A37	A38	A39	A30	A31			
						3XD	5XD	8XD

◎	◎	◎	◎	◎	◎				1 P
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◎	◎	◎	◎	◎	◎				5
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◎	◎	◎	◎	◎	◎				7
◎	◎	◎	◎	◎	◎				8
◎	◎	◎	◎	◎	◎				9
◎	◎	◎	◎	◎	◎				10
◎	◎	◎	◎	◎	◎				11
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									13 M
									14
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○	○	○	○	○	○				16
○	○	○	○	○	○				17 K
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									40 H
									41

SELECTION GUIDE

YG HOLEMAKING TOOLS

I-DREAM DRILLS (INSERTS)

SERIES	Y03A	YI3A	Y03B	YI3B	Y03C	YI3C	Y03D	YI3D	Y03E	YI3E
TYPE	A		B		C		D		E	
TOOL MATERIAL	CARBIDE		CARBIDE		CARBIDE		CARBIDE		CARBIDE	
SIZE MIN	12.00		14.00		16.00		18.00		20.00	
SIZE MAX	35/64		5/8		45/64		25/32		55/64	
PAGE	A50		A50~A52				A50~A52		A53	
SURFACE TREATMENT	TiAlN	TiCN	TiAlN	TiCN	TiAlN	TiCN	TiAlN	TiCN	TiAlN	TiCN

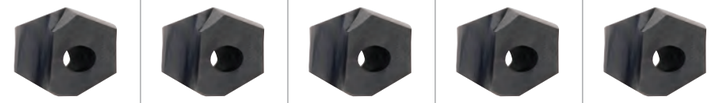
Please visit globalyg1.com/mat for material search

◎ : Excellent
○ : Good

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

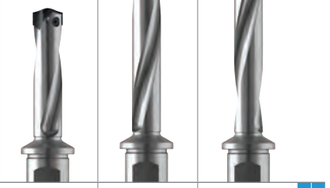
I-DREAM DRILLS (INSERTS)

SERIES	Y03F	YI3F	Y03G	YI3G	Y03H	YI3H	Y03I	YI3I	Y03J	YI3J
TYPE	F		G		H		I		J	
TOOL MATERIAL	CARBIDE		CARBIDE		CARBIDE		CARBIDE		CARBIDE	
SIZE MIN	22.00		24.00		26.00		28.00		30.00	
SIZE MAX	15/16		1-1/64		1-3/32		1-11/64		1-1/4	
PAGE	A53		A54				A55			
SURFACE TREATMENT	TiAlN	TiCN	TiAlN	TiCN	TiAlN	TiCN	TiAlN	TiCN	TiAlN	TiCN



I-DREAM DRILLS (HOLDER)

Z*03	Z*05	Z*07
3XD	5XD	7XD



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	◎		◎		◎		◎		◎				12		
	◎		◎		◎		◎		◎				13	M	
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													41		

SELECTION GUIDE

YG

HOLEMAKING TOOLS

SPADE DRILLS

SERIES	1~8	Y,Z,0,1~8	Y,Z,0,1,2	Y,Z,0,1~3	Y,Z,0,1~3
POINT	STANDARD				
TOOL MATERIAL	HSS(M4)	SUPER COBALT(T15)	PREMIUM COBALT(M48)	CARBIDE(K20)	CARBIDE(P40)
SIZE MIN	.3740 (#1)	.3740 (#Y)	.3740 (#Y)	.3740 (#Y)	.3740 (#Y)
SIZE MAX	4.5000 (#8)	4.5000 (#8)	1.3780 (#2)	1.8750 (#3)	1.3780 (#3)
PAGE	A282~A285	A286~A292	A293~A295	A296~A300	
SURFACE TREATMENT	TiN/TiAlN/Hardslick			TiN/TiAlN	

Please visit globalyg1.com/mat for material search

◎ : Excellent
○ : Good

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

SPADE DRILLS

	Y,Z,0,1~2	Y,Z,0,1~8	Y,Z,0,1~3	Y,Z,0,1,2	Y,Z,0,1~8	Y,Z,0,1~8	Y,Z,0,1~3
POINT	STANDARD	SM-POINT	SM-POINT	FLAT BOTTOM	SV-POINT	SV-POINT	SV-POINT
TOOL MATERIAL	CARBIDE(K10)	SUPER COBALT(T15)	CARBIDE(P40)	SUPER COBALT(T15)	SUPER COBALT(T15)	PREMIUM COBALT(M48)	CARBIDE(P40)
SIZE MIN	.3740 (#Y)	.3740(#Y)	.3740(#Y)	.3740(#Y)	.3740(#Y)	.3740(#Y)	.3740(#Y)
SIZE MAX	1.3780 (#2)	4.5000 (#8)	1.8750 (#3)	1.3780 (#2)	4.5000 (#8)	4.5000 (#8)	1.8750 (#3)
PAGE	A296~A300	A302~A307		A308	A310~A320	A321~A331	A332~336
SURFACE TREATMENT	TiN/TiAlN	TiAlN		TiN/TiAlN	Hardslick/H-Coating		

	◎	◎	◎	◎	◎	◎	1		
	◎	◎	◎	◎	◎	◎	2		
	◎	◎	◎	◎	◎	◎	3		
	◎	◎	◎	◎	◎	◎	4		
							5		
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	○	◎	○	◎	○	◎	8		
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	○	◎	○	◎	○	◎	10		
	○	◎	○	◎	○	◎	11		
	○	○	○	○	○	○	12		
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◎	○	○	○	○	○	○	15		
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◎	○	○	○	○	○	○	17	K	
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							24		
							25		
							26		
	○	○	○	○	○	○	27	N	
							28		
							29		
							30		
	◎	○	◎	◎	◎	○	31		
	○	○	○	○	◎	○	32		
	○	○	○	○	◎	○	33		
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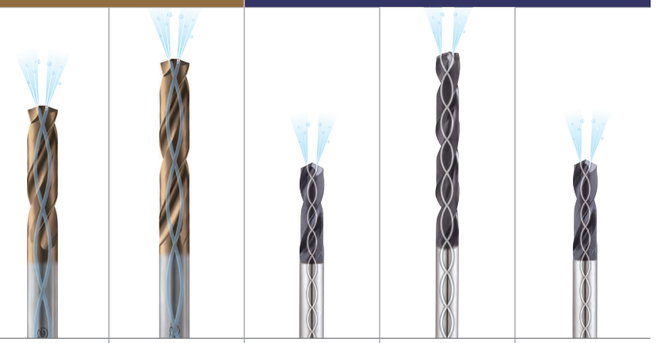
	○	○	○	○	◎	○	35		
							36		
							37		
	○	◎	○	○	◎	◎	38		
							39-1	H	
							40		
							41		

SELECTION GUIDE

YG

HOLEMAKING TOOLS

	DREAM DRILLS PRO		DREAM DRILLS GENERAL		
SERIES	DGN506	DGN508	DH416 DH711	DH418 DH712	DH406
DRILLING DEPTH	3XD	3XD	3XD	5XD	3XD
TOOL MATERIAL	SOLID CARBIDE				
LENGTH	SHORT	LONG	SHORT	LONG	SHORT
SIZE MIN	D3.0	D1.0	D1/8	D13/64	D3.0
SIZE MAX	D20.0	D20.0	D5/8	D1/2	D20.0
PAGE	A63	A67	A76	A78	A79
SURFACE TREATMENT	Z-Coating		TiAlN		



Please visit globalyg1.com/mat for material search

◎ : Excellent
○ : Good

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

	DREAM DRILLS GENERAL						
SERIES	DH408	DH421	DH414	DH722	DH404	DH423	DH424
DRILLING DEPTH	5XD	8×D	3XD	5XD	3XD	3XD	5XD
TOOL MATERIAL	SOLID CARBIDE						
LENGTH	LONG	EXTRA LONG	STUB	LONG	STUB	SHORT	LONG
SIZE MIN	D1.0	D3.0	D1/8	D13/64	D3.0	D3.0	D1.0
SIZE MAX	D20.0	D20.0	D5/8	D1/2	D20.0	D20.0	D20.0
PAGE	A83	A87	A91	A92	A93	A95	A99
SURFACE TREATMENT	TiAlN						

1									
2	◎	◎	◎	◎	◎	◎	◎	P	
3	◎	◎	◎	◎	◎	◎	◎		
4	◎	◎	◎	◎	◎	◎	◎		
5	○	○	○	○	○	○	○		
6	◎	◎	◎	◎	◎	◎	◎		
7	◎	◎	◎	◎	◎	◎	◎		
8	○	○	○	○	○	○	○		
9	○	○	○	○	○	○	○		
10	◎	◎	◎	◎	◎	◎	◎		
11	○	○	○	○	○	○	○		
12	○	○	○	○	○	○	○	M	
13	○	○	○	○	○	○	○		
14									
15	◎	◎	◎	◎	◎	◎	◎	K	
16	○	○	○	○	○	○	○		
17	◎	◎	◎	◎	◎	◎	◎		
18	○	○	○	○	○	○	○		
19	◎	◎	◎	◎	◎	◎	◎		
20	○	○	○	○	○	○	○		
21								N	
22									
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24									
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27									
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31								S	
32									
33									
34									
35									
36									
37									
38								H	
39.1	○		○	○	○	○	○		
40									
41									

SELECTION GUIDE

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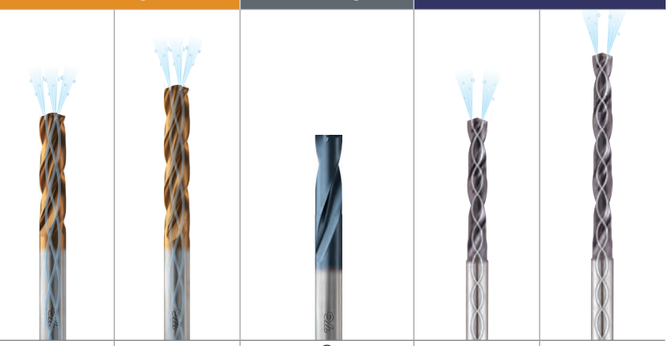
HOLEMAKING TOOLS

	DREAM DRILLS HIGH FEED		DREAM DRILLS FLAT BOTTOM	DREAM DRILLS INOX	
SERIES	DGR493 DGR496	DGR495 DGR497	DPP447	DH463 DH714	DH464 DH715
DRILLING DEPTH	3XD	5XD	2XD	3xD	5xD
TOOL MATERIAL	SOLID CARBIDE		SOLID CARBIDE	SOLID CARBIDE	
LENGTH	SHORT	LONG	SHORT	STUB	LONG
SIZE MIN	D13/64, D4.0	D13/64, D4.0	D3.0	D1/8	D13/64
SIZE MAX	D3/4, D20.0	D3/4, D20.0	D20.0	D5/8	D1/2
PAGE	A111	A115	A123	A131	A133
SURFACE TREATMENT	H-Coating		X-Coating	TiAlN	



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◎ : Excellent
○ : Good

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

	DREAM DRILLS INOX			DREAM DRILLS ALU	
	DH451	DH452	DH453	DGE466 DGE718	DGE433
	3xD	5xD	8xD	5XD	
	SOLID CARBIDE			SOLID CARBIDE	
	SHORT	LONG	EXTRA LONG	LONG	
	D3.0	D1.0	D2.0	D13/64	D3.0
	D20.0	D20.0	D20.0	D1/2	D20.0
	A134	A138	A143	A151	A152
	TiAlN			DLC	

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						5
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						8
						9
						10
						11
◎	◎	◎				12 M
◎	◎	◎				13
◎	◎	◎				14
						15 K
						16
						17
						18
						19
						20
◎	◎	◎	◎	◎		21 N
◎	◎	◎	◎	◎		22
○	○	○	◎	◎		23
○	○	○	◎	◎		24
○	○	○				25
						26
						27
						28
						29
						30
						31 S
						32
						33
						34
						35
						36
○	○	○				37
						38 H
						39
						40
						41

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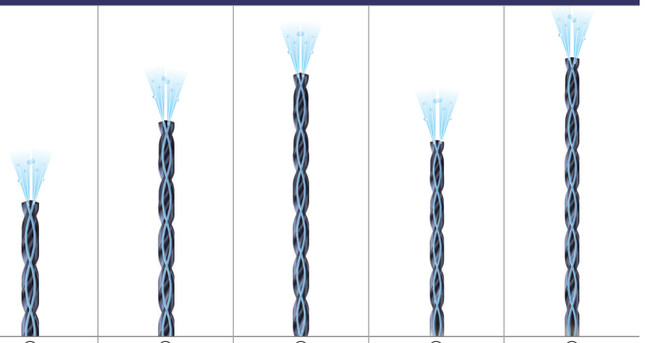
HOLEMAKING TOOLS

	DREAM DRILLS MQL TYPE				
SERIES	DH510	DH515	DH520	DHM10	DHM15
DRILLING DEPTH	10XD	15XD	20XD	10XD	15XD
TOOL MATERIAL	SOLID CARBIDE				
LENGTH	EXTRA LONG				
SIZE MIN	D3.0	D3.0	D3.0	D3.0	D3.0
SIZE MAX	D14.0	D14.0	D12.0	D14.0	D12.0
PAGE	A160	A163	A166	A168	A168
SURFACE TREATMENT	TiAlN				



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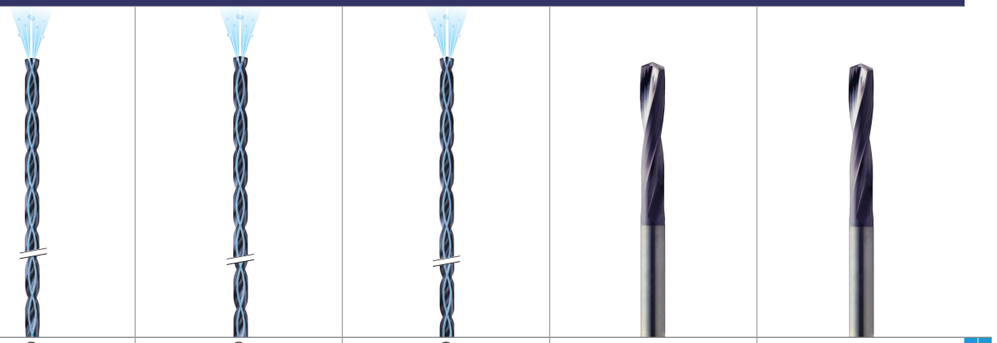
◎ : Excellent
○ : Good

ISO		VDI 3323	Material Description	HB	HRc	DH510	DH515	DH520	DHM10	DHM15	
P	1		Non-alloy steel	125		◎	◎	◎	◎	◎	1
	2			190	13	◎	◎	◎	◎	◎	2
	3			250	25	○	○	○	○	○	3
	4			270	28						4
	5			300	32						5
	6		Low alloy steel	180	10	◎	◎	◎	◎	◎	6
	7			275	29	○	○	○	○	○	7
	8			300	32	○	○	○	○	○	8
	9			350	38						9
	10		High alloyed steel, and tool steel	200	15	○	○	○	○	○	10
	11			325	35	○	○	○	○	○	11
M	12		Stainless steel	200	15						12
	13			240	23						13
	14			180	10						14
K	15		Grey cast iron	180	10	◎	◎	◎	◎	◎	15
	16			260	26	○	○	○	○	○	16
	17		Nodular cast iron	160	3	◎	◎	◎	◎	◎	17
	18			250	25	○	○	○	○	○	18
	19		Malleable cast iron	130		◎	◎	◎	◎	◎	19
	20			230	21	○	○	○	○	○	20
N	21		Aluminum-wrought alloy	60							21
	22			100							22
	23		Aluminum-cast, alloyed	75							23
	24			90							24
	25			130							25
	26		Copper and Copper Alloys (Bronze / Brass)	110							26
	27			90							27
	28			100							28
	29		Non Metallic Materials Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.								29
	30										30
S	31		Heat Resistant Super Alloys	200	15						31
	32			280	30						32
	33			250	25						33
	34			350	38						34
	35			320	34						35
	36		Titanium Alloys	400 Rm							36
	37			1050 Rm							37
H	38		Hardened steel	550	55						38
	39			630	60						39
	40		Chilled Cast Iron	400	42						40
	41		Hardened Cast Iron	550	55						41

	DREAM DRILLS MQL TYPE			DREAM DRILLS for HIGH HARDENED STEELS	
SERIES	DHM20	DHM25	DHM30	DH501	DH500
DRILLING DEPTH	20XD	25XD	30XD	3XD	
TOOL MATERIAL	SOLID CARBIDE			SOLID CARBIDE	
LENGTH	EXTRA LONG			SHORT	
SIZE MIN	D3.0	D3.0	D3.0	D1/8	D1.0
SIZE MAX	D12.0	D10.0	D8.0	D3/4	D14.0
PAGE	A169	A170	A172	A179	A181
SURFACE TREATMENT	TiAlN				



DHM20	DHM25	DHM30	DH501	DH500		
◎	◎	◎			1	
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○	○	○			3	
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					9	
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○	○	○			16	
◎	◎	◎			17	K
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			◎	◎	39	H
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					41	

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HOLEMAKING TOOLS

	STANDARD CARBIDE DRILLS			MULTI-1 DRILLS		
SERIES	D5412 DH412	D5413 DH413	D5417 DH417	CDRA05	CDRA06	CDRA07
STANDARD	-	-	-	-	-	-
TOOL MATERIAL	SOLID CARBIDE			HSS-PM		
LENGTH	JOBBER			STUB		
SIZE MIN	#1	A	D3/64	D3/32	#45	B
SIZE MAX	#60	Z	D1/2	D1/2	#1	Z
PAGE	A185	A186	A187	A191	A192	A193
SURFACE TREATMENT	Bright / TiAlN			TiAlN		

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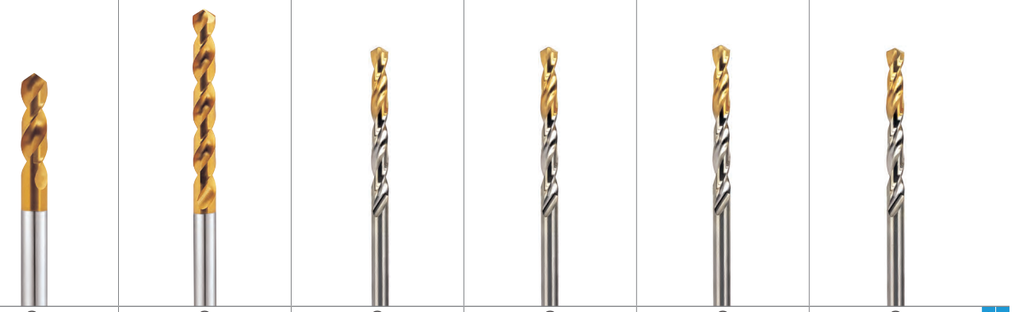
◎ : Excellent
○ : Good

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

	HPD DRILLS		GOLD-P DRILLS			
	DJ543	DJ544	D1GP182 D8182	D1GP139	D1GP138	D2GP185
	-	-	ANSI			
	HSS-E		HSS			HSSCo8
	STUB	JOBBER	JOBBER			
	D2.0	D2.0	D3/64	A	#56	D3/64
	D13.0	D20.0	D3/4	Z	#1	D1/2
	A197	A199	A206	A208	A209	A210
	TiN					



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		○	○	○	○	10	
						11	
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		○	○	○	○	17	K
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		○	○	○	○	29	
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						40	H
						41	

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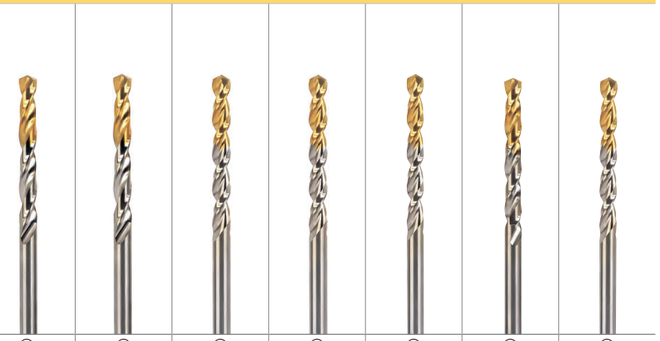
GOLD-P DRILLS

SERIES	D2GP186	D2GP187	DLGP195	DLGP511	DLGP512	DLGP513	DLGP506
STANDARD	ANSI		DIN338	ANSI			DIN338
TOOL MATERIAL	HSSCo8	HSSCo8	HSSCo5	HSSCo5	HSSCo5	HSSCo5	HSSCo5
LENGTH	JOBBER	JOBBER	JOBBER	JOBBER	JOBBER	JOBBER	JOBBER
SIZE MIN	A	#56	D5/64	A	#47	D1.0	D2.0
SIZE MAX	Z	#1	D1/2	Z	#1	D13.0	D13.0
PAGE	A211	A211	A214	A217	A218	A219	A220
SURFACE TREATMENT	TiN						



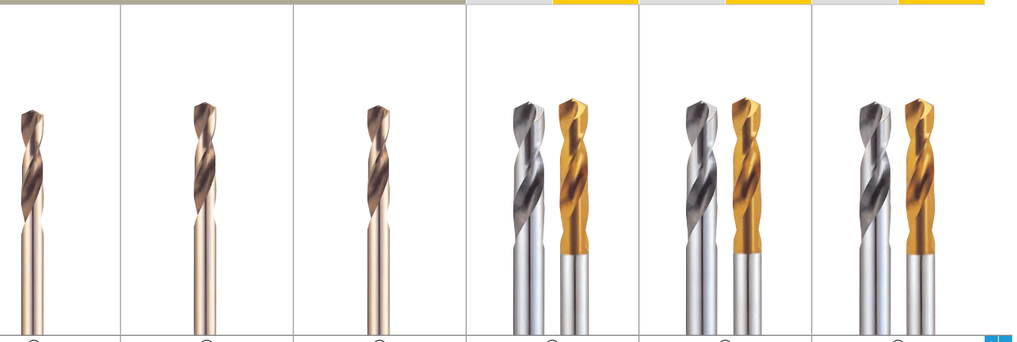
Please visit globalyg1.com/mat for material search

◎ : Excellent
○ : Good

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

STRAIGHT SHANK DRILLS

D1118	D1115	D1119	D2146 D4146		D2147 D4147		D2148 D4148	
ANSI								
HSS			HSSCo8					
SCREW MACHINE								
D3/64	A	#60	D3/64		A		#60	
D1/2	Z	#1	D1/2		Z		#1	
A228	A229	A230	A231		A232		A233	
Coloring			Bright	TiN	Bright	TiN	Bright	TiN



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○	○	○	○		○		○	
					○		○	
○	○	○	○		○		○	
○	○	○	○		○		○	
○	○	○	○		○		○	
○	○	○	○		○		○	

SELECTION GUIDE

YG

HOLEMAKING TOOLS

STRAIGHT SHANK DRILLS

SERIES	DN514	DN516	DN515	DL517 DX517	D4107
STANDARD	ANSI				DIN897
TOOL MATERIAL	HSSCo5	HSSCo5	HSSCo5	HSSCo5	HSSCo8
LENGTH	SCREW MACHINE	SCREW MACHINE	SCREW MACHINE	TAPER	STUB
SIZE MIN	D3/32	A	#47	D5/64	D1.0
SIZE MAX	D1/2	Z	#1	D1/2	D31.0
PAGE	A235	A236	A237	A238	A239
SURFACE TREATMENT	TiN			Bright / TiCN	TiN

Please visit globalyg1.com/mat for material search

◎ : Excellent
○ : Good

ISO	VDI 3323	Material Description	HB	HRc	DN514	DN516	DN515	DL517 DX517	D4107
P	1	Non-alloy steel	125		◎	◎	◎	◎	◎
	2		190	13	◎	◎	◎	◎	◎
	3		250	25	◎	◎	◎	◎	◎
	4		270	28	○	○	○	○	○
	5		300	32					
	6	Low alloy steel	180	10	◎	◎	◎	◎	◎
	7		275	29	○	○	○	○	○
	8		300	32	○	○	○	○	○
	9		350	38					
	10	High alloyed steel, and tool steel	200	15	○	○	○	○	○
	11		325	35					
M	12	Stainless steel	200	15					◎
	13		240	23					○
	14		180	10					○
K	15	Grey cast iron	180	10	○	○	○	○	○
	16		260	26	○	○	○	○	○
	17	Nodular cast iron	160	3	○	○	○	○	○
	18		250	25	○	○	○	○	○
	19	Malleable cast iron	130		○	○	○	○	○
	20		230	21	○	○	○	○	○
N	21	Aluminum-wrought alloy	60						○
	22		100						○
	23	Aluminum-cast, alloyed	75						○
	24		90						
	25		130						
	26	Copper and Copper Alloys (Bronze / Brass)	110						
	27		90						
	28		100						
	29	Non Metallic Materials Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.							○
	30								
S	31	Heat Resistant Super Alloys	200	15					
	32		280	30					
	33		250	25					
	34		350	38					
	35		320	34					
	36	Titanium Alloys	400 Rm						○
	37		1050 Rm						
H	38	Hardened steel	550	55					
	39		630	60					
	40	Chilled Cast Iron	400	42					
	41	Hardened Cast Iron	550	55					

AIRCRAFT DRILLS

SERIES	DL601 DL604	DL602 DL605	DL603 DL606	D1631 D1634	D1632 D1635	D1633 D1636
STANDARD	NAS907					
TOOL MATERIAL	HSSCo5			HSS		
LENGTH	EXTENTION					
SIZE MIN	D5/64	A	#43	D3/32	A	#47
SIZE MAX	D1/2	Z	#1	D1/2	Z	#1
PAGE	A248	A249	A250	A251	A252	A253
SURFACE TREATMENT	Coloring			Steam Oxide		

DL601 DL604	DL602 DL605	DL603 DL606	D1631 D1634	D1632 D1635	D1633 D1636		
◎	◎	◎	◎	◎	◎	1	P
◎	◎	◎	◎	◎	◎	2	
◎	◎	◎	◎	◎	◎	3	
○	○	○	○	○	○	4	
						5	
◎	◎	◎	◎	◎	◎	6	
○	○	○	○	○	○	7	
○	○	○	○	○	○	8	
						9	
○	○	○	○	○	○	10	
						11	
◎	◎	◎	◎	◎	◎	12	M
○	○	○	○	○	○	13	
○	○	○	○	○	○	14	
○	○	○	○	○	○	15	K
○	○	○	○	○	○	16	
○	○	○	○	○	○	17	
						18	
○	○	○	○	○	○	19	
						20	
○	○	○	○	○	○	21	N
○	○	○	○	○	○	22	
○	○	○	○	○	○	23	
						24	
						25	
						26	
						27	
						28	
○	○	○	○	○	○	29	
						30	
						31	S
						32	
						33	
						34	
						35	
○	○	○	○	○	○	36	
						37	
						38	H
						39	
						40	
						41	

SELECTION GUIDE

HOLEMAKING TOOLS

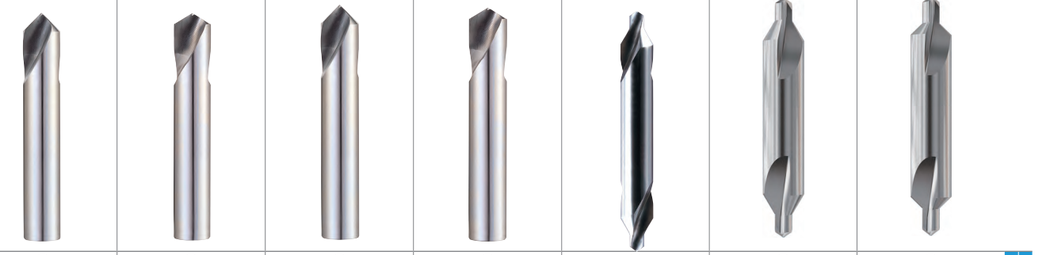
	SILVER & DEMING DRILLS	MORSE TAPER SHANK DRILLS
SERIES	D1191	D1211
STANDARD	ANSI	ANSI
TOOL MATERIAL	HSS	HSS
POINT ANGLE/LENGTH/FORM TYPE	118°	JOBBER
SIZE MIN	D1/2	D1/2
SIZE MAX	D1-1/2	D2-1/2
PAGE	A259	A263
SURFACE TREATMENT	BLACK & GOLD	Steam Tempered

Please visit globalyg1.com/mat for material search

◎ : Excellent
○ : Good

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

	NC SPOTTING DRILLS				COMBINATION DRILL & COUNTER SINK		
	D5321	D5322	D2N90		D1C90	D5331	D5332
	-	-	-	-	-	-	-
	CARBIDE	CARBIDE	HSSCo8	HSSCo8	HSS	CARBIDE	
	90°	120°	90°	120°	FORM A	FORM A	FORM B
	D1/8	D1/8	D1/8	D1/8	D3/64	D3/64	D3/64
	D3/4	D3/4	D1"	D1"	D7/32	D5/16	D5/16
	A269		A270		A275	A276	
	Bright						



1		◎	◎	◎	◎	◎	◎	◎	
2		◎	◎	◎	◎	◎	◎	◎	
3		◎	◎	◎	◎	○	○	○	
4									
5									
6	P	◎	◎	◎	◎	◎	◎	◎	
7		○	○	○	○	○	○	○	
8						○	○	○	
9						○	○	○	
10									
11									
12		○	○	○	○	○	○	○	
13	M								
14						◎	◎	◎	
15		◎	◎	◎	◎				
16		○	○	○	○				
17	K	○	○	○	○				
18									
19		○	○	○	○				
20									
21		○	○	○	○	◎	◎	◎	
22		○	○	○	○	◎	◎	◎	
23		○	○	○	○	○	○	○	
24						○	○	○	
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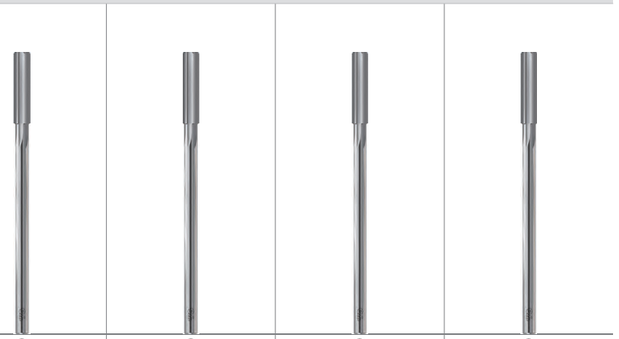
36				○	○	○	○	○	
37									
38									
39									
40	H								
41									

SELECTION GUIDE

HOLEMAKING TOOLS

REAMERS

SERIES	K6106	K6101/K6105	K6103	K6102
FLUTE TYPE	Straight Flute			
TOOL MATERIAL	HSS	HSS	HSS	HSS
CUTTING DIRECTION	Right Hand Cut			
SIZE MIN	.0135			
SIZE MAX	.7500			
PAGE	A354~A362			
SURFACE TREATMENT	Bright			



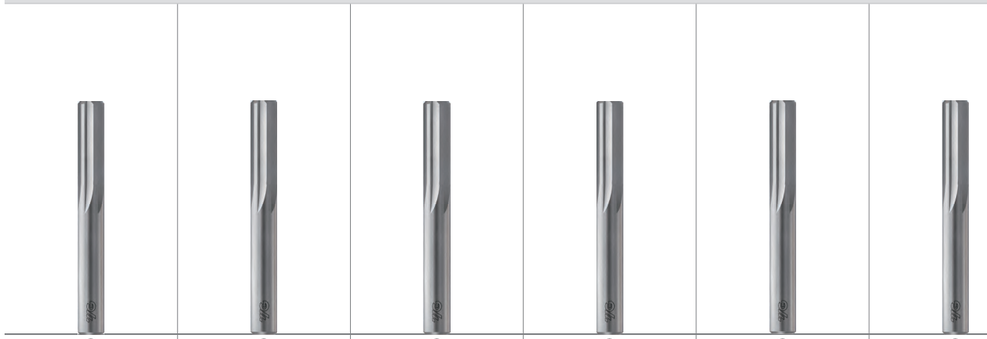
Please visit globalyg1.com/mat for material search

◎ : Excellent
○ : Good

ISO	VDI 3323	Material Description	HB	HRc	K6106	K6101/K6105	K6103	K6102
P	1	Non-alloy steel	125		◎	◎	◎	◎
	2		190	13	◎	◎	◎	◎
	3		250	25	○	○	○	○
	4		270	28	○	○	○	○
	5		300	32				
	6	Low alloy steel	180	10	◎	◎	◎	◎
	7		275	29	○	○	○	○
	8		300	32				
	9		350	38				
	10	High alloyed steel, and tool steel	200	15	○	○	○	○
	11		325	35				
M	12	Stainless steel	200	15	○	○	○	○
	13		240	23	○	○	○	○
	14		180	10	○	○	○	○
K	15	Grey cast iron	180	10	○	○	○	○
	16		260	26	○	○	○	○
	17	Nodular cast iron	160	3	○	○	○	○
	18		250	25	○	○	○	○
	19	Malleable cast iron	130		○	○	○	○
	20		230	21	○	○	○	○
N	21	Aluminum-wrought alloy	60		○	○	○	○
	22		100		○	○	○	○
	23	Aluminum-cast, alloyed	75		○	○	○	○
	24		90		○	○	○	○
	25		130					
	26	Copper and Copper Alloys (Bronze / Brass)	110		○	○	○	○
	27		90		○	○	○	○
	28		100		○	○	○	○
	29	Non Metallic Materials						
	30							
S	31	Heat Resistant Super Alloys	200	15				
	32		280	30				
	33		250	25				
	34		350	38				
	35		320	34				
	36	Titanium Alloys	400 Rm					
	37		1050 Rm					
H	38	Hardened steel	550	55				
	39		630	60				
	40	Chilled Cast Iron	400	42				
	41	Hardened Cast Iron	550	55				

REAMERS

SERIES	K9106	K9101	K9103	K9102	K9104	K9107
FLUTE TYPE	Straight Flute					
TOOL MATERIAL	CARBIDE	CARBIDE	CARBIDE	CARBIDE	CARBIDE	CARBIDE
CUTTING DIRECTION	Right Hand Cut					
SIZE MIN	.0280					.0355
SIZE MAX	.6299					.5020
PAGE	A363~A368					A369~A389
SURFACE TREATMENT	Bright					



K9106	K9101	K9103	K9102	K9104	K9107	
◎	◎	◎	◎	◎	◎	1
◎	◎	◎	◎	◎	◎	2
◎	◎	◎	◎	◎	◎	3
○	○	○	○	○	○	4
○	○	○	○	○	○	5
◎	◎	◎	◎	◎	◎	6 P
◎	◎	◎	◎	◎	◎	7
○	○	○	○	○	○	8
						9
○	○	○	○	○	○	10
						11
○	○	○	○	○	○	12
○	○	○	○	○	○	13 M
○	○	○	○	○	○	14
◎	◎	◎	◎	◎	◎	15
○	○	○	○	○	○	16
◎	◎	◎	◎	◎	◎	17 K
○	○	○	○	○	○	18
◎	◎	◎	◎	◎	◎	19
○	○	○	○	○	○	20
○	○	○	○	○	○	21
○	○	○	○	○	○	22
○	○	○	○	○	○	23
○	○	○	○	○	○	24
						25
○	○	○	○	○	○	26 N
○	○	○	○	○	○	27
○	○	○	○	○	○	28
						29
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						31
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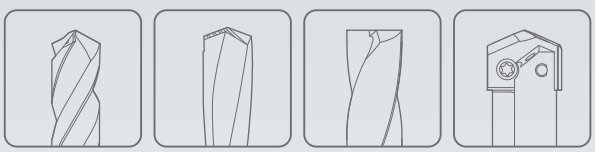
						37
						38
						39 H
						40
						41

Global Cutting Tool Leader YG-1



HOLEMAKING

YG

Leading Through Innovation

CARBIDE INSERTS & HOLDERS

i-ONE DRILLS

- High Performance Exchangeable for General Steels and Cast Iron

SELECTION GUIDE

YG HOLEMAKING TOOLS

CARBIDE INSERTS & HOLDERS

i-ONE DRILLS

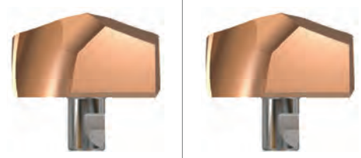
- High Performance Exchangeable for General Steels and Cast Iron

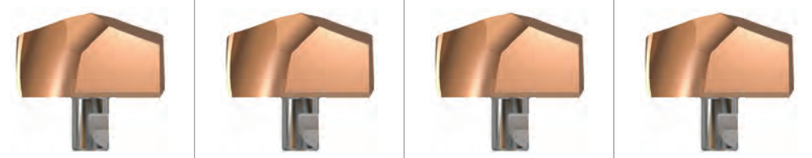
Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A42

SERIES	Y101H	Y121H	Y141H	Y161H	Y181H	Y201H	Y221H	Y241H	Y261H	Y281H	Y301H	Y321H	ZD*3	ZD*5	ZD*8
POINT ANGLE	140°	140°	140°	140°	140°	140°	140°	140°	140°	140°	140°	140°			
TOOL MATERIAL	CARBIDE	CARBIDE	CARBIDE	CARBIDE	CARBIDE	CARBIDE	CARBIDE	CARBIDE	CARBIDE	CARBIDE	CARBIDE	CARBIDE			
SIZE MIN	.3937	.4724	.5512	.6299	.7087	.7874	.8661	.9449	1.0236	1.1024	1.1811	1.2598			
SIZE MAX	.4688	.5472	.6260	.7047	.7835	.8622	.9409	1.0197	1.0984	1.1772	1.2559	1.3346			
PAGE	A30	A31	A32	A33	A34	A35	A36	A37	A38	A39	A30	A31			
SURFACE TREATMENT	H-Coating				H-Coating								3XD	5XD	8XD





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

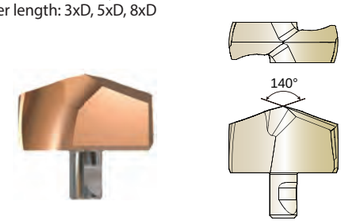
CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

i- ONE DRILLS

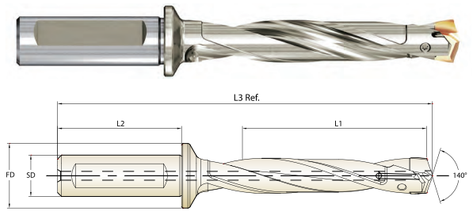
Y101H SERIES

i-ONE DRILL INSERTS & HOLDERS

▶ Applications
- For carbon steels, alloy steels and cast iron
- Holder length: 3xD, 5xD, 8xD



▶ Benefits
- Secure and quick clamping system
- High performance with cost efficiency
- Multi-layered coating delivers outstanding productivity and reliability



CARBIDE | ISO 9766 | h7 | 140° | H Coating

p.A42

Unit : Inch

Series Range	Insert EDP No.	Insert O.D.			Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth		Overall Length	Screw No.
(mm)	H-Coating	h7				SD	L2	FD	L1		L3 Ref.	
		dec.	frac.	mm								
S10 Ø10.00 TO Ø11.99	Y101H1000	.3937		10.00	ZD10003063 ZD10005063 ZD10008063	5/8	1-7/8	29/32	3D	1-15/64	4-3/64	TX1011P5
	Y101H1010	.3976		10.10					5D	2-1/16	4-53/64	
	Y101H1020	.4016		10.20					8D	3- 5/16	6-1/64	
	Y101H1030	.4055		10.30								
	Y101H1032	.4063	13/32	10.32								
	Y101H1040	.4094		10.40								
	Y101H1050	.4134		10.50	ZD10503063 ZD10505063 ZD10508063	5/8	1-7/8	29/32	3D	1-19/64	4-5/64	
	Y101H1060	.4173		10.60					5D	2-11/64	4-29/32	
	Y101H1070	.4213		10.70					8D	3-15/32	6-9/64	
	Y101H1072	.4219	27/64	10.72								
	Y101H1080	.4252		10.80								
	Y101H1090	.4291		10.90								
	Y101H1100	.4331		11.00	ZD11003063 ZD11005063 ZD11008063	5/8	1-7/8	29/32	3D	1-23/64	4-1/8	
	Y101H1110	.4370		11.10					5D	2-17/64	4-63/64	
	Y101H1111	.4375	7/16	11.11					8D	3-5/8	6-9/32	
	Y101H1120	.4409		11.20								
	Y101H1130	.4449		11.30								
	Y101H1140	.4488		11.40								
	Y101H1150	.4528		11.50	ZD11503063 ZD11505063 ZD11508063	5/8	1-7/8	29/32	3D	1-27/64	4-5/32	
	Y101H1151	.4531	29/64	11.51					5D	2-23/64	5-1/16	
	Y101H1160	.4567		11.60					8D	3-25/32	6-27/64	
	Y101H1170	.4606		11.70								
	Y101H1180	.4646		11.80								
	Y101H1190	.4685		11.90								
	Y101H1191	.4688	15/32	11.91								

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

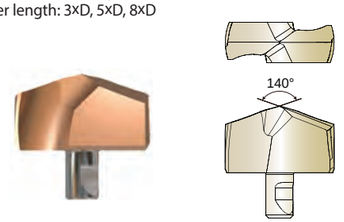
CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

i- ONE DRILLS

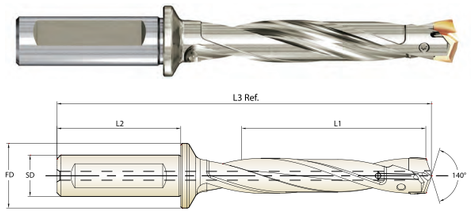
Y121H SERIES

i-ONE DRILL INSERTS & HOLDERS

▶ Applications
- For carbon steels, alloy steels and cast iron
- Holder length: 3xD, 5xD, 8xD



▶ Benefits
- Secure and quick clamping system
- High performance with cost efficiency
- Multi-layered coating delivers outstanding productivity and reliability



CARBIDE | ISO 9766 | h7 | 140° | H Coating

p.A42

Unit : Inch

Series Range	Insert EDP No.	Insert O.D.			Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth		Overall Length	Screw No.
(mm)	H-Coating	h7				SD	L2	FD	L1		L3 Ref.	
		dec.	frac.	mm								
S12 Ø12.00 TO Ø13.99	Y121H1200	.4724		12.00	ZD12003063 ZD12005063 ZD12008063	5/8	1-7/8	29/32	3D	1-15/32	4-5/16	TX1213P5
	Y121H1210	.4764		12.10					5D	2-29/64	5-8/32	
	Y121H1220	.4803		12.20					8D	3-15/16	6-43/64	
	Y121H1230	.4844	31/64	12.30								
	Y121H1240	.4882		12.40								
	Y121H1250	.4921		12.50	ZD12503063 ZD12505063 ZD12508063	5/8	1-7/8	29/32	3D	1-17/32	4-11/32	
	Y121H1260	.4961		12.60					5D	2-9/16	6-33/64	
	Y121H1270	.5000	1/2	12.70					8D	4-3/32	6-13/16	
	Y121H1280	.5039		12.80								
	Y121H1290	.5079		12.90								
	Y121H1300	.5118		13.00	ZD13003063 ZD13005063 ZD13008063	5/8	1-7/8	29/32	3D	1-19/32	4-27/64	
	Y121H1310	.5156	33/64	13.10					5D	2-21/32	5-29/64	
	Y121H1320	.5197		13.20					8D	4-1/4	6-63/64	
	Y121H1330	.5236		13.30								
	Y121H1340	.5276		13.40								
	Y121H1349	.5313	17/32	13.49								
	Y121H1350	.5315		13.50	ZD13503063 ZD13505063 ZD13508063	5/8	1-7/8	29/32	3D	1-21/32	4-15/32	
	Y121H1360	.5354		13.60					5D	2-3/4	5-17/32	
	Y121H1370	.5394		13.70					8D	4-13/32	7-1/8	
	Y121H1380	.5433		13.80								
	Y121H1389	.5469	35/64	13.89								
	Y121H1390	.5472		13.90								

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				◎	◎	◎	◎	◎	◎

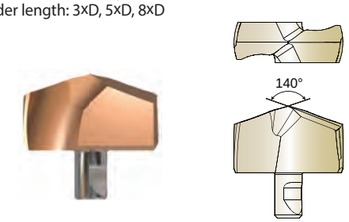
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials				Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

i- ONE DRILLS

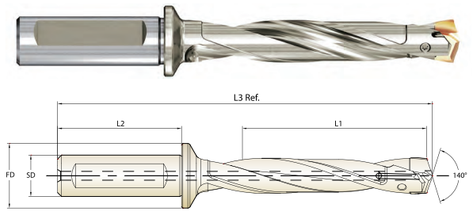
Y141H SERIES

i-ONE DRILL INSERTS & HOLDERS

▶ Applications
- For carbon steels, alloy steels and cast iron
- Holder length: 3xD, 5xD, 8xD



▶ Benefits
- Secure and quick clamping system
- High performance with cost efficiency
- Multi-layered coating delivers outstanding productivity and reliability



CARBIDE | ISO 9766 | h7 | 140° | H Coating p.A42

Unit : Inch

Series Range	Insert EDP No.	Insert O.D.			Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth		Overall Length	Screw No.
(mm)	H-Coating	h7				SD	L2	FD	L1		L3 Ref.	
		dec.	frac.	mm								
S14 Ø14.00 TO Ø15.99	Y141H1400	.5512		14.00	ZD14003063	5/8	1-7/8	29/32	3D	1-23/32	4-9/16	TX1415P7
	Y141H1410	.5551		14.10	ZD14005063				5D	2-55/64	5-43/64	
	Y141H1420	.5591		14.20	ZD14008063				8D	4-9/16	7-5/16	
	Y141H1429	.5625	9/16	14.29								
	Y141H1430	.5630		14.30								
	Y141H1440	.5669		14.40								
	Y141H1450	.5709		14.50								
	Y141H1460	.5748		14.60	ZD14503063	5/8	1-7/8	29/32	3D	1-49/64	4-41/64	
	Y141H1468	.5781	37/64	14.68	ZD14505063				5D	2-61/64	5-25/32	
	Y141H1470	.5787		14.70	ZD14508063				8D	4-23/32	7-1/2	
	Y141H1480	.5827		14.80								
	Y141H1490	.5866		14.90								
	Y141H1500	.5906		15.00								
	Y141H1508	.5938	19/32	15.08	ZD15003063	5/8	1-7/8	29/32	3D	1-53/64	4-23/32	
	Y141H1510	.5945		15.10	ZD15005063				5D	3-3/64	5-29/32	
	Y141H1520	.5984		15.20	ZD15008063				8D	4-7/8	7-43/64	
	Y141H1530	.6024		15.30								
	Y141H1540	.6063		15.40								
	Y141H1548	.6094	39/64	15.48								
	Y141H1550	.6102		15.50								
	Y141H1560	.6142		15.60	ZD15503063	5/8	1-7/8	29/32	3D	1-57/64	4-49/64	
	Y141H1570	.6181		15.70	ZD15505063				5D	3-5/32	5-63/64	
	Y141H1580	.6220		15.80	ZD15508063				8D	5-3/64	7-13/16	
	Y141H1588	.6250	5/8	15.88								
	Y141H1590	.6260		15.90								

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				◎	◎	◎	◎	◎	◎

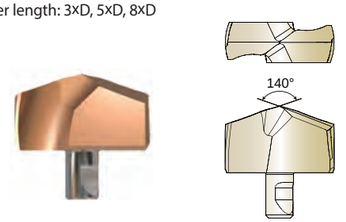
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

i- ONE DRILLS

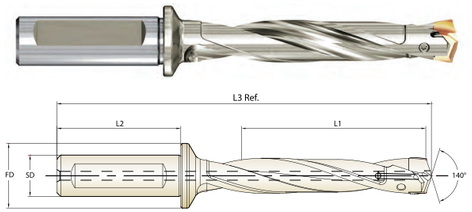
Y161H SERIES

i-ONE DRILL INSERTS & HOLDERS

▶ Applications
- For carbon steels, alloy steels and cast iron
- Holder length: 3xD, 5xD, 8xD



▶ Benefits
- Secure and quick clamping system
- High performance with cost efficiency
- Multi-layered coating delivers outstanding productivity and reliability



CARBIDE | ISO 9766 | h7 | 140° | H Coating p.A42

Unit : Inch

Series Range	Insert EDP No.	Insert O.D.			Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth		Overall Length	Screw No.
(mm)	H-Coating	h7				SD	L2	FD	L1		L3 Ref.	
		dec.	frac.	mm								
S16 Ø16.00 TO Ø17.99	Y161H1600	.6299		16.00	ZD16003075	3/4	2	1	3D	2-1/64	5-1/32	TX1617P7
	Y161H1609	.6335		16.09	ZD16005075				5D	3-11/32	6-21/64	
	Y161H1610	.6339		16.10	ZD16008075				8D	5-23/64	8-9/32	
	Y161H1620	.6378		16.20								
	Y161H1627	.6406	41/64	16.27								
	Y161H1630	.6417		16.30								
	Y161H1640	.6457		16.40								
	Y161H1650	.6496		16.50								
	Y161H1660	.6535		16.60								
	Y161H1667	.6563	21/32	16.67								
	Y161H1670	.6575		16.70								
	Y161H1680	.6614		16.80								
	Y161H1690	.6654		16.90								
	Y161H1700	.6693		17.00								
	Y161H1707	.6719	43/64	17.07								
	Y161H1710	.6732		17.10								
	Y161H1720	.6772		17.20								
	Y161H1730	.6811		17.30								
	Y161H1740	.6850		17.40	ZD17003075	3/4	2	1	3D	2-1/8	5-5/32	TX1718P7
	Y161H1746	.6875	11/16	17.46	ZD17005075				5D	3-35/64	6-17/32	
	Y161H1750	.6890		17.50	ZD17008075				8D	5-43/64	8-19/32	
	Y161H1760	.6929		17.60								
	Y161H1770	.6969		17.70								
	Y161H1780	.7008		17.80								
	Y161H1786	.7031	45/64	17.86								
	Y161H1790	.7047		17.90								

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				◎	◎	◎	◎	◎	◎

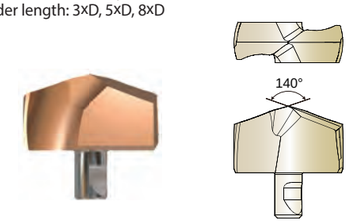
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

i- ONE DRILLS

Y181H SERIES

i-ONE DRILL INSERTS & HOLDERS

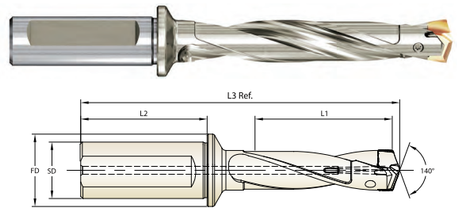
▶ Applications
- For carbon steels, alloy steels and cast iron
- Holder length: 3xD, 5xD, 8xD



CARBIDE | ISO 9766 | h7 | 140° | H Coating

p.A42

▶ Benefits
- Secure and quick clamping system
- High performance with cost efficiency
- Multi-layered coating delivers outstanding productivity and reliability



FULL-FLAT SHANK

Unit : Inch

Series Range	Insert EDP No.	Insert O.D.			Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth		Overall Length	Screw No.
(mm)	H-Coating	h7				SD	L2	FD	L1		L3 Ref.	
		dec.	frac.	mm								
S18 Ø18.00 TO Ø19.99	Y181H1800	.7087		18.00	ZD18003100 ZD18005100 ZD18008100	1	2-3/16	1-1/4	3D	2-1/4	5-35/64	TX1819P9
	Y181H1810	.7126		18.10					5D	3-47/64	7	
	Y181H1820	.7165		18.20					8D	5-63/64	9-3/16	
	Y181H1826	.7188	23/32	18.26								
	Y181H1830	.7205		18.30								
	Y181H1840	.7244		18.40								
	Y181H1850	.7283		18.50								
	Y181H1860	.7323		18.60								
	Y181H1865	.7344	47/64	18.65								
	Y181H1870	.7362		18.70								
	Y181H1880	.7402		18.80								
	Y181H1890	.7441		18.90								
	Y181H1900	.7480		19.00								
	Y181H1905	.7500	3/4	19.05	ZD19003100 ZD19005100 ZD19008100	1	2-3/16	1-1/4	3D	2-23/64	5-45/64	TX1920P9
	Y181H1910	.7520		19.10					5D	3-15/16	7-15/64	
	Y181H1920	.7559		19.20					8D	6-19/64	9-35/64	
	Y181H1927	.7587		19.27								
	Y181H1930	.7598		19.30								
	Y181H1940	.7638		19.40								
	Y181H1945	.7656	49/64	19.45								
	Y181H1950	.7677		19.50								
	Y181H1960	.7717		19.60								
	Y181H1970	.7756		19.70								
	Y181H1980	.7795		19.80								
	Y181H1984	.7813	25/32	19.84								
	Y181H1990	.7835		19.90								

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				◎	◎	◎	◎	◎	◎

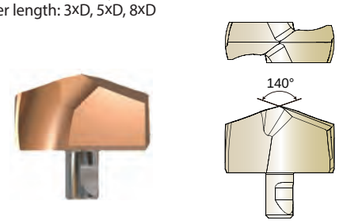
ISO	N										S						H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials				Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

i- ONE DRILLS

Y201H SERIES

i-ONE DRILL INSERTS & HOLDERS

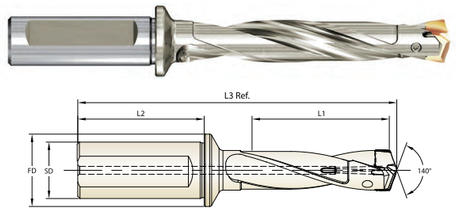
▶ Applications
- For carbon steels, alloy steels and cast iron
- Holder length: 3xD, 5xD, 8xD



CARBIDE | ISO 9766 | h7 | 140° | H Coating

p.A42

▶ Benefits
- Secure and quick clamping system
- High performance with cost efficiency
- Multi-layered coating delivers outstanding productivity and reliability



FULL-FLAT SHANK

Unit : Inch

Series Range	Insert EDP No.	Insert O.D.			Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth		Overall Length	Screw No.
(mm)	H-Coating	h7				SD	L2	FD	L1		L3 Ref.	
		dec.	frac.	mm								
S20 Ø20.00 TO Ø21.99	Y201H2000	.7874		20.00	ZD20003100 ZD20005100 ZD20008100	1	2-3/16	1-1/4	3D	2-31/64	5-51/64	TX2021P9
	Y201H2010	.7913		20.10					5D	4-9/64	7-13/32	
	Y201H2020	.7953		20.20					8D	6-39/64	9-53/64	
	Y201H2024	.7969	51/64	20.24								
	Y201H2030	.7992		20.30								
	Y201H2040	.8031		20.40								
	Y201H2050	.8071		20.50								
	Y201H2060	.8110		20.60								
	Y201H2064	.8125	13/16	20.64								
	Y201H2070	.8150		20.70								
	Y201H2080	.8189		20.80								
	Y201H2090	.8228		20.90								
	Y201H2100	.8268		21.00								
	Y201H2103	.8281	53/64	21.03	ZD21003100 ZD21005100 ZD21008100	1	2-3/16	1-1/4	3D	2-19/32	5-29/32	TX2122P9
	Y201H2110	.8307		21.10					5D	4-21/64	7-19/32	
	Y201H2120	.8346		21.20					8D	6-59/64	10-9/64	
	Y201H2130	.8386		21.30								
	Y201H2140	.8425		21.40								
	Y201H2143	.8438	27/32	21.43								
	Y201H2150	.8465		21.50								
	Y201H2160	.8504		21.60								
	Y201H2170	.8543		21.70								
	Y201H2180	.8583		21.80								
	Y201H2183	.8594	55/64	21.83								
	Y201H2190	.8622		21.90								

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				◎	◎	◎	◎	◎	◎

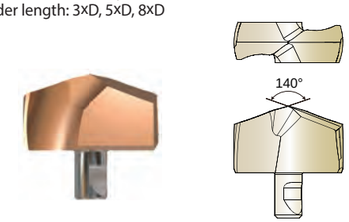
ISO	N										S						H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials				Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

i- ONE DRILLS

Y221H SERIES

i-ONE DRILL INSERTS & HOLDERS

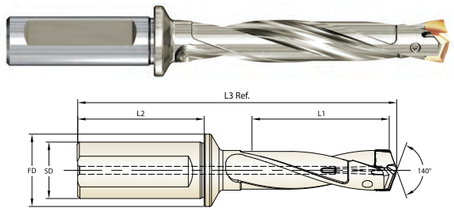
▶ Applications
- For carbon steels, alloy steels and cast iron
- Holder length: 3xD, 5xD, 8xD



CARBIDE | ISO 9766 | h7 | 140° | H Coating

p.A42

▶ Benefits
- Secure and quick clamping system
- High performance with cost efficiency
- Multi-layered coating delivers outstanding productivity and reliability



FULL-FLAT SHANK

Unit : Inch

Series Range	Insert EDP No.	Insert O.D.			Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth		Overall Length	Screw No.
(mm)	H-Coating	h7				SD	L2	FD	L1		L3 Ref.	
		dec.	frac.	mm								
S22 Ø22.00 TO Ø23.99	Y221H2200	.8661		22.00	ZD22003100 ZD22005100 ZD22008100	1	2-3/16	1-1/4	3D	2-23/32	6-1/32	TX2223P9
	Y221H2210	.8701		22.10					5D	4-34/64	7-51/64	
	Y221H2220	.8740		22.20					8D	7-1/4	10-29/64	
	Y221H2223	.8750	7/8	22.23								
	Y221H2230	.8780		22.30								
	Y221H2240	.8819		22.40								
	Y221H2250	.8858		22.50								
	Y221H2260	.8898		22.60								
	Y221H2262	.8906	57/64	22.62								
	Y221H2270	.8937		22.70								
	Y221H2280	.8976		22.80								
	Y221H2290	.9016		22.90								
	Y221H2300	.9055		23.00	ZD23003100 ZD23005100 ZD23008100	1	2-3/16	1-1/4	3D	2-53/64	6-3/16	TX2223P9
	Y221H2302	.9063	29/32	23.02					5D	4-23/32	8-1/32	
	Y221H2310	.9094		23.10					8D	7-9/16	10-13/16	
	Y221H2320	.9134		23.20								
	Y221H2330	.9173		23.30								
	Y221H2340	.9213		23.40								
	Y221H2342	.9219	59/64	23.42								
	Y221H2350	.9252		23.50								
	Y221H2360	.9291		23.60								
	Y221H2370	.9331		23.70								
	Y221H2380	.9370		23.80								
	Y221H2381	.9375	15/16	23.81								
	Y221H2390	.9409		23.90								

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				◎	◎	◎	◎	◎	◎

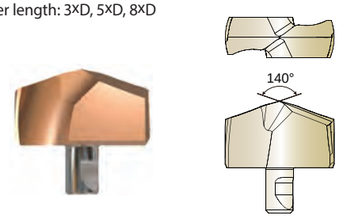
ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

i- ONE DRILLS

Y241H SERIES

i-ONE DRILL INSERTS & HOLDERS

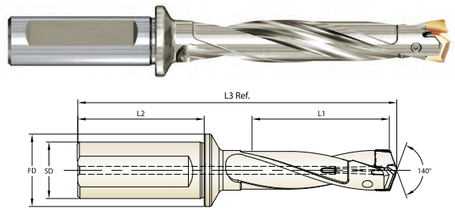
▶ Applications
- For carbon steels, alloy steels and cast iron
- Holder length: 3xD, 5xD, 8xD



CARBIDE | ISO 9766 | h7 | 140° | H Coating

p.A42

▶ Benefits
- Secure and quick clamping system
- High performance with cost efficiency
- Multi-layered coating delivers outstanding productivity and reliability



FULL-FLAT SHANK

Unit : Inch

Series Range	Insert EDP No.	Insert O.D.			Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth		Overall Length	Screw No.
(mm)	H-Coating	h7				SD	L2	FD	L1		L3 Ref.	
		dec.	frac.	mm								
S24 Ø24.00 TO Ø25.99	Y241H2400	.9449		24.00	ZD24003125 ZD24005125 ZD24008125	1-1/4	2-3/8	1-15/32	3D	2-61/64	6-17/32	TX2425P10
	Y241H2410	.9488		24.10					5D	4-59/64	8-15/32	
	Y241H2420	.9528		24.20					8D	7-7/8	11-23/64	
	Y241H2421	.9531	61/64	24.21								
	Y241H2430	.9567		24.30								
	Y241H2440	.9606		24.40								
	Y241H2450	.9646		24.50								
	Y241H2460	.9685		24.60								
	Y241H2461	.9688	31/32	24.61								
	Y241H2470	.9724		24.70								
	Y241H2480	.9764		24.80								
	Y241H2490	.9803		24.90								
	Y241H2500	.9844	63/64	25.00	ZD25003125 ZD25005125 ZD25008125	1-1/4	2-3/8	1-15/32	3D	3-5/64	6-47/64	TX2526P10
	Y241H2510	.9882		25.10					5D	5-1/8	8-47/64	
	Y241H2520	.9921		25.20					8D	8-3/16	11-3/4	
	Y241H2530	.9961		25.30								
	Y241H2540	1.0000	1	25.40								
	Y241H2550	1.0039		25.50								
	Y241H2560	1.0079		25.60								
	Y241H2567	1.0106		25.67								
	Y241H2570	1.0118		25.70								
	Y241H2580	1.0156	1-1/64	25.80								
	Y241H2590	1.0197		25.90								

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				◎	◎	◎	◎	◎	◎

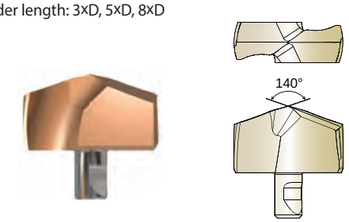
ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

i- ONE DRILLS

Y261H SERIES

i-ONE DRILL INSERTS & HOLDERS

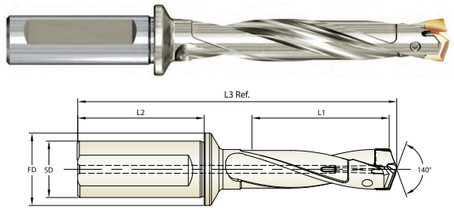
▶ Applications
- For carbon steels, alloy steels and cast iron
- Holder length: 3xD, 5xD, 8xD



CARBIDE | ISO 9766 | h7 | 140° | H Coating

p.A42

▶ Benefits
- Secure and quick clamping system
- High performance with cost efficiency
- Multi-layered coating delivers outstanding productivity and reliability



FULL-FLAT SHANK

Unit : Inch

Series Range	Insert EDP No.	Insert O.D.			Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth		Overall Length	Screw No.
(mm)	H-Coating	h7				SD	L2	FD	L1		L3 Ref.	
		dec.	frac.	mm								
S26 Ø26.00 TO Ø27.99	Y261H2600	1.0236		26.00	ZD26003125	1-1/4	2-3/8	1-15/32	3D	3-3/16	6-51/64	TX2627P10
	Y261H2619	1.0311	1-1/32	26.19								
	Y261H2620	1.0315		26.20								
	Y261H2650	1.0433		26.50	ZD26005125				5D	5-5/16	8-7/8	
	Y261H2659	1.0469	1-3/64	26.59								
	Y261H2660	1.0472		26.60								
	Y261H2670	1.0512		26.70								
	Y261H2680	1.0551		26.80								
	Y261H2690	1.0591		26.90	ZD26008125				8D	8-1/2	12-1/64	
	Y261H2699	1.0626	1-1/16	26.99								
	Y261H2700	1.0630		27.00	ZD27003125	1-1/4	2-3/8	1-15/32	3D	3-5/16	6-29/32	TX2728P10
	Y261H2710	1.0669		27.10								
	Y261H2720	1.0709		27.20								
	Y261H2730	1.0748		27.30								
	Y261H2738	1.0780	1-5/64	27.38								
	Y261H2740	1.0787		27.40	ZD27005125				5D	5-33/64	9-5/64	
	Y261H2750	1.0827		27.50								
	Y261H2760	1.0866		27.60								
	Y261H2770	1.0906		27.70								
	Y261H2778	1.0937	1-3/32	27.78								
	Y261H2780	1.0945		27.80	ZD27008125				8D	8-13/16	12-21/64	
	Y261H2790	1.0984		27.90								

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				◎	◎	◎	◎	◎	◎

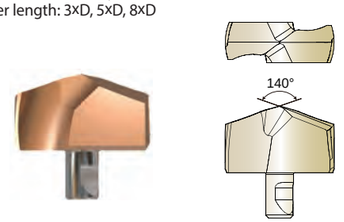
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

i- ONE DRILLS

Y281H SERIES

i-ONE DRILL INSERTS & HOLDERS

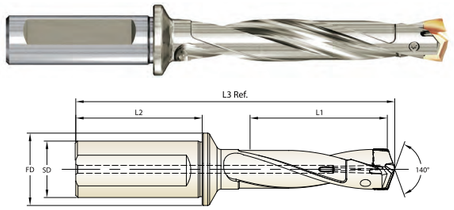
▶ Applications
- For carbon steels, alloy steels and cast iron
- Holder length: 3xD, 5xD, 8xD



CARBIDE | ISO 9766 | h7 | 140° | H Coating

p.A42

▶ Benefits
- Secure and quick clamping system
- High performance with cost efficiency
- Multi-layered coating delivers outstanding productivity and reliability



FULL-FLAT SHANK

Unit : Inch

Series Range	Insert EDP No.	Insert O.D.			Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth		Overall Length	Screw No.
(mm)	H-Coating	h7				SD	L2	FD	L1		L3 Ref.	
		dec.	frac.	mm								
S28 Ø28.00 TO Ø29.99	Y281H2800	1.1024		28.00	ZD28003125	1-1/4	2-3/8	1-15/32	3D	3-27/64	7-1/16	TX2830P10
	Y281H2810	1.1063		28.10								
	Y281H2818	1.1094	1-7/64	28.18								
	Y281H2820	1.1102		28.20								
	Y281H2830	1.1142		28.30								
	Y281H2840	1.1181		28.40	ZD28005125				5D	5-45/64	9-5/16	
	Y281H2850	1.1220		28.50								
	Y281H2858	1.1252	1-1/8	28.58								
	Y281H2860	1.1260		28.60								
	Y281H2870	1.1299		28.70								
	Y281H2880	1.1339		28.80	ZD28008125				8D	9- 9/64	12-43/64	
	Y281H2890	1.1378		28.90								
	Y281H2900	1.1417		29.00	ZD29003125	1-1/4	2-3/8	1-15/32	3D	3-35/64	7-7/32	TX2930P10
	Y281H2910	1.1457		29.10								
	Y281H2920	1.1496		29.20								
	Y281H2930	1.1535		29.30								
	Y281H2937	1.1563	1-5/32	29.37								
	Y281H2940	1.1575		29.40	ZD29005125				5D	5-29/32	9-35/64	
	Y281H2950	1.1614		29.50								
	Y281H2960	1.1654		29.60								
	Y281H2970	1.1693		29.70								
	Y281H2977	1.1720	1-11/64	29.77								
	Y281H2980	1.1732		29.80	ZD29008125				8D	9-29/64	13-1/32	
	Y281H2990	1.1772		29.90								

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				◎	◎	◎	◎	◎	◎

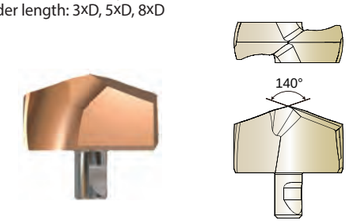
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

i- ONE DRILLS

Y301H SERIES

i-ONE DRILL INSERTS & HOLDERS

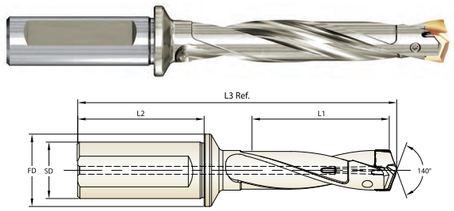
▶ Applications
- For carbon steels, alloy steels and cast iron
- Holder length: 3xD, 5xD, 8xD



CARBIDE | ISO 9766 | h7 | 140° | H Coating

p.A42

▶ Benefits
- Secure and quick clamping system
- High performance with cost efficiency
- Multi-layered coating delivers outstanding productivity and reliability



FULL-FLAT SHANK

Unit : Inch

Series Range	Insert EDP No.	Insert O.D. h7			Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth		Overall Length	Screw No.
(mm)	H-Coating	dec.	frac.	mm		SD	L2	FD	L1		L3 Ref.	
S30 Ø30.00 TO Ø31.99	Y301H3000	1.1811		30.00								
	Y301H3010	1.1850		30.10								
	Y301H3016	1.1874	1-3/16	30.16								
	Y301H3020	1.1890		30.20								
	Y301H3030	1.1929		30.30								
	Y301H3040	1.1969		30.40	ZD30003125				3D	3-21/32	7- 3/8	
	Y301H3050	1.2008		30.50	ZD30005125	1-1/4	2-3/8	1-15/32	5D	6- 7/64	9-25/32	TX3031P15
	Y301H3056	1.2031	1-13/64	30.56	ZD30008125				8D	9-49/64	13- 3/8	
	Y301H3060	1.2047		30.60								
	Y301H3070	1.2087		30.70								
	Y301H3080	1.2126		30.80								
	Y301H3090	1.2165		30.90								
	Y301H3096	1.2189	1-7/32	30.96								
	Y301H3100	1.2205		31.00								
	Y301H3110	1.2244		31.10								
	Y301H3120	1.2283		31.20								
	Y301H3130	1.2323		31.30								
	Y301H3140	1.2362		31.40	ZD31003125				3D	3-25/32	7-17/32	
	Y301H3150	1.2402		31.50	ZD31005125	1-1/4	2-3/8	1-15/32	5D	6-19/64	10- 1/64	TX3132P15
	Y301H3160	1.2441		31.60	ZD31008125				8D	10- 5/64	13-47/64	
	Y301H3170	1.2480		31.70								
	Y301H3175	1.2500	1-1/4	31.75								
	Y301H3180	1.2520		31.80								
	Y301H3190	1.2559		31.90								

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				◎	◎	◎	◎	◎	◎

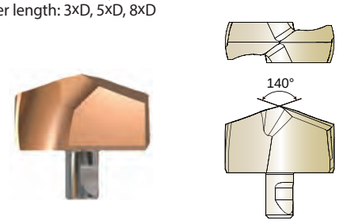
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

i- ONE DRILLS

Y321H SERIES

i-ONE DRILL INSERTS & HOLDERS

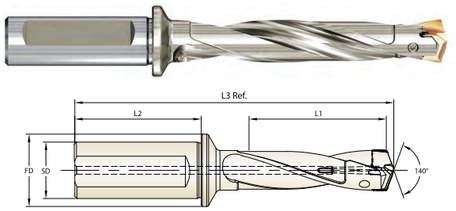
▶ Applications
- For carbon steels, alloy steels and cast iron
- Holder length: 3xD, 5xD, 8xD



CARBIDE | ISO 9766 | h7 | 140° | H Coating

p.A42

▶ Benefits
- Secure and quick clamping system
- High performance with cost efficiency
- Multi-layered coating delivers outstanding productivity and reliability



FULL-FLAT SHANK

Unit : Inch

Series Range	Insert EDP No.	Insert O.D. h7			Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth		Overall Length	Screw No.
(mm)	H-Coating	dec.	frac.	mm		SD	L2	FD	L1		L3 Ref.	
S32 Ø32.00 TO Ø33.99	Y321H3200	1.2598		32.00								
	Y321H3210	1.2638		32.10								
	Y321H3215	1.2657	1-17/64	32.15								
	Y321H3220	1.2677		32.20								
	Y321H3230	1.2717		32.30								
	Y321H3240	1.2756		32.40	ZD32003125				3D	3-57/64	7-25/32	
	Y321H3250	1.2795		32.50	ZD32005125	1-1/4	2-3/8	1-15/32	5D	6-1/2	10-21/64	TX3233P15
	Y321H3254	1.2811	1-9/32	32.54	ZD32008125				8D	10-25/64	14-11/64	
	Y321H3260	1.2835		32.60								
	Y321H3270	1.2874		32.70								
	Y321H3280	1.2913		32.80								
	Y321H3290	1.2953		32.90								
	Y321H3294	1.2969	1-19/64	32.94								
	Y321H3300	1.2992		33.00								
	Y321H3310	1.3031		33.10								
	Y321H3320	1.3071		33.20								
	Y321H3330	1.3110		33.30								
	Y321H3334	1.3126	1-5/16	33.34								
	Y321H3340	1.3150		33.40	ZD33003125				3D	4-1/64	7-15/16	
	Y321H3350	1.3189		33.50	ZD33005125	1-1/4	2-3/8	1-15/32	5D	6-11/16	10-37/64	TX3334P15
	Y321H3360	1.3228		33.60	ZD33008125				8D	10-45/64	14-17/32	
	Y321H3370	1.3268		33.70								
	Y321H3373	1.3280	1-21/64	33.73								
	Y321H3380	1.3307		33.80								
	Y321H3390	1.3346		33.90								

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

i- ONE DRILLS

RECOMMENDED CUTTING CONDITIONS

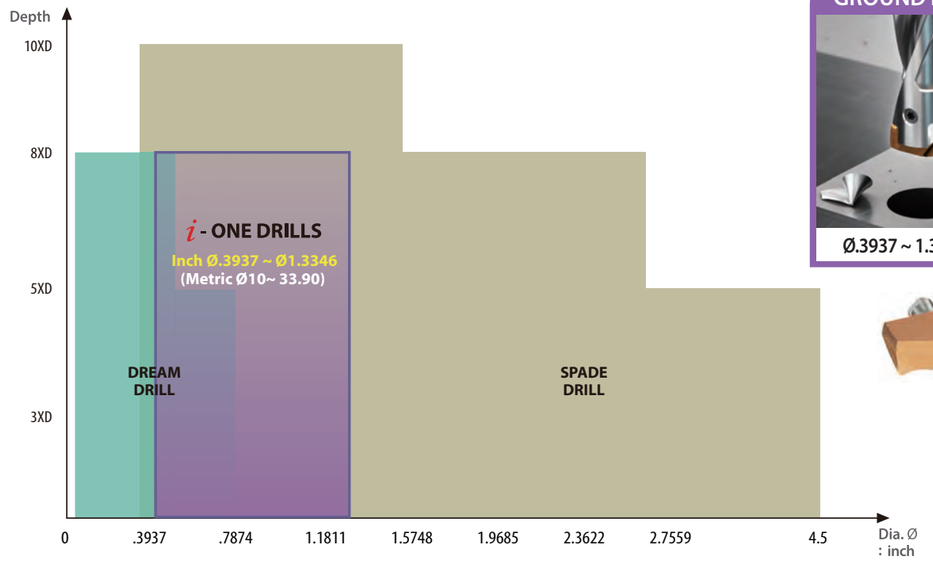
SFM = FT/MIN.
FEED(IPR) = INCH/REV.

ISO	VDI 3323	Material Description	Cutting Speed	Feed					
			SFM	Ø10.0~11.99	Ø12.09~14.99	Ø15.00~17.99	Ø18.00~21.99	Ø22.0~26.99	Ø27.0~33.99
P	1	Non-alloy steel	260~440	.005~.011	.007~0.013	.009~.015	.011~.017	.013~.020	.014~.020
	2		230~400	.005~.011	.007~0.013	.009~.015	.011~.017	.013~.020	.014~.020
	3		230~300	.005~.011	.007~0.013	.009~.015	.011~.017	.013~.020	.014~.020
	4		230~300	.005~.011	.007~0.013	.009~.015	.011~.017	.013~.020	.014~.020
	5		130~260	.005~.011	.007~0.013	.009~.015	.011~.017	.013~.020	.014~.020
	6	Low alloy steel	260~330	.005~.011	.007~0.013	.009~.014	.011~.015	.013~.018	.014~.019
	7		230~295	.005~.011	.007~0.013	.009~.014	.011~.015	.013~.018	.014~.019
	8		200~260	.005~.011	.007~0.013	.009~.014	.011~.015	.013~.018	.014~.019
	9		165~200	.005~.011	.007~0.013	.009~.014	.011~.015	.013~.018	.014~.019
	10	High alloyed steel, and tool steel	150~260	.005~.009	.006~0.011	.008~.013	.010~.015	.011~.015	.013~.016
	11		115~230	.005~.009	.006~0.011	.008~.013	.010~.015	.011~.015	.013~.016
K	15	Grey cast iron	330~460	.006~.014	.008~.016	.010~.018	.012~.022	.014~.024	.016~.024
	16		295~400	.006~.014	.008~.016	.010~.018	.012~.022	.014~.024	.016~.024
	17	Nodular cast iron	330~445	.006~.014	.008~.016	.010~.018	.012~.022	.014~.024	.016~.024
	18		295~400	.006~.014	.008~.016	.010~.018	.012~.022	.014~.024	.016~.024
	19	Malleable cast iron	330~445	.006~.014	.008~.016	.010~.018	.012~.022	.014~.024	.016~.024
	20		295~400	.006~.014	.008~.016	.010~.018	.012~.022	.014~.024	.016~.024

▶ The recommendations for speeds, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points.
Speed and feed reductions (20% reduction in speed and 10% reduction in feed) are recommended.
▶ Recommend you to reduce the feed rate to 85%, 70% when you use 5xD, 8xD holders.
▶ For use of 8xD holder, we recommend to use a pilot drill with equal to or larger than 140° point angle (0.5xD ~ 1.5xD).
The use of the centering pre-hole improves hole location, roundness and surface finish.

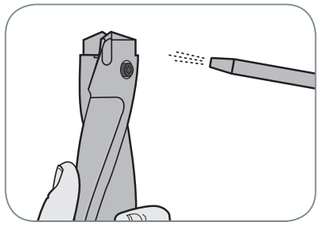
i- ONE DRILLS
RECOMMENDED CUTTING CONDITIONS

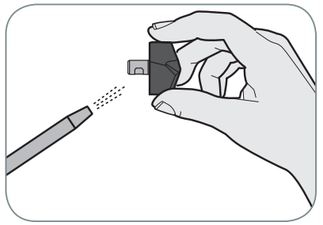
YG-1 EXCHANGEABLE RANGE OF DRILLS - POSITIONING MAP



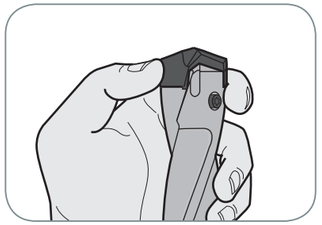
COMPARISON WITH SPLIT POINT DRILL - SPADE DRILL & DREAM DRILL

ASSEMBLY OF *i*-ONE DRILLS

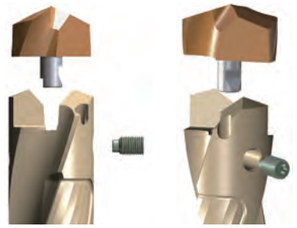


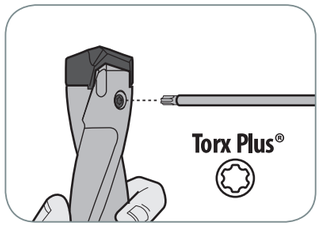


Make sure to clean the insert and insert seat.



Slide the drill insert into the slot of the holder and press down the insert to touch the bottom of the slot.





After confirming the insert is pressed down to the bottom of the slot, tighten the screw using anti-seize compound.

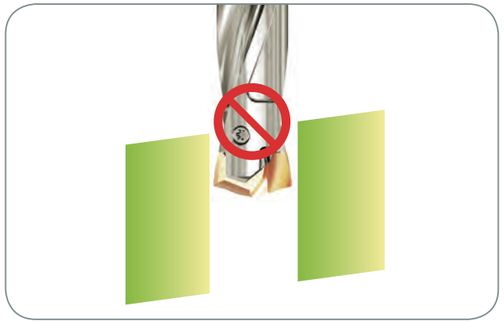
Wrench Type	Product No.	Series (Insert Size)	Torx Plus®	Torque (lbs-in)
	TWFP05	S10 ~ S12 Inch: Ø.3937~ Ø.5472 Metric: Ø10.00~ Ø13.90	5IP	5.5
	TWDP07	S14 ~ S16 Inch: Ø.5512~ Ø.7047 Metric: Ø14.00~ Ø17.90	7IP	9.0
	TWDP09	S18 ~ S22 Inch: Ø.7087~ Ø.9409 Metric: Ø18.00~ Ø23.90	9IP	13.5
	TWDP10	S24 ~ S28 Inch: Ø.9449 ~ Ø1.1772 Metric: Ø24.00 ~ Ø29.90	10IP	20.0
	TWDP15	S30 ~ S32 Inch: Ø1.1811~ Ø1.3346 Metric: Ø30.00~ Ø33.90	15IP	28.5

Use the Torx Plus® wrench

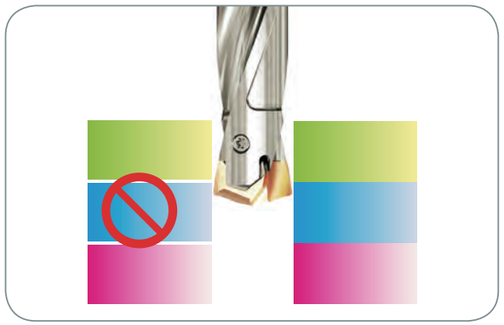
- ▶ Need to use appropriate wrenches and screws as indicated.
- ▶ It's important to tighten up the screw properly.

CAUTION-NOT RECOMMENDABLE APPLICATION

Intersecting cross hole is bigger than the drill insert's Margin Length.

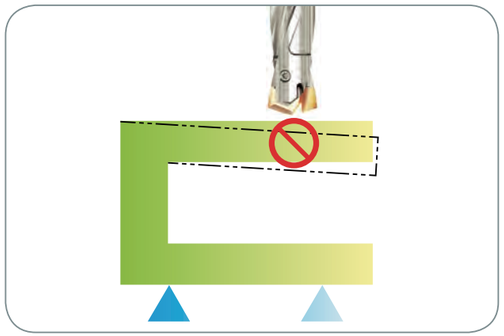


Material with slanting entrance and exit over 7 degree. (If drilling 7 degree or under slanting surface, reduce the feed about 30-50%)



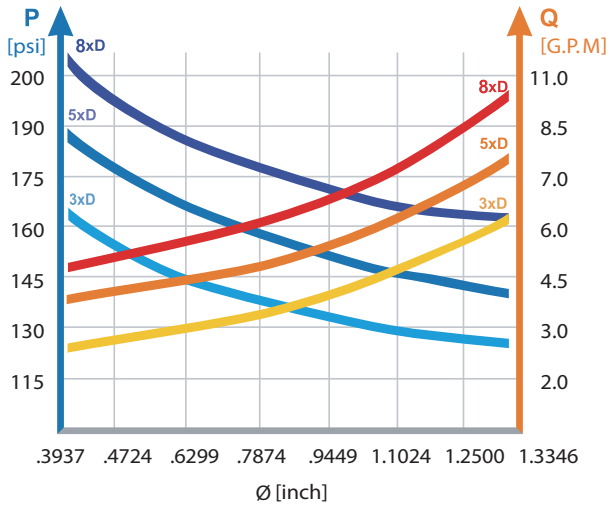
For drilling stacked plates, minimize the space between the plates.

The space stacked plates can cause insert breakage or poor chip control.



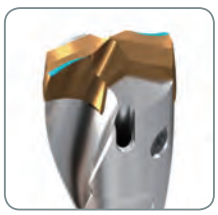
The material needs to be fixtured securely before drilling.

RECOMMENDED COOLANT PRESSURE AND FLOW RATE ON VERTICAL DRILLING

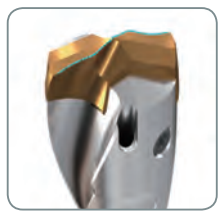


- Recommended emulsion mix is 6 - 8%.
- For Drilling in Stainless and High Strength steels, a mix of 10% is recommended.
- For horizontal drilling, 30% reduction on the coolant pressure and flow rate is possible.
- Dry drilling is possible for 1 - 2xD drilling. But not recommended.

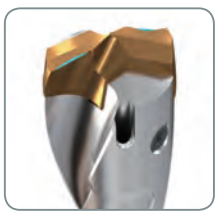
TROUBLE SHOOTING



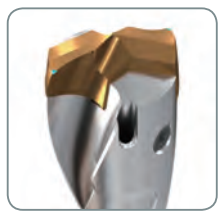
1) Heavy flank wear / Fast flank wear
- Reduce cutting speed
- Increase feed



2) Chipping on cutting edge
- Reduce feed
- Check the rigidity of spindle and chuck
- Rigid clamping of workpiece

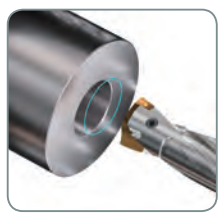


3) Build up on cutting edge
- Increase cutting speed
- Use a coated insert

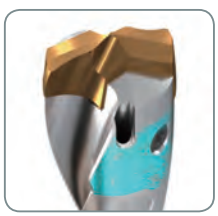


4) Chipping or break down on outer corner
- Reduce feed
- Rigid clamping of workpiece

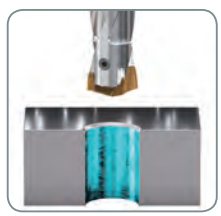
5) Wear of land margin
- Rigid clamping of workpiece
- Reduce cutting speed
- Increase coolant flow



6) Unsatisfactory positioning of the hole
- Rigid clamping of workpiece
- Reduce feed during entrance or exit



7) Scratching on holder
- Rigid clamping of workpiece
- Reduce feed
- Increase coolant flow



8) Unsatisfactory surface finish
- Rigid clamping of workpiece
- Increase coolant flow and pressure

YG

Leading Through Innovation

CARBIDE INSERTS
& HOLDERS

i-DREAM DRILLS

- For Steels and Stainless Steel Alloys

SELECTION GUIDE

YG HOLEMAKING TOOLS

CARBIDE INSERTS & HOLDERS

i-DREAM DRILLS

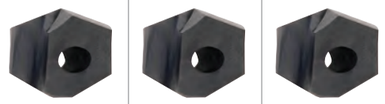
- For General Steels and Stainless Steels

Please visit globalyg1.com/mat for material search

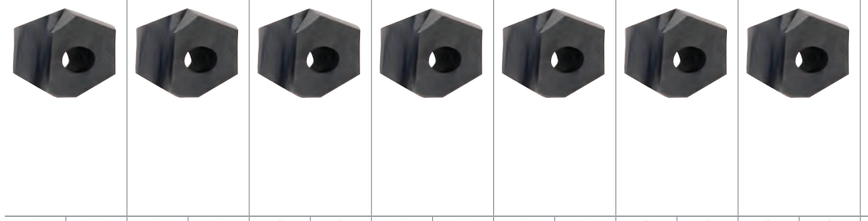
◎ : Excellent ○ : Good

Recommended cutting conditions : p.A56

	SERIES	Y03A	YI3A	Y03B	YI3B	Y03C	YI3C
	POINT ANGLE	A		B		C	
	TOOL MATERIAL	CARBIDE		CARBIDE		CARBIDE	
	SIZE MIN	12.00		14.00		16.00	
	SIZE MAX	35/64		5/8		45/64	
	PAGE	A50		A50~A52			
	SURFACE TREATMENT	TiAlN	TiCN	TiAlN	TiCN	TiAlN	TiCN



	SERIES	Y03D	YI3D	Y03E	YI3E	Y03F	YI3F	Y03G	YI3G	Y03H	YI3H	Y03I	YI3I	Y03J	YI3J	Z*03	Z*05	Z*07
	POINT ANGLE	D		E		F		G		H		I		J				
	TOOL MATERIAL	CARBIDE		CARBIDE		CARBIDE		CARBIDE		CARBIDE		CARBIDE		CARBIDE				
	SIZE MIN	18.00		20.00		22.00		24.00		26.00		28.00		30.00				
	SIZE MAX	25/32		55/64		15/16		1-1/64		1-3/32		1-11/64		1-1/4				
	PAGE	A50~A52		A53				A54				A55						
	SURFACE TREATMENT	TiAlN	TiCN	TiAlN	TiCN	TiAlN	TiCN	TiAlN	TiCN	TiAlN	TiCN	TiAlN	TiCN	TiAlN	TiCN	3XD	5XD	7XD



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

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

i-DREAM DRILLS

Y03A / YI3A SERIES
Y03B / YI3B SERIES

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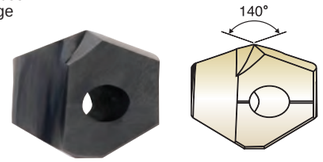

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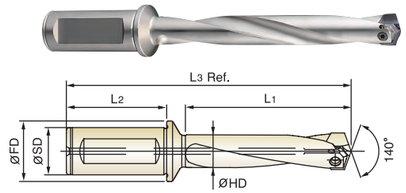

Cutting Conditions : p.A56~A57

Unit : Inch

Series Range	Insert EDP No.		Insert O.D.		Length	Holder EDP No.	Diameter	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth	Overall Length	Torx Screw No.
	TiAlN	TiCN	h7										
(mm)	General	INOX	dec.	inch / mm			HD	SD	L2	FD	L1	L3 Ref.	
A Ø12.00 to Ø13.99	Y03A01	YI3A01	.4724	12.00	3D	ZA0301	.4528	3/4	2	1	1-27/64	4-29/64	
	Y03A02	YI3A02	.4764	12.10	5D	ZA0501					2-23/64	5-13/32	
	Y03A03	YI3A03	.4803	12.20	7D	ZA0701					3-5/16	6-11/32	
	Y03A04	YI3A04	.4844	31/64									
	Y03A05	YI3A05	.4921	12.50									TA1213
	Y03A06	YI3A06	.4961	12.60	3D	ZA0302	.4724	3/4	2	1	1-15/32	4-1/2	
	Y03A07	YI3A07	.5000	1/2	5D	ZA0502					2-29/64	5-31/64	
	Y03A08	YI3A08	.5039	12.80	7D	ZA0702					3-7/16	6-15/32	
	Y03A09	YI3A09	.5079	12.90									
	Y03A10	YI3A10	.5118	13.00	3D	ZA0303	.4921	3/4	2	1	1-17/32	4-37/64	
	Y03A11	YI3A11	.5156	33/64	5D	ZA0503					2-9/16	5-19/32	
	Y03A12	YI3A12	.5197	13.20	7D	ZA0703					3-37/64	6-5/8	
	Y03A13	YI3A13	.5312	17/32									
	Y03A14	YI3A14	.5315	13.50									TA1314
	Y03A15	YI3A15	.5354	13.60	3D	ZA0304	.5118	3/4	2	1	1-19/32	4-39/64	
	Y03A16	YI3A16	.5394	13.70	5D	ZA0504					2-21/32	5-43/64	
	Y03A17	YI3A17	.5433	13.80	7D	ZA0704					3-23/32	6-47/64	
	Y03A18	YI3A18	.5469	35/64									
B Ø14.00 to Ø15.99 4mm Thick	Y03B01	YI3B01	.5512	14.00	3D	ZB0301	.5315	3/4	2	1	1-21/32	4-23/32	
	Y03B02	YI3B02	.5551	14.10	5D	ZB0501					2-3/4	5-13/16	
	Y03B03	YI3B03	.5591	14.20	7D	ZB0701					3-55/64	6-59/64	TB1415
	Y03B04	YI3B04	.5625	9/16									
	Y03B05	YI3B05	.5630	14.30									
	Y03B06	YI3B06	.5669	14.40									

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Y03A / YI3A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				○	○	○	○	○	
Y03B / YI3B	○	○	○	○		○	○			○		◎	◎	◎						

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	400 Rm	1050 Rm	550	630	400	550
Y03A / YI3A																					
Y03B / YI3B	○	○	○	○	○	○	○	○													

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
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TECHNICAL DATA

i-DREAM DRILLS

Y03B / YI3B SERIES
Y03C / YI3C SERIES

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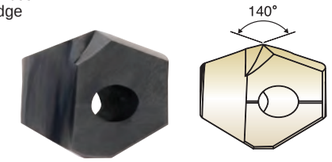

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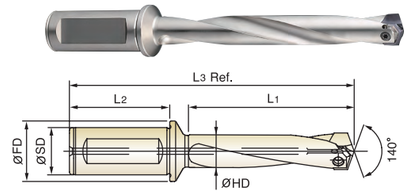

Cutting Conditions : p.A56~A57

Unit : Inch

Series Range	Insert EDP No.		Insert O.D.		Length	Holder EDP No.	Diameter	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth	Overall Length	Torx Screw No.
	TiAlN	TiCN	h7										
(mm)	General	INOX	dec.	inch / mm			HD	SD	L2	FD	L1	L3 Ref.	
B Ø14.00 to Ø15.99 4mm Thick	Y03B07	YI3B07	.5709	14.50	3D	ZB0302	.5512	3/4	2	1	1-23/32	4-51/64	
	Y03B08	YI3B08	.5748	14.60	5D	ZB0502					2-55/64	5-15/16	TB1415
	Y03B09	YI3B09	.5781	37/64	7D	ZB0702					4	7-5/64	
	Y03B10	YI3B10	.5827	14.80									
	Y03B11	YI3B11	.5906	15.00									
	Y03B12	YI3B12	.5938	19/32	3D	ZB0303	.5709	3/4	2	1	1-49/64	4-7/8	
	Y03B13	YI3B13	.5945	15.10	5D	ZB0503					2-61/64	6-3/64	
	Y03B14	YI3B14	.5984	15.20	7D	ZB0703					4-9/64	7-15/64	
	Y03B15	YI3B15	.6024	15.30									TB1516
	Y03B16	YI3B16	.6094	39/64									
	Y03B17	YI3B17	.6102	15.50	3D	ZB0304	.5906	3/4	2	1	1-53/64	4-29/32	
	Y03B18	YI3B18	.6142	15.60	5D	ZB0504					3-3/64	6-1/8	
	Y03B19	YI3B19	.6181	15.70	7D	ZB0704					4-17/64	7-11/32	
	Y03B20	YI3B20	.6220	15.80									
	Y03B21	YI3B21	.6250	5/8									
C Ø16.00 to Ø17.99 4.5mm Thick	Y03C01	YI3C01	.6299	16.00	3D	ZC0301	.6102	3/4	2	1	1-57/64	4-61/64	
	Y03C02	YI3C02	.6335	16.09	5D	ZC0501					3-5/32	6-7/32	
	Y03C03	YI3C03	.6378	16.20	7D	ZC0701					4-13/32	7-15/32	TC1617
	Y03C04	YI3C04	.6406	41/64									
	Y03C05	YI3C05	.6417	16.30									
	Y03C06	YI3C06	.6496	16.50	3D	ZC0302	.6299	3/4	2	1	1-61/64	5-1/32	
	Y03C07	YI3C07	.6562	21/32	5D	ZC0502					3-1/4	6-21/64	
	Y03C08	YI3C08	.6614	16.80	7D	ZC0702					4-35/64	7-5/8	

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Y03B / YI3B	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				○	○	○	○	○	
Y03C / YI3C	○	○	○	○		○	○			○		◎	◎	◎						

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	400 Rm	1050 Rm	550	630	400	550
Y03B / YI3B																					
Y03C / YI3C	○	○	○	○	○	○	○	○													

i-DREAM DRILLS

Y03C / YI3C SERIES
Y03D / YI3D SERIES

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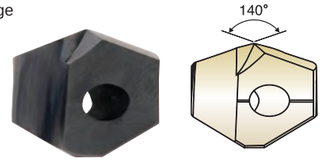

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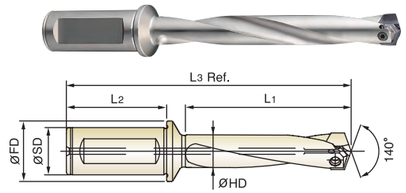

Cutting Conditions : p.A56~A57

Unit : Inch

Series Range	Insert EDP No.		Insert O.D.		Length	Holder EDP No.	Diameter	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth	Overall Length	Torx Screw No.
	TiAlN	TiCN	h7										
(mm)	General	INOX	dec.	inch / mm			HD	SD	L2	FD	L1	L3 Ref.	
C Ø16.00 to Ø17.99	Y03C09	YI3C09	.6693	17.00	3D	ZC0303	.6496	3/4	2	1	2-1/64	5-5/64	TC1718
	Y03C10	YI3C10	.6919	43/64	5D	ZC0503					3-11/32	6-13/32	
	Y03C11	YI3C11	.6875	11/16	7D	ZC0703					4-11/16	7-3/4	
	Y03C12	YI3C12	.6890	17.50	3D	ZC0304	.6693	3/4	2	1	2-1/16	5-5/32	
	Y03C13	YI3C13	.7008	17.80	5D	ZC0504					3-7/16	6-17/32	
	Y03C14	YI3C14	.7031	45/64	7D	ZC0704					4-53/64	7-29/32	
D Ø18.00 to Ø19.99 5mm Thick	Y03D01	YI3D01	.7087	18.00	3D	ZD0301	.6890	1	2-3/16	1-1/4	2-1/8	5-1/2	TD1819
	Y03D02	YI3D02	.7188	23/32	5D	ZD0501					3-35/64	6-59/64	
					7D	ZD0701					4-61/64	8-11/32	
	Y03D03	YI3D03	.7283	18.50	3D	ZD0302	.7087	1	2-3/16	1-1/4	2-3/16	5-35/64	
	Y03D04	YI3D04	.7344	47/64	5D	ZD0502					3-41/64	7	
	Y03D05	YI3D05	.7402	18.80	7D	ZD0702					5-3/32	8-29/64	
	Y03D06	YI3D06	.7480	19.00	3D	ZD0303	.7283	1	2-3/16	1-1/4	2-1/4	5-43/64	TD1920
	Y03D07	YI3D07	.7500	3/4	5D	ZD0503					3-47/64	7-5/32	
	Y03D08	YI3D08	.7587	19.27	7D	ZD0703					5-15/64	8-21/32	
	Y03D09	YI3D09	.7656	49/64									
	Y03D10	YI3D10	.7677	19.50	3D	ZD0304	.7480	1	2-3/16	1-1/4	2-19/64	5-45/64	
	Y03D11	YI3D11	.7795	19.80	5D	ZD0504					3-27/32	7-15/64	
	Y03D12	YI3D12	.7812	25/32	7D	ZD0704					5-3/8	8-25/32	

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Y03C / YI3C	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				○	○	○	○	○	
Y03D / YI3D	○	○	○	○		○	○			○		◎	◎	◎						

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	400 Rm	1050 Rm	550	630	400	550
Y03C / YI3C																					
Y03D / YI3D	○	○	○	○	○	○	○	○													

i-DREAM DRILLS

Y03E / YI3E SERIES
Y03F / YI3F SERIES

i-DREAM DRILL INSERTS & HOLDERS

- Features of *i-Dream Drill* Inserts
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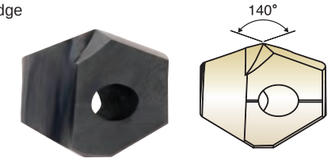
i-Dream Drill *General*
- For most steel materials

i-Dream Drill *INOX*
- For tough, ductile materials and stainless steels
- Light, sharp cutting edge
- Minimize cutting forces
- Reduce built-up edge



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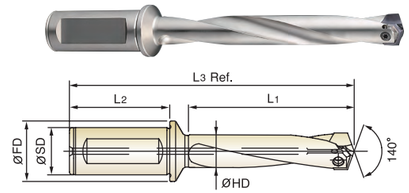
- Innovative surface treatment that improves wear resistance and reduces corrosion.
- High Performance flute design allowing maximum chip evacuation and minimum interference.



Cutting Conditions : p.A56~A57

Unit : Inch

Series Range	Insert EDP No.		Insert O.D.		Length	Holder EDP No.	Diameter	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth	Overall Length	Torx Screw No.
	TiAlN	TiCN	h7										
(mm)	General	INOX	dec.	inch / mm			HD	SD	L2	FD	L1	L3 Ref.	
E Ø20.00 to Ø21.99	Y03E01	YI3E01	.7874	20.00	3D	ZE0301	.7638	1	2-3/16	1-1/4	2-23/64	5-23/32	TE2021
	Y03E02	YI3E02	.7969	51/64	5D	ZE0501					3-15/16	7-9/32	
					7D	ZE0701					5-33/64	8-55/64	
	Y03E03	YI3E03	.8071	20.50	3D	ZE0302	.7835	1	2-3/16	1-1/4	2-27/64	5-51/64	
	Y03E04	YI3E04	.8125	13/16	5D	ZE0502					4-1/32	7-13/32	
	Y03E05	YI3E05	.8150	20.70	7D	ZE0702					5-21/32	9-1/64	
	Y03E06	YI3E06	.8268	21.00	3D	ZE0303	.8031	1	2-3/16	1-1/4	2-31/64	5-7/8	TE2122
	Y03E07	YI3E07	.8281	53/64	5D	ZE0503					4-9/64	7-33/64	
	Y03E08	YI3E08	.8438	27/32	7D	ZE0703					5-25/32	9-11/64	
	Y03E09	YI3E09	.8465	21.50	3D	ZE0304	.8228	1	2-3/16	1-1/4	2-35/64	5-29/32	
	Y03E10	YI3E10	.8543	21.70	5D	ZE0504					4-15/64	7-19/32	
	Y03E11	YI3E11	.8594	55/64	7D	ZE0704					5-59/64	9-19/64	
F Ø22.00 to Ø23.99 6mm Thick	Y03F01	YI3F01	.8661	22.00	3D	ZF0301	.8425	1	2-3/16	1-1/4	2-19/32	5-63/64	TE2223
	Y03F02	YI3F02	.8750	7/8	5D	ZF0501					4-21/64	7-23/32	
					7D	ZF0701					6-1/16	9-29/64	
	Y03F03	YI3F03	.8858	22.50	3D	ZF0302	.8622	1	2-3/16	1-1/4	2-21/32	6-1/32	
	Y03F04	YI3F04	.8906	57/64	5D	ZF0502					4-27/64	7-51/64	
	Y03F05	YI3F05	.8937	22.70	7D	ZF0702					6-13/64	9-9/16	
	Y03F06	YI3F06	.9055	23.00	3D	ZF0303	.8819	1	2-3/16	1-1/4	2-23/32	6-7/64	TE2324
	Y03F07	YI3F07	.9062	29/32	5D	ZF0503					4-17/32	7-29/32	
	Y03F08	YI3F08	.9219	59/64	7D	ZF0703					6-11/32	9-23/32	
	Y03F09	YI3F09	.9252	23.50	3D	ZF0304	.9016	1	2-3/16	1-1/4	2-25/32	6-3/16	
	Y03F10	YI3F10	.9331	23.70	5D	ZF0504					4-5/8	8-1/32	
	Y03F11	YI3F11	.9375	15/16	7D	ZF0704					6-15/32	9-7/8	

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Y03E / YI3E	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				○	○	○	○	○	
Y03F / YI3F	○	○	○	○		○	○			○		◎	◎	◎						

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	400 Rm	1050 Rm	550	630	400	550
Y03E / YI3E																					
Y03F / YI3F	○	○	○	○	○	○	○	○													

i-DREAM DRILLS

Y03G / YI3G SERIES
Y03H / YI3H SERIES

i-DREAM DRILL INSERTS & HOLDERS

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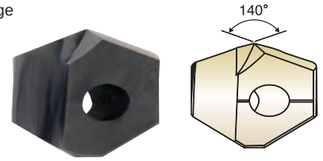
- Minimize cutting forces
- Reduce built-up edge



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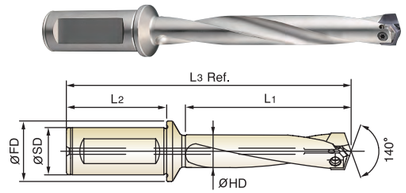

Cutting Conditions : p.A56~A57

Unit : Inch

Series Range	Insert EDP No.		Insert O.D.		Length	Holder EDP No.	Diameter	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth	Overall Length	Torx Screw No.
	TiAlN	TiCN	h7				HD	SD	L2	FD	L1	L3 Ref.	
(mm)	General	INOX	dec.	inch / mm									
G Ø24.00 to Ø25.99	Y03G01	YI3G01	.9449	24.00	3D	ZG0301	.9213	1-1/4	2-3/8	1-15/32	2-53/64	6-1/2	TG2425
					5D	ZG0501					4-23/32	8-25/64	
					7D	ZG0701					6-39/64	10-9/32	
	Y03G02	YI3G02	.9531	61/64	3D	ZG0302	.9409	1-1/4	2-3/8	1-15/32	2-57/64	6-17/32	
					5D	ZG0502					4-53/64	8-15/32	
					7D	ZG0702					6-3/4	10-25/64	
	Y03G03	YI3G03	.9646	24.50	3D	ZG0303	.9606	1-1/4	2-3/8	1-15/32	2-61/64	6-39/64	TG2526
					5D	ZG0503					4-59/64	8-37/64	
					7D	ZG0703					6-57/64	10-35/64	
	Y03G04	YI3G04	.9688	31/32	3D	ZG0304	.9803	1-1/4	2-3/8	1-15/32	3-1/64	6-47/64	
					5D	ZG0504					5-1/64	8-47/64	
					7D	ZG0704					7-1/32	10-3/4	
	Y03G05	YI3G05	.9724	24.70	3D	ZH0301	1.0000	1-1/4	2-3/8	1-15/32	3-5/64	6-3/4	TH2627
					5D	ZH0501					5-1/8	8-51/64	
					7D	ZH0701					7-11/64	10-27/32	
	Y03G06	YI3G06	.9843	63/64	3D	ZH0302	1.0197	1-1/4	2-3/8	1-15/32	3-1/8	6-51/64	
					5D	ZH0502					5-7/32	8-7/8	
					7D	ZH0702					7-19/64	10-31/32	
	Y03G07	YI3G07	1.0000	1	3D	ZH0303	1.0394	1-1/4	2-3/8	1-15/32	3-3/16	6-7/8	TH2728
					5D	ZH0503					5-5/16	9	
					7D	ZH0703					7-7/16	11-1/8	
	Y03G08	YI3G08	1.0039	25.50	3D	ZH0304	1.0591	1-1/4	2-3/8	1-15/32	3-1/4	6-29/32	
					5D	ZH0504					5-13/32	9-5/64	
					7D	ZH0704					7-37/64	11-15/64	
	Y03G09	YI3G09	1.0106	25.67									
	Y03G10	YI3G10	1.0118	25.70									
	Y03G11	YI3G11	1.0156	1-1/64									
H Ø26.00 to Ø27.99 7.1mm Thick	Y03H01	YI3H01	1.0236	26.00									
	Y03H02	YI3H02	1.0312	1-1/32									
	Y03H03	YI3H03	1.0433	26.50									
	Y03H04	YI3H04	1.0469	1-3/64									
	Y03H05	YI3H05	1.0625	1-1/16									
	Y03H06	YI3H06	1.0630	27.00									
	Y03H07	YI3H07	1.0827	27.50									
	Y03H08	YI3H08	1.0938	1-3/32									

◎ : 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	
Y03G / YI3G	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				○	○	○	○	○		
Y03H / YI3H	○	○	○	○		○	○			○		◎	◎	◎							

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	400 Rm	1050 Rm	550	630	400	550
Y03G / YI3G																					
Y03H / YI3H	○	○	○	○	○	○	○	○													

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

i-DREAM DRILLS

Y03I / YI3I SERIES
Y03J / YI3J SERIES

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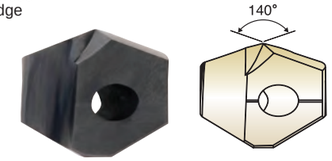

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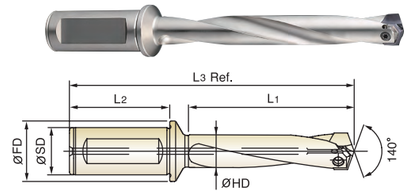


Cutting Conditions : p.A56~A57

Unit : Inch

Series Range	Insert EDP No.		Insert O.D.		Length	Holder EDP No.	Diameter	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth	Overall Length	Torx Screw No.
	TiAlN	TiCN	h7				HD	SD	L2	FD	L1	L3 Ref.	
(mm)	General	INOX	dec.	inch / mm									
I Ø28.00 to Ø29.99	Y03I01	YI3I01	1.1024	28.00	3D	ZI0301	1.0748	1-1/4	2-3/8	1-15/32	3-5/16	7	TI2829
					5D	ZI0501					5-33/64	9-15/64	
					7D	ZI0701					7-23/32	11-7/16	
	Y03I02	YI3I02	1.1094	1-7/64									
	Y03I03	YI3I03	1.1220	28.50	3D	ZI0302	1.0945	1-1/4	2-3/8	1-15/32	3-23/64	7-1/16	
					5D	ZI0502					5-39/64	9-5/16	
					7D	ZI0702					7-55/64	11-9/16	
	Y03I04	YI3I04	1.1250	1-1/8									
	Y03I05	YI3I05	1.1417	29.00	3D	ZI0303	1.1142	1-1/4	2-3/8	1-15/32	3-27/64	7-3/16	TI2930
					5D	ZI0503					5-45/64	9-15/32	
					7D	ZI0703					7-63/64	11-3/4	
	Y03I06	YI3I06	1.1562	1-5/32									
	Y03I07	YI3I07	1.1614	29.50	3D	ZI0304	1.1339	1-1/4	2-3/8	1-15/32	3-31/64	7-7/32	
					5D	ZI0504					5-13/16	9-35/64	
					7D	ZI0704					8-1/8	11-7/8	
	Y03I08	YI3I08	1.1719	1-11/64									
J Ø30.00 to Ø31.99 8mm Thick	Y03J01	YI3J01	1.1811	30.00	3D	ZJ0301	1.1535	1-1/4	2-3/8	1-15/32	3-35/64	7-21/64	TJ2831
					5D	ZJ0501					5-29/32	9-45/64	
					7D	ZJ0701					8-17/64	12-1/16	
	Y03J02	YI3J02	1.1875	1-3/16									
	Y03J03	YI3J03	1.2008	30.50	3D	ZJ0302	1.1732	1-1/4	2-3/8	1-15/32	3-39/64	7-3/8	
	Y03J04	YI3J04	1.2031	1-13/64	5D	ZJ0502					6	9-25/32	
	Y03J05	YI3J05	1.2188	1-7/32	7D	ZJ0702					8-13/32	12-11/64	
	Y03J06	YI3J06	1.2205	31.00	3D	ZJ0303	1.1929	1-1/4	2-3/8	1-15/32	3-21/32	7-13/32	TJ3132
					5D	ZJ0503					6-7/64	9-55/64	
					7D	ZJ0703					8-35/64	12-19/64	
	Y03J07	YI3J07	1.2402	31.50	3D	ZJ0304	1.2126	1-1/4	2-3/8	1-15/32	3-23/32	7-17/32	
					5D	ZJ0504					6-13/64	10-1/64	
					7D	ZJ0704					8-11/16	12-31/64	
	Y03J08	YI3J08	1.2500	1-1/4									

◎ : 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	
Y03I / YI3I	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				○	○	○	○	○		
Y03J / YI3J	○	○	○	○		○	○			○		◎	◎	◎							

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	400 Rm	1050 Rm	550	630	400	550
Y03I / YI3I																					
Y03J / YI3J	○	○	○	○	○	○	○	○													

i-DREAM DRILLS RECOMMENDED CUTTING CONDITIONS

Y03A, Y03B, Y03C, Y03D, Y03E, Y03F, Y03G, Y03H, Y03I, Y03J SERIES

i-DREAM DRILLS - GENERAL

RPM = rev./min.
FEED = inch/rev.

ISO	VDI 3323	Material Description	Cutting Speed	Feed				
			SFM	Ø12.0-14.9	Ø15.0-17.9	Ø18.0-21.9	Ø22.0-26.9	Ø27.0-31.9
P	1	Non-alloy steel	**312~394**	0.006~0.011	0.008~0.014	0.011~0.016	0.013~0.020	0.015~0.022
	2		**262~344**	0.006~0.009	0.008~0.014	0.011~0.016	0.013~0.020	0.015~0.022
	3		**197~262**	0.005~0.008	0.007~0.011	0.009~0.013	0.012~0.018	0.013~0.019
	4		**180~230**	0.004~0.006	0.006~0.010	0.008~0.012	0.010~0.015	0.011~0.017
	5		**180~230**	0.004~0.006	0.006~0.010	0.008~0.012	0.010~0.015	0.011~0.017
	6	Low alloy steel	**230~295**	0.005~0.008	0.007~0.011	0.009~0.013	0.012~0.018	0.013~0.020
	7		**197~262**	0.005~0.008	0.006~0.010	0.009~0.013	0.012~0.018	0.013~0.020
	8		**180~230**	0.004~0.006	0.005~0.008	0.008~0.012	0.010~0.015	0.011~0.017
	9		**148~197**	0.003~0.005	0.005~0.008	0.008~0.012	0.010~0.015	0.011~0.017
	10	High alloyed steel, and tool steel	**164~213**	0.004~0.006	0.005~0.008	0.007~0.010	0.008~0.012	0.009~0.014
	11		**131~180**	0.004~0.006	0.004~0.007	0.008~0.012	0.008~0.012	0.009~0.014
K	15	Grey cast iron	**328~410**	0.006~0.010	0.008~0.015	0.011~0.017	0.014~0.020	0.016~0.022
	16		**246~312**	0.004~0.008	0.006~0.011	0.008~0.012	0.010~0.014	0.011~0.016
	17	Nodular cast iron	**312~394**	0.005~0.009	0.007~0.012	0.008~0.013	0.011~0.016	0.013~0.017
	18		**246~312**	0.004~0.008	0.006~0.010	0.007~0.011	0.010~0.014	0.011~0.016
	19	Malleable cast iron	**328~410**	0.005~0.009	0.007~0.012	0.008~0.013	0.011~0.016	0.013~0.017
	20		**246~312**	0.004~0.007	0.006~0.010	0.007~0.011	0.010~0.014	0.011~0.016

▶ The recommendations for speeds, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points.
Speed and feed reductions (20% reduction in speed and 10% reduction in feed) are recommended.
▶ Recommend you to reduce the feed rate to 85%, 70% when you use 5xD, 7xD holders.
▶ For use of 7xD holder, we recommend to drill a centering pre-hole with equal to or larger than 140º point angle to min. 2/3 cutting diameter.
The use of the centering pre-hole improves hole location, roundness and surface finish.

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

i-DREAM DRILLS RECOMMENDED CUTTING CONDITIONS

YI3A, YI3B, YI3C, YI3D, YI3E, YI3F, YI3G, YI3H, YI3I, YI3J SERIES

i-DREAM DRILLS - INOX

RPM = rev./min.
FEED = inch/rev.

ISO	VDI 3323	Material Description	Cutting Speed	Feed				
			SFM	Ø12.0-14.9	Ø15.0-17.9	Ø18.0-21.9	Ø22.0-26.9	Ø27.0-31.9
P	1	Non-alloy steel	**312~394**	0.006~0.011	0.008~0.014	0.011~0.016	0.013~0.020	0.015~0.022
	2		**262~344**	0.006~0.009	0.008~0.014	0.011~0.016	0.013~0.020	0.015~0.022
	3		**197~262**	0.005~0.008	0.007~0.011	0.009~0.013	0.012~0.018	0.013~0.019
	4		**180~230**	0.004~0.006	0.006~0.010	0.008~0.012	0.010~0.015	0.011~0.017
	6	Low alloy steel	**230~295**	0.005~0.008	0.007~0.011	0.009~0.013	0.012~0.018	0.013~0.020
	7		**197~262**	0.005~0.008	0.006~0.010	0.009~0.013	0.012~0.018	0.013~0.020
	10	High alloyed steel, and tool steel	**164~213**	0.004~0.006	0.005~0.008	0.007~0.010	0.008~0.012	0.009~0.014
M	12	Stainless steel	**98~148**	0.003~0.006	0.004~0.006	0.004~0.006	0.005~0.008	0.006~0.009
	13		**98~148**	0.003~0.006	0.004~0.006	0.004~0.006	0.005~0.008	0.006~0.009
	14		**148~197**	0.004~0.006	0.005~0.007	0.006~0.008	0.006~0.010	0.007~0.011
N	21	Aluminum-wrought alloy	**820~1082**	0.012~0.016	0.014~0.018	0.016~0.020	0.018~0.022	0.020~0.024
	22		**656~820**	0.012~0.016	0.014~0.018	0.016~0.020	0.018~0.022	0.020~0.024
	23	Aluminum-cast, alloyed	**656~820**	0.010~0.014	0.012~0.016	0.014~0.018	0.016~0.020	0.018~0.022
	24		**492~722**	0.010~0.014	0.012~0.016	0.014~0.018	0.016~0.020	0.018~0.022
	25		**328~656**	0.008~0.012	0.010~0.014	0.012~0.016	0.014~0.018	0.016~0.020
	26	Copper and Copper Alloys (Bronze / Brass)	**377~476**	0.006~0.011	0.009~0.014	0.011~0.014	0.015~0.018	0.016~0.019
	27		**476~607**	0.007~0.011	0.009~0.015	0.012~0.015	0.015~0.018	0.017~0.019
	28		**312~394**	0.002~0.004	0.004~0.005	0.004~0.005	0.006~0.007	0.007~0.009

▶ The recommendations for speeds, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points.
Speed and feed reductions (20% reduction in speed and 10% reduction in feed) are recommended.
▶ Recommend you to reduce the feed rate to 85%, 70% when you use 5xD, 7xD holders.
▶ For use of 7xD holder, we recommend to drill a centering pre-hole with equal to or larger than 140º point angle to min. 2/3 cutting diameter.
The use of the centering pre-hole improves hole location, roundness and surface finish.

Assembly of *i*-Dream Drills

Make sure to clean the insert and insert seat.

Slide the drill insert into the slot of the holder and press down the insert to touch the bottom of the slot.

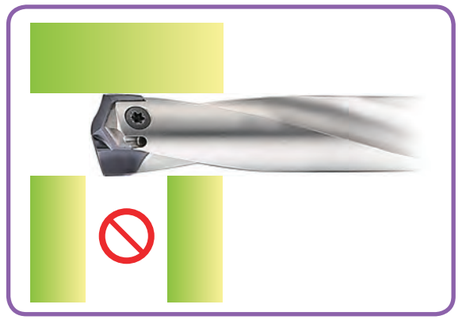
After confirming the insert is pressed down to the bottom of the slot, tighten the screw using anti-seize compound.

WRENCH TYPE	PRODUCT No.	T-HANDLE No.	SERIES
WING TYPE 	TWWT08	—	A
			B
			C
TORX BIT TYPE 	TWBT15	TWH600 	D
	TWBT20		E, F, G
	TWBT25		H, I, J

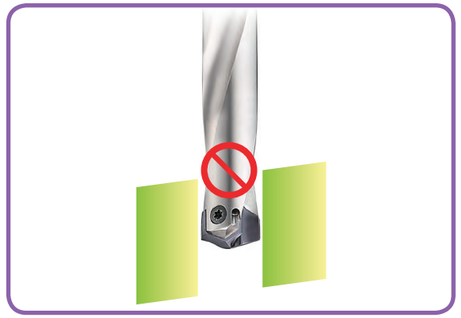
Use the wing type or T-type wrench.

- ▶ Need to use appropriate wrenches and screws as indicated.
- ▶ It's important to tighten up the screw properly.

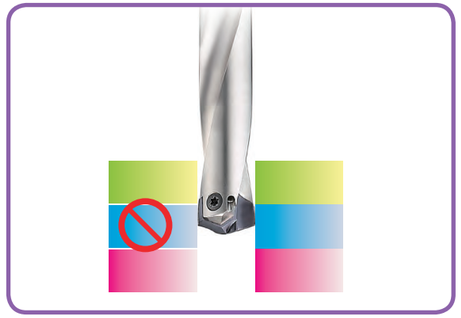
CAUTION-NOT RECOMMENDABLE APPLICATION



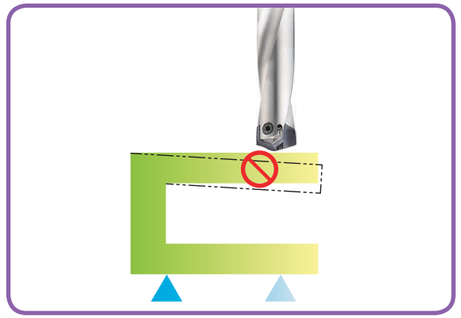
Intersecting cross hole is bigger than the drill insert's Margin Length.



Material with slanting entrance and exit over 7 degree. (If drilling 7 degree or under slanting surface, reduce the feed about 30-50 %)

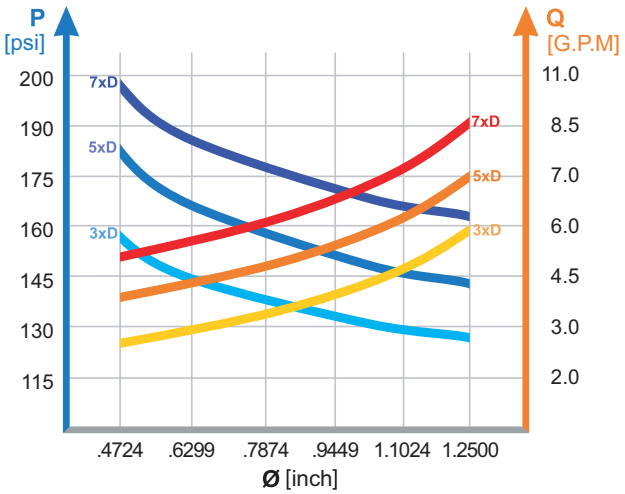


For drilling stacked plates, minimize the space between the plates.
The space stacked plates can cause insert breakage or poor chip control.



The material needs to be fixtured securely before drilling.

RECOMMENDED COOLANT PRESSURE AND FLOW RATE ON VERTICAL DRILLING



- Recommended emulsion mix is 6% - 8%.
- For Drilling in Stainless and High Strength steels, a mix of 10% is recommended.
- For horizontal drilling, 30% reduction on the coolant pressure and flow rate is possible.
- Dry drilling is possible for 1-2xD drilling. But not recommended.

TROUBLE SHOOTING

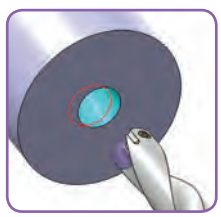
1) Heavy flank wear / Fast flank wear
- Reduce cutting speed
- Increase feed

2) Chipping on cutting edge
- Reduce feed
- Check the rigidity of spindle and chuck
- Rigid clamping of workpiece

3) Build up on cutting edge
- Increase cutting speed
- Use a coated insert

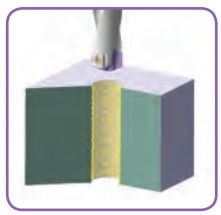
4) Chipping or break down on outer corner
- Reduce feed
- Rigid clamping of workpiece

5) Wear of land margin
- Rigid clamping of workpiece
- Reduce cutting speed
- Increase coolant flow



6) Unsatisfactory positioning of the hole
- Rigid clamping of workpiece
- Reduce feed during entrance or exit

7) Scratching on holder
- Rigid clamping of workpiece
- Reduce feed
- Increase coolant flow



8) Unsatisfactory surface finish
- Rigid clamping of workpiece
- Increase coolant flow and pressure

Leading Through Innovation

SOLID CARBIDE

DREAM DRILLS - PRO

- For General Purpose (HRc30 to HRc50)
- Extremely high hardness and heat resistance due to YG-1 special Z-Coating technology

SELECTION GUIDE

YG HOLEMAKING TOOLS

SERIES	DGN506	DGN508
DRILLING DEPTH	3XD	5XD
TOOL MATERIAL	SOLID CARBIDE	
LENGTH	SHORT	LONG
SIZE MIN	D3.0	D1.0
SIZE MAX	D20.0	D20.0
PAGE	A63	A67
SURFACE TREATMENT	Z-Coating	

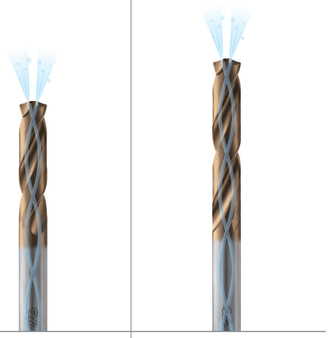
SOLID CARBIDE
DREAM DRILLS PRO

- For General Purpose (HRc30 to HRc50)
- Extremely high hardness and heat resistance due to YG-1 special Z-Coating technology

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A71



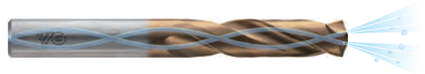
ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	DGN506	DGN508
P	1	Non-alloy steel	About 0.15% C	Annealed	125			
	2		About 0.45% C	Annealed	190	13	◎	◎
	3		About 0.45% C	Quenched & Tempered	250	25	◎	◎
	4		About 0.75% C	Annealed	270	28	◎	◎
	5		About 0.75% C	Quenched & 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, Graphite, CFRP, GFRP, etc.	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		Hardened	550	55		
	39			Hardened	630	60	○	
	40	Chilled Cast Iron		Cast	400	42		
	41	Hardened Cast Iron		Hardened	550	55		

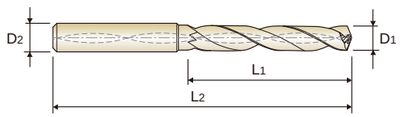
YG DREAM DRILLS -PRO

DGN506 SERIES

CARBIDE, DREAM DRILLS PRO with COOLANT HOLES *SHORT*

- ▶ Drilling for Carbon Steels, Alloy Steels (HB225-325), Pre-hardened Steels (HRc30~50), Cast Iron
- ▶ Wave shape cutting edge to improve chip formation for low cutting force
- ▶ Helical thinning for low thrust, stable torque and good chip breakage
- ▶ Extremely high hardness and heat resistance due to YG-1 special Z-Coating technology





DIN 6537 | CARBIDE | 30° | h6 | m7 | 140° | 20 bar | Z Coating

p.A71~A72

3 × D

Unit : mm

EDP No.	Drill Diameter Metric	Fractional	Decimal	Shank Diameter	Flute Length	Overall Length
Z-Coating	D1			D2	L1	L2
DGN506030	3.0		0.1181	6	20	62
DGN506031	3.1		0.1220	6	20	62
DGN506008F	3.175	1/8	0.1250	6	20	62
DGN506032	3.2		0.1260	6	20	62
DGN506033	3.3		0.1299	6	20	62
DGN5060336	3.36		0.1323	6	20	62
DGN506034	3.4		0.1339	6	20	62
DGN5060344	3.44		0.1356	6	20	62
DGN506035	3.5		0.1378	6	20	62
DGN5060352	3.52		0.1387	6	20	62
DGN5060357	3.57		0.1405	6	20	62
DGN506036	3.6		0.1417	6	20	62
DGN506037	3.7		0.1457	6	20	62
DGN5060377	3.77		0.1484	6	24	66
DGN506038	3.8		0.1496	6	24	66
DGN5060386	3.86		0.1521	6	24	66
DGN506039	3.9		0.1535	6	24	66
DGN506010F	3.969	5/32	0.1563	6	24	66
DGN506040	4.0		0.1575	6	24	66
DGN5060405	4.05		0.1596	6	24	66
DGN506020G	4.09	#20	0.1610	6	24	66
DGN506041	4.1		0.1614	6	24	66
DGN5060416	4.16		0.1636	6	24	66
DGN506042	4.2		0.1654	6	24	66
DGN5060427	4.27		0.1681	6	24	66
DGN506043	4.3		0.1693	6	24	66

EDP No.	Drill Diameter Metric	Fractional	Decimal	Shank Diameter	Flute Length	Overall Length
Z-Coating	D1			D2	L1	L2
DGN506011F	4.366	11/64	0.1719	6	24	66
DGN506044	4.4		0.1732	6	24	66
DGN5060446	4.46		0.1754	6	24	66
DGN506045	4.5		0.1772	6	24	66
DGN506046	4.6		0.1811	6	24	66
DGN5060466	4.66		0.1835	6	24	66
DGN506047	4.7		0.1850	6	24	66
DGN506012F	4.763	3/16	0.1875	6	28	66
DGN506048	4.8		0.1890	6	28	66
DGN506049	4.9		0.1929	6	28	66
DGN506050	5.0		0.1969	6	28	66
DGN506051	5.1		0.2008	6	28	66
DGN5060515	5.15		0.2029	6	28	66
DGN506013F	5.159	13/64	0.2031	6	28	66
DGN506052	5.2		0.2047	6	28	66
DGN5060526	5.26		0.2070	6	28	66
DGN506053	5.3		0.2087	6	28	66
DGN506054	5.4		0.2126	6	28	66
DGN506003G	5.41	#3	0.2130	6	28	66
DGN5060547	5.47		0.2152	6	28	66
DGN506055	5.5		0.2165	6	28	66
DGN506014F	5.556	7/32	0.2188	6	28	66
DGN506056	5.6		0.2205	6	28	66
DGN506057	5.7		0.2244	6	28	66
DGN506058	5.8		0.2283	6	28	66
DGN506059	5.9		0.2323	6	28	66

▶ NEXT PAGE

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○

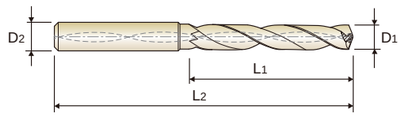
ISO	N										S						H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel			Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	39-1	40	41
HRc											15	30	25	38	34			55	60	50	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630		400	550
Recommended																		○				

DREAM DRILLS -PRO

DGN506 SERIES

CARBIDE, DREAM DRILLS PRO with COOLANT HOLES — *SHORT*

- ▶ Drilling for Carbon Steels, Alloy Steels (HB225-325), Pre-hardened Steels (HRc30~50), Cast Iron
- ▶ Wave shape cutting edge to improve chip formation for low cutting force
- ▶ Helical thinning for low thrust, stable torque and good chip breakage
- ▶ Extremely high hardness and heat resistance due to YG-1 special Z-Coating technology



DIN 6537 | CARBIDE | 30° | h6 | m7 | 140° | 20 bar | Z Coating

p.A71~A72

3 × D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
Z-Coating	D1			D2	L1	L2
DGN506015F	5.953	15/64	0.2344	6	28	66
DGN506060	6.0		0.2362	6	28	66
DGN506061	6.1		0.2402	8	34	79
DGN506003L	6.147	C	0.2420	8	34	79
DGN506062	6.2		0.2441	8	34	79
DGN506063	6.3		0.2480	8	34	79
DGN506016F	6.350	1/4	0.2500	8	34	79
DGN506064	6.4		0.2520	8	34	79
DGN506065	6.5		0.2559	8	34	79
DGN506006L	6.528	F	0.2570	8	34	79
DGN506066	6.6		0.2598	8	34	79
DGN5060665	6.65		0.2620	8	34	79
DGN506067	6.7		0.2638	8	34	79
DGN506017F	6.747	17/64	0.2656	8	34	79
DGN506068	6.8		0.2677	8	34	79
DGN5060686	6.86		0.2701	8	34	79
DGN506069	6.9		0.2717	8	34	79
DGN506070	7.0		0.2756	8	34	79
DGN506010L	7.036	J	0.2770	8	41	79
DGN506071	7.1		0.2795	8	41	79
DGN506018F	7.144	9/32	0.2812	8	41	79
DGN506072	7.2		0.2835	8	41	79
DGN506073	7.3		0.2874	8	41	79
DGN506074	7.4		0.2913	8	41	79
DGN506075	7.5		0.2953	8	41	79
DGN506019F	7.541	19/64	0.2969	8	41	79

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
Z-Coating	D1			D2	L1	L2
DGN506076	7.6		0.2992	8	41	79
DGN506077	7.7		0.3031	8	41	79
DGN506078	7.8		0.3071	8	41	79
DGN506079	7.9		0.3110	8	41	79
DGN506020F	7.938	5/16	0.3125	8	41	79
DGN506080	8.0		0.3150	8	41	79
DGN506081	8.1		0.3189	10	47	89
DGN5060815	8.15		0.3210	10	47	89
DGN506082	8.2		0.3228	10	47	89
DGN506083	8.3		0.3268	10	47	89
DGN506021F	8.334	21/64	0.3281	10	47	89
DGN506084	8.4		0.3307	10	47	89
DGN506017L	8.430	Q	0.3320	10	47	89
DGN506085	8.5		0.3346	10	47	89
DGN5060856	8.56		0.3371	10	47	89
DGN506086	8.6		0.3386	10	47	89
DGN5060864	8.64		0.3402	10	47	89
DGN506087	8.7		0.3425	10	47	89
DGN506022F	8.731	11/32	0.3438	10	47	89
DGN506088	8.8		0.3465	10	47	89
DGN5060886	8.86		0.3488	10	47	89
DGN506089	8.9		0.3504	10	47	89
DGN506090	9.0		0.3543	10	47	89
DGN506091	9.1		0.3583	10	47	89
DGN506023F	9.128	23/64	0.3594	10	47	89
DGN506092	9.2		0.3622	10	47	89

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P																			
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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○

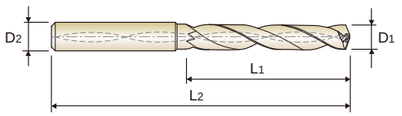
ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel			Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	39-1	40	41
HRc											15	30	25	38	34			55	60	50	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630		400	550
Recommended																		○				

DREAM DRILLS -PRO

DGN506 SERIES

CARBIDE, DREAM DRILLS PRO with COOLANT HOLES — SHORT

▶ Drilling for Carbon Steels, Alloy Steels (HB225-325), Pre-hardened Steels (HRc30~50), Cast Iron
▶ Wave shape cutting edge to improve chip formation for low cutting force
▶ Helical thinning for low thrust, stable torque and good chip breakage
▶ Extremely high hardness and heat resistance due to YG-1 special Z-Coating technology



DIN 6537 | CARBIDE | 30° | h6 | m7 | 140° | 20 bar | Z Coating

p.A71~A72

3 × D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
Z-Coating	D1			D2	L1	L2
DGN506093	9.3		0.3661	10	47	89
DGN506094	9.4		0.3701	10	47	89
DGN506095	9.5		0.3740	10	47	89
DGN506024F	9.525	3/8	0.3750	10	47	89
DGN506096	9.6		0.3780	10	47	89
DGN506097	9.7		0.3819	10	47	89
DGN506098	9.8		0.3858	10	47	89
DGN506099	9.9		0.3898	10	47	89
DGN506025F	9.922	25/64	0.3906	10	47	89
DGN506100	10.0		0.3937	10	47	89
DGN506101	10.1		0.3976	12	55	102
DGN506102	10.2		0.4016	12	55	102
DGN506103	10.3		0.4055	12	55	102
DGN506026F	10.319	13/32	0.4062	12	55	102
DGN506104	10.4		0.4094	12	55	102
DGN506105	10.5		0.4134	12	55	102
DGN506106	10.6		0.4173	12	55	102
DGN506107	10.7		0.4212	12	55	102
DGN506027F	10.716	27/64	0.4219	12	55	102
DGN506108	10.8		0.4252	12	55	102
DGN5061086	10.86		0.4276	12	55	102
DGN506109	10.9		0.4291	12	55	102
DGN506110	11.0		0.4330	12	55	102
DGN506111	11.1		0.4370	12	55	102
DGN506028F	11.113	7/16	0.4375	12	55	102
DGN506112	11.2		0.4409	12	55	102

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
Z-Coating	D1			D2	L1	L2
DGN506113	11.3		0.4448	12	55	102
DGN506114	11.4		0.4488	12	55	102
DGN506115	11.5		0.4527	12	55	102
DGN506029F	11.509	29/64	0.4531	12	55	102
DGN506116	11.6		0.4566	12	55	102
DGN506117	11.7		0.4606	12	55	102
DGN506118	11.8		0.4645	12	55	102
DGN506119	11.9		0.4685	12	55	102
DGN506030F	11.906	15/32	0.4688	12	55	102
DGN506120	12.0		0.4724	12	55	102
DGN506121	12.1		0.4764	14	60	107
DGN506122	12.2		0.4803	14	60	107
DGN506123	12.3		0.4843	14	60	107
DGN506031F	12.303	31/64	0.4844	14	60	107
DGN506124	12.4		0.4882	14	60	107
DGN506125	12.5		0.4921	14	60	107
DGN506126	12.6		0.4961	14	60	107
DGN506032F	12.7	1/2	0.5000	14	60	107
DGN506129	12.9		0.5079	14	60	107
DGN506130	13.0		0.5118	14	60	107
DGN506131	13.1		0.5157	14	60	107
DGN506132	13.2		0.5197	14	60	107
DGN506133	13.3		0.5236	14	60	107
DGN506134	13.4		0.5276	14	60	107
DGN506034F	13.49	17/32	0.5312	14	60	107
DGN506135	13.5		0.5314	14	60	107

▶ NEXT PAGE

◎ : 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		21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○		

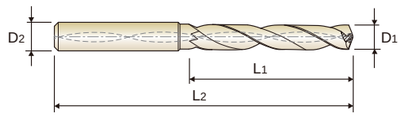
ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel			Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	39-1	40	41
HRc											15	30	25	38	34			55	60	50	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630		400	550
Recommended																		○				

DREAM DRILLS -PRO

DGN506 SERIES

CARBIDE, DREAM DRILLS PRO with COOLANT HOLES — SHORT

- ▶ Drilling for Carbon Steels, Alloy Steels (HB225-325), Pre-hardened Steels (HRc30~50), Cast Iron
- ▶ Wave shape cutting edge to improve chip formation for low cutting force
- ▶ Helical thinning for low thrust, stable torque and good chip breakage
- ▶ Extremely high hardness and heat resistance due to YG-1 special Z-Coating technology



DIN 6537 | CARBIDE | 30° | h6 | m7 | 140° | 20 bar | Z Coating

p.A71~A72

3 × D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
Z-Coating	D1			D2	L1	L2
DGN506136	13.6		0.5354	14	60	107
DGN506137	13.7		0.5394	14	60	107
DGN506138	13.8		0.5433	14	60	107
DGN506139	13.9		0.5472	14	60	107
DGN506140	14.0		0.5512	14	60	107
DGN506141	14.1		0.5551	16	65	115
DGN506142	14.2		0.5591	16	65	115
DGN506036E	14.288	9/16	0.5625	16	65	115
DGN506143	14.3		0.5630	16	65	115
DGN506144	14.4		0.5669	16	65	115
DGN506145	14.5		0.5708	16	65	115
DGN506146	14.6		0.5748	16	65	115
DGN506037E	14.68	37/64	0.5781	16	65	115
DGN506147	14.7		0.5787	16	65	115
DGN506148	14.8		0.5827	16	65	115
DGN506149	14.9		0.5866	16	65	115
DGN506150	15.0		0.5905	16	65	115
DGN506151	15.1		0.5945	16	65	115
DGN506152	15.2		0.5984	16	65	115
DGN506153	15.3		0.6024	16	65	115
DGN506154	15.4		0.6063	16	65	115
DGN506155	15.5		0.6102	16	65	115
DGN506156	15.6		0.6142	16	65	115
DGN506157	15.7		0.6181	16	65	115
DGN506158	15.8		0.6220	16	65	115
DGN506040E	15.875	5/8	0.6250	16	65	115

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
Z-Coating	D1			D2	L1	L2
DGN506159	15.9		0.6260	16	65	115
DGN506160	16		0.6299	16	65	115
DGN506165	16.5		0.6495	18	73	123
DGN506042E	16.67	21/32	0.6563	18	73	123
DGN506170	17.0		0.6692	18	73	123
DGN506175	17.5		0.6889	18	73	123
DGN5061761	17.61		0.6932	18	73	123
DGN5061773	17.73		0.6980	18	73	123
DGN506180	18.0		0.7087	18	73	123
DGN506185	18.5		0.7283	20	79	131
DGN5061864	18.64		0.7339	20	79	131
DGN506190	19.0		0.7480	20	79	131
DGN506048F	19.05	3/4	0.7500	20	79	131
DGN506195	19.5		0.7676	20	79	131
DGN5061966	19.66		0.7740	20	79	131
DGN5061973	19.73		0.7766	20	79	131
DGN506200	20.0		0.7874	20	79	131

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○

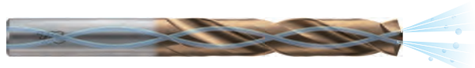
ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel			Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	39-1	40	41
HRc											15	30	25	38	34			55	60	50	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630		400	550
Recommended																		○				

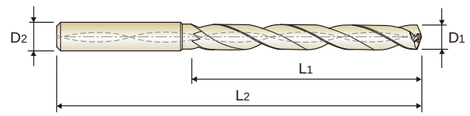
DREAM DRILLS -PRO

DGN508 SERIES

CARBIDE, DREAM DRILLS PRO with COOLANT HOLES — LONG

- ▶ Drilling for Carbon Steels, Alloy Steels (HB225-325), Pre-hardened Steels (HRc30~50), Cast Iron
- ▶ Wave shape cutting edge to improve chip formation for low cutting force
- ▶ Helical thinning for low thrust, stable torque and good chip breakage
- ▶ Extremely high hardness and heat resistance due to YG-1 special Z-Coating technology





DIN 6537 | CARBIDE | 30° | h6 | m7 | 140° | 20 bar | Z Coating

p.A71~A72

5 × D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
Z-Coating	D1			D2	L1	L2
DGN508010	1.0		0.0394	3	8	55
DGN508011	1.1		0.0433	3	12	55
DGN508012	1.2		0.0472	3	12	55
DGN508013	1.3		0.0512	3	12	55
DGN508014	1.4		0.0551	3	12	55
DGN508015	1.5		0.0591	3	16	55
DGN508004E	1.588	1/16	0.0625	3	16	55
DGN508016	1.6		0.0630	3	16	55
DGN508017	1.7		0.0669	3	16	55
DGN508018	1.8		0.0709	3	16	55
DGN508019	1.9		0.0748	3	16	55
DGN508005E	1.984	5/64	0.0781	3	16	55
DGN508020	2.0		0.0787	4	21	57
DGN508021	2.1		0.0827	4	21	57
DGN508022	2.2		0.0866	4	21	57
DGN508023	2.3		0.0906	4	21	57
DGN508006F	2.381	3/32	0.0938	4	21	57
DGN508024	2.4		0.0945	4	21	57
DGN508025	2.5		0.0984	4	21	57
DGN508026	2.6		0.1024	4	21	57
DGN508027	2.7		0.1063	4	21	57
DGN508007F	2.778	7/64	0.1094	4	21	57
DGN508028	2.8		0.1102	4	21	57
DGN508029	2.9		0.1142	4	21	57

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
Z-Coating	D1			D2	L1	L2
DGN508030	3.0		0.1181	6	28	66
DGN508031	3.1		0.1220	6	28	66
DGN508008F	3.175	1/8	0.1250	6	28	66
DGN508032	3.2		0.1260	6	28	66
DGN508033	3.3		0.1299	6	28	66
DGN508034	3.4		0.1339	6	28	66
DGN508035	3.5		0.1378	6	28	66
DGN508009F	3.572	9/64	0.1406	6	28	66
DGN508036	3.6		0.1417	6	28	66
DGN508037	3.7		0.1457	6	28	66
DGN508038	3.8		0.1496	6	36	74
DGN508039	3.9		0.1535	6	36	74
DGN508010F	3.969	5/32	0.1563	6	36	74
DGN508040	4.0		0.1575	6	36	74
DGN508020G	4.09	#20	0.1610	6	36	74
DGN508041	4.1		0.1614	6	36	74
DGN508042	4.2		0.1654	6	36	74
DGN508043	4.3		0.1693	6	36	74
DGN508011F	4.366	11/64	0.1719	6	36	74
DGN508044	4.4		0.1732	6	36	74
DGN508045	4.5		0.1772	6	36	74
DGN508046	4.6		0.1811	6	36	74
DGN508047	4.7		0.1850	6	36	74
DGN508012F	4.763	3/16	0.1875	6	44	82

▶ NEXT PAGE

◎ : 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		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	39-1	40	41
HRc											15	30	25	38	34			55	60	50	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630		400	550
Recommended																		○				

DREAM DRILLS -PRO

DGN508 SERIES

CARBIDE, DREAM DRILLS PRO with COOLANT HOLES — *LONG*

- ▶ Drilling for Carbon Steels, Alloy Steels (HB225-325), Pre-hardened Steels (HRc30~50), Cast Iron
- ▶ Wave shape cutting edge to improve chip formation for low cutting force
- ▶ Helical thinning for low thrust, stable torque and good chip breakage
- ▶ Extremely high hardness and heat resistance due to YG-1 special Z-Coating technology

DIN 6537 | CARBIDE | 30° | h6 | m7 | 140° | 20 bar | Z Coating

p.A71~A72

5 × D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
Z-Coating	D1			D2	L1	L2
DGN508048	4.8		0.1890	6	44	82
DGN508049	4.9		0.1929	6	44	82
DGN508050	5.0		0.1969	6	44	82
DGN508051	5.1		0.2008	6	44	82
DGN508013F	5.159	13/64	0.2031	6	44	82
DGN508052	5.2		0.2047	6	44	82
DGN508053	5.3		0.2087	6	44	82
DGN508054	5.4		0.2126	6	44	82
DGN508003G	5.41	#3	0.2130	6	44	82
DGN508055	5.5		0.2165	6	44	82
DGN508014E	5.556	7/32	0.2188	6	44	82
DGN508056	5.6		0.2205	6	44	82
DGN508057	5.7		0.2244	6	44	82
DGN508058	5.8		0.2283	6	44	82
DGN508059	5.9		0.2323	6	44	82
DGN508015E	5.953	15/64	0.2344	6	44	82
DGN508060	6.0		0.2362	6	44	82
DGN508061	6.1		0.2402	8	53	91
DGN508062	6.2		0.2441	8	53	91
DGN508063	6.3		0.2480	8	53	91
DGN508016E	6.350	1/4	0.2500	8	53	91
DGN508064	6.4		0.2520	8	53	91
DGN508065	6.5		0.2559	8	53	91
DGN508006L	6.528	F	0.2570	8	53	91

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
Z-Coating	D1			D2	L1	L2
DGN508066	6.6		0.2598	8	53	91
DGN508067	6.7		0.2638	8	53	91
DGN508017E	6.747	17/64	0.2656	8	53	91
DGN508068	6.8		0.2677	8	53	91
DGN508069	6.9		0.2717	8	53	91
DGN508070	7.0		0.2756	8	53	91
DGN508071	7.1		0.2795	8	53	91
DGN508018E	7.144	9/32	0.2812	8	53	91
DGN508072	7.2		0.2835	8	53	91
DGN508073	7.3		0.2874	8	53	91
DGN508074	7.4		0.2913	8	53	91
DGN508075	7.5		0.2953	8	53	91
DGN508019E	7.541	19/64	0.2969	8	53	91
DGN508076	7.6		0.2992	8	53	91
DGN508077	7.7		0.3031	8	53	91
DGN508078	7.8		0.3071	8	53	91
DGN508079	7.9		0.3110	8	53	91
DGN508020F	7.938	5/16	0.3125	8	53	91
DGN508080	8.0		0.3150	8	53	91
DGN508081	8.1		0.3189	10	61	103
DGN508082	8.2		0.3228	10	61	103
DGN508083	8.3		0.3268	10	61	103
DGN508021F	8.334	21/64	0.3281	10	61	103
DGN508084	8.4		0.3307	10	61	103

▶ NEXT PAGE

◎ : 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		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	39-1	40	41
HRc											15	30	25	38	34			55	60	50	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630		400	550
Recommended																		○				

DREAM DRILLS -PRO
DGN508 SERIES
CARBIDE, DREAM DRILLS PRO with COOLANT HOLES — LONG
▶ Drilling for Carbon Steels, Alloy Steels (HB225-325), Pre-hardened Steels (HRc30~50), Cast Iron
▶ Wave shape cutting edge to improve chip formation for low cutting force
▶ Helical thinning for low thrust, stable torque and good chip breakage
▶ Extremely high hardness and heat resistance due to YG-1 special Z-Coating technology

DIN 6537 | CARBIDE | 30° | h6 | m7 | 140° | 20 bar | Z Coating

p.A71~A72

5 × D
Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
Z-Coating	D1			D2	L1	L2
DGN508017L	8.430	Q	0.3320	10	61	103
DGN508085	8.5		0.3346	10	61	103
DGN508086	8.6		0.3386	10	61	103
DGN508087	8.7		0.3425	10	61	103
DGN508022F	8.731	11/32	0.3438	10	61	103
DGN508088	8.8		0.3465	10	61	103
DGN508089	8.9		0.3504	10	61	103
DGN508090	9.0		0.3543	10	61	103
DGN508091	9.1		0.3583	10	61	103
DGN508023F	9.128	23/64	0.3594	10	61	103
DGN508092	9.2		0.3622	10	61	103
DGN508093	9.3		0.3661	10	61	103
DGN508094	9.4		0.3701	10	61	103
DGN508095	9.5		0.3740	10	61	103
DGN508024F	9.525	3/8	0.3750	10	61	103
DGN508096	9.6		0.3780	10	61	103
DGN508097	9.7		0.3819	10	61	103
DGN508098	9.8		0.3858	10	61	103
DGN508099	9.9		0.3898	10	61	103
DGN508025F	9.922	25/64	0.3906	10	61	103
DGN508100	10.0		0.3937	10	61	103
DGN508101	10.1		0.3976	12	71	118
DGN508102	10.2		0.4016	12	71	118
DGN508103	10.3		0.4055	12	71	118

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
Z-Coating	D1			D2	L1	L2
DGN508026F	10.319	13/32	0.4062	12	71	118
DGN508104	10.4		0.4094	12	71	118
DGN508105	10.5		0.4134	12	71	118
DGN508106	10.6		0.4173	12	71	118
DGN508107	10.7		0.4212	12	71	118
DGN508027F	10.716	27/64	0.4219	12	71	118
DGN508108	10.8		0.4252	12	71	118
DGN508109	10.9		0.4291	12	71	118
DGN508110	11.0		0.4330	12	71	118
DGN508111	11.1		0.4370	12	71	118
DGN508028F	11.113	7/16	0.4375	12	71	118
DGN508112	11.2		0.4409	12	71	118
DGN508113	11.3		0.4448	12	71	118
DGN508114	11.4		0.4488	12	71	118
DGN508115	11.5		0.4527	12	71	118
DGN508029F	11.509	29/64	0.4531	12	71	118
DGN508116	11.6		0.4566	12	71	118
DGN508117	11.7		0.4606	12	71	118
DGN508118	11.8		0.4645	12	71	118
DGN508119	11.9		0.4685	12	71	118
DGN508030F	11.906	15/32	0.4688	12	71	118
DGN508120	12.0		0.4724	12	71	118
DGN508121	12.1		0.4764	14	77	124
DGN508123	12.3		0.4843	14	77	124

▶ NEXT PAGE

◎ : 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		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	39-1	40	41
HRc											15	30	25	38	34			55	60	50	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630		400	550
Recommended																		○				

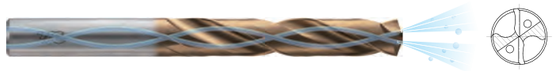
DREAM DRILLS -PRO

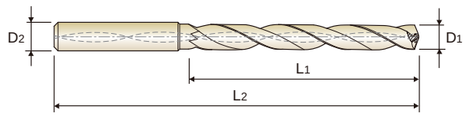
DGN508 SERIES

CARBIDE, DREAM DRILLS PRO with COOLANT HOLES

LONG

- Drilling for Carbon Steels, Alloy Steels (HB225-325), Pre-hardened Steels (HRc30~50), Cast Iron
- Wave shape cutting edge to improve chip formation for low cutting force
- Helical thinning for low thrust, stable torque and good chip breakage
- Extremely high hardness and heat resistance due to YG-1 special Z-Coating technology





DIN 6537 | CARBIDE | 30° | h6 | m7 | 140° | 20 bar | Z Coating

p.A71~A72

5 × D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
Z-Coating	D1			D2	L1	L2
DGN508031F	12.303	31/64	0.4844	14	77	124
DGN508124	12.4		0.4882	14	77	124
DGN508125	12.5		0.4921	14	77	124
DGN508126	12.6		0.4961	14	77	124
DGN508032F	12.7	1/2	0.5000	14	77	124
DGN508129	12.9		0.5079	14	77	124
DGN508130	13.0		0.5118	14	77	124
DGN508132	13.2		0.5197	14	77	124
DGN508133	13.3		0.5236	14	77	124
DGN508134	13.4		0.5276	14	77	124
DGN508034F	13.49	17/32	0.5312	14	77	124
DGN508135	13.5		0.5314	14	77	124
DGN508140	14.0		0.5512	14	77	124
DGN508141	14.1		0.5551	16	83	133
DGN508036F	14.288	9/16	0.5625	16	83	133
DGN508143	14.3		0.5630	16	83	133
DGN508144	14.4		0.5669	16	83	133
DGN508145	14.5		0.5708	16	83	133
DGN508146	14.6		0.5748	16	83	133
DGN508149	14.9		0.5866	16	83	133
DGN508150	15.0		0.5905	16	83	133
DGN508153	15.3		0.6024	16	83	133
DGN508154	15.4		0.6063	16	83	133
DGN508155	15.5		0.6102	16	83	133

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
Z-Coating	D1			D2	L1	L2
DGN508156	15.6		0.6142	16	83	133
DGN508157	15.7		0.6181	16	83	133
DGN508040F	15.875	5/8	0.6250	16	83	133
DGN508159	15.9		0.6260	16	83	133
DGN508160	16.0		0.6299	16	83	133
DGN508165	16.5		0.6495	18	93	143
DGN508042F	16.67	21/32	0.6563	18	93	143
DGN508170	17.0		0.6692	18	93	143
DGN508175	17.5		0.6889	18	93	143
DGN508180	18.0		0.7087	18	93	143
DGN508185	18.5		0.7283	20	101	153
DGN508190	19.0		0.7480	20	101	153
DGN508048F	19.05	3/4	0.7500	20	101	153
DGN508195	19.5		0.7676	20	101	153
DGN508200	20.0		0.7874	20	101	153

◎ : 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		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	39-1	40	41
HRc											15	30	25	38	34			55	60	50	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630		400	550
Recommended																		○				

DREAM DRILLS -PRO

RECOMMENDED CUTTING CONDITIONS

DGN506, DGN508 SERIES

with COOLANT HOLES

SFM = ft/min.
RPM = rev./min.
FEED = inch/rev.

ISO	VDI 3323	Material Description	SFM	Drill Diameter			SFM	Drill Diameter									
				METRIC	1.0	2.0		METRIC	3.0	-	4.0	-	5.0	6.0	-	-	8.0
				FRACTIONAL	-	-		FRACTIONAL	-	1/8	-	3/16	-	-	1/4	5/16	-
				DECIMAL	.0394	.0787		DECIMAL	.1181	.1250	.1575	.1875	.1969	.2362	.2500	.3125	.3150
P	2	Non-alloy steel	312	RPM	30240	15120	427	RPM	13790		10350	8280		6900			5170
				FEED	.0012 - .0020	.0020 - .0028		FEED	.0024 - .0047		.0031 - .0055	.0055 - .0079		.0063 - .0087			.0071 - .0094
	3		312	RPM	30240	15120	427	RPM	13790		10350	8280		6900			5170
				FEED	.0012 - .0020	.0020 - .0028		FEED	.0024 - .0047		.0031 - .0055	.0055 - .0079		.0063 - .0087			.0071 - .0094
	4		312	RPM	30240	15120	427	RPM	13790		10350	8280		6900			5170
				FEED	.0012 - .0020	.0020 - .0028		FEED	.0016 - .0039		.0028 - .0051	.0039 - .0063		.0047 - .0071			.0055 - .0079
	5		279	RPM	27060	13530	361	RPM	11670		8750	7000		5840			4380
				FEED	.0012 - .0020	.0020 - .0028		FEED	.0016 - .0039		.0028 - .0051	.0039 - .0063		.0047 - .0071			.0055 - .0079
	6	Low alloy steel	312	RPM	30240	15120	427	RPM	13790		10350	8280		6900			5170
				FEED	.0012 - .0020	.0020 - .0028		FEED	.0024 - .0047		.0031 - .0055	.0055 - .0079		.0063 - .0087			.0071 - .0094
	7		279	RPM	27060	13530	361	RPM	11670		8750	7000		5840			4380
				FEED	.0012 - .0020	.0020 - .0028		FEED	.0024 - .0047		.0031 - .0055	.0039 - .0079		.0047 - .0094			.0063 - .0110
	8		312	RPM	30240	15120	361	RPM	11670		8750	7000		5840			4380
				FEED	.0008 - .0016	.0012 - .0020		FEED	.0016 - .0039		.0028 - .0051	.0039 - .0063		.0047 - .0071			.0055 - .0079
	9		164	RPM	15920	7960	197	RPM	6370		4770	3820		3180			2390
				FEED	.0008 - .0016	.0012 - .0020		FEED	.0012 - .0031		.0020 - .0043	.0031 - .0055		.0039 - .0063			.0047 - .0071
	10	High alloyed steel, and tool steel	230	RPM	22280	11140	295	RPM	9550		7160	5730		4770			3580
				FEED	.0012 - .0020	.0020 - .0028		FEED	.0016 - .0039		.0028 - .0051	.0039 - .0063		.0047 - .0071			.0055 - .0079
	11		148	RPM	14320	7160	164	RPM	5310		3980	3180		2650			1990
				FEED	.0008 - .0016	.0012 - .0020		FEED	.0012 - .0031		.0020 - .0043	.0031 - .0055		.0039 - .0063			.0047 - .0071
M	12	Stainless steel	246	RPM	23870	11940	311	RPM	10080		7560	6050		5040			3780
				FEED	.0012 - .0020	.0020 - .0028		FEED	.0024 - .0047		.0031 - .0055	.0055 - .0079		.0063 - .0087			.0071 - .0094
	13		180	RPM	17510	8750	213	RPM	6900		5170	4140		3450			2590
				FEED	.0008 - .0016	.0012 - .0020		FEED	.0016 - .0039		.0028 - .0051	.0039 - .0063		.0047 - .0071			.0055 - .0079
K	15	Grey cast iron	312	RPM	30240	15120	427	RPM	13790		10350	8280		6900			5170
				FEED	.0016 - .0024	.0016 - .0024		FEED	.0031 - .0055		.0047 - .0071	.0059 - .0087		.0079 - .0102			.0087 - .0110
	16		295	RPM	28650	14320	377	RPM	12200		9150	7320		6100			4580
				FEED	.0016 - .0024	.0016 - .0024		FEED	.0024 - .0047		.0031 - .0055	.0055 - .0079		.0063 - .0087			.0071 - .0094
	17	Nodular cast iron	361	RPM	35010	17510	475	RPM	15380		11540	9230		7690			5770
				FEED	.0016 - .0024	.0016 - .0024		FEED	.0031 - .0055		.0047 - .0071	.0059 - .0087		.0079 - .0102			.0087 - .0110
	18		246	RPM	23870	11940	312	RPM	10080		7560	6050		5040			3780
				FEED	.0016 - .0024	.0016 - .0024		FEED	.0024 - .0047		.0031 - .0055	.0055 - .0079		.0063 - .0087			.0071 - .0094
	19	Malleable cast iron	279	RPM	27060	13530	361	RPM	11670		8750	7000		5840			4380
				FEED	.0016 - .0024	.0016 - .0024		FEED	.0031 - .0055		.0047 - .0071	.0059 - .0087		.0079 - .0102			.0087 - .0110
	20		246	RPM	23870	11940	312	RPM	10080		7560	6050		5040			3780
				FEED	.0012 - .0020	.0020 - .0028		FEED	.0024 - .0047		.0031 - .0055	.0055 - .0079		.0063 - .0087			.0071 - .0094
H	38	Hardened steel	98	RPM	9,550	4,770	115	RPM	3,710		2,790	2,230		1,860			1,390
				FEED	.0004 - .0008	.0004 - .0012		FEED	.0004- .0012		.0004- .0016	.0008- .0020		.0012- .0024			.0012- .0024

▶ Recommend to reduce the feed rate as following

Feed 100% : DGN506(3×D) **Feed 80%** : DGN508(5×D)

▶ NEXT PAGE

DREAM DRILLS -PRO

RECOMMENDED CUTTING CONDITIONS

DGN506, DGN508 SERIES

with COOLANT HOLES

SFM = ft/min.
RPM = rev./min.
FEED = inch/rev.

ISO	VDI 3323	Material Description	SFM		Drill Diameter										
				METRIC	-	10.0	12.0	-	14.0	-	-	16.0	18.0	-	20.0
				FRACTIONAL	3/8	-	-	1/2	-	9/16	5/8	-	-	3/4	-
				DECIMAL	.3750	.3937	.4724	.5000	.5512	.5625	.6250	.6299	.7087	.7500	.7874
P	2	Non-alloy steel	427	RPM	4140		3450	3270	2960		2590		2300	2180	2070
				FEED	.0075 - .0106		.0083 - .0114	.0083 - .0114	.0091 - .0122		.0098 - .0130		.0110 - .0150	.0110 - .0150	.0118 - .0157
	3		427	RPM	4140		3450	3270	2960		2590		2300	2180	2070
				FEED	.0075 - .0106		.0083 - .0114	.0083 - .0114	.0091 - .0122		.0098 - .0130		.0110 - .0150	.0110 - .0150	.0118 - .0157
	4		427	RPM	4140		3450	3270	2960		2590		2300	2180	2070
				FEED	.0059 - .0091		.0067 - .0098	.0067 - .0098	.0071 - .0102		.0075 - .0106		.0079 - .0118	.0079 - .0118	.0087 - .0126
	5		361	RPM	3500		2920	2760	2500		2190		1950	1840	1750
				FEED	.0059 - .0091		.0067 - .0098	.0067 - .0098	.0071 - .0102		.0075 - .0106		.0079 - .0118	.0079 - .0118	.0087 - .0126
	6	Low alloy steel	427	RPM	4140		3450	3270	2960		2590		2300	2180	2070
				FEED	.0075 - .0106		.0083 - .0114	.0083 - .0114	.0091 - .0122		.0098 - .0130		.0110 - .0150	.0110 - .0150	.0118 - .0157
	7		361	RPM	3500		2920	2760	2500		2190		1950	1840	1750
				FEED	.0075 - .0106		.0083 - .0114	.0083 - .0114	.0091 - .0122		.0098 - .0130		.0110 - .0150	.0110 - .0150	.0118 - .0157
	8		361	RPM	3500		2920	2760	2500		2190		1950	1840	1750
				FEED	.0059 - .0091		.0067 - .0098	.0067 - .0098	.0071 - .0102		.0075 - .0106		.0079 - .0118	.0079 - .0118	.0087 - .0126
	9		197	RPM	1910		1590	1510	1360		1190		1060	1010	950
				FEED	.0051 - .0075		.0055 - .0079	.0055 - .0079	.0059 - .0083		.0063 - .0087		.0067 - .0098	.0063 - .0102	.0071 - .0110
	10	High alloyed steel, and tool steel	295	RPM	2860		2390	2260	2050		1790		1590	1510	1430
				FEED	.0059 - .0091		.0067 - .0098	.0067 - .0098	.0071 - .0102		.0075 - .0106		.0079 - .0118	.0079 - .0118	.0087 - .0126
	11		164	RPM	1590		1330	1260	1140		990		880	840	800
				FEED	.0051 - .0075		.0055 - .0079	.0055 - .0079	.0059 - .0083		.0063 - .0087		.0067 - .0098	.0063 - .0102	.0071 - .0110
M	12	Stainless steel	311	RPM	3020		2520	2380	2160		1890		1680	1590	1510
				FEED	.0075 - .0106		.0083 - .0114	.0083 - .0114	.0091 - .0122		.0098 - .0130		.0110 - .0150	.0110 - .0150	.0118 - .0157
	13		213	RPM	2070		1720	1630	1480		1290		1150	1090	1030
				FEED	.0059 - .0091		.0067 - .0098	.0067 - .0098	.0071 - .0102		.0075 - .0106		.0079 - .0118	.0079 - .0118	.0087 - .0126
K	15	Grey cast iron	427	RPM	4140		3450	3270	2960		2590		2300	2180	2070
				FEED	.0098 - .0130		.0106 - .0138	.0106 - .0138	.0114 - .0146		.0122 - .0154		.0126 - .0165	.0126 - .0165	.0134 - .0173
	16		377	RPM	3660		3050	2890	2610		2290		2030	1930	1830
				FEED	.0075 - .0106		.0083 - .0114	.0083 - .0114	.0091 - .0122		.0098 - .0130		.0110 - .0150	.0110 - .0150	.0118 - .0157
	17	Nodular cast iron	475	RPM	4620		3850	3630	3300		2880		2560	2420	2310
				FEED	.0098 - .0130		.0106 - .0138	.0106 - .0138	.0114 - .0146		.0122 - .0154		.0126 - .0165	.0126 - .0165	.0134 - .0173
	18		312	RPM	3020		2520	2390	2160		1890		1680	1590	1510
				FEED	.0075 - .0106		.0083 - .0114	.0083 - .0114	.0091 - .0122		.0098 - .0130		.0110 - .0150	.0110 - .0150	.0118 - .0157
	19	Malleable cast iron	361	RPM	3500		2920	2760	2500		2190		1950	1840	1750
				FEED	.0098 - .0130		.0106 - .0138	.0106 - .0138	.0114 - .0146		.0122 - .0154		.0126 - .0165	.0126 - .0165	.0134 - .0173
	20		312	RPM	3020		2520	2390	2160		1890		1680	1590	1510
				FEED	.0075 - .0106		.0083 - .0114	.0083 - .0114	.0091 - .0122		.0098 - .0130		.0110 - .0150	.0110 - .0150	.0118 - .0157
H	38	Hardened steel	115	RPM	1,100		930	880	800		700		620	590	560
				FEED	.0016 - .0028		.0016 - .0031	.0016 - .0031	.0020 - .0035		.0020 - .0035		.0020 - .0039	.0020 - .0039	.0020 - .0039

▶ Recommend to reduce the feed rate as following
Feed 100% : DGN506(3×D) **Feed 120%** : DGN508(5×D)

Leading Through Innovation

SOLID CARBIDE

DREAM DRILLS GENERAL

- For General Purpose (HRc30a to HRc50)

SELECTION GUIDE

YG HOLEMAKING TOOLS

SERIES	DH416 DH711	DH418 DH712	DH406
DRILLING DEPTH	3XD	5XD	3XD
TOOL MATERIAL	SOLID CARBIDE		
LENGTH	SHORT	LONG	SHORT
SIZE MIN	D1/8	D13/64	D3.0
SIZE MAX	D5/8	D1/2	D20.0
PAGE	A76	A78	A79
SURFACE TREATMENT	TiAlN		

SOLID CARBIDE
DREAM DRILLS GENERAL

- For General Purpose (Hrc30a to Hrc50)

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A104

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	DH416 DH711	DH418 DH712	DH406
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, Graphite, CFRP, GFRP, etc.	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		Hardened	550	55			
	39			Hardened	630	60		○	○
	40	Chilled Cast Iron		Cast	400	42			
	41	Hardened Cast Iron		Hardened	550	55			

SERIES	DH408	DH421	DH414	DH722	DH404	DH423	DH424
DRILLING DEPTH	5XD	8×D	3XD	5XD	3XD	3XD	5XD
TOOL MATERIAL	SOLID CARBIDE						
LENGTH	LONG	EXTRA LONG	STUB	LONG	STUB	SHORT	LONG
SIZE MIN	D1.0	D3.0	D1/8	D13/64	D3.0	D3.0	D1.0
SIZE MAX	D20.0	D20.0	D5/8	D1/2	D20.0	D20.0	D20.0
PAGE	A83	A87	A91	A92	A93	A95	A99
SURFACE TREATMENT	TiAlN						

DH408	DH421	DH414	DH722	DH404	DH423	DH424		
							1	P
◎	◎	◎	◎	◎	◎	◎	2	
◎	◎	◎	◎	◎	◎	◎	3	
◎	◎	◎	◎	◎	◎	◎	4	
○	○	○	○	○	○	○	5	
◎	◎	◎	◎	◎	◎	◎	6	
◎	◎	◎	◎	◎	◎	◎	7	
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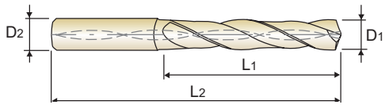
CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

DREAM DRILLS -GENERAL

DH416 SERIES
DH711 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
General with Coolant Holes (3XD)

- ▶Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- ▶Self centering and chip breaking by R-thinning
- ▶Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶Optimized flute shape for strength of drilling and smooth chip evacuation
- ▶Tolerance : Dia. Tolerance ØD1: See page A405



CARBIDE | h6 | 140° | 20 bar | TiAlN

p.A104~A105

SHORT
3×D

DH416 *1BTF

Unit : inch

EDP No.	Drill Diameter Fractional	Drill Diameter Decimal	Shank Diameter	Flute Length	Overall Length
TiAlN	D1		D2	L1	L2
DH711008	1/8	.1250	3/16	1.102	2.992
0081BTF	1/8	.1250	15/64	1.102	2.992
DH711011	11/64	.1719	3/16	1.417	3.386
0111BTF	11/64	.1719	15/64	1.417	3.386
DH711012	3/16	.1875	3/16	1.575	3.543
0121BTF	3/16	.1875	15/64	1.575	3.543
0131BTF	13/64	.2031	15/64	1.082	3.228
DH711013	13/64	.2031	1/4	1.082	3.228
0141BTF	7/32	.2188	15/64	1.181	3.228
DH711014	7/32	.2188	1/4	1.181	3.228
0151BTF	15/64	.2344	15/64	1.181	3.228
DH711015	15/64	.2344	1/4	1.181	3.228
DH711016	1/4	.2500	1/4	1.279	3.465
0161BTF	1/4	.2500	17/64	1.279	3.465
2061BTF	F	.2570	17/64	1.279	3.465
DH711206	F	.2570	5/16	1.279	3.465
0171BTF	17/64	.2656	17/64	1.378	3.465
DH711017	17/64	.2656	5/16	1.378	3.465
2091BTF	I	.2720	.2720	1.378	3.465
DH711209	I	.2720	5/16	1.378	3.465
0181BTF	9/32	.2812	5/16	1.476	3.701
0191BTF	19/64	.2969	5/16	1.476	3.701
0201BTF	5/16	.3125	5/16	1.575	3.701
0211BTF	21/64	.3281	11/32	1.673	3.937
DH711021	21/64	.3281	3/8	1.673	3.937
2171BTF	Q	.3320	11/32	1.673	3.937

EDP No.	Drill Diameter Fractional	Drill Diameter Decimal	Shank Diameter	Flute Length	Overall Length
TiAlN	D1		D2	L1	L2
DH711217	Q	.3320	3/8	1.673	3.937
0221BTF	11/32	.3438	11/32	1.772	3.937
DH711022	11/32	.3438	3/8	1.772	3.937
DH711023	23/64	.3594	3/8	1.87	4.174
0231BTF	23/64	.3594	25/64	1.870	4.174
DH711221	U	.3680	3/8	1.87	4.174
2211BTF	U	.3680	25/64	1.870	4.174
DH711024	3/8	.3750	3/8	1.969	4.174
0241BTF	3/8	.3750	25/64	1.969	4.174
0251BTF	25/64	.3906	25/64	1.969	4.174
DH711025	25/64	.3906	7/16	1.969	4.174
0261BTF	13/32	.4062	27/64	2.067	4.567
DH711026	13/32	.4062	7/16	2.067	4.567
0271BTF	27/64	.4219	27/64	2.165	4.567
DH711027	27/64	.4219	7/16	2.165	4.567
DH711028	7/16	.4375	7/16	2.264	4.803
0281BTF	7/16	.4375	15/32	2.264	4.803
0291BTF	29/64	.4531	15/32	2.264	4.803
DH711029	29/64	.4531	1/2	2.264	4.803
0301BTF	15/32	.4688	15/32	2.362	4.803
DH711030	15/32	.4688	1/2	2.362	4.803
0311BTF	31/64	.4844	1/2	2.461	5.039
0321BTF	1/2	.5000	1/2	2.559	5.039
0331BTF	33/64	.5156	35/64	2.657	5.276
DH711033	33/64	.5156	9/16	2.657	5.276
0341BTF	17/32	.5312	35/64	2.756	5.276

▶ Other shank types are available on your request.

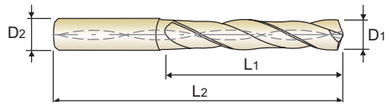
▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

DREAM DRILLS -GENERAL
DH416 SERIES
DH711 SERIES
TiAlN-COATED SOLID CARBIDE DREAM DRILLS
General with Coolant Holes (3XD)
▶Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
▶Self centering and chip breaking by R-thinning
▶Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
▶Optimized flute shape for strength of drilling and smooth chip evacuation
▶Tolerance : Dia. Tolerance ØD1: See page A405



CARBIDE | h6 | 140° | 20 bar | TiAlN

p.A104~A105

SHORT
3×D

DH416 *1BTF

Unit : inch

EDP No.	Drill Diameter Fractional	Drill Diameter Decimal	Shank Diameter	Flute Length	Overall Length
TiAlN	D1		D2	L1	L2
DH711034	17/32	.5312	9/16	2.756	5.276
0351BTF	35/64	.5469	35/64	2.756	5.276
DH711035	35/64	.5469	9/16	2.756	5.276
DH711036	9/16	.5625	9/16	2.854	5.512
0361BTF	9/16	.5625	37/64	2.854	5.512

EDP No.	Drill Diameter Fractional	Drill Diameter Decimal	Shank Diameter	Flute Length	Overall Length
TiAlN	D1		D2	L1	L2
0371BTF	37/64	.5781	37/64	2.953	5.512
DH711037	37/64	.5781	5/8	2.953	5.512
0381BTF	19/32	.5937	5/8	3.051	5.709
0391BTF	39/64	.6094	5/8	3.051	5.709
0401BTF	5/8	.6250	5/8	3.150	5.709

▶ Other shank types are available on your request.

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	○	○	◎	○

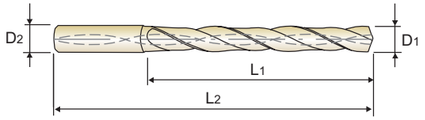
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

DREAM DRILLS -GENERAL

DH418 SERIES
DH712 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
General with Coolant Holes (5XD)

- ▶Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- ▶Self centering and chip breaking by R-thinning
- ▶Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶Optimized flute shape for strength of drilling and smooth chip evacuation
- ▶Tolerance : Dia. Tolerance ØD1: See page A405
  Shank Tolerance ØD2: -.0001 -.0005



CARBIDE | h6 | 140° | 20 bar | TiAlN | p.A104~A105

LONG
5× D

DH418 *1CTF

Unit : inch

EDP No.	Drill Diameter		Shank Diameter	Flute Length	Overall Length
	Fractional	Decimal			
TiAlN	D1		D2	L1	L2
0131CTF	13/64	.2031	15/64	1-3/4	3-15/16
DH712013	13/64	.2031	1/4	1-3/4	3-15/16
0141CTF	7/32	.2188	15/64	1-57/64	3-15/16
DH712014	7/32	.2188	1/4	1-57/64	3-15/16
0151CTF	15/64	.2344	15/64	1-57/64	3-15/16
DH712015	15/64	.2344	1/4	1-57/64	3-15/16
DH712016	1/4	.2500	1/4	2-3/64	4-19/64
0161CTF	1/4	.2500	17/64	2-3/64	4-19/64
2061CTF	F	.2570	17/64	2-13/64	4-19/64
DH712206	F	.2570	5/16	2-13/64	4-19/64
0171CTF	17/64	.2656	17/64	2-13/64	4-19/64
DH712017	17/64	.2656	5/16	2-13/64	4-19/64
2091CTF	I	.2720	.2720	2-13/64	4-19/64
DH712209	I	.2720	5/16	2-13/64	4-19/64
0181CTF	9/32	.2812	5/16	2-23/64	4-41/64
0191CTF	19/64	.2969	5/16	2-33/64	4-41/64
0201CTF	5/16	.3125	5/16	2-33/64	4-41/64
0211CTF	21/64	.3281	11/32	2-43/64	5
DH712021	21/64	.3281	3/8	2-43/64	5
2171CTF	Q	.3320	11/32	2-43/64	5
DH712217	Q	.3320	3/8	2-43/64	5
0221CTF	11/32	.3438	11/32	2-27/32	5

EDP No.	Drill Diameter		Shank Diameter	Flute Length	Overall Length
	Fractional	Decimal			
TiAlN	D1		D2	L1	L2
DH712022	11/32	.3438	3/8	2-27/32	5
DH712023	23/64	.3594	3/8	3	5-23/64
0231CTF	23/64	.3594	25/64	3	5-23/64
DH712221	U	.3680	3/8	3	5-23/64
2211CTF	U	.3680	25/64	3	5-23/64
DH712024	3/8	.3750	3/8	3-5/32	5-23/64
0241CTF	3/8	.3750	25/64	3-5/32	5-23/64
0251CTF	25/64	.3906	25/64	3-5/32	5-23/64
DH712025	25/64	.3906	7/16	3-5/32	5-23/64
0261CTF	13/32	.4062	27/64	3-5/16	5-7/8
DH712026	13/32	.4062	7/16	3-5/16	5-7/8
0271CTF	27/64	.4219	27/64	3-15/32	5-7/8
DH712027	27/64	.4219	7/16	3-15/32	5-7/8
DH712028	7/16	.4375	7/16	3-5/8	6-7/32
0281CTF	7/16	.4375	15/32	3-5/8	6-7/32
0291CTF	29/64	.4531	15/32	3-25/32	6-7/32
DH712029	29/64	.4531	1/2	3-25/32	6-7/32
0301CTF	15/32	.4688	15/32	3-25/32	6-7/32
DH712030	15/32	.4688	1/2	3-25/32	6-7/32
0311CTF	31/64	.4844	1/2	3-15/16	6-37/64
0321CTF	1/2	.5000	1/2	4-3/32	6-37/64

▶ Other shank types are available on your request.

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○

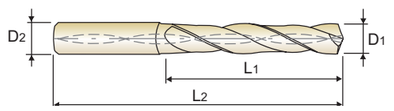
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

DREAM DRILLS -GENERAL

DH406 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
General with Coolant Holes (3XD)

- ▶Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- ▶Self centering and chip breaking by R-thinning
- ▶Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶Optimized flute shape for strength of drilling and smooth chip evacuation



DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | TiAlN | p.A104~A105

SHORT
3 × D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH406030	3.0		.1181	6	20	62
DH406031	3.1		.1220	6	20	62
DH406008F	3.175	1/8	.1250	6	20	62
DH406032	3.2		.1260	6	20	62
DH406033	3.3		.1299	6	20	62
DH406034	3.4		.1339	6	20	62
DH406035	3.5		.1378	6	20	62
DH406009F	3.572	9/64	.1406	6	20	62
DH406036	3.6		.1417	6	20	62
DH406037	3.7		.1457	6	20	62
DH406038	3.8		.1496	6	24	66
DH406039	3.9		.1535	6	24	66
DH406010F	3.969	5/32	.1563	6	24	66
DH406040	4.0		.1575	6	24	66
DH406041	4.1		.1614	6	24	66
DH406042	4.2		.1654	6	24	66
DH406043	4.3		.1693	6	24	66
DH406011E	4.366	11/64	.1719	6	24	66
DH406044	4.4		.1732	6	24	66
DH406045	4.5		.1772	6	24	66
DH406046	4.6		.1811	6	24	66
DH406047	4.7		.1850	6	24	66
DH406012E	4.763	3/16	.1875	6	24	66
DH406048	4.8		.1890	6	28	66
DH406049	4.9		.1929	6	28	66
DH406050	5.0		.1969	6	28	66

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH406051	5.1		.2008	6	28	66
DH406013F	5.159	13/64	.2031	6	28	66
DH406052	5.2		.2047	6	28	66
DH406053	5.3		.2087	6	28	66
DH406054	5.4		.2126	6	28	66
DH406055	5.5		.2165	6	28	66
DH406014F	5.556	7/32	.2188	6	28	66
DH406056	5.6		.2205	6	28	66
DH406057	5.7		.2244	6	28	66
DH406058	5.8		.2283	6	28	66
DH406059	5.9		.2323	6	28	66
DH406015F	5.953	15/64	.2344	6	28	66
DH406060	6.0		.2362	6	28	66
DH406061	6.1		.2402	8	34	79
DH406062	6.2		.2441	8	34	79
DH406063	6.3		.2480	8	34	79
DH406016F	6.350	1/4	.2500	8	34	79
DH406064	6.4		.2520	8	34	79
DH406065	6.5		.2559	8	34	79
DH406006L	6.528	F	.2570	8	34	79
DH406066	6.6		.2598	8	34	79
DH406067	6.7		.2638	8	34	79
DH406017E	6.747	17/64	.2656	8	34	79
DH406068	6.8		.2677	8	34	79
DH406069	6.9		.2717	8	34	79
DH406009L	6.909	I	.2720	8	34	79

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

DREAM DRILLS -GENERAL

DH406 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
General with Coolant Holes (3XD)

- ▶Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- ▶Self centering and chip breaking by R-thinning
- ▶Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶Optimized flute shape for strength of drilling and smooth chip evacuation

DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | TiAlN

p.A104~A105

SHORT
3×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH406070	7.0		.2756	8	34	79
DH406071	7.1		.2795	8	41	79
DH406018F	7.144	9/32	.2812	8	41	79
DH406072	7.2		.2835	8	41	79
DH406073	7.3		.2874	8	41	79
DH406074	7.4		.2913	8	41	79
DH406075	7.5		.2953	8	41	79
DH406019F	7.541	19/64	.2969	8	41	79
DH406076	7.6		.2992	8	41	79
DH406077	7.7		.3031	8	41	79
DH406078	7.8		.3071	8	41	79
DH406079	7.9		.3110	8	41	79
DH406020F	7.938	5/16	.3125	8	41	79
DH406080	8.0		.3150	8	41	79
DH406081	8.1		.3189	10	47	89
DH406082	8.2		.3228	10	47	89
DH406083	8.3		.3268	10	47	89
DH406021F	8.334	21/64	.3281	10	47	89
DH406084	8.4		.3307	10	47	89
DH406017L	8.433	Q	.3320	10	47	89
DH406085	8.5		.3346	10	47	89
DH406086	8.6		.3386	10	47	89
DH406087	8.7		.3425	10	47	89
DH406022F	8.731	11/32	.3438	10	47	89
DH406088	8.8		.3465	10	47	89
DH406089	8.9		.3504	10	47	89
DH406090	9.0		.3543	10	47	89
DH406091	9.1		.3583	10	47	89
DH406023F	9.128	23/64	.3594	10	47	89
DH406092	9.2		.3622	10	47	89
DH406093	9.3		.3661	10	47	89
DH406021L	9.347	U	.3680	10	47	89
DH406094	9.4		.3701	10	47	89
DH406095	9.5		.3740	10	47	89
DH406024F	9.525	3/8	.3750	10	47	89
DH406096	9.6		.3780	10	47	89
DH406097	9.7		.3819	10	47	89
DH406098	9.8		.3858	10	47	89
DH406099	9.9		.3898	10	47	89
DH406025F	9.922	25/64	.3906	10	47	89
DH406100	10.0		.3937	10	47	89
DH406101	10.1		.3976	12	55	102
DH406102	10.2		.4016	12	55	102
DH406103	10.3		.4055	12	55	102
DH406026F	10.319	13/32	.4062	12	55	102
DH406104	10.4		.4094	12	55	102
DH406105	10.5		.4134	12	55	102
DH406106	10.6		.4173	12	55	102
DH406107	10.7		.4212	12	55	102
DH406027F	10.716	27/64	.4219	12	55	102
DH406108	10.8		.4252	12	55	102
DH406109	10.9		.4291	12	55	102

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

DREAM DRILLS -GENERAL

DH406 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
General with Coolant Holes (3XD)

- ▶Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- ▶Self centering and chip breaking by R-thinning
- ▶Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶Optimized flute shape for strength of drilling and smooth chip evacuation

DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | TiAlN

p.A104~A105

SHORT
3×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH406110	11.0		.4330	12	55	102
DH406111	11.1		.4370	12	55	102
DH406028E	11.113	7/16	.4375	12	55	102
DH406112	11.2		.4409	12	55	102
DH406113	11.3		.4448	12	55	102
DH406114	11.4		.4488	12	55	102
DH406115	11.5		.4527	12	55	102
DH406029E	11.509	29/64	.4531	12	55	102
DH406116	11.6		.4566	12	55	102
DH406117	11.7		.4606	12	55	102
DH406118	11.8		.4645	12	55	102
DH406119	11.9		.4685	12	55	102
DH406030E	11.906	15/32	.4688	12	55	102
DH406120	12.0		.4724	12	55	102
DH406121	12.1		.4764	14	60	107
DH406122	12.2		.4803	14	60	107
DH406123	12.3		.4843	14	60	107
DH406031E	12.303	31/64	.4844	14	60	107
DH406124	12.4		.4882	14	60	107
DH406125	12.5		.4921	14	60	107
DH406126	12.6		.4961	14	60	107
DH406032E	12.7	1/2	.5000	14	60	107
DH406128	12.8		.5039	14	60	107
DH406129	12.9		.5079	14	60	107
DH406130	13.0		.5118	14	60	107
DH406131	13.1		.5157	14	60	107
DH406132	13.2		.5197	14	60	107
DH406133	13.3		.5236	14	60	107
DH406134	13.4		.5276	14	60	107
DH406135	13.5		.5314	14	60	107
DH406136	13.6		.5354	14	60	107
DH406137	13.7		.5394	14	60	107
DH406138	13.8		.5433	14	60	107
DH406139	13.9		.5472	14	60	107
DH406140	14.0		.5512	14	60	107
DH406141	14.1		.5551	16	65	115
DH406142	14.2		.5591	16	65	115
DH406036E	14.288	9/16	.5625	16	65	115
DH406143	14.3		.5630	16	65	115
DH406144	14.4		.5669	16	65	115
DH406145	14.5		.5708	16	65	115
DH406146	14.6		.5748	16	65	115
DH406147	14.7		.5787	16	65	115
DH406148	14.8		.5827	16	65	115
DH406149	14.9		.5866	16	65	115
DH406150	15.0		.5905	16	65	115
DH406151	15.1		.5945	16	65	115
DH406152	15.2		.5984	16	65	115
DH406153	15.3		.6024	16	65	115
DH406154	15.4		.6063	16	65	115
DH406155	15.5		.6102	16	65	115
DH406156	15.6		.6142	16	65	115

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○

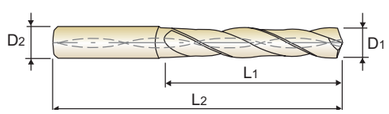
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

DREAM DRILLS -GENERAL

DH406 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
General with Coolant Holes (3XD)

- ▶Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- ▶Self centering and chip breaking by R-thinning
- ▶Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶Optimized flute shape for strength of drilling and smooth chip evacuation



DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | TiAlN

p.A104~A105

SHORT
3×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH406157	15.7		.6181	16	65	115
DH406158	15.8		.6220	16	65	115
DH406040F	15.875	5/8	.6250	16	65	115
DH406159	15.9		.6260	16	65	115
DH406160	16.0		.6299	16	65	115
DH406161	16.1		.6339	18	73	123
DH406162	16.2		.6378	18	73	123
DH406163	16.3		.6417	18	73	123
DH406164	16.4		.6457	18	73	123
DH406165	16.5		.6495	18	73	123
DH406166	16.6		.6535	18	73	123
DH406167	16.7		.6575	18	73	123
DH406168	16.8		.6614	18	73	123
DH406169	16.9		.6654	18	73	123
DH406170	17.0		.6692	18	73	123
DH406171	17.1		.6732	18	73	123
DH406172	17.2		.6772	18	73	123
DH406173	17.3		.6811	18	73	123
DH406174	17.4		.6850	18	73	123
DH406044F	17.463	11/16	.6875	18	73	123
DH406175	17.5		.6889	18	73	123
DH406176	17.6		.6929	18	73	123
DH406177	17.7		.6968	18	73	123
DH406178	17.8		.7008	18	73	123
DH406179	17.9		.7047	18	73	123
DH406180	18.0		.7087	18	73	123
DH406181	18.1		.7126	20	79	131
DH406182	18.2		.7165	20	79	131
DH406183	18.3		.7205	20	79	131
DH406184	18.4		.7244	20	79	131
DH406185	18.5		.7283	20	79	131
DH406186	18.6		.7323	20	79	131
DH406187	18.7		.7362	20	79	131
DH406188	18.8		.7402	20	79	131
DH406189	18.9		.7441	20	79	131
DH406190	19.0		.7480	20	79	131
DH406048F	19.050	3/4	.7500	20	79	131
DH406191	19.1		.7520	20	79	131
DH406192	19.2		.7559	20	79	131
DH406193	19.3		.7598	20	79	131
DH406194	19.4		.7638	20	79	131
DH406195	19.5		.7676	20	79	131
DH406196	19.6		.7717	20	79	131
DH406197	19.7		.7756	20	79	131
DH406198	19.8		.7795	20	79	131
DH406199	19.9		.7835	20	79	131
DH406200	20.0		.7874	20	79	131

▶ Other shank types are available on your request.

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○

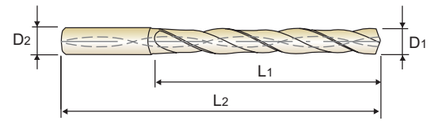
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

DREAM DRILLS -GENERAL

DH408 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
General with Coolant Holes (5XD)

- ▶Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- ▶Self centering and chip breaking by R-thinning
- ▶Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶Optimized flute shape for strength of drilling and smooth chip evacuation



DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | TiAlN

p.A104~A105

LONG
5×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH408010	1.0		.0394	3	8	55
DH408011	1.1		.0433	3	12	55
DH408012	1.2		.0472	3	12	55
DH408013	1.3		.0512	3	12	55
DH408014	1.4		.0551	3	12	55
DH408015	1.5		.0591	3	16	55
DH408004F	1.588	1/16	.0625	3	16	55
DH408016	1.6		.0630	3	16	55
DH408017	1.7		.0669	3	16	55
DH408018	1.8		.0709	3	16	55
DH408019	1.9		.0748	3	16	55
DH408005F	1.984	5/64	.0781	3	16	55
DH408020	2.0		.0787	4	21	57
DH408021	2.1		.0827	4	21	57
DH408022	2.2		.0866	4	21	57
DH408023	2.3		.0906	4	21	57
DH408006F	2.381	3/32	.0938	4	21	57
DH408024	2.4		.0945	4	21	57
DH408025	2.5		.0984	4	21	57
DH408026	2.6		.1024	4	21	57
DH408027	2.7		.1063	4	21	57
DH408007F	2.778	7/64	.1094	4	21	57
DH408028	2.8		.1102	4	21	57
DH408029	2.9		.1142	4	21	57
DH408030	3.0		.1181	6	28	66
DH408031	3.1		.1220	6	28	66
DH408008F	3.175	1/8	.1250	6	28	66
DH408032	3.2		.1260	6	28	66
DH408033	3.3		.1299	6	28	66
DH408034	3.4		.1339	6	28	66
DH408035	3.5		.1378	6	28	66
DH408009F	3.572	9/64	.1406	6	28	66
DH408036	3.6		.1417	6	28	66
DH408037	3.7		.1457	6	28	66
DH408038	3.8		.1496	6	36	74
DH408039	3.9		.1535	6	36	74
DH408010F	3.969	5/32	.1563	6	36	74
DH408040	4.0		.1575	6	36	74
DH408041	4.1		.1614	6	36	74
DH408042	4.2		.1654	6	36	74
DH408043	4.3		.1693	6	36	74
DH408011F	4.366	11/64	.1719	6	36	74
DH408044	4.4		.1732	6	36	74
DH408045	4.5		.1772	6	36	74
DH408046	4.6		.1811	6	36	74
DH408047	4.7		.1850	6	36	74
DH408012F	4.763	3/16	.1875	6	36	74
DH408048	4.8		.1890	6	44	82
DH408049	4.9		.1929	6	44	82
DH408050	5.0		.1969	6	44	82
DH408051	5.1		.2008	6	44	82
DH408013F	5.159	13/64	.2031	6	44	82
DH408052	5.2		.2047	6	44	82
DH408053	5.3		.2087	6	44	82
DH408054	5.4		.2126	6	44	82
DH408055	5.5		.2165	6	44	82

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○

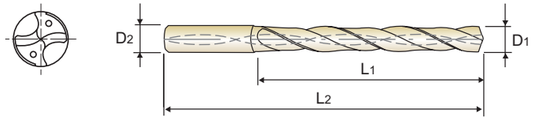
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

DREAM DRILLS -GENERAL

DH408 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
General with Coolant Holes (5XD)

- ▶Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- ▶Self centering and chip breaking by R-thinning
- ▶Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶Optimized flute shape for strength of drilling and smooth chip evacuation



DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | TiAlN

p.A104~A105

LONG
5×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH408014F	5.556	7/32	.2188	6	44	82
DH408056	5.6		.2205	6	44	82
DH408057	5.7		.2244	6	44	82
DH408058	5.8		.2283	6	44	82
DH408059	5.9		.2323	6	44	82
DH408015F	5.953	15/64	.2344	6	44	82
DH408060	6.0		.2362	6	44	82
DH408061	6.1		.2402	8	53	91
DH408062	6.2		.2441	8	53	91
DH408063	6.3		.2480	8	53	91
DH408016F	6.350	1/4	.2500	8	53	91
DH408064	6.4		.2520	8	53	91
DH408065	6.5		.2559	8	53	91
DH408006L	6.528	F	.2570	8	53	91
DH408066	6.6		.2598	8	53	91
DH408067	6.7		.2638	8	53	91
DH408017F	6.747	17/64	.2656	8	53	91
DH408068	6.8		.2677	8	53	91
DH408069	6.9		.2717	8	53	91
DH408009L	6.909	I	.2720	8	53	91
DH408070	7.0		.2756	8	53	91
DH408071	7.1		.2795	8	53	91
DH408018F	7.144	9/32	.2812	8	53	91
DH408072	7.2		.2835	8	53	91
DH408073	7.3		.2874	8	53	91
DH408074	7.4		.2913	8	53	91
DH408075	7.5		.2953	8	53	91
DH408019F	7.541	19/64	.2969	8	53	91
DH408076	7.6		.2992	8	53	91
DH408077	7.7		.3031	8	53	91
DH408078	7.8		.3071	8	53	91
DH408079	7.9		.3110	8	53	91
DH408020F	7.938	5/16	.3125	8	53	91
DH408080	8.0		.3150	8	53	91
DH408081	8.1		.3189	10	61	103
DH408082	8.2		.3228	10	61	103
DH408083	8.3		.3268	10	61	103
DH408021F	8.334	21/64	.3281	10	61	103
DH408084	8.4		.3307	10	61	103
DH408017L	8.433	Q	.3320	10	61	103
DH408085	8.5		.3346	10	61	103
DH408086	8.6		.3386	10	61	103
DH408087	8.7		.3425	10	61	103
DH408022F	8.731	11/32	.3438	10	61	103
DH408088	8.8		.3465	10	61	103
DH408089	8.9		.3504	10	61	103
DH408090	9.0		.3543	10	61	103
DH408091	9.1		.3583	10	61	103
DH408023F	9.128	23/64	.3594	10	61	103
DH408092	9.2		.3622	10	61	103
DH408093	9.3		.3661	10	61	103
DH408021L	9.347	U	.3680	10	61	103
DH408094	9.4		.3701	10	61	103
DH408095	9.5		.3740	10	61	103
DH408024F	9.525	3/8	.3750	10	61	103
DH408096	9.6		.3780	10	61	103

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

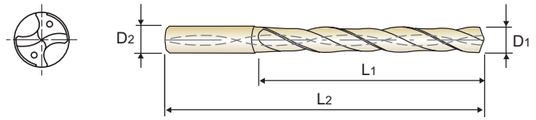
CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

DREAM DRILLS -GENERAL

DH408 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
General with Coolant Holes (5XD)

- ▶Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- ▶Self centering and chip breaking by R-thinning
- ▶Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶Optimized flute shape for strength of drilling and smooth chip evacuation



DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | TiAlN

p.A104~A105

LONG
5×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH408097	9.7		.3819	10	61	103
DH408098	9.8		.3858	10	61	103
DH408099	9.9		.3898	10	61	103
DH408025E	9.922	25/64	.3906	10	61	103
DH408100	10.0		.3937	10	61	103
DH408101	10.1		.3976	12	71	118
DH408102	10.2		.4016	12	71	118
DH408103	10.3		.4055	12	71	118
DH408026E	10.319	13/32	.4062	12	71	118
DH408104	10.4		.4094	12	71	118
DH408105	10.5		.4134	12	71	118
DH408106	10.6		.4173	12	71	118
DH408107	10.7		.4212	12	71	118
DH408027E	10.716	27/64	.4219	12	71	118
DH408108	10.8		.4252	12	71	118
DH408109	10.9		.4291	12	71	118
DH408110	11.0		.4330	12	71	118
DH408111	11.1		.4370	12	71	118
DH408028E	11.113	7/16	.4375	12	71	118
DH408112	11.2		.4409	12	71	118
DH408113	11.3		.4448	12	71	118
DH408114	11.4		.4488	12	71	118
DH408115	11.5		.4527	12	71	118
DH408029E	11.509	29/64	.4531	12	71	118
DH408116	11.6		.4566	12	71	118
DH408117	11.7		.4606	12	71	118
DH408118	11.8		.4645	12	71	118
DH408119	11.9		.4685	12	71	118
DH408030E	11.906	15/32	.4688	12	71	118
DH408120	12.0		.4724	12	71	118
DH408121	12.1		.4764	14	77	124
DH408122	12.2		.4803	14	77	124
DH408123	12.3		.4843	14	77	124
DH408031E	12.303	31/64	.4844	14	77	124
DH408124	12.4		.4882	14	77	124
DH408125	12.5		.4921	14	77	124
DH408126	12.6		.4961	14	77	124
DH408032E	12.7	1/2	.5000	14	77	124
DH408128	12.8		.5039	14	77	124
DH408129	12.9		.5079	14	77	124
DH408130	13.0		.5118	14	77	124
DH408131	13.1		.5157	14	77	124
DH408132	13.2		.5197	14	77	124
DH408133	13.3		.5236	14	77	124
DH408134	13.4		.5276	14	77	124
DH408135	13.5		.5314	14	77	124
DH408136	13.6		.5354	14	77	124
DH408137	13.7		.5394	14	77	124
DH408138	13.8		.5433	14	77	124
DH408139	13.9		.5472	14	77	124
DH408140	14.0		.5512	14	77	124
DH408141	14.1		.5551	16	83	133
DH408142	14.2		.5591	16	83	133
DH408036E	14.288	9/16	.5625	16	83	133
DH408143	14.3		.5630	16	83	133
DH408144	14.4		.5669	16	83	133

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○

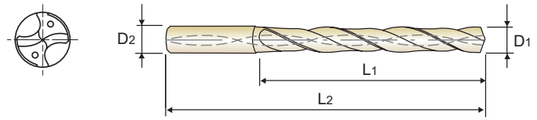
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

DREAM DRILLS -GENERAL

DH408 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
General with Coolant Holes (5XD)

- ▶Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- ▶Self centering and chip breaking by R-thinning
- ▶Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶Optimized flute shape for strength of drilling and smooth chip evacuation



DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | TiAlN

p.A104~A105

LONG 5×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH408145	14.5		.5708	16	83	133
DH408146	14.6		.5748	16	83	133
DH408147	14.7		.5787	16	83	133
DH408148	14.8		.5827	16	83	133
DH408149	14.9		.5866	16	83	133
DH408150	15.0		.5905	16	83	133
DH408151	15.1		.5945	16	83	133
DH408152	15.2		.5984	16	83	133
DH408153	15.3		.6024	16	83	133
DH408154	15.4		.6063	16	83	133
DH408155	15.5		.6102	16	83	133
DH408156	15.6		.6142	16	83	133
DH408157	15.7		.6181	16	83	133
DH408158	15.8		.6220	16	83	133
DH408040F	15.875	5/8	.6250	16	83	133
DH408159	15.9		.6260	16	83	133
DH408160	16.0		.6299	16	83	133
DH408161	16.1		.6339	18	93	143
DH408162	16.2		.6378	18	93	143
DH408163	16.3		.6417	18	93	143
DH408164	16.4		.6457	18	93	143
DH408165	16.5		.6495	18	93	143
DH408166	16.6		.6535	18	93	143
DH408167	16.7		.6575	18	93	143
DH408168	16.8		.6614	18	93	143
DH408169	16.9		.6654	18	93	143
DH408170	17.0		.6692	18	93	143
DH408171	17.1		.6732	18	93	143
DH408172	17.2		.6772	18	93	143
DH408173	17.3		.6811	18	93	143
DH408174	17.4		.6850	18	93	143
DH408175	17.5		.6889	18	93	143
DH408176	17.6		.6929	18	93	143
DH408177	17.7		.6968	18	93	143
DH408178	17.8		.7008	18	93	143
DH408179	17.9		.7047	18	93	143
DH408180	18.0		.7087	18	93	143
DH408181	18.1		.7126	20	101	153
DH408182	18.2		.7165	20	101	153
DH408183	18.3		.7205	20	101	153
DH408184	18.4		.7244	20	101	153
DH408185	18.5		.7283	20	101	153
DH408186	18.6		.7323	20	101	153
DH408187	18.7		.7362	20	101	153
DH408188	18.8		.7402	20	101	153
DH408189	18.9		.7441	20	101	153
DH408190	19.0		.7480	20	101	153
DH408048F	19.050	3/4	.7500	20	101	153
DH408191	19.1		.7520	20	101	153
DH408192	19.2		.7559	20	101	153
DH408193	19.3		.7598	20	101	153
DH408194	19.4		.7638	20	101	153
DH408195	19.5		.7676	20	101	153
DH408196	19.6		.7717	20	101	153
DH408197	19.7		.7756	20	101	153
DH408198	19.8		.7795	20	101	153
DH408199	19.9		.7835	20	101	153
DH408200	20.0		.7874	20	101	153

▶ Other shank types are available on your request.

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	○	○	◎	○

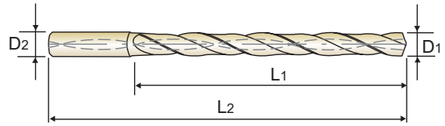
ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	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	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

DREAM DRILLS -GENERAL

DH421 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
General with Coolant Holes (8XD)

- ▶Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- ▶Self centering and chip breaking by R-thinning
- ▶Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶Optimized flute shape for strength of drilling and smooth chip evacuation



DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | TiAlN

p.A104~A105

EXTRA LONG 8×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH421030	3.0		.1181	6	34	72
DH421031	3.1		.1220	6	34	72
DH421008F	3.175	1/8	.1250	6	34	72
DH421032	3.2		.1260	6	34	72
DH421033	3.3		.1299	6	34	72
DH421034	3.4		.1339	6	34	72
DH421229G	3.450	#29	.1360	6	34	72
DH421035	3.5		.1378	6	34	72
DH421009F	3.572	9/64	.1406	6	34	72
DH421036	3.6		.1417	6	34	72
DH421037	3.7		.1457	6	34	72
DH421038	3.8		.1496	6	43	81
DH421039	3.9		.1535	6	43	81
DH421010F	3.969	5/32	.1563	6	43	81
DH421040	4.0		.1575	6	43	81
DH421221G	4.040	#21	.1590	6	43	81
DH421041	4.1		.1614	6	43	81
DH421042	4.2		.1654	6	43	81
DH421043	4.3		.1693	6	43	81
DH421011F	4.366	11/64	.1719	6	43	81
DH421044	4.4		.1732	6	43	81
DH421045	4.5		.1772	6	43	81
DH421046	4.6		.1811	6	43	81
DH421047	4.7		.1850	6	43	81
DH421012F	4.763	3/16	.1875	6	57	95
DH421048	4.8		.1890	6	57	95
DH421049	4.9		.1929	6	57	95
DH421050	5.0		.1969	6	57	95
DH421051	5.1		.2008	6	57	95
DH421013F	5.159	13/64	.2031	6	57	95
DH421052	5.2		.2047	6	57	95
DH421053	5.3		.2087	6	57	95
DH421054	5.4		.2126	6	57	95
DH421055	5.5		.2165	6	57	95
DH421014F	5.556	7/32	.2188	6	57	95
DH421056	5.6		.2205	6	57	95
DH421057	5.7		.2244	6	57	95
DH421058	5.8		.2283	6	57	95
DH421059	5.9		.2323	6	57	95
DH421015F	5.953	15/64	.2344	6	57	95
DH421060	6.0		.2362	6	57	95
DH421061	6.1		.2402	8	76	114
DH421062	6.2		.2441	8	76	114
DH421063	6.3		.2480	8	76	114
DH421016F	6.350	1/4	.2500	8	76	114
DH421064	6.4		.2520	8	76	114
DH421065	6.5		.2559	8	76	114
DH421106L	6.528	F	.2570	8	76	114
DH421066	6.6		.2598	8	76	114
DH421067	6.7		.2638	8	76	114
DH421017F	6.747	17/64	.2656	8	76	114
DH421068	6.8		.2677	8	76	114

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	○	○	◎	○

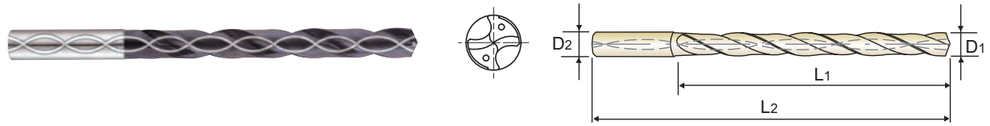
ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	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	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

DREAM DRILLS -GENERAL

DH421 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
General with Coolant Holes (8XD)

- ▶Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- ▶Self centering and chip breaking by R-thinning
- ▶Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶Optimized flute shape for strength of drilling and smooth chip evacuation



DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | TiAlN

p.A104~A105

EXTRA LONG
8×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH421069	6.9		.2717	8	76	114
DH421009L	6.909	I	.2720	8	76	114
DH421070	7.0		.2756	8	76	114
DH421071	7.1		.2795	8	76	114
DH421018F	7.144	9/32	.2813	8	76	114
DH421072	7.2		.2835	8	76	114
DH421073	7.3		.2874	8	76	114
DH421074	7.4		.2913	8	76	114
DH421075	7.5		.2953	8	76	114
DH421019F	7.541	19/64	.2969	8	76	114
DH421076	7.6		.2992	8	76	114
DH421077	7.7		.3031	8	76	114
DH421078	7.8		.3071	8	76	114
DH421079	7.9		.3110	8	76	114
DH421020F	7.938	5/16	.3125	8	76	114
DH421080	8.0		.3150	8	76	114
DH421081	8.1		.3189	10	95	142
DH421082	8.2		.3228	10	95	142
DH421083	8.3		.3268	10	95	142
DH421021F	8.334	21/64	.3281	10	95	142
DH421084	8.4		.3307	10	95	142
DH421117L	8.430	Q	.3320	10	95	142
DH421085	8.5		.3346	10	95	142
DH421086	8.6		.3386	10	95	142
DH421087	8.7		.3425	10	95	142
DH421022F	8.731	11/32	.3438	10	95	142
DH421088	8.8		.3465	10	95	142
DH421089	8.9		.3504	10	95	142
DH421090	9.0		.3543	10	95	142
DH421091	9.1		.3583	10	95	142
DH421023F	9.128	23/64	.3594	10	95	142
DH421092	9.2		.3622	10	95	142
DH421093	9.3		.3661	10	95	142
DH421121L	9.350	U	.3680	10	95	142
DH421094	9.4		.3701	10	95	142
DH421095	9.5		.3740	10	95	142
DH421024F	9.525	3/8	.3750	10	95	142
DH421096	9.6		.3780	10	95	142
DH421097	9.7		.3819	10	95	142
DH421098	9.8		.3858	10	95	142
DH421099	9.9		.3898	10	95	142
DH421025F	9.922	25/64	.3906	10	95	142
DH421100	10.0		.3937	10	95	142
DH421101	10.1		.3976	12	114	162
DH421102	10.2		.4016	12	114	162
DH421103	10.3		.4055	12	114	162
DH421026F	10.319	13/32	.4063	12	114	162
DH421104	10.4		.4094	12	114	162
DH421105	10.5		.4134	12	114	162
DH421106	10.6		.4173	12	114	162
DH421107	10.7		.4212	12	114	162
DH421027F	10.716	27/64	.4219	12	114	162

▶ Other shank types are available on your request.

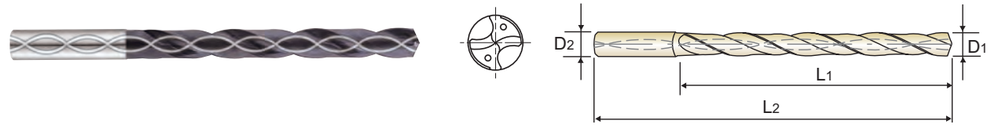
▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

DREAM DRILLS -GENERAL
DH421 SERIES
TiAlN-COATED SOLID CARBIDE DREAM DRILLS
General with Coolant Holes (8XD)
▶Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
▶Self centering and chip breaking by R-thinning
▶Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
▶Optimized flute shape for strength of drilling and smooth chip evacuation



DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | TiAlN
p.A104~A105
EXTRA LONG
8×D
Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH421108	10.8		.4252	12	114	162
DH421 109	10.9		.4291	12	114	162
DH421110	11.0		.4330	12	114	162
DH421111	11.1		.4370	12	114	162
DH421028F	11.113	7/16	.4375	12	114	162
DH421112	11.2		.4409	12	114	162
DH421113	11.3		.4448	12	114	162
DH421114	11.4		.4488	12	114	162
DH421115	11.5		.4527	12	114	162
DH421029F	11.509	29/64	.4531	12	114	162
DH421116	11.6		.4566	12	114	162
DH421117	11.7		.4606	12	114	162
DH421118	11.8		.4645	12	114	162
DH421119	11.9		.4685	12	114	162
DH421030F	11.906	15/32	.4688	12	114	162
DH421120	12.0		.4724	12	114	162
DH421121	12.1		.4764	14	133	178
DH421122	12.2		.4803	14	133	178
DH421123	12.3		.4843	14	133	178
DH421031F	12.303	31/64	.4844	14	133	178
DH421124	12.4		.4882	14	133	178
DH421125	12.5		.4921	14	133	178
DH421126	12.6		.4961	14	133	178
DH421032F	12.7	1/2	.5000	14	133	178
DH421128	12.8		.5039	14	133	178
DH421129	12.9		.5079	14	133	178
DH421130	13.0		.5118	14	133	178
DH421033F	13.097	33/64	.5156	14	133	178
DH421131	13.1		.5157	14	133	178
DH421132	13.2		.5197	14	133	178
DH421133	13.3		.5236	14	133	178
DH421134	13.4		.5276	14	133	178
DH421135	13.5		.5314	14	133	178
DH421136	13.6		.5354	14	133	178
DH421137	13.7		.5394	14	133	178
DH421138	13.8		.5433	14	133	178
DH421139	13.9		.5472	14	133	178
DH421140	14.0		.5512	14	133	178
DH421141	14.1		.5551	16	152	203
DH421142	14.2		.5591	16	152	203
DH421036F	14.288	9/16	.5625	16	152	203
DH421143	14.3		.5630	16	152	203
DH421144	14.4		.5669	16	152	203
DH421145	14.5		.5709	16	152	203
DH421146	14.6		.5748	16	152	203
DH421147	14.7		.5787	16	152	203
DH421148	14.8		.5827	16	152	203
DH421149	14.9		.5866	16	152	203
DH421150	15.0		.5905	16	152	203
DH421151	15.1		.5945	16	152	203
DH421152	15.2		.5984	16	152	203
DH421153	15.3		.6024	16	152	203

▶ Other shank types are available on your request.
▶ NEXT PAGE
◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○

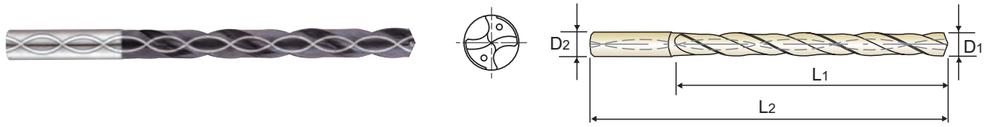
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

DREAM DRILLS -GENERAL

DH421 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
General with Coolant Holes (8XD)

- ▶Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- ▶Self centering and chip breaking by R-thinning
- ▶Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶Optimized flute shape for strength of drilling and smooth chip evacuation



DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | TiAlN

p.A104~A105

EXTRA LONG
8×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH421154	15.4		.6063	16	152	203
DH421155	15.5		.6102	16	152	203
DH421156	15.6		.6142	16	152	203
DH421157	15.7		.6181	16	152	203
DH421158	15.8		.6220	16	152	203
DH421040F	15.875	5/8	.6250	16	152	203
DH421159	15.9		.6260	16	152	203
DH421160	16.0		.6299	16	152	203
DH421161	16.1		.6339	18	171	222
DH421162	16.2		.6378	18	171	222
DH421163	16.3		.6417	18	171	222
DH421164	16.4		.6457	18	171	222
DH421165	16.5		.6496	18	171	222
DH421166	16.6		.6535	18	171	222
DH421167	16.7		.6575	18	171	222
DH421168	16.8		.6614	18	171	222
DH421169	16.9		.6654	18	171	222
DH421170	17.0		.6693	18	171	222
DH421171	17.1		.6732	18	171	222
DH421172	17.2		.6772	18	171	222
DH421173	17.3		.6811	18	171	222
DH421174	17.4		.6850	18	171	222
DH421175	17.5		.6890	18	171	222
DH421176	17.6		.6929	18	171	222
DH421177	17.7		.6968	18	171	222
DH421178	17.8		.7008	18	171	222
DH421179	17.9		.7047	18	171	222
DH421180	18.0		.7087	18	171	222
DH421181	18.1		.7126	20	190	243
DH421182	18.2		.7165	20	190	243
DH421183	18.3		.7205	20	190	243
DH421184	18.4		.7244	20	190	243
DH421185	18.5		.7283	20	190	243
DH421186	18.6		.7323	20	190	243
DH421187	18.7		.7362	20	190	243
DH421188	18.8		.7402	20	190	243
DH421189	18.9		.7441	20	190	243
DH421190	19.0		.7480	20	190	243
DH421048F	19.050	3/4	.7500	20	190	243
DH421191	19.1		.7520	20	190	243
DH421192	19.2		.7559	20	190	243
DH421193	19.3		.7598	20	190	243
DH421194	19.4		.7638	20	190	243
DH421195	19.5		.7677	20	190	243
DH421196	19.6		.7717	20	190	243
DH421197	19.7		.7756	20	190	243
DH421198	19.8		.7795	20	190	243
DH421199	19.9		.7835	20	190	243
DH421200	20.0		.7874	20	190	243

▶ Other shank types are available on your request.

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○

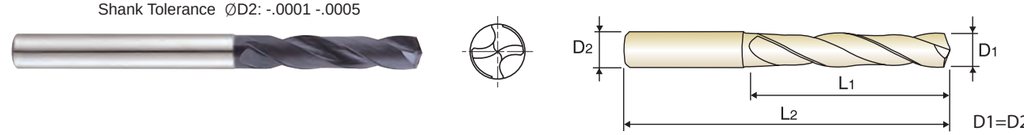
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

DREAM DRILLS -GENERAL

DH414 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
General without Coolant Holes (3XD)

- ▶Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- ▶Self centering and chip breaking by R-thinning
- ▶Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶Optimized flute shape for strength of drilling and smooth chip evacuation
- ▶Tolerance : Dia. Tolerance ØD1: See page A405
  Shank Tolerance ØD2: -.0001 -.0005



CARBIDE | h6 | 140° | TiAlN

p.A106~A107

STUB
3×D

Unit : inch

EDP No.	Drill Diameter		Flute Length	Overall Length
	Fractional	Decimal		
TiAlN	D1 = D2		L1	L2
0081ATE	1/8	.1250	45/64	1-59/64
0091ATE	9/64	.1406	25/32	2-3/64
0101ATE	5/32	.1562	7/8	2-3/16
0111ATE	11/64	.1719	15/16	2-9/32
0121ATE	3/16	.1875	1	2-7/16
0131ATE	13/64	.2031	1	2-7/16
0141ATE	7/32	.2188	1-1/8	2-5/8
0151ATE	15/64	.2344	1-1/8	2-5/8
0161ATE	1/4	.2500	1-5/8	3-3/16
2061ATE	F	.2570	1-11/16	3-17/64
0171ATE	17/64	.2656	1-11/16	3-17/64
2091ATE	I	.2720	1-11/16	3-17/64
0181ATE	9/32	.2812	1-3/4	3-7/16
0191ATE	19/64	.2969	1-7/8	3-9/16
0201ATE	5/16	.3125	1-7/8	3-9/16
0211ATE	21/64	.3281	2-1/16	3-3/4
2171ATE	Q	.3320	2-1/16	3-3/4
0221ATE	11/32	.3438	2-3/16	3-7/8
0231ATE	23/64	.3594	2-9/32	4
2211ATE	U	.3680	2-9/32	4
0241ATE	3/8	.3750	2-3/8	4-1/8
0251ATE	25/64	.3906	2-3/8	4-1/8
0261ATE	13/32	.4062	2-5/8	4-13/32
0271ATE	27/64	.4219	2-11/16	4-1/2
0281ATE	7/16	.4375	2-13/16	4-5/8
0291ATE	29/64	.4531	2-7/8	4-3/4
0301ATE	15/32	.4688	2-7/8	4-3/4
0311ATE	31/64	.4844	3	5-5/16
0321ATE	1/2	.5000	3-1/16	5-3/8
0331ATE	33/64	.5156	3-11/32	5-11/16
0341ATE	17/32	.5312	3-11/32	5-11/16
0361ATE	9/16	.5625	3-1/2	5-15/16
0371ATE	37/64	.5781	3-37/64	6
0401ATE	5/8	.6250	3-25/3	6-19/64

▶ Other shank types are available on your request.

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○

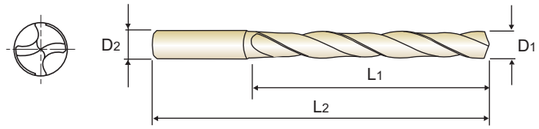
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

DREAM DRILLS -GENERAL

DH722 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
General without Coolant Holes (5XD)

- ▶Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- ▶Self centering and chip breaking by R-thinning
- ▶Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶Optimized flute shape for strength of drilling and smooth chip evacuation
- ▶Tolerance : Dia. Tolerance ØD1: See page A405
  Shank Tolerance ØD2: -.0001 -.0005



CARBIDE | h6 | 140° | TiAlN | p.A106~A107

LONG
5×D

Unit : inch

EDP No.	Drill Diameter		Shank Diameter	Flute Length	Overall Length
	Fractional	Decimal			
TiAlN	D1		D2	L1	L2
DH722013	13/64	.2031	1/4	1-3/4	3-15/16
DH722014	7/32	.2188	1/4	1-57/64	3-15/16
DH722015	15/64	.2344	1/4	1-57/64	3-15/16
DH722016	1/4	.2500	1/4	2-3/64	4-19/64
DH722206	F	.2570	5/16	2-13/64	4-19/64
DH722017	17/64	.2656	5/16	2-13/64	4-19/64
DH722209	I	.2720	5/16	2-13/64	4-19/64
DH722018	9/32	.2812	5/16	2-23/64	4-41/64
DH722019	19/64	.2969	5/16	2-33/64	4-41/64
DH722020	5/16	.3125	5/16	2-33/64	4-41/64
DH722021	21/64	.3281	3/8	2-43/64	5
DH722217	Q	.3320	3/8	2-43/64	5

EDP No.	Drill Diameter		Shank Diameter	Flute Length	Overall Length
	Fractional	Decimal			
TiAlN	D1		D2	L1	L2
DH722022	11/32	.3438	3/8	2-27/32	5
DH722023	23/64	.3594	3/8	3	5-23/64
DH722221	U	.3680	3/8	3	5-23/64
DH722024	3/8	.3750	3/8	3-5/32	5-23/64
DH722025	25/64	.3906	7/16	3-5/32	5-23/64
DH722026	13/32	.4062	7/16	3-5/16	5-7/8
DH722027	27/64	.4219	7/16	3-15/32	5-7/8
DH722028	7/16	.4375	7/16	3-5/8	6-7/32
DH722029	29/64	.4531	1/2	3-25/32	6-7/32
DH722030	15/32	.4688	1/2	3-25/32	6-7/32
DH722031	31/64	.4844	1/2	3-15/16	6-37/64
DH722032	1/2	.5000	1/2	4-3/32	6-37/64

▶ Other shank types are available on your request.

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○

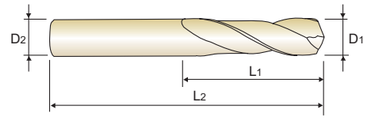
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

DREAM DRILLS -GENERAL

DH404 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
General without Coolant Holes (3XD)

- ▶Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- ▶Self centering and chip breaking by R-thinning
- ▶Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶Optimized flute shape for strength of drilling and smooth chip evacuation



DIN 6539 | CARBIDE | h6 | m7 | 140° | TiAlN | p.A106~A107

STUB
3×D

Unit : mm

EDP No.	Drill Diameter		Flute Length	Overall Length
	Metric	Inch		
TiAlN	D1 = D2		L1	L2
DH404030	3.0	.1181	16	46
DH404031	3.1	.1220	18	49
DH404032	3.2	.1260	18	49
DH404033	3.3	.1299	18	49
DH404034	3.4	.1339	20	52
DH404035	3.5	.1378	20	52
DH404036	3.6	.1417	20	52
DH404037	3.7	.1457	20	52
DH404038	3.8	.1496	22	55
DH404039	3.9	.1535	22	55
DH404040	4.0	.1575	22	55
DH404041	4.1	.1614	22	55
DH404042	4.2	.1654	22	55
DH404043	4.3	.1693	24	58
DH404044	4.4	.1732	24	58
DH404045	4.5	.1772	24	58
DH404046	4.6	.1811	24	58
DH404047	4.7	.1850	24	58
DH404048	4.8	.1890	26	62
DH404049	4.9	.1929	26	62
DH404050	5.0	.1969	26	62
DH404051	5.1	.2008	26	62
DH404052	5.2	.2047	26	62
DH404053	5.3	.2087	26	62
DH404054	5.4	.2126	28	66
DH404055	5.5	.2165	28	66

EDP No.	Drill Diameter		Flute Length	Overall Length
	Metric	Inch		
TiAlN	D1 = D2		L1	L2
DH404056	5.6	.2205	28	66
DH404057	5.7	.2244	28	66
DH404058	5.8	.2283	28	66
DH404059	5.9	.2323	28	66
DH404060	6.0	.2362	28	66
DH404061	6.1	.2402	31	70
DH404062	6.2	.2441	31	70
DH404063	6.3	.2480	31	70
DH404064	6.4	.2520	31	70
DH404065	6.5	.2559	31	70
DH404066	6.6	.2598	31	70
DH404067	6.7	.2638	31	70
DH404068	6.8	.2677	34	74
DH404069	6.9	.2717	34	74
DH404070	7.0	.2756	34	74
DH404071	7.1	.2795	34	74
DH404072	7.2	.2835	34	74
DH404073	7.3	.2874	34	74
DH404074	7.4	.2913	34	74
DH404075	7.5	.2953	34	74
DH404076	7.6	.2992	37	79
DH404077	7.7	.3031	37	79
DH404078	7.8	.3071	37	79
DH404079	7.9	.3110	37	79
DH404080	8.0	.3150	37	79
DH404081	8.1	.3189	37	79

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

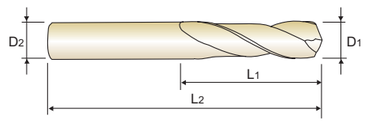
DREAM DRILLS -GENERAL

DH404 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS

General without Coolant Holes (3XD)

- ▶Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- ▶Self centering and chip breaking by R-thinning
- ▶Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶Optimized flute shape for strength of drilling and smooth chip evacuation



DIN 6539 | CARBIDE | h6 | m7 | 140° | TiAlN | p.A106~A107

STUB

3×D

Unit : mm

EDP No.	Drill Diameter		Flute Length	Overall Length
	Metric	Inch		
TiAlN	D1 = D2		L1	L2
DH404082	8.2	.3228	37	79
DH404083	8.3	.3268	37	79
DH404084	8.4	.3307	37	79
DH404085	8.5	.3346	37	79
DH404086	8.6	.3386	40	84
DH404087	8.7	.3425	40	84
DH404088	8.8	.3465	40	84
DH404089	8.9	.3504	40	84
DH404090	9.0	.3543	40	84
DH404091	9.1	.3583	40	84
DH404092	9.2	.3622	40	84
DH404093	9.3	.3661	40	84
DH404094	9.4	.3701	40	84
DH404095	9.5	.3740	40	84
DH404096	9.6	.3780	43	89
DH404097	9.7	.3819	43	89
DH404098	9.8	.3858	43	89
DH404099	9.9	.3898	43	89
DH404100	10.0	.3937	43	89
DH404102	10.2	.4016	43	89

EDP No.	Drill Diameter		Flute Length	Overall Length
	Metric	Inch		
TiAlN	D1 = D2		L1	L2
DH404105	10.5	.4134	43	89
DH404110	11.0	.4331	47	95
DH404115	11.5	.4528	47	95
DH404120	12.0	.4724	51	102
DH404130	13.0	.5118	51	102
DH404135	13.5	.5314	54	107
DH404140	14.0	.5512	54	107
DH404145	14.5	.5708	56	111
DH404150	15.0	.5905	56	111
DH404155	15.5	.6102	58	115
DH404160	16.0	.6299	58	115
DH404165	16.5	.6495	60	119
DH404170	17.0	.6692	60	119
DH404175	17.5	.6889	62	123
DH404180	18.0	.7087	62	123
DH404185	18.5	.7283	64	127
DH404190	19.0	.7480	64	127
DH404195	19.5	.7676	66	131
DH404200	20.0	.7874	66	131

▶ Other shank types are available on your request.

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

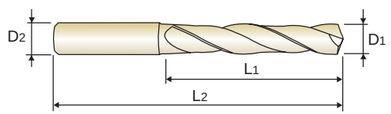
DREAM DRILLS -GENERAL

DH423 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS

General without Coolant Holes (3XD)

- ▶Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- ▶Self centering and chip breaking by R-thinning
- ▶Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶Optimized flute shape for strength of drilling and smooth chip evacuation



DIN 6537 | CARBIDE | h6 | m7 | 140° | TiAlN | p.A106~A107

SHORT

3×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH423030	3.0		.1181	6	20	62
DH423031	3.1		.1220	6	20	62
DH423008F	3.175	1/8	.1250	6	20	62
DH423032	3.2		.1260	6	20	62
DH423033	3.3		.1299	6	20	62
DH423034	3.4		.1339	6	20	62
DH423035	3.5		.1378	6	20	62
DH423009F	3.572	9/64	.1406	6	20	62
DH423036	3.6		.1417	6	20	62
DH423037	3.7		.1457	6	20	62
DH423038	3.8		.1496	6	24	66
DH423039	3.9		.1535	6	24	66
DH423010F	3.969	5/32	.1563	6	24	66
DH423040	4.0		.1575	6	24	66
DH423041	4.1		.1614	6	24	66
DH423042	4.2		.1654	6	24	66
DH423043	4.3		.1693	6	24	66
DH423011F	4.366	11/64	.1719	6	24	66
DH423044	4.4		.1732	6	24	66
DH423045	4.5		.1772	6	24	66
DH423046	4.6		.1811	6	24	66
DH423047	4.7		.1850	6	24	66
DH423012F	4.763	3/16	.1875	6	24	66
DH423048	4.8		.1890	6	28	66
DH423049	4.9		.1929	6	28	66
DH423050	5.0		.1969	6	28	66

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH423051	5.1		.2008	6	28	66
DH423013F	5.159	13/64	.2031	6	28	66
DH423052	5.2		.2047	6	28	66
DH423053	5.3		.2087	6	28	66
DH423054	5.4		.2126	6	28	66
DH423055	5.5		.2165	6	28	66
DH423014F	5.556	7/32	.2188	6	28	66
DH423056	5.6		.2205	6	28	66
DH423057	5.7		.2244	6	28	66
DH423058	5.8		.2283	6	28	66
DH423059	5.9		.2323	6	28	66
DH423015F	5.953	15/64	.2344	6	28	66
DH423060	6.0		.2362	6	28	66
DH423061	6.1		.2402	8	34	79
DH423062	6.2		.2441	8	34	79
DH423063	6.3		.2480	8	34	79
DH423016F	6.350	1/4	.2500	8	34	79
DH423064	6.4		.2520	8	34	79
DH423065	6.5		.2559	8	34	79
DH423006L	6.528	F	.2570	8	34	79
DH423066	6.6		.2598	8	34	79
DH423067	6.7		.2638	8	34	79
DH423017F	6.747	17/64	.2656	8	34	79
DH423068	6.8		.2677	8	34	79
DH423069	6.9		.2717	8	34	79
DH423009L	6.909	I	.2720	8	34	79

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○

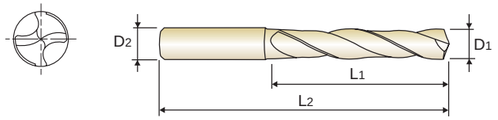
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

DREAM DRILLS -GENERAL

DH423 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
General without Coolant Holes (3XD)

- ▶Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- ▶Self centering and chip breaking by R-thinning
- ▶Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶Optimized flute shape for strength of drilling and smooth chip evacuation



DIN 6537 | CARBIDE | h6 | m7 | 140° | TiAlN | p.A106~A107

SHORT
3×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH423070	7.0		.2756	8	34	79
DH423071	7.1		.2795	8	41	79
DH423018F	7.144	9/32	.2812	8	41	79
DH423072	7.2		.2835	8	41	79
DH423073	7.3		.2874	8	41	79
DH423074	7.4		.2913	8	41	79
DH423075	7.5		.2953	8	41	79
DH423019F	7.541	19/64	.2969	8	41	79
DH423076	7.6		.2992	8	41	79
DH423077	7.7		.3031	8	41	79
DH423078	7.8		.3071	8	41	79
DH423079	7.9		.3110	8	41	79
DH423020F	7.938	5/16	.3125	8	41	79
DH423080	8.0		.3150	8	41	79
DH423081	8.1		.3189	10	47	89
DH423082	8.2		.3228	10	47	89
DH423083	8.3		.3268	10	47	89
DH423021F	8.334	21/64	.3281	10	47	89
DH423084	8.4		.3307	10	47	89
DH423017L	8.433	Q	.3320	10	47	89
DH423085	8.5		.3346	10	47	89
DH423086	8.6		.3386	10	47	89
DH423087	8.7		.3425	10	47	89
DH423022F	8.731	11/32	.3438	10	47	89
DH423088	8.8		.3465	10	47	89
DH423089	8.9		.3504	10	47	89

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH423090	9.0		.3543	10	47	89
DH423091	9.1		.3583	10	47	89
DH423023F	9.128	23/64	.3594	10	47	89
DH423092	9.2		.3622	10	47	89
DH423093	9.3		.3661	10	47	89
DH423021L	9.347	U	.3680	10	47	89
DH423094	9.4		.3701	10	47	89
DH423095	9.5		.3740	10	47	89
DH423024F	9.525	3/8	.3750	10	47	89
DH423096	9.6		.3780	10	47	89
DH423097	9.7		.3819	10	47	89
DH423098	9.8		.3858	10	47	89
DH423099	9.9		.3898	10	47	89
DH423025F	9.922	25/64	.3906	10	47	89
DH423100	10.0		.3937	10	47	89
DH423101	10.1		.3976	12	55	102
DH423102	10.2		.4016	12	55	102
DH423103	10.3		.4055	12	55	102
DH423026F	10.319	13/32	.4062	12	55	102
DH423104	10.4		.4094	12	55	102
DH423105	10.5		.4134	12	55	102
DH423106	10.6		.4173	12	55	102
DH423107	10.7		.4213	12	55	102
DH423027F	10.716	27/64	.4219	12	55	102
DH423108	10.8		.4252	12	55	102
DH423109	10.9		.4291	12	55	102

▶ Other shank types are available on your request.

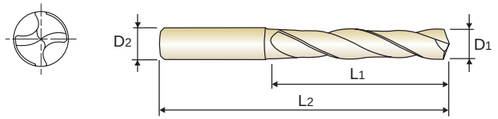
▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

DREAM DRILLS -GENERAL
DH423 SERIES
TiAlN-COATED SOLID CARBIDE DREAM DRILLS
General without Coolant Holes (3XD)
▶Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
▶Self centering and chip breaking by R-thinning
▶Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
▶Optimized flute shape for strength of drilling and smooth chip evacuation



DIN 6537 | CARBIDE | h6 | m7 | 140° | TiAlN | p.A106~A107
SHORT
3×D
Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH423110	11.0		.4331	12	55	102
DH423111	11.1		.4370	12	55	102
DH423028F	11.113	7/16	.4375	12	55	102
DH423112	11.2		.4409	12	55	102
DH423113	11.3		.4449	12	55	102
DH423114	11.4		.4488	12	55	102
DH423115	11.5		.4528	12	55	102
DH423029F	11.509	29/64	.4531	12	55	102
DH423116	11.6		.4567	12	55	102
DH423117	11.7		.4606	12	55	102
DH423118	11.8		.4646	12	55	102
DH423119	11.9		.4685	12	55	102
DH423030F	11.906	15/32	.4688	12	55	102
DH423120	12.0		.4724	12	55	102
DH423121	12.1		.4764	14	60	107
DH423122	12.2		.4803	14	60	107
DH423123	12.3		.4843	14	60	107
DH423031F	12.303	31/64	.4844	14	60	107
DH423124	12.4		.4882	14	60	107
DH423125	12.5		.4921	14	60	107
DH423126	12.6		.4961	14	60	107
DH423032F	12.7	1/2	.5000	14	60	107
DH423128	12.8		.5039	14	60	107
DH423129	12.9		.5079	14	60	107
DH423130	13.0		.5118	14	60	107
DH423131	13.1		.5157	14	60	107

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH423132	13.2		.5197	14	60	107
DH423133	13.3		.5236	14	60	107
DH423134	13.4		.5276	14	60	107
DH423135	13.5		.5315	14	60	107
DH423136	13.6		.5354	14	60	107
DH423137	13.7		.5394	14	60	107
DH423138	13.8		.5433	14	60	107
DH423139	13.9		.5472	14	60	107
DH423140	14.0		.5512	14	60	107
DH423141	14.1		.5551	16	65	115
DH423142	14.2		.5591	16	65	115
DH423036F	14.288	9/16	.5625	16	65	115
DH423143	14.3		.5630	16	65	115
DH423144	14.4		.5669	16	65	115
DH423145	14.5		.5708	16	65	115
DH423146	14.6		.5748	16	65	115
DH423147	14.7		.5787	16	65	115
DH423148	14.8		.5827	16	65	115
DH423149	14.9		.5866	16	65	115
DH423150	15.0		.5905	16	65	115
DH423151	15.1		.5945	16	65	115
DH423152	15.2		.5984	16	65	115
DH423153	15.3		.6024	16	65	115
DH423154	15.4		.6063	16	65	115
DH423155	15.5		.6102	16	65	115
DH423156	15.6		.6142	16	65	115

▶ Other shank types are available on your request.
▶ NEXT PAGE
◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

DREAM DRILLS -GENERAL

DH423 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS

General without Coolant Holes (3XD)

- ▶Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- ▶Self centering and chip breaking by R-thinning
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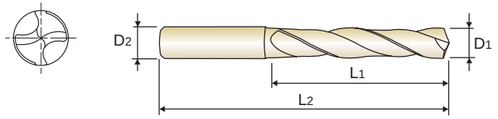
- ▶Optimized flute shape for strength of drilling and smooth chip evacuation



DIN 6537 | CARBIDE | h6 | m7 | 140° | TiAlN

p.A106~A107

SHORT

3×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH423157	15.7		.6181	16	65	115
DH423158	15.8		.6220	16	65	115
DH423040F	15.875	5/8	.6250	16	65	115
DH423159	15.9		.6260	16	65	115
DH423160	16.0		.6299	16	65	115
DH423161	16.1		.6339	18	73	123
DH423162	16.2		.6378	18	73	123
DH423163	16.3		.6417	18	73	123
DH423164	16.4		.6457	18	73	123
DH423165	16.5		.6495	18	73	123
DH423166	16.6		.6535	18	73	123
DH423167	16.7		.6575	18	73	123
DH423168	16.8		.6614	18	73	123
DH423169	16.9		.6654	18	73	123
DH423170	17.0		.6692	18	73	123
DH423171	17.1		.6732	18	73	123
DH423172	17.2		.6772	18	73	123
DH423173	17.3		.6811	18	73	123
DH423174	17.4		.6850	18	73	123
DH423044F	17.463	11/16	.6875	18	73	123
DH423175	17.5		.6889	18	73	123
DH423176	17.6		.6929	18	73	123
DH423177	17.7		.6968	18	73	123
DH423178	17.8		.7008	18	73	123
DH423179	17.9		.7047	18	73	123
DH423180	18.0		.7087	18	73	123
DH423181	18.1		.7126	20	79	131
DH423182	18.2		.7165	20	79	131
DH423183	18.3		.7205	20	79	131
DH423184	18.4		.7244	20	79	131
DH423185	18.5		.7283	20	79	131
DH423186	18.6		.7323	20	79	131
DH423187	18.7		.7362	20	79	131
DH423188	18.8		.7402	20	79	131
DH423189	18.9		.7441	20	79	131
DH423190	19.0		.7480	20	79	131
DH423048F	19.050	3/4	.7500	20	79	131
DH423191	19.1		.7520	20	79	131
DH423192	19.2		.7559	20	79	131
DH423193	19.3		.7598	20	79	131
DH423194	19.4		.7638	20	79	131
DH423195	19.5		.7676	20	79	131
DH423196	19.6		.7717	20	79	131
DH423197	19.7		.7756	20	79	131
DH423198	19.8		.7795	20	79	131
DH423199	19.9		.7835	20	79	131
DH423200	20.0		.7874	20	79	131

▶ Other shank types are available on your request.

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

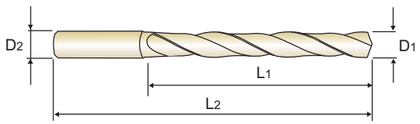
DREAM DRILLS -GENERAL

DH424 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS

General without Coolant Holes (5XD)

- ▶Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- ▶Self centering and chip breaking by R-thinning
- ▶Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶Optimized flute shape for strength of drilling and smooth chip evacuation



DIN 6537 | CARBIDE | h6 | m7 | 140° | TiAlN

p.A106~A107

LONG

5×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH424010	1.0		.0394	3	8	55
DH424011	1.1		.0433	3	12	55
DH424012	1.2		.0472	3	12	55
DH424013	1.3		.0512	3	12	55
DH424014	1.4		.0551	3	12	55
DH424015	1.5		.0591	3	16	55
DH424004F	1.588	1/16	.0625	3	16	55
DH424016	1.6		.0630	3	16	55
DH424017	1.7		.0669	3	16	55
DH424018	1.8		.0709	3	16	55
DH424019	1.9		.0748	3	16	55
DH424005F	1.984	5/64	.0781	3	16	55
DH424020	2.0		.0787	4	21	57
DH424021	2.1		.0827	4	21	57
DH424022	2.2		.0866	4	21	57
DH424023	2.3		.0906	4	21	57
DH424006F	2.381	3/32	.0938	4	21	57
DH424024	2.4		.0945	4	21	57
DH424025	2.5		.0984	4	21	57
DH424026	2.6		.1024	4	21	57
DH424027	2.7		.1063	4	21	57
DH424007F	2.778	7/64	.1094	4	21	57
DH424028	2.8		.1102	4	21	57
DH424029	2.9		.1142	4	21	57
DH424030	3.0		.1181	6	28	66
DH424031	3.1		.1220	6	28	66
DH424008F	3.175	1/8	.1250	6	28	66
DH424032	3.2		.1260	6	28	66
DH424033	3.3		.1299	6	28	66
DH424034	3.4		.1339	6	28	66
DH424035	3.5		.1378	6	28	66
DH424009F	3.572	9/64	.1406	6	28	66
DH424036	3.6		.1417	6	28	66
DH424037	3.7		.1457	6	28	66
DH424038	3.8		.1496	6	36	74
DH424039	3.9		.1535	6	36	74
DH424010F	3.969	5/32	.1563	6	36	74
DH424040	4.0		.1575	6	36	74
DH424041	4.1		.1614	6	36	74
DH424042	4.2		.1654	6	36	74
DH424043	4.3		.1693	6	36	74
DH424011F	4.366	11/64	.1719	6	36	74
DH424044	4.4		.1732	6	36	74
DH424045	4.5		.1772	6	36	74
DH424046	4.6		.1811	6	36	74
DH424047	4.7		.1850	6	36	74
DH424012F	4.763	3/16	.1875	6	36	74
DH424048	4.8		.1890	6	44	82
DH424049	4.9		.1929	6	44	82
DH424050	5.0		.1969	6	44	82
DH424051	5.1		.2008	6	44	82
DH424013F	5.159	13/64	.2031	6	44	82

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

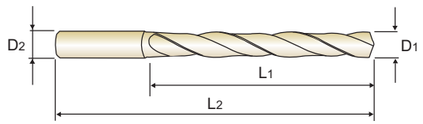
DREAM DRILLS -GENERAL

DH424 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS

General without Coolant Holes (5XD)

- ▶Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- ▶Self centering and chip breaking by R-thinning
- ▶Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶Optimized flute shape for strength of drilling and smooth chip evacuation



DIN 6537 | CARBIDE | h6 | m7 | 140° | TiAlN

p.A106~A107

LONG

5×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH424052	5.2		.2047	6	44	82
DH424053	5.3		.2087	6	44	82
DH424054	5.4		.2126	6	44	82
DH424055	5.5		.2165	6	44	82
DH424014F	5.556	7/32	.2188	6	44	82
DH424056	5.6		.2205	6	44	82
DH424057	5.7		.2244	6	44	82
DH424058	5.8		.2283	6	44	82
DH424059	5.9		.2323	6	44	82
DH424015F	5.953	15/64	.2344	6	44	82
DH424060	6.0		.2362	6	44	82
DH424061	6.1		.2402	8	53	91
DH424062	6.2		.2441	8	53	91
DH424063	6.3		.2480	8	53	91
DH424016F	6.350	1/4	.2500	8	53	91
DH424064	6.4		.2520	8	53	91
DH424065	6.5		.2559	8	53	91
DH424006L	6.528	F	.2570	8	53	91
DH424066	6.6		.2598	8	53	91
DH424067	6.7		.2638	8	53	91
DH424017F	6.747	17/64	.2656	8	53	91
DH424068	6.8		.2677	8	53	91
DH424069	6.9		.2717	8	53	91
DH424009L	6.909	I	.2720	8	53	91
DH424070	7.0		.2756	8	53	91
DH424071	7.1		.2795	8	53	91

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH424018F	7.144	9/32	.2812	8	53	91
DH424072	7.2		.2835	8	53	91
DH424073	7.3		.2874	8	53	91
DH424074	7.4		.2913	8	53	91
DH424075	7.5		.2953	8	53	91
DH424019F	7.541	19/64	.2969	8	53	91
DH424076	7.6		.2992	8	53	91
DH424077	7.7		.3031	8	53	91
DH424078	7.8		.3071	8	53	91
DH424079	7.9		.3110	8	53	91
DH424020F	7.938	5/16	.3125	8	53	91
DH424080	8.0		.3150	8	53	91
DH424081	8.1		.3189	10	61	103
DH424082	8.2		.3228	10	61	103
DH424083	8.3		.3268	10	61	103
DH424021F	8.334	21/64	.3281	10	61	103
DH424084	8.4		.3307	10	61	103
DH424017L	8.433	Q	.3320	10	61	103
DH424085	8.5		.3346	10	61	103
DH424086	8.6		.3386	10	61	103
DH424087	8.7		.3425	10	61	103
DH424022F	8.731	11/32	.3438	10	61	103
DH424088	8.8		.3465	10	61	103
DH424089	8.9		.3504	10	61	103
DH424090	9.0		.3543	10	61	103
DH424091	9.1		.3583	10	61	103

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

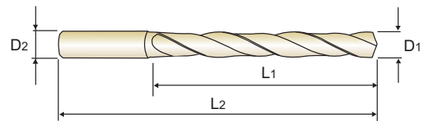
DREAM DRILLS -GENERAL

DH424 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS

General without Coolant Holes (5XD)

- ▶Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- ▶Self centering and chip breaking by R-thinning
- ▶Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶Optimized flute shape for strength of drilling and smooth chip evacuation



DIN 6537 | CARBIDE | h6 | m7 | 140° | TiAlN

p.A106~A107

LONG

5×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH424023F	9.128	23/64	.3594	10	61	103
DH424092	9.2		.3622	10	61	103
DH424093	9.3		.3661	10	61	103
DH424021L	9.347	U	.3680	10	61	103
DH424094	9.4		.3701	10	61	103
DH424095	9.5		.3740	10	61	103
DH424024F	9.525	3/8	.3750	10	61	103
DH424096	9.6		.3780	10	61	103
DH424097	9.7		.3819	10	61	103
DH424098	9.8		.3858	10	61	103
DH424099	9.9		.3898	10	61	103
DH424025F	9.922	25/64	.3906	10	61	103
DH424100	10.0		.3937	10	61	103
DH424101	10.1		.3976	12	71	118
DH424102	10.2		.4016	12	71	118
DH424103	10.3		.4055	12	71	118
DH424026F	10.319	13/32	.4062	12	71	118
DH424104	10.4		.4094	12	71	118
DH424105	10.5		.4134	12	71	118
DH424106	10.6		.4173	12	71	118
DH424107	10.7		.4213	12	71	118
DH424027F	10.716	27/64	.4219	12	71	118
DH424108	10.8		.4252	12	71	118
DH424109	10.9		.4291	12	71	118
DH424110	11.0		.4331	12	71	118
DH424111	11.1		.4370	12	71	118

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH424028F	11.113	7/16	.4375	12	71	118
DH424112	11.2		.4409	12	71	118
DH424113	11.3		.4449	12	71	118
DH424114	11.4		.4488	12	71	118
DH424115	11.5		.4528	12	71	118
DH424029F	11.509	29/64	.4531	12	71	118
DH424116	11.6		.4567	12	71	118
DH424117	11.7		.4606	12	71	118
DH424118	11.8		.4646	12	71	118
DH424119	11.9		.4685	12	71	118
DH424030F	11.906	15/32	.4688	12	71	118
DH424120	12.0		.4724	12	71	118
DH424121	12.1		.4764	14	77	124
DH424122	12.2		.4803	14	77	124
DH424123	12.3		.4843	14	77	124
DH424031F	12.303	31/64	.4844	14	77	124
DH424124	12.4		.4882	14	77	124
DH424125	12.5		.4921	14	77	124
DH424126	12.6		.4961	14	77	124
DH424032F	12.7	1/2	.5000	14	77	124
DH424128	12.8		.5039	14	77	124
DH424129	12.9		.5079	14	77	124
DH424130	13.0		.5118	14	77	124
DH424131	13.1		.5157	14	77	124
DH424132	13.2		.5197	14	77	124
DH424133	13.3		.5236	14	77	124

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○

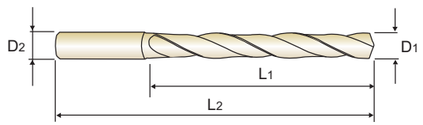
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

DREAM DRILLS -GENERAL

DH424 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
General without Coolant Holes (5XD)

- ▶Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- ▶Self centering and chip breaking by R-thinning
- ▶Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶Optimized flute shape for strength of drilling and smooth chip evacuation



DIN 6537 | CARBIDE | h6 | m7 | 140° | TiAlN

p.A106~A107

LONG
5×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH424134	13.4		.5276	14	77	124
DH424135	13.5		.5315	14	77	124
DH424136	13.6		.5354	14	77	124
DH424137	13.7		.5394	14	77	124
DH424138	13.8		.5433	14	77	124
DH424139	13.9		.5472	14	77	124
DH424140	14.0		.5512	14	77	124
DH424141	14.1		.5551	16	83	133
DH424142	14.2		.5591	16	83	133
DH424036F	14.288	9/16	.5625	16	83	133
DH424143	14.3		.5630	16	83	133
DH424144	14.4		.5669	16	83	133
DH424145	14.5		.5708	16	83	133
DH424146	14.6		.5748	16	83	133
DH424147	14.7		.5787	16	83	133
DH424148	14.8		.5827	16	83	133
DH424149	14.9		.5866	16	83	133
DH424150	15.0		.5905	16	83	133
DH424151	15.1		.5945	16	83	133
DH424152	15.2		.5984	16	83	133
DH424153	15.3		.6024	16	83	133
DH424154	15.4		.6063	16	83	133
DH424155	15.5		.6102	16	83	133
DH424156	15.6		.6142	16	83	133
DH424157	15.7		.6181	16	83	133
DH424158	15.8		.6220	16	83	133

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH424040F	15.875	5/8	.6250	16	83	133
DH424159	15.9		.6260	16	83	133
DH424160	16.0		.6299	16	83	133
DH424161	16.1		.6339	18	93	143
DH424162	16.2		.6378	18	93	143
DH424163	16.3		.6417	18	93	143
DH424164	16.4		.6457	18	93	143
DH424165	16.5		.6495	18	93	143
DH424166	16.6		.6535	18	93	143
DH424167	16.7		.6575	18	93	143
DH424168	16.8		.6614	18	93	143
DH424169	16.9		.6654	18	93	143
DH424170	17.0		.6692	18	93	143
DH424171	17.1		.6732	18	93	143
DH424172	17.2		.6772	18	93	143
DH424173	17.3		.6811	18	93	143
DH424174	17.4		.6850	18	93	143
DH424175	17.5		.6889	18	93	143
DH424176	17.6		.6929	18	93	143
DH424177	17.7		.6968	18	93	143
DH424178	17.8		.7008	18	93	143
DH424179	17.9		.7047	18	93	143
DH424180	18.0		.7087	18	93	143
DH424181	18.1		.7126	20	101	153
DH424182	18.2		.7165	20	101	153
DH424183	18.3		.7205	20	101	153

▶ Other shank types are available on your request.

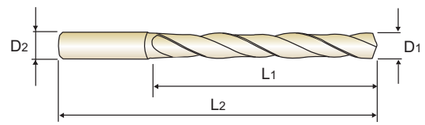
▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

DREAM DRILLS -GENERAL
DH424 SERIES
TiAlN-COATED SOLID CARBIDE DREAM DRILLS
General without Coolant Holes (5XD)
▶Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
▶Self centering and chip breaking by R-thinning
▶Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
▶Optimized flute shape for strength of drilling and smooth chip evacuation



DIN 6537 | CARBIDE | h6 | m7 | 140° | TiAlN

p.A106~A107

LONG
5×D
Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH424184	18.4		.7244	20	101	153
DH424185	18.5		.7283	20	101	153
DH424186	18.6		.7323	20	101	153
DH424187	18.7		.7362	20	101	153
DH424188	18.8		.7402	20	101	153
DH424189	18.9		.7441	20	101	153
DH424190	19.0		.7480	20	101	153
DH424048E	19.005	3/4	.7500	20	101	153
DH424191	19.1		.7520	20	101	153

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH424192	19.2		.7559	20	101	153
DH424193	19.3		.7598	20	101	153
DH424194	19.4		.7638	20	101	153
DH424195	19.5		.7676	20	101	153
DH424196	19.6		.7717	20	101	153
DH424197	19.7		.7756	20	101	153
DH424198	19.8		.7795	20	101	153
DH424199	19.9		.7835	20	101	153
DH424200	20.0		.7874	20	101	153

▶ Other shank types are available on your request.

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

DREAM DRILLS -GENERAL

RECOMMENDED CUTTING CONDITIONS

DH416, DH418, DH711, DH712, DH406, DH408, DH421 SERIES

with COOLANT HOLES

ISO	VDI 3323	Material Description	SFM	Drill Diameter			SFM	Drill Diameter					
			1.0~2.9	METRIC	1.0	2.0	3.0~20.0	METRIC	3.0	-	4.0	-	5.0
			-	FRACTIONAL	-	-	1/8~3/4	FRACTIONAL	-	1/8	-	3/16	-
			.0394~.0787	DECIMAL	.0394	.0787	.1181~.7874	DECIMAL	.1181	.1250	.1575	.1875	.1969
P	2	Non-alloy steel	263	RPM	25,460	12,730	362	RPM	11,670		8,750		7,000
				FEED	.0012 - .0020	.0020 - .0028		FEED	.0024 - .0047		.0031 - .0055		.0055 - .0079
	3		263	RPM	25,460	12,730	362	RPM	11,670		8,750		7,000
				FEED	.0012 - .0020	.0020 - .0028		FEED	.0024 - .0047		.0031 - .0055		.0055 - .0079
	4		263	RPM	25,460	12,730	362	RPM	11,670		8,750		7,000
				FEED	.0012 - .0020	.0020 - .0028		FEED	.0016 - .0039		.0028 - .0051		.0039 - .0063
	5		230	RPM	22,280	11,140	296	RPM	9,550		7,160		5,730
				FEED	.0012 - .0020	.0020 - .0028		FEED	.0016 - .0039		.0028 - .0051		.0039 - .0063
	6	Low alloy steel	263	RPM	25,460	12,730	362	RPM	11,670		8,750		7,000
				FEED	.0012 - .0020	.0020 - .0028		FEED	.0024 - .0047		.0031 - .0055		.0055 - .0079
	7		230	RPM	22,280	11,140	296	RPM	9,550		7,160		5,730
				FEED	.0012 - .0020	.0020 - .0028		FEED	.0024 - .0047		.0031 - .0055		.0039 - .0079
	8		230	RPM	22,280	11,140	296	RPM	9,550		7,160		5,730
				FEED	.0008 - .0016	.0012 - .0020		FEED	.0016 - .0039		.0028 - .0051		.0039 - .0063
	9		132	RPM	12,730	6,370	165	RPM	5,310		3,980		3,180
				FEED	.0008 - .0016	.0012 - .0020		FEED	.0012 - .0031		.0020 - .0043		.0031 - .0055
	10	High alloyed steel, and tool steel	198	RPM	19,100	9,550	263	RPM	8,490		6,370		5,090
				FEED	.0012 - .0020	.0020 - .0028		FEED	.0016 - .0039		.0028 - .0051		.0039 - .0063
	11		132	RPM	12,730	6,370	148	RPM	4,770		3,580		2,860
				FEED	.0008 - .0016	.0012 - .0020		FEED	.0012 - .0031		.0020 - .0043		.0031 - .0055
M	12	Stainless steel	198	RPM	19,100	9,550	263	RPM	8,490		6,370		5,090
				FEED	.0012 - .0020	.0020 - .0028		FEED	.0024 - .0047		.0031 - .0055		.0055 - .0079
	13		148	RPM	14,320	7,160	181	RPM	5,840		4,380		3,500
				FEED	.0008 - .0016	.0012 - .0020		FEED	.0016 - .0039		.0028 - .0051		.0039 - .0063
K	15	Grey cast iron	263	RPM	25,460	12,730	362	RPM	11,670		8,750		7,000
				FEED	.0016 - .0024	.0016 - .0024		FEED	.0031 - .0055		.0047 - .0071		.0059 - .0087
	16		247	RPM	23,870	11,940	313	RPM	10,080		7,560		6,050
				FEED	.0016 - .0024	.0016 - .0024		FEED	.0024 - .0047		.0031 - .0055		.0055 - .0079
	17	Nodular cast iron	296	RPM	28,650	14,320	395	RPM	12,730		9,550		7,640
				FEED	.0016 - .0024	.0016 - .0024		FEED	.0031 - .0055		.0047 - .0071		.0059 - .0087
	18		198	RPM	19,100	9,550	263	RPM	8,490		6,370		5,090
				FEED	.0016 - .0024	.0016 - .0024		FEED	.0024 - .0047		.0031 - .0055		.0055 - .0079
	19	Malleable cast iron	230	RPM	22,280	11,140	296	RPM	9,550		7,160		5,730
				FEED	.0016 - .0024	.0016 - .0024		FEED	.0031 - .0055		.0047 - .0071		.0059 - .0087
	20		198	RPM	19,100	9,550	263	RPM	8,490		6,370		5,090
				FEED	.0012 - .0020	.0020 - .0028		FEED	.0024 - .0047		.0031 - .0055		.0055 - .0079
H	38 38.1	Hardened steel	82	RPM	7,960	3,980	98	RPM	3,180		2,390		1,910
				FEED	.0004- .0008	.0004- .0012		FEED	.0004- .0012		.0004- .0016		.0008- .0020

DREAM DRILLS -GENERAL

RECOMMENDED CUTTING CONDITIONS

SFM = ft/min.
RPM = rev./min.
FEED = inch/rev.

Drill Diameter													
6.0	-	-	8.0	-	10.0	12.0	-	14.0	-	-	16.0	18.0	-	20.0
-	1/4	5/16	-	3/8	-	-	1/2	-	9/16	5/8	-	-	3/4	-
.2362	.2500	.3125	.3150	.3750	.3937	.4724	.5000	.5512	.5625	.6250	.6299	.7087	.7500	.7874
5,840	4,380		3,500		2,920	2,770		2,500		2,190		1,950	1,840	1,750
.0063 - .0087	.0071 - .0094		.0075 - .0106		.0083 - .0114	.0083 - .0114		.0091 - .0122		.0098 - .0130		.0110 - .0150	.0110 - .0150	.0118 - .0157
5,840	4,380		3,500		2,920	2,770		2,500		2,190		1,950	1,840	1,750
.0063 - .0087	.0071 - .0094		.0075 - .0106		.0083 - .0114	.0083 - .0114		.0091 - .0122		.0098 - .0130		.0110 - .0150	.0110 - .0150	.0118 - .0157
5,840	4,380		3,500		2,920	2,770		2,500		2,190		1,950	1,840	1,750
.0047 - .0071	.0055 - .0079		.0059 - .0091		.0067 - .0098	.0067 - .0098		.0071 - .0102		.0075 - .0106		.0079 - .0118	.0079 - .0118	.0087 - .0126
4,770	3,580		2,860		2,390	2,260		2,050		1,790		1,590	1,510	1,430
.0047 - .0071	.0055 - .0079		.0059 - .0091		.0067 - .0098	.0067 - .0098		.0071 - .0102		.0075 - .0106		.0079 - .0118	.0079 - .0118	.0087 - .0126
5,840	4,380		3,500		2,920	2,770		2,500		2,190		1,950	1,840	1,750
.0063 - .0087	.0071 - .0094		.0075 - .0106		.0083 - .0114	.0083 - .0114		.0091 - .0122		.0098 - .0130		.0110 - .0150	.0110 - .0150	.0118 - .0157
4,770	3,580		2,860		2,390	2,260		2,050		1,790		1,590	1,510	1,430
.0047 - .0094	.0063 - .0110		.0075 - .0106		.0083 - .0114	.0083 - .0114		.0091 - .0122		.0098 - .0130		.0110 - .0150	.0110 - .0150	.0118 - .0157
4,770	3,580		2,860		2,390	2,260		2,050		1,790		1,590	1,510	1,430
.0047 - .0071	.0055 - .0079		.0059 - .0091		.0067 - .0098	.0067 - .0098		.0071 - .0102		.0075 - .0106		.0079 - .0118	.0079 - .0118	.0087 - .0126
2,650	1,990		1,590		1,330	1,260		1,140		990		880	840	800
.0039 - .0063	.0047 - .0071		.0051 - .0075		.0055 - .0079	.0055 - .0079		.0059 - .0083		.0063 - .0087		.0067 - .0098	.0063 - .0102	.0071 - .0110
4,240	3,180		2,550		2,120	2,010		1,820		1,590		1,410	1,340	1,270
.0047 - .0071	.0055 - .0079		.0059 - .0091		.0067 - .0098	.0067 - .0098		.0071 - .0102		.0075 - .0106		.0079 - .0118	.0079 - .0118	.0087 - .0126
2,390	1,790		1,430		1,190	1,130		1,020		900		800	750	720
.0039 - .0063	.0047 - .0071		.0051 - .0075		.0055 - .0079	.0055 - .0079		.0059 - .0083		.0063 - .0087		.0067 - .0098	.0063 - .0102	.0071 - .0110
4,240	3,180		2,550		2,120	2,010		1,820		1,590		1,410	1,340	1,270
.0063 - .0087	.0071 - .0094		.0075 - .0106		.0083 - .0114	.0083 - .0114		.0091 - .0122		.0098 - .0130		.0110 - .0150	.0110 - .0150	.0118 - .0157
2,920	2,190		1,750		1,460	1,380		1,250		1,090		970	920	880
.0047 - .0071	.0055 - .0079		.0059 - .0091		.0067 - .0098	.0067 - .0098		.0071 - .0102		.0075 - .0106		.0079 - .0118	.0079 - .0118	.0087 - .0126
5,840	4,380		3,500		2,920	2,770		2,500		2,190		1,950	1,840	1,750
.0079 - .0102	.0087 - .0110		.0098 - .0130		.0106 - .0138	.0106 - .0138		.0114 - .0146		.0122 - .0154		.0126 - .0165	.0126 - .0165	.0134 - .0173
5,040	3,780		3,020		2,520	2,390		2,160		1,890		1,680	1,590	1,510
.0063 - .0087	.0071 - .0094		.0075 - .0106		.0083 - .0114	.0083 - .0114		.0091 - .0122		.0098 - .0130		.0110 - .0150	.0110 - .0150	.0118 - .0157
6,370	4,770		3,820		3,180	3,020		2,730		2,390		2,120	2,010	1,910
.0079 - .0102	.0087 - .0110		.0098 - .0130		.0106 - .0138	.0106 - .0138		.0114 - .0146		.0122 - .0154		.0126 - .0165	.0126 - .0165	.0134 - .0173
4,240	3,180		2,550		2,120	2,010		1,820		1,590		1,410	1,340	1,270
.0063 - .0087	.0071 - .0094		.0075 - .0106		.0083 - .0114	.0083 - .0114		.0091 - .0122		.0098 - .0130		.0110 - .0150	.0110 - .0150	.0118 - .0157
4,770	3,580		2,860		2,390	2,260		2,050		1,790		1,590	1,510	1,430
.0079 - .0102	.0087 - .0110		.0098 - .0130		.0106 - .0138	.0106 - .0138		.0114 - .0146		.0122 - .0154		.0126 - .0165	.0126 - .0165	.0134 - .0173
4,240	3,180		2,550		2,120	2,010		1,820		1,590		1,410	1,340	1,270
.0063 - .0087	.0071 - .0094		.0075 - .0106		.0083 - .0114	.0083 - .0114		.0091 - .0122		.0098 - .0130		.0110 - .0150	.0110 - .0150	.0118 - .0157
1,590	1,190		950		800	750		680		600		530	500	480
.0012- .0024	.0012- .0024		.0016- .0028		.0016- .0031	.0016- .0031		.0020- .0035		.0020- .0035		.0020- .0039	.0020- .0039	.0020- .0039

▶ Recommend to reduce the feed rate as following

Feed 100% : DH416/DH711(3xD), DH406(3xD) **Feed 80%** : DH418/DH712(5xD), DH408(5xD) **Feed 70%** : DH421(8xD)

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

DREAM DRILLS -GENERAL

RECOMMENDED CUTTING CONDITIONS

DH414, DH722, DH404, DH423, DH424 SERIES

without COOLANT HOLES

ISO	VDI 3323	Material Description	SFM	Drill Diameter			SFM	Drill Diameter					
			1.0 ~ 2.9	METRIC	1.0	2.0	3.0 ~ 20.0	METRIC	3.0	-	4.0	-	5.0
			-	FRACTIONAL	-	-	1/8 ~ 3/4	FRACTIONAL	-	1/8	-	3/16	-
			.0394 ~ .0787	DECIMAL	.0394	.0787	.1181 ~ .7874	DECIMAL	.1181	.1250	.1575	.1875	.1969
P	2	Non-alloy steel	230	RPM	22,280	11,140	329	RPM	10,610		7,960		6,370
				FEED	.0012- .0020	.0020- .0028		FEED	.0024- .0047		.0031- .0055		.0055- .0079
	3		230	RPM	22,280	11,140	329	RPM	10,610		7,960		6,370
				FEED	.0012- .0020	.0020- .0028		FEED	.0024- .0047		.0031- .0055		.0055- .0079
	4		230	RPM	22,280	11,140	329	RPM	10,610		7,960		6,370
				FEED	.0012- .0020	.0020- .0028		FEED	.0016- .0039		.0028- .0051		.0039- .0063
	5		197	RPM	19,100	9,550	263	RPM	8,490		6,370		5,090
				FEED	.0012- .0020	.0020- .0028		FEED	.0016- .0039		.0028- .0051		.0039- .0063
	6	Low alloy steel	230	RPM	22,280	11,140	329	RPM	10,610		7,960		6,370
				FEED	.0012- .0020	.0020- .0028		FEED	.0024- .0047		.0031- .0055		.0055- .0079
	7		197	RPM	19,100	9,550	263	RPM	8,490		6,370		5,090
				FEED	.0012- .0020	.0020- .0028		FEED	.0024- .0047		.0031- .0055		.0039- .0079
	8		197	RPM	19,100	9,550	263	RPM	8,490		6,370		5,090
				FEED	.0008- .0016	.0012- .0020		FEED	.0016- .0039		.0028- .0051		.0039- .0063
	9		99	RPM	9,550	4,770	132	RPM	4,240		3,180		2,550
				FEED	.0008- .0016	.0012- .0020		FEED	.0012- .0031		.0020- .0043		.0031- .0055
	10	High alloyed steel, and tool steel	165	RPM	15,920	7,960	230	RPM	7,430		5,570		4,460
				FEED	.0012- .0020	.0020- .0028		FEED	.0016- .0039		.0028- .0051		.0039- .0063
	11		99	RPM	9,550	4,770	132	RPM	4,240		3,180		2,550
				FEED	.0008- .0016	.0012- .0020		FEED	.0012- .0031		.002- .0043		.0031- .0055
M	12	Stainless steel	165	RPM	15,920	7,960	230	RPM	7,430		5,570		4,460
				FEED	.0012- .0020	.0020- .0028		FEED	.0024- .0047		.0031- .0055		.0055- .0079
	13		115	RPM	11,140	5,570	148	RPM	4,770		3,580		2,860
				FEED	.0008- .0016	.0012- .0020		FEED	.0016- .0039		.0028- .0051		.0039- .0063
K	15	Grey cast iron	230	RPM	22,280	11,140	329	RPM	10,610		7,960		6,370
				FEED	.0016- .0024	.0016- .0024		FEED	.0031- .0055		.0047- .0071		.0059-.0087
	16		214	RPM	20,690	10,350	263	RPM	8,490		6,370		5,090
				FEED	.0016- .0024	.0016- .0024		FEED	.0024- .0047		.0031- .0055		.0055- .0079
	17	Nodular cast iron	230	RPM	22,280	11,140	329	RPM	10,610		7,960		6,370
				FEED	.0016- .0024	.0016- .0024		FEED	.0031- .0055		.0047- .0071		.0059-.0087
	18		165	RPM	15,920	7,960	230	RPM	7,430		5,570		4,460
				FEED	.0016- .0024	.0016- .0024		FEED	.0024- .0047		.0031- .0055		.0055- .0079
	19	Malleable cast iron	197	RPM	19,100	9,550	263	RPM	8,490		6,370		5,090
				FEED	.0016- .0024	.0016- .0024		FEED	.0031- .0055		.0047- .0071		.0059-.0087
	20		165	RPM	15,920	7,960	230	RPM	7,430		5,570		4,460
				FEED	.0012- .0020	.0020- .0028		FEED	.0024- .0047		.0031- .0055		.0055- .0079
H	38	Hardened steel	65	RPM	6,370	3,180	82	RPM	2,650		1,990		1,590
				FEED	.0004- .0008	.0004- .0012		FEED	.0004- .0012		.0004- .0016		.0008- .0020

DREAM DRILLS -GENERAL

RECOMMENDED CUTTING CONDITIONS

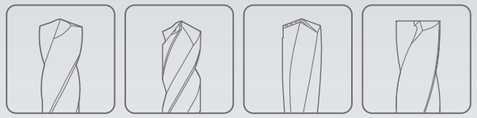
SFM = ft/min.
RPM = rev./min.
FEED = inch/rev.

Drill Diameter													
6.0	-	-	8.0	-	10.0	12.0	-	14.0	-	-	16.0	18.0	-	20.0
-	1/4	5/16	-	3/8	-	-	1/2	-	9/16	5/8	-	-	3/4	-
.2362	.2500	.3125	.3150	.3750	.3937	.4724	.5000	.5512	.5625	.6250	.6299	.7087	.7500	.7874
5,310		3,980		3,180		2,650	2,510	2,270		1,990		1,770	1,680	1,590
.0063- .0087		.0071- .0094		.0075-.0106		.0083-.0114	.0083-.0114	.0091-.0122		.0098-.0130		.0110- .0150	.0110- .0150	.0118- .0157
5,310		3,980		3,180		2,650	2,510	2,270		1,990		1,770	1,680	1,590
.0063- .0087		.0071- .0094		.0075-.0106		.0083-.0114	.0083-.0114	.0091-.0122		.0098-.0130		.0110- .0150	.0110- .0150	.0118- .0157
5,310		3,980		3,180		2,650	2,510	2,270		1,990		1,770	1,680	1,590
.0047- .0071		.0055- .0079		.0059-.0091		.0067-.0098	.0067-.0098	.0071-.0102		.0075-.0106		.0079- .0118	.0079- .0118	.0087- .0126
4,240		3,180		2,550		2,120	2,010	1,820		1,590		1,410	1,340	1,270
.0047- .0071		.0055- .0079		.0059-.0091		.0067-.0098	.0067-.0098	.0071-.0102		.0075-.0106		.0079- .0118	.0079- .0118	.0087- .0126
5,310		3,980		3,180		2,650	2,510	2,270		1,990		1,770	1,680	1,590
.0063- .0087		.0071- .0094		.0075-.0106		.0083-.0114	.0083-.0114	.0091-.0122		.0098-.0130		.0110- .0150	.0110- .0150	.0118- .0157
4,240		3,180		2,550		2,120	2,010	1,820		1,590		1,410	1,340	1,270
.0047- .0094		.0063- .011		.0075-.0106		.0083-.0114	.0083-.0114	.0091-.0122		.0098-.0130		.0110- .0150	.0110- .0150	.0118- .0157
4,240		3,180		2,550		2,120	2,010	1,820		1,590		1,410	1,340	1,270
.0047- .0071		.0055- .0079		.0059-.0091		.0067-.0098	.0067-.0098	.0071-.0102		.0075-.0106		.0079- .0118	.0079- .0118	.0087- .0126
2,120		1,590		1,270		1,060	1,010	910		800		710	670	640
.0039- .0063		.0047- .0071		.0051-.0075		.0055-.0079	.0055-.0079	.0059-.0083		.0063-.0087		.0067-.0098	.0067-.0098	.0071- .0110
3,710		2,790		2,230		1,860	1,760	1,590		1,390		1,240	1,170	1,110
.0047- .0071		.0055- .0079		.0059-.0091		.0067-.0098	.0067-.0098	.0071-.0102		.0075-.0106		.0079- .0118	.0079- .0118	.0087- .0126
2,120		1,590		1,270		1,060	1,010	910		800		710	670	640
.0039- .0063		.0047- .0071		.0051-.0075		.0055-.0079	.0055-.0079	.0059-.0083		.0063-.0087		.0067-.0098	.0067-.0098	.0071- .0110
3,710		2,790		2,230		1,860	1,760	1,590		1,390		1,240	1,170	1,110
.0063- .0087		.0071- .0094		.0075-.0106		.0083-.0114	.0083-.0114	.0091-.0122		.0098-.0130		.0110- .0150	.0110- .0150	.0118- .0157
2,390		1,790		1,430		1,190	1,130	1,020		900		800	750	720
.0047- .0071		.0055- .0079		.0059-.0091		.0067-.0098	.0067-.0098	.0071-.0102		.0075-.0106		.0079- .0118	.0079- .0118	.0087- .0126
5,310		3,980		3,180		2,650	2,510	2,270		1,990		1,770	1,680	1,590
.0079-.0102		.0087-.0110		.0098-.0130		.0106-.0138	.0106-.0138	.0114-.0146		.0122-.0154		.0126- .0165	.0126- .0165	.0134- .0173
4,240		3,180		2,550		2,120	2,010	1,820		1,590		1,410	1,340	1,270
.0063- .0087		.0071- .0094		.0075-.0106		.0083-.0114	.0083-.0114	.0091-.0122		.0098-.0130		.0110- .0150	.0110- .0150	.0118- .0157
5,310		3,980		3,180		2,650	2,510	2,270		1,990		1,770	1,680	1,590
.0079-.0102		.0087-.0110		.0098-.0130		.0106-.0138	.0106-.0138	.0114-.0146		.0122-.0154		.0126- .0165	.0126- .0165	.0134- .0173
3,710		2,790		2,230		1,860	1,760	1,590		1,390		1,240	1,170	1,110
.0063- .0087		.0071- .0094		.0075-.0106		.0083-.0114	.0083-.0114	.0091-.0122		.0098-.0130		.0110- .0150	.0110- .0150	.0118- .0157
4,240		3,180		2,550		2,120	2,010	1,820		1,590		1,410	1,340	1,270
.0079-.0102		.0087-.0110		.0098-.0130		.0106-.0138	.0106-.0138	.0114-.0146		.0122-.0154		.0126- .0165	.0126- .0165	.0134- .0173
3,710		2,790		2,230		1,860	1,760	1,590		1,390		1,240	1,170	1,110
.0063- .0087		.0071- .0094		.0075-.0106		.0083-.0114	.0083-.0114	.0091-.0122		.0098-.0130		.0110- .0150	.0110- .0150	.0118- .0157
1,330		990		800		660	620	570		500		440	420	400
.0012- .0024		.0012- .0024		.0016- .0028		.0016- .0031	.0016- .0031	.0020- .0035		.0020- .0035		.0020- .0039	.0020- .0039	.0020- .0039

▶ Recommend to reduce the feed rate as following

Feed 100% : DH414(3xD), DH404(3xD), DH423(3xD) **Feed 80%** : DH722(5xD), DH424(5xD)

Global Cutting Tool Leader YG-1



DREAM DRILLS

Leading Through Innovation

SOLID CARBIDE

DREAM DRILLS HIGH FEED

- 1.5 to 2 Times Faster Feeding Speed than 2-Flute Drill
  For Carbon Steels, Alloy Steels(up to HRc35) and Cast Iron

SELECTION GUIDE

YG HOLEMAKING TOOLS

SERIES	DGR493 DGR496	DGR495 DGR497
DRILLING DEPTH	3XD	5XD
TOOL MATERIAL	SOLID CARBIDE	
LENGTH	SHORT	LONG
SIZE MIN	D13/64, D4.0	D13/64, D4.0
SIZE MAX	D3/4, D20.0	D3/4, D20.0
PAGE	A111	A115
SURFACE TREATMENT	H-Coating	

SOLID CARBIDE
DREAM DRILLS HIGH FEED

- 1.5 to 2 Times Faster Feeding Speed than 2-Flute Drill
For carbon Steels, alloy Steels(up to HRc35) and cast Iron

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A119


ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	DGR493 DGR496	DGR495 DGR497
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	Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.	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		Hardened	550	55		
	39			Hardened	630	60		
	40	Chilled Cast Iron		Cast	400	42		
	41	Hardened Cast Iron		Hardened	550	55		

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

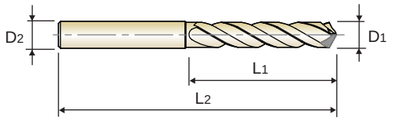
YG DREAM DRILLS -HIGH FEED

DGR493 SERIES
DGR496 SERIES

H-COATED SOLID CARBIDE DREAM DRILLS
High Feed with Coolant Holes (3XD)

- ▶Drilling for Carbon Steels, Alloy Steels(-HRc35) and Cast Iron
- ▶Higher productivity due to 1.5 to 2 times faster feeding speed than 2-flute drill
- ▶Multi-Layer coating delivers much better productivity and reliability
- ▶Self centering and chip breaking by R-thinning and coolant holes





DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | H Coating

p.A119~A120

SHORT
3×D

Unit : mm

EDP No.	Drill Diameter Metric	Inch	Decimal	Shank Diameter	Flute Length	Overall Length
H-coating	D1			D2	L1	L2
DGR493040	4.00		.1575	6	24	66
DGR493945	4.05		.1594	6	24	66
DGR493020G	4.09	#20	.1610	6	24	66
DGR493041	4.10		.1614	6	24	66
DGR4930416	4.16		.1638	6	24	66
DGR493042	4.20		.1654	6	24	66
DGR4930427	4.27		.1681	6	24	66
DGR493043	4.30		.1693	6	24	66
DGR493011F	4.366	11/64	.1719	6	24	66
DGR493044	4.40		.1732	6	24	66
DGR4930446	4.46		.1756	6	24	66
DGR493045	4.50		.1772	6	24	66
DGR493046	4.60		.1811	6	24	66
DGR4930466	4.66		.1835	6	24	66
DGR493047	4.70		.1850	6	24	66
DGR493012F	4.763	3/16	.1875	6	28	66
DGR493048	4.80		.1890	6	28	66
DGR493049	4.90		.1929	6	28	66
DGR493050	5.00		.1969	6	28	66
DGR493051	5.10		.2008	6	28	66
DGR496013	5.16	13/64	.2031	1/4	28	66
DGR493052	5.20		.2047	6	28	66
DGR493053	5.30		.2087	6	28	66
DGR493054	5.40		.2126	6	28	66
DGR496103	5.41	#3	.2130	1/4	28	66
DGR493055	5.50		.2165	6	28	66

EDP No.	Drill Diameter Metric	Inch	Decimal	Shank Diameter	Flute Length	Overall Length
H-coating	D1			D2	L1	L2
DGR496014	5.56	7/32	.2188	1/4	28	66
DGR493056	5.60		.2205	6	28	66
DGR496102	5.61	#2	.2210	1/4	28	66
DGR493057	5.70		.2244	6	28	66
DGR496101	5.79	#1	.2280	1/4	28	66
DGR493058	5.80		.2283	6	28	66
DGR493059	5.90		.2323	6	28	66
DGR496015	5.95	15/64	.2344	1/4	28	66
DGR493060	6.00		.2362	6	28	66
DGR493061	6.10		.2402	8	34	79
DGR493062	6.20		.2441	8	34	79
DGR493063	6.30		.2480	8	34	79
DGR496016	6.35	1/4	.2500	1/4	34	79
DGR493064	6.40		.2520	8	34	79
DGR493065	6.50		.2559	8	34	79
DGR496206	6.53	F	.2570	5/16	34	79
DGR493066	6.60		.2598	8	34	79
DGR493067	6.70		.2638	8	34	79
DGR496017	6.75	17/64	.2656	5/16	34	79
DGR493068	6.80		.2677	8	34	79
DGR493069	6.90		.2717	8	34	79
DGR496209	6.91	I	.2720	5/16	34	79
DGR493070	7.00		.2756	8	34	79
DGR493071	7.10		.2795	8	41	79
DGR496018	7.14	9/32	.2813	5/16	41	79
DGR493072	7.20		.2835	8	41	79

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○				◎	○	◎	○	◎	○

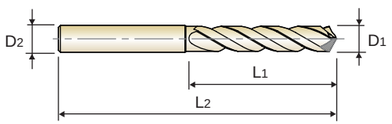
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

DREAM DRILLS -HIGH FEED

DGR493 SERIES
DGR496 SERIES

H-COATED SOLID CARBIDE DREAM DRILLS
High Feed with Coolant Holes (3XD)

- Drilling for Carbon Steels, Alloy Steels(-HRc35) and Cast Iron
- Higher productivity due to 1.5 to 2 times faster feeding speed than 2-flute drill
- Multi-Layer coating delivers much better productivity and reliability
- Self centering and chip breaking by R-thinning and coolant holes



DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | H Coating

p.A119~A120

SHORT
3×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Inch	Decimal			
H-coating	D1			D2	L1	L2
DGR493073	7.30		.2874	8	41	79
DGR493074	7.40		.2913	8	41	79
DGR493075	7.50		.2953	8	41	79
DGR496019	7.54	19/64	.2969	5/16	41	79
DGR493076	7.60		.2992	8	41	79
DGR493077	7.70		.3031	8	41	79
DGR493078	7.80		.3071	8	41	79
DGR493079	7.90		.3110	8	41	79
DGR496020	7.94	5/16	.3125	5/16	41	79
DGR493080	8.00		.3150	8	41	79
DGR493081	8.10		.3189	10	47	89
DGR493082	8.20	P	.3228	10	47	89
DGR493083	8.30		.3268	10	47	89
DGR496021	8.33	21/64	.3281	3/8	47	89
DGR493084	8.40		.3307	10	47	89
DGR496217	8.43	Q	.3320	3/8	47	89
DGR493085	8.50		.3346	10	47	89
DGR493086	8.60		.3386	10	47	89
DGR493087	8.70		.3425	10	47	89
DGR496022	8.73	11/32	.3437	3/8	47	89
DGR493088	8.80		.3465	10	47	89
DGR493089	8.90		.3504	10	47	89
DGR493090	9.00		.3543	10	47	89
DGR493091	9.10		.3583	10	47	89
DGR496023	9.13	23/64	.3594	3/8	47	89
DGR493092	9.20		.3622	10	47	89

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Inch	Decimal			
H-coating	D1			D2	L1	L2
DGR493093	9.30		.3661	10	47	89
DGR496221	9.35	U	.3680	3/8	47	89
DGR493094	9.40		.3701	10	47	89
DGR493095	9.50		.3740	10	47	89
DGR496024	9.53	3/8	.3750	3/8	47	89
DGR493096	9.60		.3780	10	47	89
DGR493097	9.70		.3819	10	47	89
DGR493098	9.80	W	.3858	10	47	89
DGR493099	9.90		.3898	10	47	89
DGR496025	9.92	25/64	.3906	7/16	47	89
DGR493100	10.00		.3937	10	47	89
DGR493101	10.10		.3976	12	55	102
DGR493102	10.20		.4016	12	55	102
DGR493103	10.30		.4055	12	55	102
DGR496026	10.32	13/32	.4063	7/16	55	102
DGR493104	10.40		.4094	12	55	102
DGR493105	10.50		.4134	12	55	102
DGR493106	10.60		.4173	12	55	102
DGR493107	10.70		.4213	12	55	102
DGR496027	10.72	27/64	.4219	7/16	55	102
DGR493108	10.80		.4252	12	55	102
DGR493109	10.90		.4291	12	55	102
DGR493110	11.00		.4331	12	55	102
DGR493111	11.10		.4370	12	55	102
DGR496028	11.11	7/16	.4375	7/16	55	102
DGR493112	11.20		.4409	12	55	102

▶ Other shank types are available on your request.

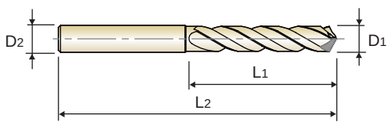
▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

DREAM DRILLS -HIGH FEED
DGR493 SERIES
DGR496 SERIES
H-COATED SOLID CARBIDE DREAM DRILLS
High Feed with Coolant Holes (3XD)
▶ Drilling for Carbon Steels, Alloy Steels(-HRc35) and Cast Iron
▶ Higher productivity due to 1.5 to 2 times faster feeding speed than 2-flute drill
▶ Multi-Layer coating delivers much better productivity and reliability
▶ Self centering and chip breaking by R-thinning and coolant holes



DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | H Coating

p.A119~A120

SHORT
3×D
Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Inch	Decimal			
H-coating	D1			D2	L1	L2
DGR493113	11.30		.4449	12	55	102
DGR493114	11.40		.4488	12	55	102
DGR493115	11.50		.4528	12	55	102
DGR496029	11.51	29/64	.4531	1/2	55	102
DGR493116	11.60		.4567	12	55	102
DGR493117	11.70		.4606	12	55	102
DGR493118	11.80		.4646	12	55	102
DGR493119	11.90		.4685	12	55	102
DGR496030	11.91	15/32	.4688	1/2	55	102
DGR493120	12.00		.4724	12	55	102
DGR493121	12.10		.4764	14	60	107
DGR493122	12.20		.4803	14	60	107
DGR493123	12.30		.4843	14	60	107
DGR496031	12.30	31/64	.4844	1/2	60	107
DGR493124	12.40		.4882	14	60	107
DGR493125	12.50		.4921	14	60	107
DGR493126	12.60		.4961	14	60	107
DGR496032	12.70	1/2	.5000	1/2	60	107
DGR493127	12.70		.5000	14	60	107
DGR493128	12.80		.5039	14	60	107
DGR493129	12.90		.5079	14	60	107
DGR493130	13.00		.5118	14	60	107
DGR493131	13.10	33/64	.5156	14	60	107
DGR493132	13.20		.5197	14	60	107
DGR493133	13.30		.5236	14	60	107
DGR493134	13.40		.5276	14	60	107

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Inch	Decimal			
H-coating	D1			D2	L1	L2
DGR496034	13.49	17/32	.5312	9/16	60	107
DGR493135	13.50		.5315	14	60	107
DGR493136	13.60		.5354	14	60	107
DGR493137	13.70		.5394	14	60	107
DGR493138	13.80		.5433	14	60	107
DGR496035	13.89	35/64	.5469	9/16	60	107
DGR493139	13.90		.5472	14	60	107
DGR493140	14.00		.5512	14	60	107
DGR493141	14.10		.5551	16	65	115
DGR493142	14.20		.5591	16	65	115
DGR496036	14.29	9/16	.5625	9/16	65	115
DGR493143	14.30		.5630	16	65	115
DGR493144	14.40		.5669	16	65	115
DGR493145	14.50		.5709	16	65	115
DGR493146	14.60		.5748	16	65	115
DGR496037	14.68	37/64	.5781	5/8	65	115
DGR493147	14.70		.5787	16	65	115
DGR493148	14.80		.5827	16	65	115
DGR493149	14.90		.5866	16	65	115
DGR493150	15.00		.5906	16	65	115
DGR496038	15.08	19/32	.5938	5/8	65	115
DGR493151	15.10		.5945	16	65	115
DGR493152	15.20		.5984	16	65	115
DGR493153	15.30		.6024	16	65	115
DGR493154	15.40		.6063	16	65	115
DGR496039	15.48	39/64	.6094	5/8	65	115

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○				◎	○	◎	○	◎	○

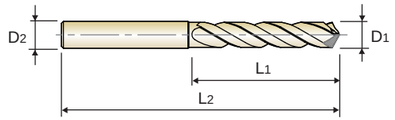
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

DREAM DRILLS -HIGH FEED

DGR493 SERIES
DGR496 SERIES

H-COATED SOLID CARBIDE DREAM DRILLS
High Feed with Coolant Holes (3XD)

- ▶Drilling for Carbon Steels, Alloy Steels(-HRc35) and Cast Iron
- ▶Higher productivity due to 1.5 to 2 times faster feeding speed than 2-flute drill
- ▶Multi-Layer coating delivers much better productivity and reliability
- ▶Self centering and chip breaking by R-thinning and coolant holes



DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | H Coating

p.A119~A120

SHORT
3×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Inch	Decimal			
H-coating	D1			D2	L1	L2
DGR493155	15.50		.6102	16	65	115
DGR493156	15.60		.6142	16	65	115
DGR493157	15.70		.6181	16	65	115
DGR493158	15.80		.6220	16	65	115
DGR496040	15.88	5/8	.6250	5/8	65	115
DGR493159	15.90		.6260	16	65	115
DGR493160	16.00		.6299	16	65	115
DGR493161	16.10		.6339	18	73	123
DGR496041	16.27	41/64	.6406	11/16	73	123
DGR493165	16.50		.6496	18	73	123
DGR496042	16.67	21/32	.6563	11/16	73	123
DGR493170	17.00		.6693	18	73	123

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Inch	Decimal			
H-coating	D1			D2	L1	L2
DGR496043	17.07	43/64	.6719	11/16	73	123
DGR496044	17.46	11/16	.6875	11/16	73	123
DGR493175	17.50		.6890	18	73	123
DGR496045	17.86	45/64	.7031	3/4	73	123
DGR493180	18.00		.7087	18	73	123
DGR496046	18.26	23/32	.7188	3/4	79	131
DGR493185	18.50		.7283	20	79	131
DGR496047	18.65	47/64	.7344	3/4	79	131
DGR493190	19.00		.7480	20	79	131
DGR496048	19.05	3/4	.7500	3/4	79	131
DGR493195	19.50		.7677	20	79	131
DGR493200	20.00		.7874	20	79	131

▶ Other shank types are available on your request.

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

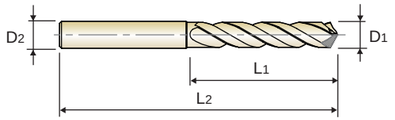
CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

DREAM DRILLS -HIGH FEED

DGR495 SERIES
DGR497 SERIES

H-COATED SOLID CARBIDE DREAM DRILLS
High Feed with Coolant Holes (5XD)

- ▶Drilling for Carbon Steels, Alloy Steels(-HRc35) and Cast Iron
- ▶Higher productivity due to 1.5 to 2 times faster feeding speed than 2-flute drill
- ▶Multi-Layer coating delivers much better productivity and reliability
- ▶Self centering and chip breaking by R-thinning and coolant holes



DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | H Coating

p.A119~A120

LONG
5×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Inch	Decimal			
H-coating	D1			D2	L1	L2
DGR495040	4.00		.1575	6	36	74
DGR495020G	4.09	#20	.1610	6	36	74
DGR495041	4.10		.1614	6	36	74
DGR495042	4.20		.1654	6	36	74
DGR495043	4.30		.1693	6	36	74
DGR495011F	4.366	11/64	.1719	6	36	74
DGR495044	4.40		.1732	6	36	74
DGR495045	4.50		.1772	6	36	74
DGR495046	4.60		.1811	6	36	74
DGR495047	4.70		.1850	6	36	74
DGR495012F	4.763	3/16	.1875	6	44	82
DGR495048	4.80		.1890	6	44	82
DGR495049	4.90		.1929	6	44	82
DGR495050	5.00		.1969	6	44	82
DGR495051	5.10		.2008	6	44	82
DGR497013	5.16	13/64	.2031	1/4	44	82
DGR495052	5.20		.2047	6	44	82
DGR495053	5.30		.2087	6	44	82
DGR495054	5.40		.2126	6	44	82
DGR497103	5.41	#3	.2130	1/4	44	82
DGR495055	5.50		.2165	6	44	82
DGR497014	5.56	7/32	.2188	1/4	44	82
DGR495056	5.60		.2205	6	44	82
DGR497102	5.61	#2	.2210	1/4	44	82
DGR495057	5.70		.2244	6	44	82
DGR497101	5.79	#1	.2280	1/4	44	82

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Inch	Decimal			
H-coating	D1			D2	L1	L2
DGR495058	5.80		.2283	6	44	82
DGR495059	5.90		.2323	6	44	82
DGR497015	5.95	15/64	.2344	1/4	44	82
DGR495060	6.00		.2362	6	44	82
DGR495061	6.10		.2402	8	53	91
DGR495062	6.20		.2441	8	53	91
DGR495063	6.30		.2480	8	53	91
DGR497016	6.35	1/4	.2500	1/4	53	91
DGR495064	6.40		.2520	8	53	91
DGR495065	6.50		.2559	8	53	91
DGR497206	6.53	F	.2570	5/16	53	91
DGR495066	6.60		.2598	8	53	91
DGR495067	6.70		.2638	8	53	91
DGR497017	6.75	17/64	.2656	5/16	53	91
DGR495068	6.80		.2677	8	53	91
DGR495069	6.90		.2717	8	53	91
DGR497209	6.91	I	.2720	5/16	53	91
DGR495070	7.00		.2756	8	53	91
DGR495071	7.10		.2795	8	53	91
DGR497018	7.14	9/32	.2813	5/16	53	91
DGR495072	7.20		.2835	8	53	91
DGR495073	7.30		.2874	8	53	91
DGR495074	7.40		.2913	8	53	91
DGR495075	7.50		.2953	8	53	91
DGR497019	7.54	19/64	.2969	5/16	53	91
DGR495076	7.60		.2992	8	53	91

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

DREAM DRILLS -HIGH FEED

DGR495 SERIES
DGR497 SERIES

H-COATED SOLID CARBIDE DREAM DRILLS
High Feed with Coolant Holes (5XD)

- ▶Drilling for Carbon Steels, Alloy Steels(-HRc35) and Cast Iron
- ▶Higher productivity due to 1.5 to 2 times faster feeding speed than 2-flute drill
- ▶Multi-Layer coating delivers much better productivity and reliability
- ▶Self centering and chip breaking by R-thinning and coolant holes

DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | H Coating

p.A119~A120

LONG
5×D

Unit : mm

EDP No.	Drill Diameter Metric	Inch	Decimal	Shank Diameter	Flute Length	Overall Length
H-coating	D1			D2	L1	L2
DGR495077	7.70		.3031	8	53	91
DGR495078	7.80		.3071	8	53	91
DGR495079	7.90		.3110	8	53	91
DGR497020	7.94	5/16	.3125	5/16	53	91
DGR495080	8.00		.3150	8	53	91
DGR495081	8.10		.3189	10	61	103
DGR495082	8.20	P	.3228	10	61	103
DGR495083	8.30		.3268	10	61	103
DGR497021	8.33	21/64	.3281	3/8	61	103
DGR495084	8.40		.3307	10	61	103
DGR497217	8.43	Q	.3320	3/8	61	103
DGR495085	8.50		.3346	10	61	103
DGR495086	8.60		.3386	10	61	103
DGR495087	8.70		.3425	10	61	103
DGR497022	8.73	11/32	.3437	3/8	61	103
DGR495088	8.80		.3465	10	61	103
DGR495089	8.90		.3504	10	61	103
DGR495090	9.00		.3543	10	61	103
DGR495091	9.10		.3583	10	61	103
DGR497023	9.13	23/64	.3594	3/8	61	103
DGR495092	9.20		.3622	10	61	103
DGR495093	9.30		.3661	10	61	103
DGR497221	9.35	U	.3680	3/8	61	103
DGR495094	9.40		.3701	10	61	103
DGR495095	9.50		.3740	10	61	103
DGR497024	9.53	3/8	.3750	3/8	61	103

EDP No.	Drill Diameter Metric	Inch	Decimal	Shank Diameter	Flute Length	Overall Length
H-coating	D1			D2	L1	L2
DGR495096	9.60		.3780	10	61	103
DGR495097	9.70		.3819	10	61	103
DGR495098	9.80	W	.3858	10	61	103
DGR495099	9.90		.3898	10	61	103
DGR497025	9.92	25/64	.3906	7/16	61	103
DGR495100	10.00		.3937	10	61	103
DGR495101	10.10		.3976	12	71	118
DGR495102	10.20		.4016	12	71	118
DGR495103	10.30		.4055	12	71	118
DGR497026	10.32	13/32	.4063	7/16	71	118
DGR495104	10.40		.4094	12	71	118
DGR495105	10.50		.4134	12	71	118
DGR495106	10.60		.4173	12	71	118
DGR495107	10.70		.4213	12	71	118
DGR497027	10.72	27/64	.4219	7/16	71	118
DGR495108	10.80		.4252	12	71	118
DGR495109	10.90		.4291	12	71	118
DGR495110	11.00		.4331	12	71	118
DGR495111	11.10		.4370	12	71	118
DGR497028	11.11	7/16	.4375	7/16	71	118
DGR495112	11.20		.4409	12	71	118
DGR495113	11.30		.4449	12	71	118
DGR495114	11.40		.4488	12	71	118
DGR495115	11.50		.4528	12	71	118
DGR497029	11.51	29/64	.4531	1/2	71	118
DGR495116	11.60		.4567	12	71	118

▶ Other shank types are available on your request.

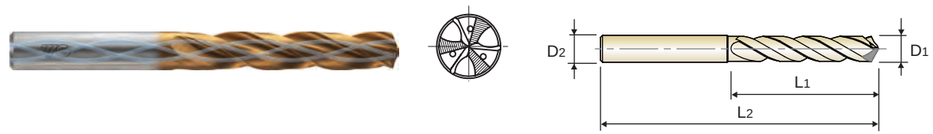
▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

DREAM DRILLS -HIGH FEED
DGR495 SERIES
DGR497 SERIES
H-COATED SOLID CARBIDE DREAM DRILLS
High Feed with Coolant Holes (5XD)
▶Drilling for Carbon Steels, Alloy Steels(-HRc35) and Cast Iron
▶Higher productivity due to 1.5 to 2 times faster feeding speed than 2-flute drill
▶Multi-Layer coating delivers much better productivity and reliability
▶Self centering and chip breaking by R-thinning and coolant holes



DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | H Coating

p.A119~A120

LONG
5×D
Unit : mm

EDP No.	Drill Diameter Metric	Inch	Decimal	Shank Diameter	Flute Length	Overall Length
H-coating	D1			D2	L1	L2
DGR495117	11.70		.4606	12	71	118
DGR495118	11.80		.4646	12	71	118
DGR495119	11.90		.4685	12	71	118
DGR497030	11.91	15/32	.4688	1/2	71	118
DGR495120	12.00		.4724	12	71	118
DGR495121	12.10		.4764	14	77	124
DGR495122	12.20		.4803	14	77	124
DGR495123	12.30		.4843	14	77	124
DGR497031	12.30	31/64	.4844	1/2	77	124
DGR495124	12.40		.4882	14	77	124
DGR495125	12.50		.4921	14	77	124
DGR495126	12.60		.4961	14	77	124
DGR497032	12.70	1/2	.5000	1/2	77	124
DGR495127	12.70		.5000	14	77	124
DGR495128	12.80		.5039	14	77	124
DGR495129	12.90		.5079	14	77	124
DGR495130	13.00		.5118	14	77	124
DGR495131	13.10	33/64	.5156	14	77	124
DGR495132	13.20		.5197	14	77	124
DGR495133	13.30		.5236	14	77	124
DGR495134	13.40		.5276	14	77	124
DGR497034	13.49	17/32	.5312	9/16	77	124
DGR495135	13.50		.5315	14	77	124
DGR495136	13.60		.5354	14	77	124
DGR495137	13.70		.5394	14	77	124
DGR495138	13.80		.5433	14	77	124

EDP No.	Drill Diameter Metric	Inch	Decimal	Shank Diameter	Flute Length	Overall Length
H-coating	D1			D2	L1	L2
DGR497035	13.89	35/64	.5469	9/16	77	124
DGR495139	13.90		.5472	14	77	124
DGR495140	14.00		.5512	14	77	124
DGR495141	14.10		.5551	16	83	133
DGR495142	14.20		.5591	16	83	133
DGR497036	14.29	9/16	.5625	9/16	83	133
DGR495143	14.30		.5630	16	83	133
DGR495144	14.40		.5669	16	83	133
DGR495145	14.50		.5709	16	83	133
DGR495146	14.60		.5748	16	83	133
DGR497037	14.68	37/64	.5781	5/8	83	133
DGR495147	14.70		.5787	16	83	133
DGR495148	14.80		.5827	16	83	133
DGR495149	14.90		.5866	16	83	133
DGR495150	15.00		.5906	16	83	133
DGR497038	15.08	19/32	.5938	5/8	83	133
DGR495151	15.10		.5945	16	83	133
DGR495152	15.20		.5984	16	83	133
DGR495153	15.30		.6024	16	83	133
DGR495154	15.40		.6063	16	83	133
DGR497039	15.48	39/64	.6094	5/8	83	133
DGR495155	15.50		.6102	16	83	133
DGR495156	15.60		.6142	16	83	133
DGR495157	15.70		.6181	16	83	133
DGR495158	15.80		.6220	16	83	133
DGR497040	15.88	5/8	.6250	5/8	83	133

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○				◎	○	◎	○	◎	○

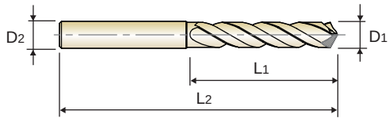
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

DREAM DRILLS -HIGH FEED

DGR495 SERIES
DGR497 SERIES

H-COATED SOLID CARBIDE DREAM DRILLS
High Feed with Coolant Holes (5XD)

- Drilling for Carbon Steels, Alloy Steels(-HRc35) and Cast Iron
- Higher productivity due to 1.5 to 2 times faster feeding speed than 2-flute drill
- Multi-Layer coating delivers much better productivity and reliability
- Self centering and chip breaking by R-thinning and coolant holes



DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | H Coating

p.A119~A120

LONG
5×D

Unit : mm

EDP No.	Drill Diameter Metric	Drill Diameter Inch	Drill Diameter Decimal	Shank Diameter	Flute Length	Overall Length
H-coating	D1			D2	L1	L2
DGR495159	15.90		.6260	16	83	133
DGR495160	16.00		.6299	16	83	133
DGR495161	16.10		.6339	18	93	143
DGR497041	16.27	41/64	.6406	11/16	93	143
DGR495165	16.50		.6496	18	93	143
DGR497042	16.67	21/32	.6563	11/16	93	143
DGR495170	17.00		.6693	18	93	143
DGR497043	17.07	43/64	.6719	11/16	93	143
DGR497044	17.46	11/16	.6875	11/16	93	143
DGR495175	17.50		.6890	18	93	143

EDP No.	Drill Diameter Metric	Drill Diameter Inch	Drill Diameter Decimal	Shank Diameter	Flute Length	Overall Length
H-coating	D1			D2	L1	L2
DGR497045	17.86	45/64	.7031	3/4	93	143
DGR495180	18.00		.7087	18	93	143
DGR497046	18.26	23/32	.7188	3/4	101	153
DGR495185	18.50		.7283	20	101	153
DGR497047	18.65	47/64	.7344	3/4	101	153
DGR495190	19.00		.7480	20	101	153
DGR497048	19.05	3/4	.7500	3/4	101	153
DGR495195	19.50		.7677	20	101	153
DGR495200	20.00		.7874	20	101	153

▶ Other shank types are available on your request.

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

DREAM DRILLS -HIGH FEED
RECOMMENDED CUTTING CONDITIONS

DGR493, DGR496, DGR495, DGR497 SERIES
with COOLANT HOLES

SFM = ft/min.
RPM = rev./min.
FEED = inch/rev.

ISO	VDI 3323	Material Description	SFM		Drill Diameter								
				METRIC	-	5.0	6.0	-	-	8.0	-	10.0	12.0
				FRACTIONAL	3/16	-	-	1/4	5/16	-	3/8	-	-
				DECIMAL	.1875	.1969	.2362	.2500	.3125	.3150	.3750	.3937	.4724
P	2	Non-alloy steel	329	RPM	6370		5310		3980		3180		2650
				FEED	.0079 - .0098		.0094 - .0118		.0126 - .0157		.0157 - .0197		.0189 - .0236
	3		329	RPM	6370		5310		3980		3180		2650
				FEED	.0079 - .0098		.0094 - .0118		.0126 - .0157		.0157 - .0197		.0189 - .0236
	4		329	RPM	6370		5310		3980		3180		2650
				FEED	.0063 - .0083		.0079 - .0102		.0102 - .0134		.0134 - .0165		.0161 - .0185
	5		263	RPM	5090		4240		3180		2550		2120
				FEED	.0063 - .0083		.0079 - .0102		.0102 - .0134		.0134 - .0165		.0161 - .0185
	6	Low alloy steel	329	RPM	6370		5310		3980		3180		2650
				FEED	.0079 - .0098		.0094 - .0118		.0126 - .0157		.0157 - .0197		.0189 - .0213
	7		263	RPM	5090		4240		3180		2550		2120
				FEED	.0079 - .0098		.0094 - .0118		.0126 - .0157		.0157 - .0197		.0189 - .0213
	8		263	RPM	5090		4240		3180		2550		2120
				FEED	.0063 - .0083		.0079 - .0102		.0102 - .0134		.0134 - .0165		.0161 - .0185
	9		132	RPM	2550		2120		1590		1270		1060
				FEED	.0051 - .0071		.0063 - .0087		.0083 - .0114		.0102 - .0142		.0126 - .0150
	10	High alloyed steel, and tool steel	230	RPM	4460		3710		2790		2230		1860
				FEED	.0063 - .0083		.0079 - .0102		.0102 - .0134		.0134 - .0165		.0161 - .0185
	11		132	RPM	2550		2120		1590		1270		1060
				FEED	.0051 - .0071		.0063 - .0087		.0083 - .0114		.0102 - .0142		.0126 - .0150
K	15	Grey cast iron	329	RPM	6370		5310		3980		3180		2650
				FEED	.0091 - .0118		.0106 - .0142		.0142 - .0189		.0177 - .0236		.0213 - .0283
	16		263	RPM	5090		4240		3180		2550		2120
				FEED	.0079 - .0098		.0094 - .0118		.0126 - .0157		.0157 - .0197		.0189 - .0236
	17	Nodular cast iron	329	RPM	6370		5310		3980		3180		2650
				FEED	.0091 - .0118		.0106 - .0142		.0142 - .0189		.0177 - .0236		.0213 - .0283
	18		230	RPM	4460		3710		2790		2230		1860
				FEED	.0079 - .0098		.0094 - .0118		.0126 - .0157		.0157 - .0197		.0189 - .0236
	19	Malleable cast iron	263	RPM	5090		4240		3180		2550		2120
				FEED	.0091 - .0118		.0106 - .0142		.0142 - .0189		.0177 - .0236		.0213 - .0283
	20		230	RPM	4460		3710		2790		2230		1860
				FEED	.0079 - .0098		.0094 - .0118		.0126 - .0157		.0157 - .0197		.0189 - .0236

DREAM DRILLS -HIGH FEED

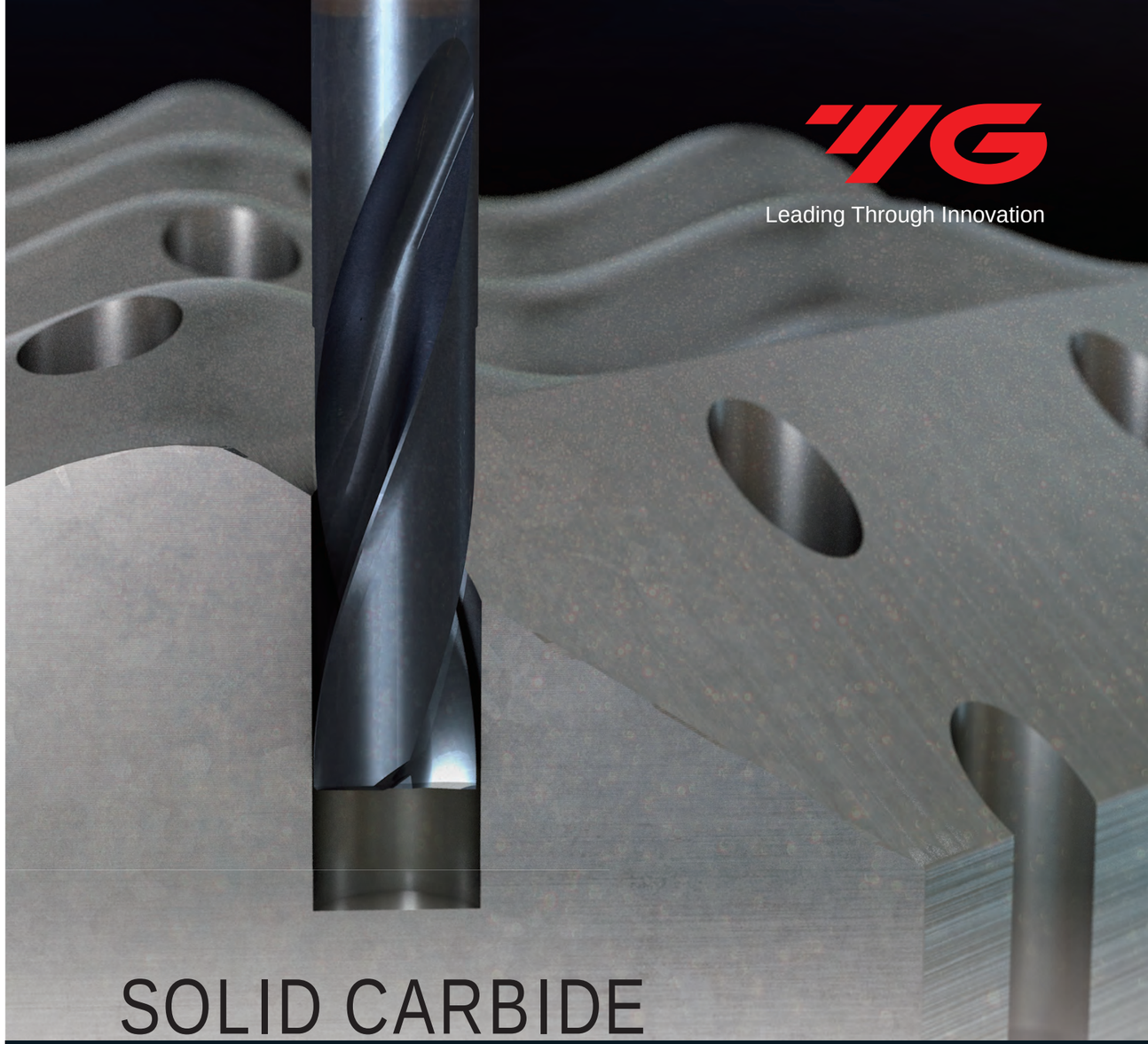
RECOMMENDED CUTTING CONDITIONS

DGR493, DGR496, DGR495, DGR497 SERIES

with COOLANT HOLES

SFM = ft/min.
RPM = rev./min.
FEED = inch/rev.

ISO	VDI 3323	Material Description	SFM	Drill Diameter							
				METRIC	-	14.0	-	-	16.0	18.0	-	20.0
				FRACTIONAL	1/2	-	9/16	5/8	-	-	3/4	-
				DECIMAL	.5000	.5512	.5625	.6250	.6299	.7087	.7500	.7874
P	2	Non-alloy steel	329	RPM	2510	2270		1990		1770	1680	1590
				FEED	.0189 - .0236	.0220 - .0276		.0220 - .0283		.0248 - .0319	.0248 - .0319	.0276 - .0346
	3		329	RPM	2510	2270		1990		1770	1680	1590
				FEED	.0189 - .0236	.0220 - .0276		.022 - .0283		.0248 - .0319	.0248 - .0319	.0276 - .0346
	4		329	RPM	2510	2270		1990		1770	1680	1590
				FEED	.0161 - .0185	.0185 - .0213		.0185 - .0217		.0197 - .0232	.0197 - .0232	.0213 - .0264
	5		263	RPM	2010	1820		1590		1410	1340	1270
				FEED	.0161 - .0185	.0185 - .0213		.0185 - .0217		.0197 - .0232	.0197 - .0232	.0213 - .0264
	6	Low alloy steel	329	RPM	2510	2270		1990		1770	1680	1590
				FEED	.0189 - .0213	.0220 - .0248		.0220 - .0252		.0248 - .0283	.0248 - .0283	.0268 - .0319
	7		263	RPM	2010	1820		1590		1410	1340	1270
				FEED	.0189 - .0213	.0220 - .0248		.0220 - .0252		.0248 - .0283	.0248 - .0283	.0268 - .0319
	8		263	RPM	2010	1820		1590		1410	1340	1270
				FEED	.0161 - .0185	.0185 - .0213		.0185 - .0217		.0197 - .0232	.0197 - .0232	.0213 - .0264
	9		132	RPM	1010	910		800		710	670	640
				FEED	.0126 - .0150	.0142 - .0169		.0142 - .0177		.0150 - .0185	.0150 - .0185	.0161 - .0213
	10	High alloyed steel, and tool steel	230	RPM	1760	1590		1390		1240	1170	1110
				FEED	.0161 - .0185	.0185 - .0213		.0185 - .0217		.0197 - .0232	.0197 - .0232	.0213 - .0264
	11		132	RPM	1010	910		800		710	670	640
				FEED	.0126 - .0150	.0142 - .0169		.0142 - .0177		.0150 - .0185	.0150 - .0185	.0161 - .0213
K	15	Grey cast iron	329	RPM	2510	2270		1990		1770	1680	1590
				FEED	.0213 - .0283	.0248 - .0331		.0252 - .0315		.0283 - .0354	.0283 - .0354	.0315 - .0386
	16		263	RPM	2010	1820		1590		1410	1340	1270
				FEED	.0189 - .0236	.0220 - .0276		.0220 - .0283		.0248 - .0319	.0248 - .0319	.0276 - .0354
	17	Nodular cast iron	329	RPM	2510	2270		1990		1770	1680	1590
				FEED	.0213 - .0283	.0248 - .0331		.0252 - .0315		.0283 - .0354	.0283 - .0354	.0315 - .0386
	18		230	RPM	1760	1590		1390		1240	1170	1110
				FEED	.0189 - .0236	.0220 - .0276		.0220 - .0283		.0248 - .0319	.0248 - .0319	.0276 - .0354
	19	Malleable cast iron	263	RPM	2010	1820		1590		1410	1340	1270
				FEED	.0213 - .0283	.0248 - .0331		.0252 - .0315		.0283 - .0354	.0283 - .0354	.0315 - .0386
	20		230	RPM	1760	1590		1390		1240	1170	1110
				FEED	.0189 - .0236	.0220 - .0276		.0220 - .0283		.0248 - .0319	.0248 - .0319	.0276 - .0354



SOLID CARBIDE

DREAM DRILLS FLAT BOTTOM

- For Holes on Various Angled Surfaces

SELECTION GUIDE

HOLEMAKING TOOLS

SERIES	DPP447
DRILLING DEPTH	2XD
TOOL MATERIAL	SOLID CARBIDE
LENGTH	SHORT
SIZE MIN	D3.0
SIZE MAX	D20.0
PAGE	A123
SURFACE TREATMENT	X-Coating

SOLID CARBIDE
DREAM DRILLS FLAT BOTTOM

- For Holes on Various Angled Surfaces

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A127

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	Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.	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		Hardened	550	55	
	39			Hardened	630	60	
	40	Chilled Cast Iron		Cast	400	42	
	41	Hardened Cast Iron		Hardened	550	55	

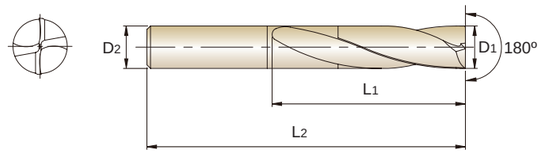
CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

DREAM DRILLS -FLAT BOTTOM

DPP447 SERIES

X-COATED SOLID CARBIDE DREAM DRILLS
Flat Bottom without Coolant Holes (2XD)

- ▶Just ONE Drill 180 degree point angle enables drilling of horizontal surface and sloped surface
- ▶Excellent chip evacuation by optimized flute shape
- ▶High strength cutting edge to improve tool life and versatility drilling
- ▶Variety of drilling can be used in a variety of drilling applications



CARBIDE | 20° | h6 | h7 | 180° | X Coating

p.A127~A128

SHORT

2×D

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
X-Coating	D1	D2	L1	L2	X-Coating	D1	D2	L1	L2
DPP447030	3.0	6	16	50	DPP447051	5.1	6	24	60
DPP447031	3.1	6	16	50	DPP447052	5.2	6	24	60
DPP447008F	1/8	6	16	50	DPP447053	5.3	6	24	60
DPP447032	3.2	6	16	50	DPP447054	5.4	6	24	60
DPP447033	3.3	6	16	50	DPP447055	5.5	6	24	60
DPP447034	3.4	6	18	50	DPP447014F	7/32	6	24	60
DPP447035	3.5	6	18	50	DPP447056	5.6	6	24	60
DPP447036	3.6	6	18	50	DPP447057	5.7	6	26	60
DPP447037	3.7	6	18	50	DPP447058	5.8	6	26	60
DPP447038	3.8	6	18	50	DPP447059	5.9	6	26	60
DPP447039	3.9	6	18	50	DPP447060	6.0	6	26	60
DPP447010F	5/32	6	18	50	DPP447061	6.1	8	28	70
DPP447040	4.0	6	18	50	DPP447062	6.2	8	28	70
DPP447041	4.1	6	20	60	DPP447063	6.3	8	28	70
DPP447042	4.2	6	20	60	DPP447016F	1/4	8	30	70
DPP447043	4.3	6	20	60	DPP447064	6.4	8	30	70
DPP447044	4.4	6	20	60	DPP447065	6.5	8	30	70
DPP447045	4.5	6	22	60	DPP447066	6.6	8	30	70
DPP447046	4.6	6	22	60	DPP447067	6.7	8	30	70
DPP447047	4.7	6	22	60	DPP447068	6.8	8	30	70
DPP447012F	3/16	6	22	60	DPP447069	6.9	8	30	70
DPP447048	4.8	6	22	60	DPP447070	7.0	8	30	70
DPP447049	4.9	6	22	60	DPP447071	7.1	8	34	70
DPP447050	5.0	6	22	60	DPP447018F	9/32	8	34	70

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○																			

DREAM DRILLS -FLAT BOTTOM

DPP447 SERIES

X-COATED SOLID CARBIDE DREAM DRILLS

Flat Bottom without Coolant Holes (2XD)

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- ▶Excellent chip evacuation by optimized flute shape
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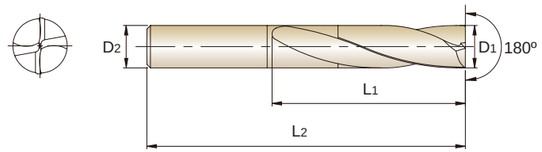
- ▶Variety of drilling can be used in a variety of drilling applications



CARBIDE | 20° | h6 | h7 | 180° | X Coating | p.A127~A128

SHORT
2×D

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
X-Coating	D1	D2	L1	L2
DPP447072	7.2	8	34	70
DPP447073	7.3	8	34	70
DPP447074	7.4	8	34	70
DPP447075	7.5	8	34	70
DPP447076	7.6	8	34	70
DPP447077	7.7	8	34	70
DPP447078	7.8	8	34	70
DPP447079	7.9	8	34	70
DPP447020F	5/16	8	34	70
DPP447080	8.0	8	34	70
DPP447081	8.1	10	38	80
DPP447082	8.2	10	38	80
DPP447083	8.3	10	38	80
DPP447021F	21/64	10	38	80
DPP447084	8.4	10	38	80
DPP447085	8.5	10	38	80
DPP447086	8.6	10	38	80
DPP447087	8.7	10	40	80
DPP447088	8.8	10	40	80
DPP447089	8.9	10	40	80
DPP447090	9.0	10	40	80
DPP447091	9.1	10	42	80
DPP447023F	23/64	10	42	80
DPP447092	9.2	10	42	80

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
X-Coating	D1	D2	L1	L2
DPP447093	9.3	10	42	80
DPP447094	9.4	10	42	80
DPP447095	9.5	10	42	80
DPP447024F	3/8	10	42	80
DPP447096	9.6	10	42	80
DPP447097	9.7	10	45	80
DPP447098	9.8	10	45	80
DPP447099	9.9	10	45	80
DPP447100	10.0	10	45	80
DPP447101	10.1	12	46	90
DPP447102	10.2	12	46	90
DPP447103	10.3	12	46	90
DPP447026F	13/32	12	46	90
DPP447104	10.4	12	48	90
DPP447105	10.5	12	48	90
DPP447106	10.6	12	48	90
DPP447107	10.7	12	48	90
DPP447108	10.8	12	48	90
DPP447109	10.9	12	48	90
DPP447110	11.0	12	48	90
DPP447111	11.1	12	50	90
DPP447028F	7/16	12	50	90
DPP447112	11.2	12	50	90
DPP447113	11.3	12	50	90

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○																			

DREAM DRILLS -FLAT BOTTOM

DPP447 SERIES

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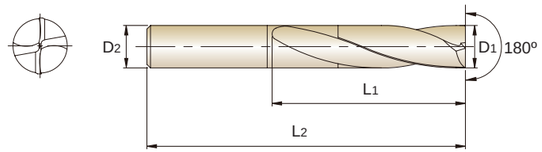

CARBIDE | 20° | h6 | h7 | 180° | X Coating | p.A127~A128

SHORT
2×D

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
X-Coating	D1	D2	L1	L2
DPP447114	11.4	12	50	90
DPP447115	11.5	12	50	90
DPP447029F	29/64	12	50	90
DPP447116	11.6	12	50	90
DPP447117	11.7	12	52	90
DPP447118	11.8	12	52	90
DPP447119	11.9	12	52	90
DPP447030F	15/32	12	52	90
DPP447120	12.0	12	52	90
DPP447121	12.1	14	54	100
DPP447122	12.2	14	54	100
DPP447123	12.3	14	54	100
DPP447124	12.4	14	54	100
DPP447125	12.5	14	54	100
DPP447126	12.6	14	54	100
DPP447127	12.7	14	56	100
DPP447128	12.8	14	56	100
DPP447129	12.9	14	56	100
DPP447130	13.0	14	56	100
DPP447131	13.1	14	58	100
DPP447132	13.2	14	58	100
DPP447133	13.3	14	58	100
DPP447134	13.4	14	58	100
DPP447135	13.5	14	58	100

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
X-Coating	D1	D2	L1	L2
DPP447136	13.6	14	58	100
DPP447137	13.7	14	58	100
DPP447138	13.8	14	58	100
DPP447139	13.9	14	58	100
DPP447140	14.0	14	58	100
DPP447141	14.1	16	62	105
DPP447142	14.2	16	62	105
DPP447036F	9/16	16	62	105
DPP447143	14.3	16	62	105
DPP447144	14.4	16	62	105
DPP447145	14.5	16	62	105
DPP447146	14.6	16	62	105
DPP447147	14.7	16	62	105
DPP447148	14.8	16	62	105
DPP447149	14.9	16	62	105
DPP447150	15.0	16	62	105
DPP447151	15.1	16	64	115
DPP447152	15.2	16	64	115
DPP447153	15.3	16	64	115
DPP447154	15.4	16	64	115
DPP447155	15.5	16	64	115
DPP447156	15.6	16	64	115
DPP447157	15.7	16	64	115
DPP447158	15.8	16	64	115

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○																			

DREAM DRILLS -FLAT BOTTOM

DPP447 SERIES

X-COATED SOLID CARBIDE DREAM DRILLS

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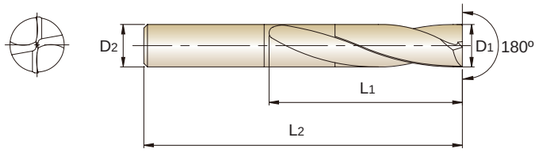


CARBIDE | 20° | h6 | h7 | 180° | X Coating

p.A127~A128

SHORT
2×D

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
X-Coating	D1	D2	L1	L2
DPP447040F	5/8	16	64	115
DPP447159	15.9	16	64	115
DPP447160	16.0	16	64	115
DPP447165	16.5	18	70	125
DPP447170	17.0	18	70	125
DPP447044F	11/16	18	70	125
DPP447175	17.5	18	70	125

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
X-Coating	D1	D2	L1	L2
DPP447180	18.0	18	70	125
DPP447185	18.5	20	75	135
DPP447190	19.0	20	75	135
DPP447048F	3/4	20	75	135
DPP447195	19.5	20	75	145
DPP447200	20.0	20	75	145

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○																			

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

DREAM DRILLS -FLAT BOTTOM

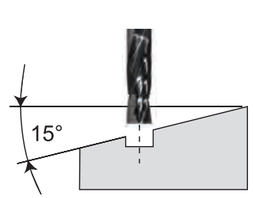
RECOMMENDED CUTTING CONDITIONS

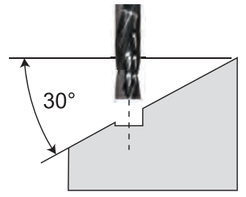
DPP447 SERIES

without COOLANT HOLES

SFM = ft/min.
RPM = rev./min.
FEED = inch/rev.

ISO	VDI 3323	Material Description	SFM	Drill Diameter							
				METRIC	3.0	-	4.0	-	5.0	6.0	-	8.0
				FRACTIONAL	-	1/8	-	3/16	-	-	5/16	-
				DECIMAL	.1181	.1250	.1575	.1875	.1969	.2362	.3125	.3150
P	1	Non-alloy steel	263	RPM	8490		6370		5090	4240		3180
				FEED	.0008 - .0020		.0012 - .0028		.0012 - .0031	.0016 - .0039		.0031 - .0055
	2		263	RPM	8490		6370		5090	4240		3180
				FEED	.0008 - .0020		.0012 - .0028		.0012 - .0031	.0016 - .0039		.0031 - .0055
	3		230	RPM	7430		5570		4460	3710		2790
				FEED	.0008 - .0020		.0012 - .0028		.0012 - .0031	.0016 - .0039		.0028 - .0051
	4		132	RPM	4240		3180		2550	2120		1590
				FEED	.0008 - .0020		.0012 - .0028		.0012 - .0031	.0016 - .0039		.0028 - .0051
	5		125	RPM	4030		3020		2420	2020		1510
				FEED	.0008 - .0020		.0008 - .0024		.0012 - .0031	.0012 - .0035		.0024 - .0047
	6	Low alloy steel	148	RPM	4770		3580		2860	2390		1790
				FEED	.0008 - .0020		.0012 - .0028		.0012 - .0031	.0016 - .0039		.0028 - .0051
	7		132	RPM	4240		3180		2550	2120		1590
				FEED	.0008 - .0020		.0012 - .0028		.0012 - .0031	.0016 - .0039		.0028 - .0051
	8		125	RPM	4030		3020		2420	2020		1510
				FEED	.0008 - .0020		.0008 - .0024		.0012 - .0031	.0012 - .0035		.0024 - .0047
	9		82	RPM	2650		1990		1590	1330		990
				FEED	.0004 - .0012		.0008 - .0016		.0008 - .0020	.0012 - .0024		.0012 - .0031
M	12	Stainless steel	99	RPM	3180		2390		1910	1590		1190
				FEED	.0004 - .0012		.0004 - .0012		.0008 - .0016	.0008 - .002		.0012 - .0024
K	15	Grey cast iron	230	RPM	7430		5570		4460	3710		2790
				FEED	.0008 - .0020		.0008 - .0024		.0012 - .0031	.0012 - .0035		.0024 - .0047
	16		197	RPM	6370		4770		3820	3180		2390
				FEED	.0008 - .0020		.0008 - .0020		.0012 - .0024	.0012 - .0028		.0016 - .0039
N	21	Aluminum-wrought alloy	543	RPM	17510		13130		10500	8750		6570
				FEED	.0008 - .0020		.0016 - .0031		.0016 - .0039	.0024 - .0047		.0039 - .0063
	22		543	RPM	17510		13130		10500	8750		6570
				FEED	.0008 - .0020		.0016 - .0031		.0016 - .0039	.0024 - .0047		.0039 - .0063





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

Surface Angle	Cutting Conditions	
	RPM	IPR
0° ~ 15°	100%	100%
15° ~ 30°	100%	50%
30° ~	70%	30%

DREAM DRILLS -FLAT BOTTOM

RECOMMENDED CUTTING CONDITIONS

DPP447 SERIES

without COOLANT HOLES

SFM = ft/min.
RPM = rev./min.
FEED = inch/rev.

ISO	VDI 3323	Material Description	SFM	Drill Diameter							
				METRIC	-	10.0	12.0	-	-	16.0	-	20.0
				FRACTIONAL	3/8	-	-	1/2	5/8	-	3/4	-
				DECIMAL	.3750	.3937	.4724	.5000	.6250	.6299	.7500	.7874
P	1	Non-alloy steel	263	RPM	2550		2120	2010	1590		1340	1270
				FEED	.0043 - .0067		.0043 - .0083	.0043 - .0083	.0071 - .0110		.0104 - .0144	.0110 - .0150
	2		263	RPM	2550		2120	2010	1590		1340	1270
				FEED	.0043 - .0067		.0043 - .0083	.0043 - .0083	.0071 - .0110		.0104 - .0144	.0110 - .0150
	3		230	RPM	2230		1860	1760	1390		1170	1110
				FEED	.0043 - .0067		.0043 - .0083	.0043 - .0083	.0071 - .0110		.0088 - .0128	.0094 - .0134
	4		132	RPM	1270		1060	1010	800		670	640
				FEED	.0043 - .0067		.0043 - .0083	.0043 - .0083	.0071 - .0110		.0088 - .0128	.0094 - .0134
	5		125	RPM	1210		1010	960	760		640	600
				FEED	.0035 - .0059		.0031 - .0071	.0031 - .0071	.0055 - .0094		.0077 - .0117	.0083 - .0122
	6	Low alloy steel	148	RPM	1430		1190	1130	900		750	720
				FEED	.0043 - .0067		.0043 - .0083	.0043 - .0083	.0071 - .0110		.0088 - .0128	.0094 - .0134
	7		132	RPM	1270		1060	1010	800		670	640
				FEED	.0043 - .0067		.0043 - .0083	.0043 - .0083	.0071 - .0110		.0088 - .0128	.0094 - .0134
	8		125	RPM	1210		1010	960	760		640	600
				FEED	.0035 - .0059		.0031 - .0071	.0031 - .0071	.0055 - .0094		.0077 - .0117	.0083 - .0122
	9		82	RPM	800		660	630	500		420	400
				FEED	.0020 - .0039		.0024 - .0047	.0024 - .0047	.0024 - .0063		.0025 - .0065	.0039 - .0079
M	12	Stainless steel	99	RPM	950		800	760	600		500	480
				FEED	.0012 - .0031		.0020 - .0039	.0020 - .0039	.0024 - .0047		.0025 - .0065	.0035 - .0059
K	15	Grey cast iron	230	RPM	2010		1820	1590	1410		1340	1270
				FEED	.0189 - .0236		.0220 - .0276	.0220 - .0283	.0248 - .0319		.0248 - .0319	.0276 - .0354
	16		197	RPM	2510		2270	1990	1770		1680	1590
				FEED	.0213 - .0283		.0248 - .0331	.0252 - .0315	.0283 - .0354		.0283 - .0354	.0315 - .0386
N	21	Aluminum-wrought alloy	543	RPM	5250		4380	4150	3280		2770	2630
				FEED	.0055 - .0079		.0055 - .0094	.0055 - .0094	.0087 - .0126		.0111 - .0151	.0118 - .0157
	22		543	RPM	5250		4380	4150	3280		2770	2630
				FEED	.0055 - .0079		.0055 - .0094	.0055 - .0094	.0087 - .0126		.0111 - .0151	.0118 - .0157

- The cutting conditions are for 2xD.
- The rigid and precise machine and holder are required.
- The recommended depth of hole is measured from the highest point of the hole on drilling in inclined and angled surfaces.
- The recommended cutting conditions are those for drilling on flat and horizontal surfaces.
- Please adjust feed rate according to the above surface angle when drilling on an inclined surface.
  - The recommended feed rate 50% or lower, in case of 15°~30° of the incline angle.
  - The recommended feed rate 30% or lower and RPM 70%, in case of 30° ~ of the incline angle.
- Please decrease cutting speed as material hardness increases.
- Only use drilling tool. Side milling, traversing, helical milling are not usable.

Leading Through Innovation

SOLID CARBIDE

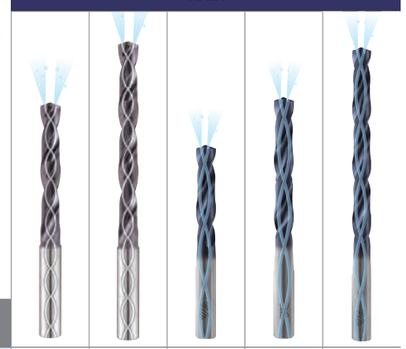
DREAM DRILLS INOX

- For Tough Materials like Stainless Steels

SELECTION GUIDE

YG HOLEMAKING TOOLS

SERIES	DH463 DH714	DH464 DH715	DH451	DH452	DH453
DRILLING DEPTH	3XD	5XD	3XD	5XD	8XD
TOOL MATERIAL	SOLID CARBIDE				
LENGTH	STUB	LONG	SHORT	LONG	EXTRA LONG
SIZE MIN	D1/8	D13/64	D3.0	D1.0	D2.0
SIZE MAX	D5/8	D1/2	D20.0	D20.0	D20.0
PAGE	A131	A133	A134	A138	A143
SURFACE TREATMENT	TiAlN				



SOLID CARBIDE DREAM DRILLS INOX

- For Tough Materials like Stainless Steels

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A147

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	DH463 DH714	DH464 DH715	DH451	DH452	DH453
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	Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.	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		Hardened	550	55					
	39			Hardened	630	60					
	40	Chilled Cast Iron		Cast	400	42					
	41	Hardened Cast Iron		Hardened	550	55					

YG DREAM DRILLS -INOX

DH463 SERIES
DH714 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
INOX with Coolant Holes (3XD)

- ▶ Special flute shape and geometry suitable for machining stainless steel
- ▶ Excellent chip evacuation from better surface treatment
- ▶ Point R-thinning achieves superior centering and chip curling
- ▶ TiAlN coating for better surface finishes and longer tool life
- ▶ Tolerance : Dia. Tolerance ØD1: See page A405
  Shank Tolerance ØD2: -.0001 -.0005

CARBIDE | 140° | 20 bar | TiAlN | p.A147

STUB
3×D

Unit : inch

EDP No.	Drill Diameter Fractional	Drill Diameter Decimal	Shank Diameter	Flute Length	Overall Length
TiAlN	D1		D2	L1	L2
DH714008	1/8	.1250	3/16	1.102	2.992
DH463008	1/8	.1250	15/64	1.102	2.992
DH714011	11/64	.1719	3/16	1.417	3.386
DH463011	11/64	.1719	15/64	1.417	3.386
DH714012	3/16	.1875	3/16	1.575	3.543
DH463012	3/16	.1875	15/64	1.575	3.543
DH463013	13/64	.2031	15/64	1.082	3.228
DH714013	13/64	.2031	1/4	1.082	3.228
DH463014	7/32	.2188	15/64	1.181	3.228
DH714014	7/32	.2188	1/4	1.181	3.228
DH463015	15/64	.2344	15/64	1.181	3.228
DH714015	15/64	.2344	1/4	1.181	3.228
DH714016	1/4	.2500	1/4	1.279	3.465
DH463016	1/4	.2500	17/64	1.279	3.465
DH463206	F	.2570	17/64	1.279	3.465
DH714206	F	.2570	5/16	1.279	3.465
DH463017	17/64	.2656	17/64	1.378	3.465
DH714017	17/64	.2656	5/16	1.378	3.465
DH463209	I	.2720	.2720	1.378	3.465
DH714209	I	.2720	5/16	1.378	3.465
DH463018	9/32	.2812	5/16	1.476	3.701
DH463019	19/64	.2969	5/16	1.476	3.701
DH463020	5/16	.3125	5/16	1.575	3.701
DH463021	21/64	.3281	11/32	1.673	3.937

EDP No.	Drill Diameter Fractional	Drill Diameter Decimal	Shank Diameter	Flute Length	Overall Length
TiAlN	D1		D2	L1	L2
DH714021	21/64	.3281	3/8	1.673	3.937
DH463217	Q	.3320	11/32	1.673	3.937
DH714217	Q	.3320	3/8	1.673	3.937
DH463022	11/32	.3438	11/32	1.772	3.937
DH714022	11/32	.3438	3/8	1.772	3.937
DH714023	23/64	.3594	3/8	1.870	4.174
DH463023	23/64	.3594	25/64	1.870	4.174
DH714221	U	.3680	3/8	1.870	4.174
DH463221	U	.3680	25/64	1.870	4.174
DH714024	3/8	.3750	3/8	1.969	4.174
DH463024	3/8	.3750	25/64	1.969	4.174
DH463025	25/64	.3906	25/64	1.969	4.174
DH714025	25/64	.3906	7/16	1.969	4.174
DH463026	13/32	.4062	27/64	2.067	4.567
DH714026	13/32	.4062	7/16	2.067	4.567
DH463027	27/64	.4219	27/64	2.165	4.567
DH714027	27/64	.4219	7/16	2.165	4.567
DH714028	7/16	.4375	7/16	2.264	4.803
DH463028	7/16	.4375	15/32	2.264	4.803
DH463029	29/64	.4531	15/32	2.264	4.803
DH714029	29/64	.4531	1/2	2.264	4.803
DH463030	15/32	.4688	15/32	2.362	4.803
DH714030	15/32	.4688	1/2	2.362	4.803
DH463031	31/64	.4844	1/2	2.461	5.039

▶ Other shank types are available on your request.
▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○	○	○												○				

DREAM DRILLS -INOX

DH463 SERIES
DH714 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
INOX with Coolant Holes (3XD)

- ▶Special flute shape and geometry suitable for machining stainless steel
- ▶Excellent chip evacuation from better surface treatment
- ▶Point R-thinning achieves superior centering and chip curling
- ▶TiAlN coating for better surface finishes and longer tool life
- ▶Tolerance : Dia. Tolerance ØD1: See page A405
  Shank Tolerance ØD2: -.0001 -.0005

CARBIDE | 140° | 20 bar | TiAlN | p.A147

STUB
3×D

Unit : inch

EDP No.	Drill Diameter		Shank Diameter	Flute Length	Overall Length
	Fractional	Decimal			
TiAlN	D1		D2	L1	L2
DH463032	1/2	.5000	1/2	2.559	5.039
DH463033	33/64	.5156	35/64	2.657	5.276
DH714033	33/64	.5156	9/16	2.657	5.276
DH463034	17/32	.5312	35/64	2.756	5.276
DH714034	17/32	.5312	9/16	2.756	5.276
DH463035	35/64	.5469	35/64	2.756	5.276
DH714035	35/64	.5469	9/16	2.756	5.276

EDP No.	Drill Diameter		Shank Diameter	Flute Length	Overall Length
	Fractional	Decimal			
TiAlN	D1		D2	L1	L2
DH714036	9/16	.5625	9/16	2.854	5.512
DH463036	9/16	.5625	37/64	2.854	5.512
DH463037	37/64	.5781	37/64	2.953	5.512
DH714037	37/64	.5781	5/8	2.953	5.512
DH463038	19/32	.5937	5/8	3.051	5.709
DH463039	39/64	.6094	5/8	3.051	5.709
DH463040	5/8	.6250	5/8	3.150	5.709

▶ Other shank types are available on your request.

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○	○	○												○				

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

DREAM DRILLS -INOX

DH464 SERIES
DH715 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
INOX with Coolant Holes (5XD)

- ▶Special flute shape and geometry suitable for machining stainless steel
- ▶Excellent chip evacuation from better surface treatment
- ▶Point R-thinning achieves superior centering and chip curling
- ▶TiAlN coating for better surface finishes and longer tool life
- ▶Tolerance : Dia. Tolerance ØD1: See page A405
  Shank Tolerance ØD2: -.0001 -.0005

CARBIDE | 140° | 20 bar | TiAlN | p.A147

LONG
5×D

Unit : inch

EDP No.	Drill Diameter		Shank Diameter	Flute Length	Overall Length
	Fractional	Decimal			
TiAlN	D1		D2	L1	L2
DH464013	13/64	.2031	15/64	1-3/4	3-15/16
DH715013	13/64	.2031	1/4	1-3/4	3-15/16
DH464014	7/32	.2188	15/64	1-57/64	3-15/16
DH715014	7/32	.2188	1/4	1-57/64	3-15/16
DH464015	15/64	.2344	15/64	1-57/64	3-15/16
DH715015	15/64	.2344	1/4	1-57/64	3-15/16
DH715016	1/4	.2500	1/4	2-3/64	4-19/64
DH464016	1/4	.2500	17/64	2-3/64	4-19/64
DH464206	F	.2570	17/64	2-13/64	4-19/64
DH715206	F	.2570	5/16	2-13/64	4-19/64
DH464017	17/64	.2656	17/64	2-13/64	4-19/64
DH715017	17/64	.2656	5/16	2-13/64	4-19/64
DH464209	I	.2720	.2720	2-13/64	4-19/64
DH715209	I	.2720	5/16	2-13/64	4-19/64
DH464018	9/32	.2812	5/16	2-23/64	4-41/64
DH464019	19/64	.2969	5/16	2-33/64	4-41/64
DH464020	5/16	.3125	5/16	2-33/64	4-41/64
DH464021	21/64	.3281	11/32	2-43/64	5
DH715021	21/64	.3281	3/8	2-43/64	5
DH464217	Q	.3320	11/32	2-43/64	5
DH715217	Q	.3320	3/8	2-43/64	5
DH464022	11/32	.3438	11/32	2-27/32	5

EDP No.	Drill Diameter		Shank Diameter	Flute Length	Overall Length
	Fractional	Decimal			
TiAlN	D1		D2	L1	L2
DH715022	11/32	.3438	3/8	2-27/32	5
DH715023	23/64	.3594	3/8	3	5-23/64
DH464023	23/64	.3594	25/64	3	5-23/64
DH715221	U	.3680	3/8	3	5-23/64
DH464221	U	.3680	25/64	3	5-23/64
DH715024	3/8	.3750	3/8	3-5/32	5-23/64
DH464024	3/8	.3750	25/64	3-5/32	5-23/64
DH464025	25/64	.3906	25/64	3-5/32	5-23/64
DH715025	25/64	.3906	7/16	3-5/32	5-23/64
DH464026	13/32	.4062	27/64	3-5/16	5-7/8
DH715026	13/32	.4062	7/16	3-5/16	5-7/8
DH464027	27/64	.4219	27/64	3-15/32	5-7/8
DH715027	27/64	.4219	7/16	3-15/32	5-7/8
DH715028	7/16	.4375	7/16	3-5/8	6-7/32
DH464028	7/16	.4375	15/32	3-5/8	6-7/32
DH464029	29/64	.4531	15/32	3-25/32	6-7/32
DH715029	29/64	.4531	1/2	3-25/32	6-7/32
DH464030	15/32	.4688	15/32	3-25/32	6-7/32
DH715030	15/32	.4688	1/2	3-25/32	6-7/32
DH464031	31/64	.4844	1/2	3-15/16	6-37/64
DH464032	1/2	.5000	1/2	4-3/32	6-37/64

▶ Other shank types are available on your request.

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	○			◎	○					◎	◎	◎						

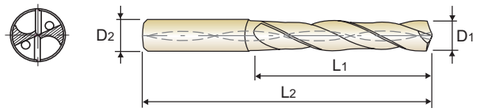
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○	○	○												○				

DREAM DRILLS -INOX

DH451 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
INOX with Coolant Holes (3XD)

- ▶Special flute shape and geometry suitable for machining stainless steel
- ▶Excellent chip evacuation from better surface treatment
- ▶Point R-thinning achieves superior centering and chip curling
- ▶TiAlN coating for better surface finishes and longer tool life



DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | TiAlN

p.A147

SHORT
3×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH451021	2.1		.0827	4	20	55
DH451006F	2.381	3/32	.0937	4	20	55
DH451027	2.7		.1063	4	20	55
DH451007F	2.778	7/64	.1094	4	20	55
DH451929	2.95		.1161	6	20	62
DH451030	3.0		.1181	6	20	62
DH451031	3.1		.1220	6	20	62
DH451008F	3.175	1/8	.1250	6	20	62
DH451032	3.2		.1260	6	20	62
DH451033	3.3		.1299	6	20	62
DH451034	3.4		.1339	6	20	62
DH451035	3.5		.1378	6	20	62
DH451009F	3.572	9/64	.1406	6	20	62
DH451036	3.6		.1417	6	20	62
DH451037	3.7		.1457	6	20	62
DH451038	3.8		.1496	6	24	66
DH451039	3.9		.1535	6	24	66
DH451010F	3.969	5/32	.1563	6	24	66
DH451040	4.0		.1575	6	24	66
DH451041	4.1		.1614	6	24	66
DH451042	4.2		.1654	6	24	66
DH451043	4.3		.1693	6	24	66
DH451011F	4.366	11/64	.1719	6	24	66
DH451044	4.4		.1732	6	24	66
DH451045	4.5		.1772	6	24	66
DH451046	4.6		.1811	6	24	66

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH451047	4.7		.1850	6	24	66
DH451012F	4.763	3/16	.1875	6	24	66
DH451048	4.8		.1890	6	28	66
DH451049	4.9		.1929	6	28	66
DH451050	5.0		.1969	6	28	66
DH451051	5.1		.2008	6	28	66
DH451013F	5.159	13/64	.2031	6	28	66
DH451052	5.2		.2047	6	28	66
DH451053	5.3		.2087	6	28	66
DH451054	5.4		.2126	6	28	66
DH451055	5.5		.2165	6	28	66
DH451014F	5.556	7/32	.2188	6	28	66
DH451056	5.6		.2205	6	28	66
DH451057	5.7		.2244	6	28	66
DH451058	5.8		.2283	6	28	66
DH451059	5.9		.2323	6	28	66
DH451015F	5.953	15/64	.2344	6	28	66
DH451060	6.0		.2362	6	28	66
DH451061	6.1		.2402	8	34	79
DH451062	6.2		.2441	8	34	79
DH451063	6.3		.2480	8	34	79
DH451016F	6.350	1/4	.2500	8	34	79
DH451064	6.4		.2520	8	34	79
DH451065	6.5		.2559	8	34	79
DH451006L	6.528	F	.2570	8	34	79
DH451066	6.6		.2598	8	34	79

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○	○	○												○				

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

DREAM DRILLS -INOX

DH451 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
INOX with Coolant Holes (3XD)

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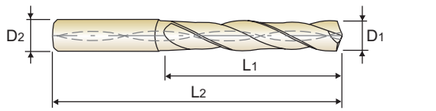

DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | TiAlN

p.A147

SHORT
3×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH451067	6.7		.2638	8	34	79
DH451017F	6.747	17/64	.2656	8	34	79
DH451068	6.8		.2677	8	34	79
DH451069	6.9		.2717	8	34	79
DH451009L	6.909	I	.2720	8	34	79
DH451070	7.0		.2756	8	34	79
DH451071	7.1		.2795	8	41	79
DH451018F	7.144	9/32	.2812	8	41	79
DH451072	7.2		.2835	8	41	79
DH451073	7.3		.2874	8	41	79
DH451074	7.4		.2913	8	41	79
DH451075	7.5		.2953	8	41	79
DH451019F	7.541	19/64	.2969	8	41	79
DH451076	7.6		.2992	8	41	79
DH451077	7.7		.3031	8	41	79
DH451078	7.8		.3071	8	41	79
DH451079	7.9		.3110	8	41	79
DH451020F	7.938	5/16	.3125	8	41	79
DH451080	8.0		.3150	8	41	79
DH451081	8.1		.3189	10	47	89
DH451082	8.2		.3228	10	47	89
DH451083	8.3		.3268	10	47	89
DH451021F	8.334	21/64	.3281	10	47	89
DH451084	8.4		.3307	10	47	89
DH451017L	8.433	Q	.3320	10	47	89
DH451085	8.5		.3346	10	47	89

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH451086	8.6		.3386	10	47	89
DH451087	8.7		.3425	10	47	89
DH451022F	8.731	11/32	.3438	10	47	89
DH451088	8.8		.3465	10	47	89
DH451089	8.9		.3504	10	47	89
DH451090	9.0		.3543	10	47	89
DH451091	9.1		.3583	10	47	89
DH451023F	9.128	23/64	.3594	10	47	89
DH451092	9.2		.3622	10	47	89
DH451093	9.3		.3661	10	47	89
DH451021L	9.347	U	.3680	10	47	89
DH451094	9.4		.3701	10	47	89
DH451095	9.5		.3740	10	47	89
DH451024F	9.525	3/8	.3750	10	47	89
DH451096	9.6		.3780	10	47	89
DH451097	9.7		.3819	10	47	89
DH451098	9.8		.3858	10	47	89
DH451099	9.9		.3898	10	47	89
DH451025F	9.922	25/64	.3906	10	47	89
DH451100	10.0		.3937	10	47	89
DH451101	10.1		.3976	12	55	102
DH451102	10.2		.4016	12	55	102
DH451103	10.3		.4055	12	55	102
DH451026F	10.319	13/32	.4062	12	55	102
DH451104	10.4		.4094	12	55	102
DH451105	10.5		.4134	12	55	102

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○	○	○												○				

DREAM DRILLS -INOX

DH451 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
INOX with Coolant Holes (3XD)

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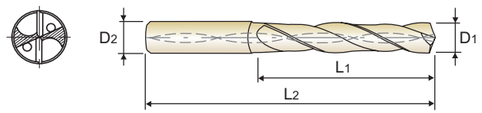

DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | TiAlN | p.A147

SHORT
3×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH451106	10.6		.4173	12	55	102
DH451107	10.7		.4212	12	55	102
DH451027F	10.716	27/64	.4219	12	55	102
DH451108	10.8		.4252	12	55	102
DH451109	10.9		.4291	12	55	102
DH451110	11.0		.4330	12	55	102
DH451111	11.1		.4370	12	55	102
DH451028F	11.113	7/16	.4375	12	55	102
DH451112	11.2		.4409	12	55	102
DH451113	11.3		.4448	12	55	102
DH451114	11.4		.4488	12	55	102
DH451115	11.5		.4527	12	55	102
DH451029F	11.509	29/64	.4531	12	55	102
DH451116	11.6		.4566	12	55	102
DH451117	11.7		.4606	12	55	102
DH451118	11.8		.4645	12	55	102
DH451119	11.9		.4685	12	55	102
DH451030F	11.906	15/32	.4688	12	55	102
DH451120	12.0		.4724	12	55	102
DH451121	12.1		.4764	14	60	107
DH451122	12.2		.4803	14	60	107
DH451123	12.3		.4843	14	60	107
DH451031F	12.303	31/64	.4844	14	60	107
DH451124	12.4		.4882	14	60	107
DH451125	12.5		.4921	14	60	107
DH451126	12.6		.4961	14	60	107

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH451032F	12.7	1/2	.5000	14	60	107
DH451128	12.8		.5039	14	60	107
DH451129	12.9		.5079	14	60	107
DH451130	13.0		.5118	14	60	107
DH451131	13.1		.5157	14	60	107
DH451132	13.2		.5197	14	60	107
DH451133	13.3		.5236	14	60	107
DH451134	13.4		.5276	14	60	107
DH451135	13.5		.5314	14	60	107
DH451136	13.6		.5354	14	60	107
DH451137	13.7		.5394	14	60	107
DH451138	13.8		.5433	14	60	107
DH451139	13.9		.5472	14	60	107
DH451140	14.0		.5512	14	60	107
DH451141	14.1		.5551	16	65	115
DH451142	14.2		.5591	16	65	115
DH451036F	14.288	9/16	.5625	16	65	115
DH451143	14.3		.5630	16	65	115
DH451144	14.4		.5669	16	65	115
DH451145	14.5		.5708	16	65	115
DH451146	14.6		.5748	16	65	115
DH451147	14.7		.5787	16	65	115
DH451148	14.8		.5827	16	65	115
DH451149	14.9		.5866	16	65	115
DH451150	15.0		.5905	16	65	115
DH451151	15.1		.5945	16	65	115

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○	○	○												○				

DREAM DRILLS -INOX

DH451 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
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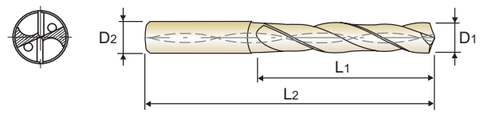


DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | TiAlN | p.A147

SHORT
3×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH451152	15.2		.5984	16	65	115
DH451153	15.3		.6024	16	65	115
DH451154	15.4		.6063	16	65	115
DH451155	15.5		.6102	16	65	115
DH451156	15.6		.6142	16	65	115
DH451157	15.7		.6181	16	65	115
DH451158	15.8		.6220	16	65	115
DH451040F	15.875	5/8	.6250	16	65	115
DH451159	15.9		.6260	16	65	115
DH451160	16.0		.6299	16	65	115
DH451161	16.1		.6339	18	73	123
DH451162	16.2		.6378	18	73	123
DH451163	16.3		.6417	18	73	123
DH451164	16.4		.6457	18	73	123
DH451165	16.5		.6495	18	73	123
DH451166	16.6		.6535	18	73	123
DH451167	16.7		.6575	18	73	123
DH451168	16.8		.6614	18	73	123
DH451169	16.9		.6654	18	73	123
DH451170	17.0		.6692	18	73	123
DH451171	17.1		.6732	18	73	123
DH451172	17.2		.6772	18	73	123
DH451173	17.3		.6811	18	73	123
DH451174	17.4		.6850	18	73	123
DH451044F	17.463	11/16	.6875	18	73	123
DH451175	17.5		.6889	18	73	123

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH451176	17.6		.6929	18	73	123
DH451177	17.7		.6968	18	73	123
DH451178	17.8		.7008	18	73	123
DH451179	17.9		.7047	18	73	123
DH451180	18.0		.7087	18	73	123
DH451181	18.1		.7126	20	79	131
DH451182	18.2		.7165	20	79	131
DH451183	18.3		.7205	20	79	131
DH451184	18.4		.7244	20	79	131
DH451185	18.5		.7283	20	79	131
DH451186	18.6		.7323	20	79	131
DH451187	18.7		.7362	20	79	131
DH451188	18.8		.7402	20	79	131
DH451189	18.9		.7441	20	79	131
DH451190	19.0		.7480	20	79	131
DH451048F	19.050	3/4	.7500	20	79	131
DH451191	19.1		.7520	20	79	131
DH451192	19.2		.7559	20	79	131
DH451193	19.3		.7598	20	79	131
DH451194	19.4		.7638	20	79	131
DH451195	19.5		.7676	20	79	131
DH451196	19.6		.7717	20	79	131
DH451197	19.7		.7756	20	79	131
DH451198	19.8		.7795	20	79	131
DH451199	19.9		.7835	20	79	131
DH451200	20.0		.7874	20	79	131

▶ Other shank types are available on your request.

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	○			◎	○					◎	◎	◎						

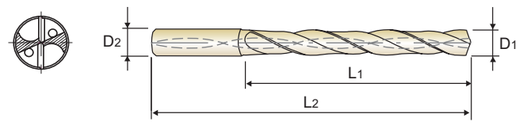
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○	○	○												○				

DREAM DRILLS -INOX

DH452 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
INOX with Coolant Holes (5XD)

- ▶Special flute shape and geometry suitable for machining stainless steel
- ▶Excellent chip evacuation from better surface treatment
- ▶Point R-thinning achieves superior centering and chip curling
- ▶TiAlN coating for better surface finishes and longer tool life



DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | TiAlN | p.A147

LONG
5×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH452010	1.0		.0394	3	8	55
DH452011	1.1		.0433	3	12	55
DH452012	1.2		.0472	3	12	55
DH452013	1.3		.0512	3	12	55
DH452014	1.4		.0551	3	12	55
DH452015	1.5		.0591	3	16	55
DH452004F	1.588	1/16	.0625	3	16	55
DH452016	1.6		.0630	3	16	55
DH452017	1.7		.0669	3	16	55
DH452018	1.8		.0709	3	16	55
DH452019	1.9		.0748	3	16	55
DH452005F	1.984	5/64	.0781	3	16	55
DH452020	2.0		.0787	4	21	57
DH452021	2.1		.0827	4	21	57
DH452022	2.2		.0866	4	21	57
DH452023	2.3		.0906	4	21	57
DH452006F	2.381	3/32	.0938	4	21	57
DH452024	2.4		.0945	4	21	57
DH452025	2.5		.0984	4	21	57
DH452026	2.6		.1024	4	21	57
DH452027	2.7		.1063	4	21	57
DH452007F	2.778	7/64	.1094	4	21	57
DH452028	2.8		.1102	4	21	57
DH452029	2.9		.1142	4	21	57
DH452030	3.0		.1181	6	28	66
DH452031	3.1		.1220	6	28	66
DH452008F	3.175	1/8	.1250	6	28	66
DH452032	3.2		.1260	6	28	66
DH452033	3.3		.1299	6	28	66
DH452034	3.4		.1339	6	28	66
DH452035	3.5		.1378	6	28	66
DH452009F	3.572	9/64	.1406	6	28	66
DH452036	3.6		.1417	6	28	66
DH452037	3.7		.1457	6	28	66
DH452038	3.8		.1496	6	36	74
DH452039	3.9		.1535	6	36	74
DH452010F	3.969	5/32	.1563	6	36	74
DH452040	4.0		.1575	6	36	74
DH452041	4.1		.1614	6	36	74
DH452042	4.2		.1654	6	36	74
DH452043	4.3		.1693	6	36	74
DH452011F	4.366	11/64	.1719	6	36	74
DH452044	4.4		.1732	6	36	74
DH452045	4.5		.1772	6	36	74
DH452046	4.6		.1811	6	36	74
DH452047	4.7		.1850	6	36	74
DH452012F	4.763	3/16	.1875	6	36	74
DH452048	4.8		.1890	6	44	82
DH452049	4.9		.1929	6	44	82
DH452050	5.0		.1969	6	44	82
DH452051	5.1		.2008	6	44	82
DH452013F	5.159	13/64	.2031	6	44	82

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○	○	○												○				

DREAM DRILLS -INOX
DH452 SERIES
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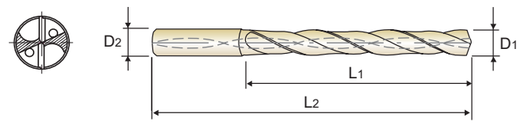

DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | TiAlN | p.A147

LONG
5×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH452052	5.2		.2047	6	44	82
DH452053	5.3		.2087	6	44	82
DH452054	5.4		.2126	6	44	82
DH452055	5.5		.2165	6	44	82
DH452014F	5.556	7/32	.2188	6	44	82
DH452056	5.6		.2205	6	44	82
DH452057	5.7		.2244	6	44	82
DH452058	5.8		.2283	6	44	82
DH452059	5.9		.2323	6	44	82
DH452015F	5.953	15/64	.2344	6	44	82
DH452060	6.0		.2362	6	44	82
DH452061	6.1		.2402	8	53	91
DH452062	6.2		.2441	8	53	91
DH452063	6.3		.2480	8	53	91
DH452016F	6.350	1/4	.2500	8	53	91
DH452064	6.4		.2520	8	53	91
DH452065	6.5		.2559	8	53	91
DH452006L	6.528	F	.2570	8	53	91
DH452066	6.6		.2598	8	53	91
DH452067	6.7		.2638	8	53	91
DH452017F	6.747	17/64	.2656	8	53	91
DH452068	6.8		.2677	8	53	91
DH452069	6.9		.2717	8	53	91
DH452009L	6.909	I	.2720	8	53	91
DH452070	7.0		.2756	8	53	91
DH452071	7.1		.2795	8	53	91
DH452018F	7.144	9/32	.2812	8	53	91
DH452072	7.2		.2835	8	53	91
DH452073	7.3		.2874	8	53	91
DH452074	7.4		.2913	8	53	91
DH452075	7.5		.2953	8	53	91
DH452019F	7.541	19/64	.2969	8	53	91
DH452076	7.6		.2992	8	53	91
DH452077	7.7		.3031	8	53	91
DH452078	7.8		.3071	8	53	91
DH452079	7.9		.3110	8	53	91
DH452020F	7.938	5/16	.3125	8	53	91
DH452080	8.0		.3150	8	53	91
DH452081	8.1		.3189	10	61	103
DH452082	8.2		.3228	10	61	103
DH452083	8.3		.3268	10	61	103
DH452021F	8.334	21/64	.3281	10	61	103
DH452084	8.4		.3307	10	61	103
DH452017L	8.433	Q	.3320	10	61	103
DH452085	8.5		.3346	10	61	103
DH452086	8.6		.3386	10	61	103
DH452087	8.7		.3425	10	61	103
DH452022F	8.731	11/32	.3438	10	61	103
DH452088	8.8		.3465	10	61	103
DH452089	8.9		.3504	10	61	103
DH452090	9.0		.3543	10	61	103
DH452091	9.1		.3583	10	61	103

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○	○	○												○				

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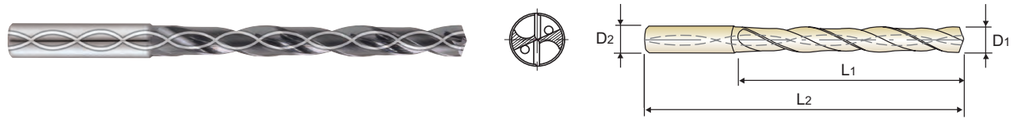

DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | TiAlN p.A147

LONG
5×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH452023F	9.128	23/64	.3594	10	61	103
DH452092	9.2		.3622	10	61	103
DH452093	9.3		.3661	10	61	103
DH452021L	9.347	U	.3680	10	61	103
DH452094	9.4		.3701	10	61	103
DH452095	9.5		.3740	10	61	103
DH452024F	9.525	3/8	.3750	10	61	103
DH452096	9.6		.3780	10	61	103
DH452097	9.7		.3819	10	61	103
DH452098	9.8		.3858	10	61	103
DH452099	9.9		.3898	10	61	103
DH452025F	9.922	25/64	.3906	10	61	103
DH452100	10.0		.3937	10	61	103
DH452101	10.1		.3976	12	71	118
DH452102	10.2		.4016	12	71	118
DH452103	10.3		.4055	12	71	118
DH452026F	10.319	13/32	.4062	12	71	118
DH452104	10.4		.4094	12	71	118
DH452105	10.5		.4134	12	71	118
DH452106	10.6		.4173	12	71	118
DH452107	10.7		.4212	12	71	118
DH452027F	10.716	27/64	.4219	12	71	118
DH452108	10.8		.4252	12	71	118
DH452109	10.9		.4291	12	71	118
DH452110	11.0		.4330	12	71	118
DH452111	11.1		.4370	12	71	118

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH452028F	11.113	7/16	.4375	12	71	118
DH452112	11.2		.4409	12	71	118
DH452113	11.3		.4448	12	71	118
DH452114	11.4		.4488	12	71	118
DH452115	11.5		.4527	12	71	118
DH452029F	11.509	29/64	.4531	12	71	118
DH452116	11.6		.4566	12	71	118
DH452117	11.7		.4606	12	71	118
DH452118	11.8		.4645	12	71	118
DH452119	11.9		.4685	12	71	118
DH452030F	11.906	15/32	.4688	12	71	118
DH452120	12.0		.4724	12	71	118
DH452121	12.1		.4764	14	77	124
DH452122	12.2		.4803	14	77	124
DH452123	12.3		.4843	14	77	124
DH452031F	12.303	31/64	.4844	14	77	124
DH452124	12.4		.4882	14	77	124
DH452125	12.5		.4921	14	77	124
DH452126	12.6		.4961	14	77	124
DH452032F	12.7	1/2	.5000	14	77	124
DH452128	12.8		.5039	14	77	124
DH452129	12.9		.5079	14	77	124
DH452130	13.0		.5118	14	77	124
DH452131	13.1		.5157	14	77	124
DH452132	13.2		.5197	14	77	124
DH452133	13.3		.5236	14	77	124

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○	○	○												○				

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

DREAM DRILLS -INOX

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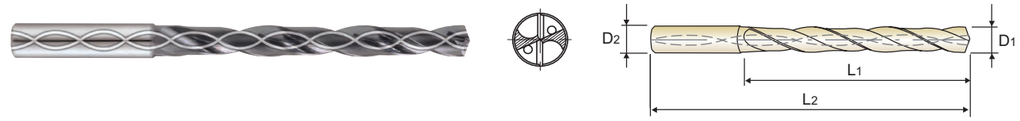

DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | TiAlN p.A147

LONG
5×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH452134	13.4		.5276	14	77	124
DH452135	13.5		.5314	14	77	124
DH452136	13.6		.5354	14	77	124
DH452137	13.7		.5394	14	77	124
DH452138	13.8		.5433	14	77	124
DH452139	13.9		.5472	14	77	124
DH452140	14.0		.5512	14	77	124
DH452141	14.1		.5551	16	83	133
DH452142	14.2		.5591	16	83	133
DH452036F	14.288	9/16	.5625	16	83	133
DH452143	14.3		.5630	16	83	133
DH452144	14.4		.5669	16	83	133
DH452145	14.5		.5708	16	83	133
DH452146	14.6		.5748	16	83	133
DH452147	14.7		.5787	16	83	133
DH452148	14.8		.5827	16	83	133
DH452149	14.9		.5866	16	83	133
DH452150	15.0		.5905	16	83	133
DH452151	15.1		.5945	16	83	133
DH452152	15.2		.5984	16	83	133
DH452153	15.3		.6024	16	83	133
DH452154	15.4		.6063	16	83	133
DH452155	15.5		.6102	16	83	133
DH452156	15.6		.6142	16	83	133
DH452157	15.7		.6181	16	83	133
DH452158	15.8		.6220	16	83	133

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH452040F	15.875	5/8	.6250	16	83	133
DH452159	15.9		.6260	16	83	133
DH452160	16.0		.6299	16	83	133
DH452161	16.1		.6339	18	93	143
DH452162	16.2		.6378	18	93	143
DH452163	16.3		.6417	18	93	143
DH452164	16.4		.6457	18	93	143
DH452165	16.5		.6495	18	93	143
DH452166	16.6		.6535	18	93	143
DH452167	16.7		.6575	18	93	143
DH452168	16.8		.6614	18	93	143
DH452169	16.9		.6654	18	93	143
DH452170	17.0		.6692	18	93	143
DH452171	17.1		.6732	18	93	143
DH452172	17.2		.6772	18	93	143
DH452173	17.3		.6811	18	93	143
DH452174	17.4		.6850	18	93	143
DH452175	17.5		.6889	18	93	143
DH452176	17.6		.6929	18	93	143
DH452177	17.7		.6968	18	93	143
DH452178	17.8		.7008	18	93	143
DH452179	17.9		.7047	18	93	143
DH452180	18.0		.7087	18	93	143
DH452181	18.1		.7126	20	101	153
DH452182	18.2		.7165	20	101	151
DH452183	18.3		.7205	20	101	151

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○	○	○												○				

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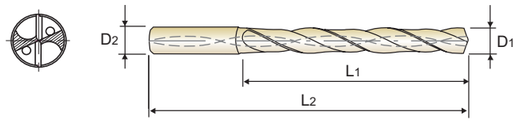

DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | TiAlN

p.A147

LONG

5×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH452184	18.4		.7244	20	101	153
DH452185	18.5		.7283	20	101	153
DH452186	18.6		.7323	20	101	151
DH452187	18.7		.7362	20	101	153
DH452188	18.8		.7402	20	101	153
DH452189	18.9		.7441	20	101	153
DH452190	19.0		.7480	20	101	153
DH452048F	19.050	3/4	.7500	20	101	153
DH452191	19.1		.7520	20	101	151
DH452192	19.2		.7559	20	101	151
DH452193	19.3		.7598	20	101	151
DH452194	19.4		.7638	20	101	151
DH452195	19.5		.7676	20	101	153
DH452196	19.6		.7717	20	101	151
DH452197	19.7		.7756	20	101	151
DH452198	19.8		.7795	20	101	153
DH452199	19.9		.7835	20	101	151
DH452200	20.0		.7874	20	101	153

▶ Other shank types are available on your request.

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○	○	○												○				

DREAM DRILLS -INOX

DH453 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
INOX with Coolant Holes (8XD)

- ▶Special flute shape and geometry suitable for machining stainless steel
- ▶Excellent chip evacuation from better surface treatment
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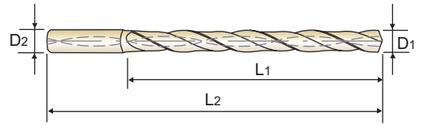
- ▶TiAlN coating for better surface finishes and longer tool life



DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | TiAlN

p.A147

EXTRA LONG

8×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH453020	2.0		.0787	4	25	66
DH453021	2.1		.0827	4	25	66
DH453022	2.2		.0866	4	25	66
DH453023	2.3		.0906	4	25	66
DH453006F	2.381	3/32	.0938	4	30	66
DH453024	2.4		.0945	4	30	66
DH453025	2.5		.0984	4	30	66
DH453026	2.6		.1024	4	30	66
DH453027	2.7		.1063	4	30	66
DH453007F	2.778	7/64	.1094	4	30	66
DH453028	2.8		.1102	4	30	66
DH453029	2.9		.1142	4	30	66
DH453030	3.0		.1181	6	34	72
DH453031	3.1		.1220	6	34	72
DH453008F	3.175	1/8	.1250	6	34	72
DH453032	3.2		.1260	6	34	72
DH453033	3.3		.1299	6	34	72
DH453034	3.4		.1339	6	34	72
DH453229G	3.454	#29	.1360	6	34	72
DH453035	3.5		.1378	6	34	72
DH453009F	3.572	9/64	.1406	6	34	72
DH453036	3.6		.1417	6	34	72
DH453037	3.7		.1457	6	34	72
DH453038	3.8		.1496	6	43	81
DH453039	3.9		.1535	6	43	81
DH453010F	3.969	5/32	.1563	6	43	81
DH453040	4.0		.1575	6	43	81
DH453221G	4.038	#21	.1590	6	43	81
DH453041	4.1		.1614	6	43	81
DH453042	4.2		.1654	6	43	81
DH453043	4.3		.1693	6	43	81
DH453011F	4.366	11/64	.1719	6	43	81
DH453044	4.4		.1732	6	43	81
DH453045	4.5		.1772	6	43	81
DH453046	4.6		.1811	6	43	81
DH453047	4.7		.1850	6	43	81
DH453012E	4.763	3/16	.1875	6	57	95
DH453048	4.8		.1890	6	57	95
DH453049	4.9		.1929	6	57	95
DH453050	5.0		.1969	6	57	95
DH453051	5.1		.2008	6	57	95
DH453013E	5.159	13/64	.2031	6	57	95
DH453052	5.2		.2047	6	57	95
DH453053	5.3		.2087	6	57	95
DH453054	5.4		.2126	6	57	95
DH453055	5.5		.2165	6	57	95
DH453014E	5.556	7/32	.2188	6	57	95
DH453056	5.6		.2205	6	57	95
DH453057	5.7		.2244	6	57	95
DH453058	5.8		.2283	6	57	95
DH453059	5.9		.2323	6	57	95
DH453015E	5.953	15/64	.2344	6	57	95
DH453060	6.0		.2362	6	57	95
DH453061	6.1		.2402	8	76	114
DH453062	6.2		.2441	8	76	114
DH453063	6.3		.2480	8	76	114

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○	○	○												○				

DREAM DRILLS -INOX

DH453 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
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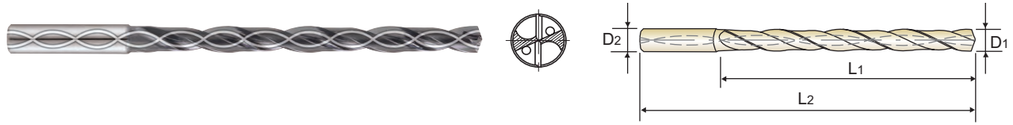

DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | TiAlN

p.A147

EXTRA LONG

8×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH453016F	6.350	1/4	.2500	8	76	114
DH453064	6.4		.2520	8	76	114
DH453065	6.5		.2559	8	76	114
DH453106L	6.527	F	.2570	8	76	114
DH453066	6.6		.2598	8	76	114
DH453067	6.7		.2638	8	76	114
DH453017F	6.747	17/64	.2656	8	76	114
DH453068	6.8		.2677	8	76	114
DH453069	6.9		.2717	8	76	114
DH453009L	6.909	I	.2720	8	76	114
DH453070	7.0		.2756	8	76	114
DH453071	7.1		.2795	8	76	114
DH453018F	7.144	9/32	.2813	8	76	114
DH453072	7.2		.2835	8	76	114
DH453073	7.3		.2874	8	76	114
DH453074	7.4		.2913	8	76	114
DH453075	7.5		.2953	8	76	114
DH453019F	7.541	19/64	.2969	8	76	114
DH453076	7.6		.2992	8	76	114
DH453077	7.7		.3031	8	76	114
DH453078	7.8		.3071	8	76	114
DH453079	7.9		.3110	8	76	114
DH453020F	7.938	5/16	.3125	8	76	114
DH453080	8.0		.3150	8	76	114
DH453081	8.1		.3189	10	95	142
DH453082	8.2		.3228	10	95	142
DH453083	8.3		.3268	10	95	142
DH453021F	8.334	21/64	.3281	10	95	142
DH453084	8.4		.3307	10	95	142
DH453117L	8.432	Q	.3320	10	95	142
DH453085	8.5		.3346	10	95	142
DH453086	8.6		.3386	10	95	142
DH453087	8.7		.3425	10	95	142
DH453022F	8.731	11/32	.3438	10	95	142
DH453088	8.8		.3465	10	95	142
DH453089	8.9		.3504	10	95	142
DH453090	9.0		.3543	10	95	142
DH453091	9.1		.3583	10	95	142
DH453023F	9.128	23/64	.3594	10	95	142
DH453092	9.2		.3622	10	95	142
DH453093	9.3		.3661	10	95	142
DH453121L	9.347	U	.3680	10	95	142
DH453094	9.4		.3701	10	95	142
DH453095	9.5		.3740	10	95	142
DH453024F	9.525	3/8	.3750	10	95	142
DH453096	9.6		.3780	10	95	142
DH453097	9.7		.3819	10	95	142
DH453098	9.8		.3858	10	95	142
DH453099	9.9		.3898	10	95	142
DH453025F	9.922	25/64	.3906	10	95	142
DH453100	10.0		.3937	10	95	142
DH453101	10.1		.3976	12	114	162
DH453102	10.2		.4016	12	114	162
DH453103	10.3		.4055	12	114	162
DH453026F	10.319	13/32	.4063	12	114	162
DH453104	10.4		.4094	12	114	162

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○	○	○												○				

DREAM DRILLS -INOX

DH453 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
INOX with Coolant Holes (8XD)

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- ▶TiAlN coating for better surface finishes and longer tool life

DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | TiAlN

p.A147

EXTRA LONG

8×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH453105	10.5		.4134	12	114	162
DH453106	10.6		.4173	12	114	162
DH453107	10.7		.4212	12	114	162
DH453027F	10.716	27/64	.4219	12	114	162
DH453108	10.8		.4252	12	114	162
DH453109	10.9		.4291	12	114	162
DH453110	11.0		.4330	12	114	162
DH453111	11.1		.4370	12	114	162
DH453028F	11.113	7/16	.4375	12	114	162
DH453112	11.2		.4409	12	114	162
DH453113	11.3		.4448	12	114	162
DH453114	11.4		.4488	12	114	162
DH453115	11.5		.4527	12	114	162
DH453029F	11.509	29/64	.4531	12	114	162
DH453116	11.6		.4566	12	114	162
DH453117	11.7		.4606	12	114	162
DH453118	11.8		.4645	12	114	162
DH453119	11.9		.4685	12	114	162
DH453030F	11.906	15/32	.4688	12	114	162
DH453120	12.0		.4724	12	114	162
DH453121	12.1		.4764	14	133	178
DH453122	12.2		.4803	14	133	178
DH453123	12.3		.4843	14	133	178
DH453031F	12.303	31/64	.4844	14	133	178
DH453124	12.4		.4882	14	133	178
DH453125	12.5		.4921	14	133	178
DH453126	12.6		.4961	14	133	178
DH453032F	12.7	1/2	.5000	14	133	178
DH453128	12.8		.5039	14	133	178
DH453129	12.9		.5079	14	133	178
DH453130	13.0		.5118	14	133	178
DH453033F	13.097	33/64	.5156	14	133	178
DH453131	13.1		.5157	14	133	178
DH453132	13.2		.5197	14	133	178
DH453133	13.3		.5236	14	133	178
DH453134	13.4		.5276	14	133	178
DH453135	13.5		.5314	14	133	178
DH453136	13.6		.5354	14	133	178
DH453137	13.7		.5394	14	133	178
DH453138	13.8		.5433	14	133	178
DH453139	13.9		.5472	14	133	178
DH453140	14.0		.5512	14	133	178
DH453141	14.1		.5551	16	152	203
DH453142	14.2		.5591	16	152	203
DH453036F	14.288	9/16	.5625	16	152	203
DH453143	14.3		.5630	16	152	203
DH453144	14.4		.5669	16	152	203
DH453145	14.5		.5709	16	152	203
DH453146	14.6		.5748	16	152	203
DH453147	14.7		.5787	16	152	203
DH453148	14.8		.5827	16	152	203
DH453149	14.9		.5866	16	152	203
DH453150	15.0		.5905	16	152	203
DH453151	15.1		.5945	16	152	203
DH453152	15.2		.5984	16	152	203
DH453153	15.3		.6024	16	152	203

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○	○	○												○				

DREAM DRILLS -INOX

DH453 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
INOX with Coolant Holes (8XD)

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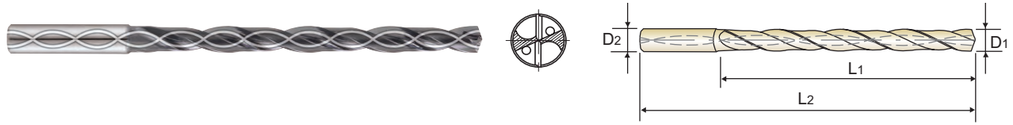


DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | TiAlN

p.A147

EXTRA LONG
8×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH453154	15.4		.6063	16	152	203
DH453155	15.5		.6102	16	152	203
DH453156	15.6		.6142	16	152	203
DH453157	15.7		.6181	16	152	203
DH453158	15.8		.6220	16	152	203
DH453040F	15.875	5/8	.6250	16	152	203
DH453159	15.9		.6260	16	152	203
DH453160	16.0		.6299	16	152	203
DH453161	16.1		.6339	18	171	222
DH453162	16.2		.6378	18	171	222
DH453163	16.3		.6417	18	171	222
DH453164	16.4		.6457	18	171	222
DH453165	16.5		.6496	18	171	222
DH453166	16.6		.6535	18	171	222
DH453167	16.7		.6575	18	171	222
DH453168	16.8		.6614	18	171	222
DH453169	16.9		.6654	18	171	222
DH453170	17.0		.6693	18	171	222
DH453171	17.1		.6732	18	171	222
DH453172	17.2		.6772	18	171	222
DH453173	17.3		.6811	18	171	222
DH453174	17.4		.6850	18	171	222
DH453175	17.5		.6890	18	171	222
DH453176	17.6		.6929	18	171	222
DH453177	17.7		.6968	18	171	222

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2
DH453178	17.8		.7008	18	171	222
DH453179	17.9		.7047	18	171	222
DH453180	18.0		.7087	18	171	222
DH453181	18.1		.7126	20	190	243
DH453182	18.2		.7165	20	190	243
DH453183	18.3		.7205	20	190	243
DH453184	18.4		.7244	20	190	243
DH453185	18.5		.7283	20	190	243
DH453186	18.6		.7323	20	190	243
DH453187	18.7		.7362	20	190	243
DH453188	18.8		.7402	20	190	243
DH453189	18.9		.7441	20	190	243
DH453190	19.0		.7480	20	190	243
DH453048F	19.050	3/4	.7500	20	190	243
DH453191	19.1		.7520	20	190	243
DH453192	19.2		.7559	20	190	243
DH453193	19.3		.7598	20	190	243
DH453194	19.4		.7638	20	190	243
DH453195	19.5		.7677	20	190	243
DH453196	19.6		.7717	20	190	243
DH453197	19.7		.7756	20	190	243
DH453198	19.8		.7795	20	190	243
DH453199	19.9		.7835	20	190	243
DH453200	20.0		.7874	20	190	243

▶ Other shank types are available on your request.

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○	○	○												○				

DREAM DRILLS -INOX

RECOMMENDED CUTTING CONDITIONS

DH463, DH714, DH464, DH715, DH451, DH452, DH453 SERIES
with COOLANT HOLES

ISO	VDI 3323	Material Description	SFM	Drill Diameter			SFM	Drill Diameter							
				METRIC	1.0	2.0		METRIC	3.0	-	4.0	-	5.0	6.0	-
				FRACTIONAL	-	-		FRACTIONAL	-	1/8	-	3/16	-	-	1/4
				DECIMAL	.0394	.0787		DECIMAL	.1181	.1250	.1575	.1875	.1969	.2362	.2500
P	2	Non-alloy steel	230	RPM	22280	11140	329	RPM	10610		7960		6370		5310
				FEED	.0008- .0016	.0016- .0024		FEED	.0016- .0039		.0024- .0047		.0047- .0071		.0055- .0079
	3		230	RPM	22280	11140	329	RPM	10610		7960		6370		5310
				FEED	.0008- .0016	.0016- .0024		FEED	.0016- .0039		.0024- .0047		.0047- .0071		.0055- .0079
	6	Low alloy steel	230	RPM	22280	11140	329	RPM	10610		7960		6370		5310
				FEED	.0008- .0016	.0016- .0024		FEED	.0016- .0039		.0024- .0047		.0047- .0071		.0055- .0079
	7		160	RPM	15920	7960	230	RPM	7430		5570		4460		3710
				FEED	.0008- .0016	.0016- .0024		FEED	.0016- .0039		.0024- .0047		.0047- .0071		.0055- .0079
M	12	Stainless steel	130	RPM	12730	6370	165	RPM	5310		3980		3180		2650
				FEED	.0008- .0016	.0008- .0016		FEED	.0012- .0020		.0020- .0035		.0028- .0043		.0035- .0051
	13		80	RPM	7960	3980	132	RPM	4240		3180		2550		2120
				FEED	.0008- .0016	.0008- .0016		FEED	.0012- .0020		.0020- .0035		.0028- .0043		.0035- .0051
	14		150	RPM	14320	7160	198	RPM	6370		4770		3820		3180
				FEED	.0008- .0016	.0008- .0016		FEED	.0016- .0024		.0024- .0039		.0031- .0047		.0039- .0055
N	21	Aluminum-wrought alloy	430	RPM	41380	20690	659	RPM	21220		15920		12730		10610
				FEED	.0016- .0039	.0031- .0055		FEED	.0055- .0079		.0075- .0098		.0079- .0102		.0087- .0110
	22		430	RPM	41380	20690	659	RPM	21220		15920		12730		10610
				FEED	.0016- .0039	.0031- .0055		FEED	.0055- .0079		.0075- .0098		.0079- .0102		.0087- .0110
	23	Aluminum-wrought alloy	360	RPM	35010	17510	593	RPM	19100		14320		11460		9550
				FEED	.0016- .0039	.0031- .0055		FEED	.0055- .0079		.0075- .0098		.0079- .0102		.0087- .0110
	24	Aluminum-wrought alloy	360	RPM	35010	17510	593	RPM	19100		14320		11460		9550
				FEED	.0016- .0039	.0031- .0055		FEED	.0055- .0079		.0075- .0098		.0079- .0102		.0087- .0110
	25	Aluminum-wrought alloy	300	RPM	28650	14320	494	RPM	15920		11940		9550		7960
				FEED	.0016- .0031	.0024- .0039		FEED	.0047- .0071		.0063- .0087		.0067- .0091		.0075- .0098
S	37	Aluminum-wrought alloy	80	RPM	7960	3980	132	RPM	4240		3180		2550		2120
				FEED	.0004- .0012	.0004- .0012		FEED	.0008- .0016		.0016- .0031		.0024- .0039		.0031- .0047

▶ NEXT PAGE

SFM = ft/min.
RPM = rev./min.
FEED = inch/rev.

▶ Recommend to reduce the feed rate as following
Feed 100% : DH463/DH714/DH451(3xD), DH464/DH714/DH452(5xD)
Feed 85% : DH453(8xD)

DREAM DRILLS -INOX

RECOMMENDED CUTTING CONDITIONS

DH463, DH714, DH464, DH715, DH451, DH452, DH453 SERIES

with COOLANT HOLES

ISO	VDI 3323	Material Description	SFM		Drill Diameter												
				METRIC	-	8.0	-	10.0	12.0	-	14.0	-	-	16.0	18.0	-	20.0
				FRACTIONAL	5/16	-	3/8	-	-	1/2	-	9/16	5/8	-	-	3/4	-
				DECIMAL	.3125	.3150	.3750	.3937	.4724	.5000	.5512	.5625	.6250	.6299	.7087	.7500	.7874
P	2	Non-alloy steel	329	RPM	3980		3180		2650	2510	2270		1990		1770	1680	1590
				FEED	.0063- .0087		.0079- .0102		.0071- .0110	.0071- .0110	.0079- .0118		.0087- .0126		.0102- .0142	.0102- .0142	.0110- .0150
	3		329	RPM	3980		3180		2650	2510	2270		1990		1770	1680	1590
				FEED	.0063- .0087		.0079- .0102		.0071- .0110	.0071- .0110	.0079- .0118		.0087- .0126		.0102- .0142	.0102- .0142	.0110- .0150
	6	Low alloy steel	329	RPM	3980		3180		2650	2510	2270		1990		1770	1680	1590
				FEED	.0063- .0087		.0079- .0102		.0071- .0110	.0071- .0110	.0079- .0118		.0087- .0126		.0102- .0142	.0102- .0142	.0110- .0150
	7		230	RPM	2790		2230		1860	1760	1590		1390		1240	1170	1110
				FEED	.0063- .0087		.0079- .0102		.0071- .0110	.0071- .0110	.0079- .0118		.0087- .0126		.0102- .0142	.0102- .0142	.0110- .0150
M	12	Stainless steel	165	RPM	1990		1590		1330	1260	1140		990		880	840	800
				FEED	.0035- .0051		.0039- .0059		.0043- .0063	.0043- .0063	.0047- .0067		.0051- .0071		.0055- .0075	.0055- .0075	.0059- .0079
	13		132	RPM	1590		1270		1060	1010	910		800		710	670	640
				FEED	.0035- .0051		.0039- .0059		.0043- .0063	.0043- .0063	.0047- .0067		.0051- .0071		.0055- .0075	.0055- .0075	.0059- .0079
	14		198	RPM	2390		1910		1590	1510	1360		1190		1060	1010	950
				FEED	.0039- .0055		.0043- .0063		.0047- .0067	.0047- .0067	.0051- .0071		.0055- .0075		.0059- .0079	.0059- .0079	.0063- .0083
N	21	Aluminum-wrought alloy	659	RPM	7960		6370		5310	5030	4550		3980		3540	3360	3180
				FEED	.0094- .0118		.0114- .0138		.0114- .0138	.0114- .0138	.0118- .0157		.0118- .0157		.0130- .0169	.0130- .0169	.0138- .0177
	22		659	RPM	7960		6370		5310	5030	4550		3980		3540	3360	3180
				FEED	.0094- .0118		.0114- .0138		.0114- .0138	.0114- .0138	.0118- .0157		.0118- .0157		.0130- .0169	.0130- .0169	.0138- .0177
	23	Aluminum-wrought alloy	593	RPM	7160		5730		4770	4530	4090		3580		3180	3020	2860
				FEED	.0094- .0118		.0114- .0138		.0114- .0138	.0114- .0138	.0118- .0157		.0118- .0157		.0130- .0169	.0130- .0169	.0138- .0177
	24	Aluminum-wrought alloy	593	RPM	7160		5730		4770	4530	4090		3580		3180	3020	2860
				FEED	.0094- .0118		.0114- .0138		.0114- .0138	.0114- .0138	.0118- .0157		.0118- .0157		.0130- .0169	.0130- .0169	.0138- .0177
	25	Aluminum-wrought alloy	494	RPM	5970		4770		3980	3770	3410		2980		2650	2520	2390
				FEED	.0087- .0110		.0094- .0118		.0094- .0118	.0094- .0118	.0098- .0138		.0098- .0138		.0110- .0150	.0110- .0150	.0118- .0157
S	37	Aluminum-wrought alloy	132	RPM	1590		1270		1060	1010	910		800		710	670	640
				FEED	.0031- .0047		.0035- .0055		.0039- .0059	.0039- .0059	.0043- .0063		.0047- .0067		.0051- .0071	.0051- .0071	.0055- .0075

SFM = ft/min.
RPM = rev./min.
FEED = inch/rev.

▶ Recommend to reduce the feed rate as following
Feed 100% : DH463/DH714/DH451(3xD), DH464/DH714/DH452(5xD)
Feed 85% : DH453(8xD)

DREAM DRILLS ALU

- For Aluminum and Aluminum Alloys

SELECTION GUIDE

YG HOLEMAKING TOOLS

SERIES	DGE466 DGE718	DGE433
DRILLING DEPTH	5XD	
TOOL MATERIAL	SOLID CARBIDE	
LENGTH	LONG	
SIZE MIN	D13/64	D3.0
SIZE MAX	D1/2	D20.0
PAGE	A151	A152
SURFACE TREATMENT	DLC	

SOLID CARBIDE DREAM DRILLS ALU

- For aluminum and aluminum alloys

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A156

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	Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.	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		Hardened	550	55		
	39			Hardened	630	60		
	40	Chilled Cast Iron		Cast	400	42		
	41	Hardened Cast Iron		Hardened	550	55		

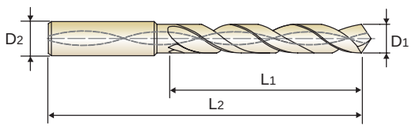
CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

YG DREAM DRILLS -ALU

DGE466 SERIES
DGE718 SERIES

DLC-COATED SOLID CARBIDE DREAM DRILLS
ALU with Coolant Holes (5XD)

- ▶Optimized thining for Aluminum & Aluminum Alloys to prevent any clogging from chip welding
- ▶Wider and deeper flute gullets for maximum chip removal
- ▶Special geometry and smooth coating reduces built up edge and improves finishes
- ▶Tolerance : Dia. Tolerance ØD1: See page A405



CARBIDE | h6 | 118° | 20 bar | DLC | p.A156

LONG
5×D

Unit : inch

EDP No.	Drill Diameter Fractional	Drill Diameter Decimal	Shank Diameter	Flute Length	Overall Length
DLC	D1		D2	L1	L2
DGE466013	13/64	.2031	15/64	1-3/4	3-15/16
DGE718013	13/64	.2031	1/4	1-3/4	3-15/16
DGE466014	7/32	.2188	15/64	1-57/64	3-15/16
DGE718014	7/32	.2188	1/4	1-57/64	3-15/16
DGE466015	15/64	.2344	15/64	1-57/64	3-15/16
DGE718015	15/64	.2344	1/4	1-57/64	3-15/16
DGE718016	1/4	.2500	1/4	2-3/64	4-19/64
DGE466016	1/4	.2500	17/64	2-3/64	4-19/64
DGE466206	F	.2570	17/64	2-13/64	4-19/64
DGE718206	F	.2570	5/16	2-13/64	4-19/64
DGE466017	17/64	.2656	17/64	2-13/64	4-19/64
DGE718017	17/64	.2656	5/16	2-13/64	4-19/64
DGE466209	I	.2720	.272	2-13/64	4-19/64
DGE718209	I	.2720	5/16	2-13/64	4-19/64
DGE466018	9/32	.2812	5/16	2-23/64	4-41/64
DGE466019	19/64	.2969	5/16	2-33/64	4-41/64
DGE466020	5/16	.3125	5/16	2-33/64	4-41/64
DGE466021	21/64	.3281	11/32	2-43/64	5
DGE718021	21/64	.3281	3/8	2-43/64	5
DGE466217	Q	.3320	11/32	2-43/64	5
DGE718217	Q	.3320	3/8	2-43/64	5
DGE466022	11/32	.3438	11/32	2-27/32	5

EDP No.	Drill Diameter Fractional	Drill Diameter Decimal	Shank Diameter	Flute Length	Overall Length
DLC	D1		D2	L1	L2
DGE718022	11/32	.3438	3/8	2-27/32	5
DGE718023	23/64	.3594	3/8	3	5-23/64
DGE466023	23/64	.3594	25/64	3	5-23/64
DGE718221	U	.3680	3/8	3	5-23/64
DGE466221	U	.3680	25/64	3	5-23/64
DGE718024	3/8	.3750	3/8	3-5/32	5-23/64
DGE466024	3/8	.3750	25/64	3-5/32	5-23/64
DGE466025	25/64	.3906	25/64	3-5/32	5-23/64
DGE718025	25/64	.3906	7/16	3-5/32	5-23/64
DGE466026	13/32	.4062	27/64	3-5/16	5-7/8
DGE718026	13/32	.4062	7/16	3-5/16	5-7/8
DGE466027	27/64	.4219	27/64	3-15/32	5-7/8
DGE718027	27/64	.4219	7/16	3-15/32	5-7/8
DGE718028	7/16	.4375	7/16	3-5/8	6-7/32
DGE466028	7/16	.4375	15/32	3-5/8	6-7/32
DGE466029	29/64	.4531	15/32	3-25/32	6-7/32
DGE718029	29/64	.4531	1/2	3-25/32	6-7/32
DGE466030	15/32	.4688	15/32	3-25/32	6-7/32
DGE718030	15/32	.4688	1/2	3-25/32	6-7/32
DGE466031	31/64	.4844	1/2	3-15/16	6-37/64
DGE466032	1/2	.5000	1/2	4-3/32	6-37/64

▶ Other shank types are available on your request.

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	◎	◎																	

DREAM DRILLS -ALU

DGE433 SERIES

DLC-COATED SOLID CARBIDE DREAM DRILLS
ALU with Coolant Holes (5XD)

- ▶Optimized thining for Aluminum & Aluminum Alloys to prevent any clogging from chip welding
- ▶Wider and deeper flute gullets for maximum chip removal
- ▶Special geometry and smooth coating reduces built up edge and improves finishes

DIN 6537 | CARBIDE | h6 | m7 | 118° | 20 bar | DLC | p.A156

LONG 5×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
DLC	D1			D2	L1	L2
DGE433030	3.0		.1181	6	28	66
DGE433031	3.1		.1220	6	28	66
DGE433008F	3.175	1/8	.1250	6	28	66
DGE433032	3.2		.1260	6	28	66
DGE433033	3.3		.1299	6	28	66
DGE433034	3.4		.1339	6	28	66
DGE433035	3.5		.1378	6	28	66
DGE433009F	3.572	9/64	.1406	6	28	66
DGE433036	3.6		.1417	6	28	66
DGE433037	3.7		.1457	6	28	66
DGE433038	3.8		.1496	6	36	74
DGE433039	3.9		.1535	6	36	74
DGE433010F	3.969	5/32	.1563	6	36	74
DGE433040	4.0		.1575	6	36	74
DGE433041	4.1		.1614	6	36	74
DGE433042	4.2		.1654	6	36	74
DGE433043	4.3		.1693	6	36	74
DGE433011F	4.366	11/64	.1719	6	36	74
DGE433044	4.4		.1732	6	36	74
DGE433045	4.5		.1772	6	36	74
DGE433046	4.6		.1811	6	36	74
DGE433047	4.7		.1850	6	36	74
DGE433012F	4.763	3/16	.1875	6	36	74
DGE433048	4.8		.1890	6	44	82
DGE433049	4.9		.1929	6	44	82
DGE433050	5.0		.1969	6	44	82

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
DLC	D1			D2	L1	L2
DGE433051	5.1		.2008	6	44	82
DGE433013F	5.159	13/64	.2031	6	44	82
DGE433052	5.2		.2047	6	44	82
DGE433053	5.3		.2087	6	44	82
DGE433054	5.4		.2126	6	44	82
DGE433055	5.5		.2165	6	44	82
DGE433014F	5.556	7/32	.2188	6	44	82
DGE433056	5.6		.2205	6	44	82
DGE433057	5.7		.2244	6	44	82
DGE433058	5.8		.2283	6	44	82
DGE433059	5.9		.2323	6	44	82
DGE433015F	5.953	15/64	.2344	6	44	82
DGE433060	6.0		.2362	6	44	82
DGE433061	6.1		.2402	8	53	91
DGE433062	6.2		.2441	8	53	91
DGE433063	6.3		.2480	8	53	91
DGE433016F	6.350	1/4	.2500	8	53	91
DGE433064	6.4		.2520	8	53	91
DGE433065	6.5		.2559	8	53	91
DGE433006L	6.528	F	.2570	8	53	9
DGE433066	6.6		.2598	8	53	91
DGE433067	6.7		.2638	8	53	91
DGE433017E	6.747	17/64	.2656	8	53	91
DGE433068	6.8		.2677	8	53	91
DGE433069	6.9		.2717	8	53	91
DGE433009L	6.909	I	.2720	8	53	91

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P																			
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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	◎	◎																	

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

DREAM DRILLS -ALU

DGE433 SERIES

DLC-COATED SOLID CARBIDE DREAM DRILLS
ALU with Coolant Holes (5XD)

- ▶Optimized thining for Aluminum & Aluminum Alloys to prevent any clogging from chip welding
- ▶Wider and deeper flute gullets for maximum chip removal
- ▶Special geometry and smooth coating reduces built up edge and improves finishes

DIN 6537 | CARBIDE | h6 | m7 | 118° | 20 bar | DLC | p.A156

LONG 5×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
DLC	D1			D2	L1	L2
DGE433070	7.0		.2756	8	53	91
DGE433071	7.1		.2795	8	53	91
DGE433018E	7.144	9/32	.2812	8	53	91
DGE433072	7.2		.2835	8	53	91
DGE433073	7.3		.2874	8	53	91
DGE433074	7.4		.2913	8	53	91
DGE433075	7.5		.2953	8	53	91
DGE433019F	7.541	19/64	.2969	8	53	91
DGE433076	7.6		.2992	8	53	91
DGE433077	7.7		.3031	8	53	91
DGE433078	7.8		.3071	8	53	91
DGE433079	7.9		.3110	8	53	91
DGE433020F	7.938	5/16	.3125	8	53	91
DGE433080	8.0		.3150	8	53	91
DGE433081	8.1		.3189	10	61	103
DGE433082	8.2		.3228	10	61	103
DGE433083	8.3		.3268	10	61	103
DGE433021F	8.334	21/64	.3281	10	61	103
DGE433084	8.4		.3307	10	61	103
DGE433017L	8.433	Q	.3320	10	61	103
DGE433085	8.5		.3346	10	61	103
DGE433086	8.6		.3386	10	61	103
DGE433087	8.7		.3425	10	61	103
DGE433022F	8.731	11/32	.3438	10	61	103
DGE433088	8.8		.3465	10	61	103
DGE433089	8.9		.3504	10	61	103

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
DLC	D1			D2	L1	L2
DGE433090	9.0		.3543	10	61	103
DGE433091	9.1		.3583	10	61	103
DGE433023F	9.128	23/64	.3594	10	61	103
DGE433092	9.2		.3622	10	61	103
DGE433093	9.3		.3661	10	61	103
DGE433021L	9.347	U	.3680	10	61	103
DGE433094	9.4		.3701	10	61	103
DGE433095	9.5		.3740	10	61	103
DGE433024F	9.525	3/8	.3750	10	61	103
DGE433096	9.6		.3780	10	61	103
DGE433097	9.7		.3819	10	61	103
DGE433098	9.8		.3858	10	61	103
DGE433099	9.9		.3898	10	61	103
DGE433025F	9.922	25/64	.3906	10	61	103
DGE433100	10.0		.3937	10	61	103
DGE433101	10.1		.3976	12	71	118
DGE433102	10.2		.4016	12	71	118
DGE433103	10.3		.4055	12	71	118
DGE433026F	10.319	13/32	.4062	12	71	118
DGE433104	10.4		.4094	12	71	118
DGE433105	10.5		.4134	12	71	118
DGE433106	10.6		.4173	12	71	118
DGE433107	10.7		.4212	12	71	118
DGE433027F	10.716	27/64	.4219	12	71	118
DGE433108	10.8		.4252	12	71	118
DGE433109	10.9		.4291	12	71	118

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P																			
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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	◎	◎																	

DREAM DRILLS -ALU

DGE433 SERIES

DLC-COATED SOLID CARBIDE DREAM DRILLS
ALU with Coolant Holes (5XD)

- ▶Optimized thining for Aluminum & Aluminum Alloys to prevent any clogging from chip welding
- ▶Wider and deeper flute gullets for maximum chip removal
- ▶Special geometry and smooth coating reduces built up edge and improves finishes

DIN 6537 | CARBIDE | h6 | m7 | 118° | 20 bar | DLC | p.A156

LONG 5×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
DLC	D1			D2	L1	L2
DGE433110	11.0		.4330	12	71	118
DGE433111	11.1		.4370	12	71	118
DGE433028F	11.113	7/16	.4375	12	71	118
DGE433112	11.2		.4409	12	71	118
DGE433113	11.3		.4448	12	71	118
DGE433114	11.4		.4488	12	71	118
DGE433115	11.5		.4527	12	71	118
DGE433029F	11.509	29/64	.4531	12	71	118
DGE433116	11.6		.4566	12	71	118
DGE433117	11.7		.4606	12	71	118
DGE433118	11.8		.4645	12	71	118
DGE433119	11.9		.4685	12	71	118
DGE433030F	11.906	15/32	.4688	12	71	118
DGE433120	12.0		.4724	12	71	118
DGE433121	12.1		.4764	14	77	124
DGE433122	12.2		.4803	14	77	124
DGE433123	12.3		.4843	14	77	124
DGE433031F	12.303	31/64	.4844	14	77	124
DGE433124	12.4		.4882	14	77	124
DGE433125	12.5		.4921	14	77	124
DGE433126	12.6		.4961	14	77	124
DGE433032F	12.7	1/2	.5000	14	77	124
DGE433128	12.8		.5039	14	77	124
DGE433129	12.9		.5079	14	77	124
DGE433130	13.0		.5118	14	77	124
DGE433131	13.1		.5157	14	77	124
DGE433132	13.2		.5197	14	77	124
DGE433133	13.3		.5236	14	77	124
DGE433134	13.4		.5276	14	77	124
DGE433135	13.5		.5314	14	77	124
DGE433136	13.6		.5354	14	77	124
DGE433137	13.7		.5394	14	77	124
DGE433138	13.8		.5433	14	77	124
DGE433139	13.9		.5472	14	77	124
DGE433140	14.0		.5512	14	77	124
DGE433141	14.1		.5551	16	83	133
DGE433142	14.2		.5591	16	83	133
DGE433036F	14.288	9/16	.5625	16	83	133
DGE433143	14.3		.5630	16	83	133
DGE433144	14.4		.5669	16	83	133
DGE433145	14.5		.5708	16	83	133
DGE433146	14.6		.5748	16	83	133
DGE433147	14.7		.5787	16	83	133
DGE433148	14.8		.5827	16	83	133
DGE433149	14.9		.5866	16	83	133
DGE433150	15.0		.5905	16	83	133
DGE433151	15.1		.5945	16	83	133
DGE433152	15.2		.5984	16	83	133
DGE433153	15.3		.6024	16	83	133
DGE433154	15.4		.6063	16	83	133
DGE433155	15.5		.6102	16	83	133
DGE433156	15.6		.6142	16	83	133

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	◎	◎																	

DREAM DRILLS -ALU

DGE433 SERIES

DLC-COATED SOLID CARBIDE DREAM DRILLS
ALU with Coolant Holes (5XD)

- ▶Optimized thining for Aluminum & Aluminum Alloys to prevent any clogging from chip welding
- ▶Wider and deeper flute gullets for maximum chip removal
- ▶Special geometry and smooth coating reduces built up edge and improves finishes

DIN 6537 | CARBIDE | h6 | m7 | 118° | 20 bar | DLC | p.A156

LONG 5×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
DLC	D1			D2	L1	L2
DGE433157	15.7		.6181	16	83	133
DGE433158	15.8		.6220	16	83	133
DGE433040F	15.875	5/8	.6250	16	83	133
DGE433159	15.9		.6260	16	83	133
DGE433160	16.0		.6299	16	83	133
DGE433161	16.1		.6339	18	93	143
DGE433162	16.2		.6378	18	93	143
DGE433163	16.3		.6417	18	93	143
DGE433164	16.4		.6457	18	93	143
DGE433165	16.5		.6495	18	93	143
DGE433166	16.6		.6535	18	93	143
DGE433167	16.7		.6575	18	93	143
DGE433168	16.8		.6614	18	93	143
DGE433169	16.9		.6654	18	93	143
DGE433170	17.0		.6692	18	93	143
DGE433171	17.1		.6732	18	93	143
DGE433172	17.2		.6772	18	93	143
DGE433173	17.3		.6811	18	93	143
DGE433174	17.4		.6850	18	93	143
DGE433175	17.5		.6889	18	93	143
DGE433176	17.6		.6929	18	93	143
DGE433177	17.7		.6968	18	93	143
DGE433178	17.8		.7008	18	93	143
DGE433179	17.9		.7047	18	93	143
DGE433180	18.0		.7087	18	93	143
DGE433181	18.1		.7126	20	101	153
DGE433182	18.2		.7165	20	101	153
DGE433183	18.3		.7205	20	101	153
DGE433184	18.4		.7244	20	101	153
DGE433185	18.5		.7283	20	101	153
DGE433186	18.6		.7323	20	101	153
DGE433187	18.7		.7362	20	101	153
DGE433188	18.8		.7402	20	101	153
DGE433189	18.9		.7441	20	101	153
DGE433190	19.0		.7480	20	101	153
DGE433048F	19.050	3/4	.7500	20	101	153
DGE433191	19.1		.7520	20	101	153
DGE433192	19.2		.7559	20	101	153
DGE433193	19.3		.7598	20	101	153
DGE433194	19.4		.7638	20	101	153
DGE433195	19.5		.7676	20	101	153
DGE433196	19.6		.7717	20	101	153
DGE433197	19.7		.7756	20	101	153
DGE433198	19.8		.7795	20	101	153
DGE433199	19.9		.7835	20	101	153
DGE433200	20.0		.7874	20	101	153

▶ Other shank types are available on your request.

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	◎	◎																	

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

DREAM DRILLS -ALU

RECOMMENDED CUTTING CONDITIONS

DGE466, DGE718, DGE433 SERIES

with COOLANT HOLES

SFM = ft/min.
RPM = rev./min.
FEED = inch/rev.

ISO	VDI 3323	Material Description	SFM	Drill Diameter										
				METRIC	3.0	-	4.0	-	5.0	6.0	-	-	8.0	-	10.0
				FRACTIONAL	-	1/8	-	3/16	-	-	1/4	5/16	-	3/8	-
				DECIMAL	.1181	.1250	.1575	.1875	.1969	.2362	.2500	.3125	.3150	.3750	.3937
N	21	Aluminum-wrought alloy	658	RPM	21220		15920	12730		10610		7960		6370	
				FEED	.0047 - .0071		.0055 - .0087	.0059 - .0091		.0067 - .0098		.0083 - .0110		.0094 - .0118	
	22		527	RPM	16980		12730	10190		8490		6370		5090	
				FEED	.0047 - .0071		.0055 - .0087	.0059 - .0091		.0067 - .0098		.0083 - .0110		.0094 - .0118	
	23	Aluminum-cast, alloyed	494	RPM	15920		11940	9550		7960		5970		4770	
				FEED	.0059 - .0083		.0067 - .0098	.0075 - .0106		.0083 - .0110		.0094 - .0122		.0114 - .0177	
	24		461	RPM	14850		11140	8910		7430		5570		4460	
				FEED	.0059 - .0083		.0067 - .0098	.0075 - .0106		.0083 - .0110		.0094 - .0122		.0114 - .0177	

ISO	VDI 3323	Material Description	SFM	Drill Diameter									
				METRIC	12.0	-	14.0	-	-	16.0	18.0	-	20.0
				FRACTIONAL	-	1/2	-	9/16	5/8	-	-	3/4	-
				DECIMAL	.4724	.5000	.5512	.5625	.6250	.6299	.7087	.7500	.7874
N	21	Aluminum-wrought alloy	658	RPM	5310	5030	4550		3980		3540	3350	3180
				FEED	.0094 - .0118	.0094 - .0118	.0098 - .0138		.0098 - .0138		.0110 - .0150	.0110 - .0150	.0118 - .0157
	22		527	RPM	4240	4030	3640		3180		2830	2680	2550
				FEED	.0094 - .0118	.0094 - .0118	.0098 - .0138		.0098 - .0138		.0110 - .0150	.0110 - .0150	.0118 - .0157
	23	Aluminum-cast, alloyed	494	RPM	3980	3770	3410		2980		2650	2520	2390
				FEED	.0130 - .0217	.0130 - .0217	.0138 - .0236		.0138 - .0236		.0154 - .0287	.0154 - .0287	.0154 - .0335
	24		461	RPM	3710	3520	3180		2790		2480	2350	2230
				FEED	.0130 - .0217	.0130 - .0217	.0138 - .0236		.0138 - .0236		.0154 - .0287	.0154 - .0287	.0154 - .0335

Leading Through Innovation

SOLID CARBIDE

DREAM DRILLS MQL TYPE

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

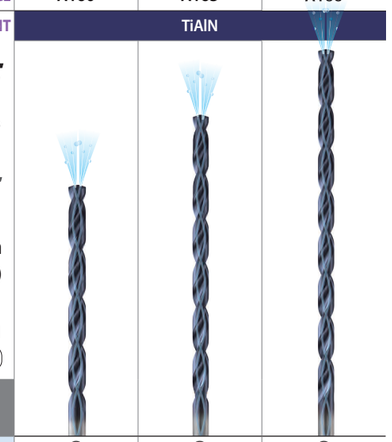
SELECTION GUIDE

HOLEMAKING TOOLS

SERIES	DH510	DH515	DH520
DRILLING DEPTH	10XD	15XD	20XD
LENGTH	EXTRA LONG		
SIZE MIN	D3.0	D3.0	D3.0
SIZE MAX	D14.0	D14.0	D12.0
PAGE	A160	A163	A166
SURFACE TREATMENT	TiAlN		

SOLID CARBIDE
DREAM DRILLS
MQL TYPE

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



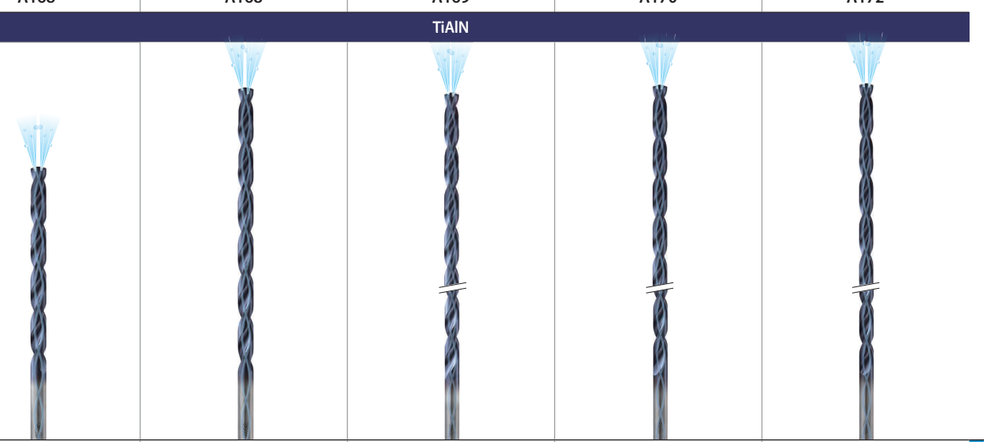
Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A174

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	DH510	DH515	DH520
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		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		Hardened	550	55			
	39			Hardened	630	60			
	40	Chilled Cast Iron		Cast	400	42			
	41	Hardened Cast Iron		Hardened	550	55			

DHM10	DHM15	DHM20	DHM25	DHM30
10XD	15XD	20XD	25XD	30XD
EXTRA LONG				
D3.0	D3.0	D3.0	D3.0	D3.0
D14.0	D14.0	D12.0	D10.0	D8.0
A168	A168	A169	A170	A172
TiAlN				



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					12	
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					14	
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◎	◎	◎	◎	◎	17	K
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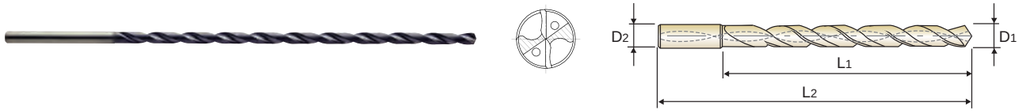
DREAM DRILLS MQL TYPE

DH510 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
MQL with Coolant Holes (10XD)

- ▶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 TiAlN nano layer full coating
- ▶MQL system compatible (Minimum Quantity Lubrication)



CARBIDE | 30° | h6 | h7 | 140° | 20 bar | TiAlN | p.A174

EXTRA LONG
10×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Inch	Decimal			
TiAlN	D1			D2	L1	L2
DH510030	3.0		.1181	3	39	90
DH510031	3.1		.1220	4	46	97
DH510008F	3.175	1/8	.1250	4	46	97
DH510032	3.2		.1260	4	46	97
DH510033	3.3		.1299	4	46	97
DH510034	3.4		.1339	4	46	97
DH510035	3.5		.1378	4	46	97
DH510036	3.6		.1417	4	52	103
DH510037	3.7		.1457	4	52	103
DH510038	3.8		.1496	4	52	103
DH510039	3.9		.1535	4	52	103
DH510040	4.0		.1575	4	52	103
DH510041	4.1		.1614	5	59	112
DH510042	4.2		.1654	5	59	112
DH510043	4.3		.1693	5	59	112
DH510044	4.4		.1732	5	59	112
DH510045	4.5		.1772	5	59	112
DH510046	4.6		.1811	5	65	118
DH510047	4.7		.1850	5	65	118
DH510048	4.8		.1890	5	65	118
DH510049	4.9		.1929	5	65	118
DH510050	5.0		.1969	5	65	118
DH510051	5.1		.2008	6	72	127
DH510052	5.2		.2047	6	72	127
DH510053	5.3		.2087	6	72	127
DH510054	5.4		.2126	6	72	127

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Inch	Decimal			
TiAlN	D1			D2	L1	L2
DH510055	5.5		.2165	6	72	127
DH510056	5.6		.2205	6	78	133
DH510057	5.7		.2244	6	78	133
DH510058	5.8		.2283	6	78	133
DH510059	5.9		.2323	6	78	133
DH510060	6.0		.2362	6	78	133
DH510061	6.1		.2402	7	85	141
DH510062	6.2		.2441	7	85	141
DH510063	6.3		.2480	7	85	141
DH510016F	6.350	1/4	.2500	7	85	141
DH510064	6.4		.2520	7	85	141
DH510065	6.5		.2559	7	85	141
DH510206L	6.528	F	.2570	7	91	147
DH510066	6.6		.2598	7	91	147
DH510067	6.7		.2638	7	91	147
DH510017F	6.746	17/64	.2656	7	91	147
DH510068	6.8		.2677	7	91	147
DH510069	6.9		.2717	7	91	147
DH510209L	6.909	I	.2720	7	91	147
DH510070	7.0		.2756	7	91	147
DH510071	7.1		.2795	8	98	155
DH510018F	7.142	9/32	.2812	8	98	155
DH510072	7.2		.2835	8	98	155
DH510073	7.3		.2874	8	98	155
DH510074	7.4		.2913	8	98	155
DH510075	7.5		.2953	8	98	155

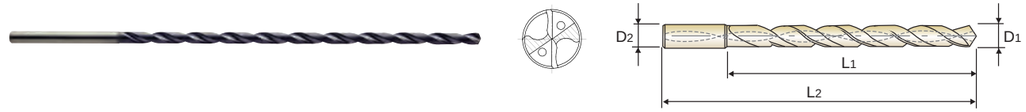
▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

DREAM DRILLS MQL TYPE
DH510 SERIES
TiAlN-COATED SOLID CARBIDE DREAM DRILLS
MQL with Coolant Holes (10XD)
▶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 TiAlN nano layer full coating
▶MQL system compatible (Minimum Quantity Lubrication)



CARBIDE | 30° | h6 | h7 | 140° | 20 bar | TiAlN | p.A174
EXTRA LONG
10×D
Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Inch	Decimal			
TiAlN	D1			D2	L1	L2
DH510019F	7.541	19/64	.2969	8	104	161
DH510076	7.6		.2992	8	104	161
DH510077	7.7		.3031	8	104	161
DH510078	7.8		.3071	8	104	161
DH510079	7.9		.3110	8	104	161
DH510020F	7.938	5/16	.3125	8	104	161
DH510080	8.0		.3150	8	104	161
DH510081	8.1		.3189	9	111	169
DH510082	8.2		.3228	9	111	169
DH510083	8.3		.3268	9	111	169
DH510021F	8.334	21/64	.3281	9	111	169
DH510084	8.4		.3307	9	111	169
DH510217L	8.433	Q	.3320	9	111	169
DH510085	8.5		.3346	9	111	169
DH510086	8.6		.3386	9	117	175
DH510087	8.7		.3425	9	117	175
DH510022F	8.733	11/32	.3438	9	117	175
DH510088	8.8		.3465	9	117	175
DH510089	8.9		.3504	9	117	175
DH510090	9.0		.3543	9	117	175
DH510091	9.1		.3583	10	124	182
DH510023F	9.129	23/64	.3594	10	124	182
DH510092	9.2		.3622	10	124	182
DH510093	9.3		.3661	10	124	182
DH510221L	9.347	U	.3680	10	124	182
DH510094	9.4		.3701	10	124	182

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Inch	Decimal			
TiAlN	D1			D2	L1	L2
DH510095	9.5		.3740	10	124	182
DH510024F	9.525	3/8	.3750	10	130	188
DH510096	9.6		.3780	10	130	188
DH510097	9.7		.3819	10	130	188
DH510098	9.8		.3858	10	130	188
DH510099	9.9		.3898	10	130	188
DH510025F	9.921	25/64	.3906	10	130	188
DH510100	10.0		.3937	10	130	188
DH510101	10.1		.3976	11	137	201
DH510102	10.2		.4016	11	137	201
DH510103	10.3		.4055	11	137	201
DH510026F	10.318	13/32	.4062	11	137	201
DH510104	10.4		.4094	11	137	201
DH510105	10.5		.4134	11	137	201
DH510106	10.6		.4173	11	143	207
DH510107	10.7		.4213	11	143	207
DH510027F	10.716	27/64	.4219	11	143	207
DH510108	10.8		.4252	11	143	207
DH510109	10.9		.4291	11	143	207
DH510110	11.0		.4331	11	143	207
DH510111	11.1		.4370	12	150	215
DH510028F	11.113	7/16	.4375	12	150	215
DH510112	11.2		.4409	12	150	215
DH510113	11.3		.4449	12	150	215
DH510114	11.4		.4488	12	150	215
DH510115	11.5		.4528	12	150	215

▶ NEXT PAGE

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○	○		○	○				◎	○	◎	○	◎	○

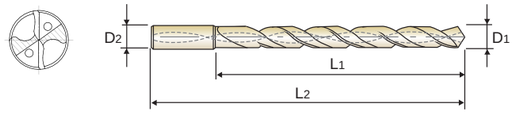
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

DREAM DRILLS MQL TYPE

DH510 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
MQL with Coolant Holes (10XD)

- ▶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 TiAlN nano layer full coating
- ▶MQL system compatible (Minimum Quantity Lubrication)



CARBIDE | 30° | h6 | h7 | 140° | 20 bar | TiAlN p.A174

EXTRA LONG
10×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Inch	Decimal			
TiAlN	D1			D2	L1	L2
DH510029F	11.509	29/64	.4531	12	156	221
DH510116	11.6		.4567	12	156	221
DH510117	11.7		.4606	12	156	221
DH510118	11.8		.4646	12	156	221
DH510119	11.9		.4685	12	156	221
DH510030F	11.908	15/32	.4688	12	156	221
DH510120	12.0		.4724	12	156	221
DH510121	12.1		.4764	13	163	229
DH510122	12.2		.4803	13	163	229
DH510123	12.3		.4843	13	163	229
DH510031F	12.304	31/64	.4844	13	163	229
DH510124	12.4		.4882	13	163	229
DH510125	12.5		.4921	13	163	229
DH510126	12.6		.4961	13	169	235

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Inch	Decimal			
TiAlN	D1			D2	L1	L2
DH510127	12.7	1/2	.5000	13	169	235
DH510128	12.8		.5039	13	169	235
DH510129	12.9		.5079	13	169	235
DH510130	13.0		.5118	13	169	235
DH510131	13.1		.5157	14	176	243
DH510132	13.2		.5197	14	176	243
DH510133	13.3		.5236	14	176	243
DH510134	13.4		.5276	14	176	243
DH510135	13.5		.5315	14	176	243
DH510136	13.6		.5354	14	182	249
DH510137	13.7		.5394	14	182	249
DH510138	13.8		.5433	14	182	249
DH510139	13.9		.5472	14	182	249
DH510140	14.0		.5512	14	182	249

◎ : Excellent ○ : Good

ISO	P																			
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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○	○		○	○				◎	○	◎	○	◎	○

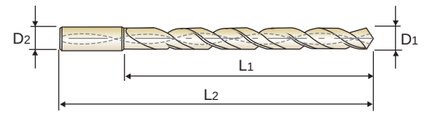
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

DREAM DRILLS MQL TYPE

DH515 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
MQL with Coolant Holes (15XD)

- ▶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 TiAlN nano layer full coating
- ▶MQL system compatible (Minimum Quantity Lubrication)



CARBIDE | 30° | h6 | h7 | 140° | 20 bar | TiAlN p.A174

EXTRA LONG
15×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Inch	Decimal			
TiAlN	D1			D2	L1	L2
DH515030	3.0		.1181	3	54	105
DH515031	3.1		.1220	4	63	114
DH515008F	3.175	1/8	.1250	4	63	114
DH515032	3.2		.1260	4	63	114
DH515033	3.3		.1299	4	63	114
DH515034	3.4		.1339	4	63	114
DH515035	3.5		.1378	4	63	114
DH515036	3.6		.1417	4	72	123
DH515037	3.7		.1457	4	72	123
DH515038	3.8		.1496	4	72	123
DH515039	3.9		.1535	4	72	123
DH515040	4.0		.1575	4	72	123
DH515041	4.1		.1614	5	81	134
DH515042	4.2		.1654	5	81	134
DH515043	4.3		.1693	5	81	134
DH515044	4.4		.1732	5	81	134
DH515045	4.5		.1772	5	81	134
DH515046	4.6		.1811	5	90	143
DH515047	4.7		.1850	5	90	143
DH515048	4.8		.1890	5	90	143
DH515049	4.9		.1929	5	90	143
DH515050	5.0		.1969	5	90	143
DH515051	5.1		.2008	6	99	154
DH515052	5.2		.2047	6	99	154
DH515053	5.3		.2087	6	99	154
DH515054	5.4		.2126	6	99	154

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Inch	Decimal			
TiAlN	D1			D2	L1	L2
DH515055	5.5		.2165	6	99	154
DH515056	5.6		.2205	6	108	163
DH515057	5.7		.2244	6	108	163
DH515058	5.8		.2283	6	108	163
DH515059	5.9		.2323	6	108	163
DH515060	6.0		.2362	6	108	163
DH515061	6.1		.2402	7	117	173
DH515062	6.2		.2441	7	117	173
DH515063	6.3		.2480	7	117	173
DH515016F	6.350	1/4	.2500	7	117	173
DH515064	6.4		.2520	7	117	173
DH515065	6.5		.2559	7	117	173
DH515206L	6.528	F	.2570	7	126	182
DH515066	6.6		.2598	7	126	182
DH515067	6.7		.2638	7	126	182
DH515017F	6.746	17/64	.2656	7	126	182
DH515068	6.8		.2677	7	126	182
DH515069	6.9		.2717	7	126	182
DH515209L	6.909	I	.2720	7	126	182
DH515070	7.0		.2756	7	126	182
DH515071	7.1		.2795	8	135	192
DH515018F	7.142	9/32	.2812	8	135	192
DH515072	7.2		.2835	8	135	192
DH515073	7.3		.2874	8	135	192
DH515074	7.4		.2913	8	135	192
DH515075	7.5		.2953	8	135	192

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P																			
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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

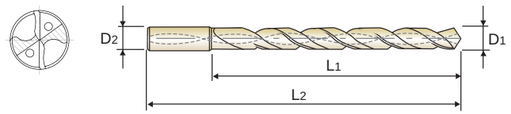
CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

DREAM DRILLS MQL TYPE

DH515 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
MQL with Coolant Holes (15XD)

- ▶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 TiAlN nano layer full coating
- ▶MQL system compatible (Minimum Quantity Lubrication)



CARBIDE | 30° | h6 | h7 | 140° | 20 bar | TiAlN p.A174

EXTRA LONG
15 x D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Inch	Decimal			
TiAlN	D1			D2	L1	L2
DH515019F	7.541	19/64	.2969	8	144	201
DH515076	7.6		.2992	8	144	201
DH515077	7.7		.3031	8	144	201
DH515078	7.8		.3071	8	144	201
DH515079	7.9		.3110	8	144	201
DH515020F	7.938	5/16	.3125	8	144	201
DH515080	8.0		.3150	8	144	201
DH515081	8.1		.3189	9	153	211
DH515082	8.2		.3228	9	153	211
DH515083	8.3		.3268	9	153	211
DH515021F	8.334	21/64	.3281	9	153	211
DH515084	8.4		.3307	9	153	211
DH515217L	8.433	Q	.3320	9	153	211
DH515085	8.5		.3346	9	153	211
DH515086	8.6		.3386	9	162	220
DH515087	8.7		.3425	9	162	220
DH515022F	8.733	11/32	.3438	9	162	220
DH515088	8.8		.3465	9	162	220
DH515089	8.9		.3504	9	162	220
DH515090	9.0		.3543	9	162	220
DH515091	9.1		.3583	10	171	229
DH515023F	9.129	23/64	.3594	10	171	229
DH515092	9.2		.3622	10	171	229
DH515093	9.3		.3661	10	171	229
DH515221L	9.347	U	.3680	10	171	229
DH515094	9.4		.3701	10	171	229

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Inch	Decimal			
TiAlN	D1			D2	L1	L2
DH515095	9.5		.3740	10	171	229
DH515024F	9.525	3/8	.3750	10	180	238
DH515096	9.6		.3780	10	180	238
DH515097	9.7		.3819	10	180	238
DH515098	9.8		.3858	10	180	238
DH515099	9.9		.3898	10	180	238
DH515025F	9.921	25/64	.3906	10	180	238
DH515100	10.0		.3937	10	180	238
DH515101	10.1		.3976	11	189	253
DH515102	10.2		.4016	11	189	253
DH515103	10.3		.4055	11	189	253
DH515026F	10.318	13/32	.4062	11	189	253
DH515104	10.4		.4094	11	189	253
DH515105	10.5		.4134	11	189	253
DH515106	10.6		.4173	11	198	262
DH515107	10.7		.4213	11	198	262
DH515027F	10.716	27/64	.4219	11	198	262
DH515108	10.8		.4252	11	198	262
DH515109	10.9		.4291	11	198	262
DH515110	11.0		.4331	11	198	262
DH515111	11.1		.4370	12	207	272
DH515028F	11.113	7/16	.4375	12	207	272
DH515112	11.2		.4409	12	207	272
DH515113	11.3		.4449	12	207	272
DH515114	11.4		.4488	12	207	272
DH515115	11.5		.4527	12	207	272

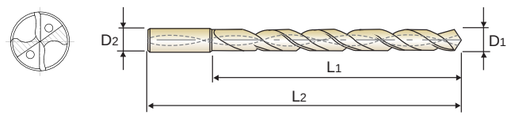
▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

DREAM DRILLS MQL TYPE
DH515 SERIES
TiAlN-COATED SOLID CARBIDE DREAM DRILLS
MQL with Coolant Holes (15XD)
▶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 TiAlN nano layer full coating
▶MQL system compatible (Minimum Quantity Lubrication)



CARBIDE | 30° | h6 | h7 | 140° | 20 bar | TiAlN p.A174

EXTRA LONG
15 x D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Inch	Decimal			
TiAlN	D1			D2	L1	L2
DH515029F	11.509	29/64	.4531	12	216	281
DH515116	11.6		.4567	12	216	281
DH515117	11.7		.4606	12	216	281
DH515118	11.8		.4646	12	216	281
DH515119	11.9		.4685	12	216	281
DH515030F	11.908	15/32	.4688	12	216	281
DH515120	12.0		.4724	12	216	281
DH515121	12.1		.4764	13	225	291
DH515122	12.2		.4803	13	225	291
DH515123	12.3		.4843	13	225	291
DH515031F	12.304	31/64	.4844	13	225	291
DH515124	12.4		.4882	13	225	291
DH515125	12.5		.4921	13	225	291
DH515126	12.6		.4961	13	234	300

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Inch	Decimal			
TiAlN	D1			D2	L1	L2
DH515127	12.7	1/2	.5000	13	234	300
DH515128	12.8		.5039	13	234	300
DH515129	12.9		.5079	13	234	300
DH515130	13.0		.5118	13	234	300
DH515131	13.1		.5157	14	243	310
DH515132	13.2		.5197	14	243	310
DH515133	13.3		.5236	14	243	310
DH515134	13.4		.5276	14	243	310
DH515135	13.5		.5314	14	243	310
DH515136	13.6		.5354	14	252	319
DH515137	13.7		.5394	14	252	319
DH515138	13.8		.5433	14	252	319
DH515139	13.9		.5472	14	252	319
DH515140	14.0		.5512	14	252	319

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○	○		○	○				◎	○	◎	○	◎	○

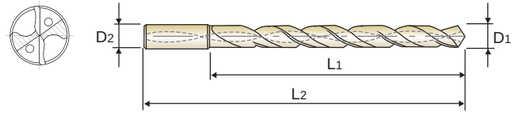
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

DREAM DRILLS MQL TYPE

DH520 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
MQL with Coolant Holes (20XD)

- ▶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 TiAlN nano layer full coating
- ▶MQL system compatible (Minimum Quantity Lubrication)



CARBIDE | 30° | h6 | h7 | 140° | 20 bar | TiAlN p.A174

EXTRA LONG
20×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Inch	Decimal			
TiAlN	D1			D2	L1	L2
DH520030	3.0		.1181	3	69	120
DH520031	3.1		.1220	4	81	132
DH520008F	3.175	1/8	.1250	4	81	132
DH520032	3.2		.1260	4	81	132
DH520033	3.3		.1299	4	81	132
DH520034	3.4		.1339	4	81	132
DH520035	3.5		.1378	4	81	132
DH520036	3.6		.1417	4	92	143
DH520037	3.7		.1457	4	92	143
DH520038	3.8		.1496	4	92	143
DH520039	3.9		.1535	4	92	143
DH520040	4.0		.1575	4	92	143
DH520041	4.1		.1614	5	104	157
DH520042	4.2		.1654	5	104	157
DH520043	4.3		.1693	5	104	157
DH520044	4.4		.1732	5	104	157
DH520045	4.5		.1772	5	104	157
DH520046	4.6		.1811	5	115	168
DH520047	4.7		.1850	5	115	168
DH520048	4.8		.1890	5	115	168
DH520049	4.9		.1929	5	115	168
DH520050	5.0		.1969	5	115	168
DH520051	5.1		.2008	6	127	182
DH520052	5.2		.2047	6	127	182
DH520053	5.3		.2087	6	127	182
DH520054	5.4		.2126	6	127	182
DH520055	5.5		.2165	6	127	182
DH520056	5.6		.2205	6	138	193

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Inch	Decimal			
TiAlN	D1			D2	L1	L2
DH520057	5.7		.2244	6	138	193
DH520058	5.8		.2283	6	138	193
DH520059	5.9		.2323	6	138	193
DH520060	6.0		.2362	6	138	193
DH520061	6.1		.2402	7	150	206
DH520062	6.2		.2441	7	150	206
DH520063	6.3		.2480	7	150	206
DH520016F	6.350	1/4	.2500	7	150	206
DH520064	6.4		.2520	7	150	206
DH520065	6.5		.2559	7	150	206
DH520206L	6.528	F	.2570	7	161	217
DH520066	6.6		.2598	7	161	217
DH520067	6.7		.2638	7	161	217
DH520017F	6.746	17/64	.2656	7	161	217
DH520068	6.8		.2677	7	161	217
DH520069	6.9		.2717	7	161	217
DH520209L	6.909	I	.2720	7	161	217
DH520070	7.0		.2756	7	161	217
DH520071	7.1		.2795	8	173	230
DH520018F	7.142	9/32	.2812	8	173	230
DH520072	7.2		.2835	8	173	230
DH520073	7.3		.2874	8	173	230
DH520074	7.4		.2913	8	173	230
DH520075	7.5		.2953	8	173	230
DH520019F	7.541	19/64	.2969	8	184	241
DH520076	7.6		.2992	8	184	241
DH520077	7.7		.3031	8	184	241
DH520078	7.8		.3071	8	184	241

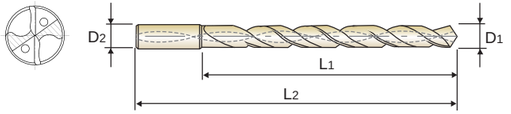
▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

DREAM DRILLS MQL TYPE
DH520 SERIES
TiAlN-COATED SOLID CARBIDE DREAM DRILLS
MQL with Coolant Holes (20XD)
▶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 TiAlN nano layer full coating
▶MQL system compatible (Minimum Quantity Lubrication)



CARBIDE | 30° | h6 | h7 | 140° | 20 bar | TiAlN p.A174

EXTRA LONG
20×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Inch	Decimal			
TiAlN	D1			D2	L1	L2
DH520079	7.9		.3110	8	184	241
DH520020F	7.938	5/16	.3125	8	184	241
DH520080	8.0		.3150	8	184	241
DH520081	8.1		.3189	9	196	254
DH520082	8.2		.3228	9	196	254
DH520083	8.3		.3268	9	196	254
DH520021F	8.334	21/64	.3281	9	196	254
DH520084	8.4		.3307	9	196	254
DH520217L	8.433	Q	.3320	9	196	254
DH520085	8.5		.3346	9	196	254
DH520086	8.6		.3386	9	207	265
DH520087	8.7		.3425	9	207	265
DH520022F	8.733	11/32	.3438	9	207	265
DH520088	8.8		.3465	9	207	265
DH520089	8.9		.3504	9	207	265
DH520090	9.0		.3543	9	207	265
DH520091	9.1		.3583	10	219	277
DH520023F	9.129	23/64	.3594	10	219	277
DH520092	9.2		.3622	10	219	277
DH520093	9.3		.3661	10	219	277
DH520221L	9.347	U	.3680	10	219	277
DH520094	9.4		.3701	10	219	277
DH520095	9.5		.3740	10	219	277
DH520024F	9.525	3/8	.3750	10	230	288
DH520096	9.6		.3780	10	230	288
DH520097	9.7		.3819	10	230	288
DH520098	9.8		.3858	10	230	288
DH520099	9.9		.3898	10	230	288

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Inch	Decimal			
TiAlN	D1			D2	L1	L2
DH520025F	9.921	25/64	.3906	10	230	288
DH520100	10.0		.3937	10	230	288
DH520101	10.1		.3976	11	242	306
DH520102	10.2		.4016	11	242	306
DH520103	10.3		.4055	11	242	306
DH520026F	10.318	13/32	.4062	11	242	306
DH520104	10.4		.4094	11	242	306
DH520105	10.5		.4134	11	242	306
DH520106	10.6		.4173	11	253	317
DH520107	10.7		.4213	11	253	317
DH520027F	10.716	27/64	.4219	11	253	317
DH520108	10.8		.4252	11	253	317
DH520109	10.9		.4291	11	253	317
DH520110	11.0		.4331	11	253	317
DH520111	11.1		.4370	12	265	330
DH520028F	11.113	7/16	.4375	12	265	330
DH520112	11.2		.4409	12	265	330
DH520113	11.3		.4449	12	265	330
DH520114	11.4		.4488	12	265	330
DH520115	11.5		.4527	12	265	330
DH520029F	11.509	29/64	.4531	12	276	341
DH520116	11.6		.4567	12	276	341
DH520117	11.7		.4606	12	276	341
DH520118	11.8		.4646	12	276	341
DH520119	11.9		.4685	12	276	341
DH520030F	11.908	15/32	.4688	12	276	341
DH520120	12.0		.4724	12	276	341

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

DREAM DRILLS MQL TYPE

DHM10 SERIES
DHM15 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
MQL with Coolant Holes (10XD, 15XD)

- ▶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 TiAlN nano layer full coating
- ▶MQL system compatible (Minimum Quantity Lubrication)

DHM10 DHM15

CARBIDE | 30° | h6 | h7 | 140° | 20 bar | 45 bar | TiAlN | p.A174

EXTRA LONG

10×D (DHM10) | 15×D (DHM15)

10XD

EDP No.	Drill Diameter Metric	Drill Diameter Decimal	Shank Diameter	Flute Length	Overall Length
TiAlN	D1		D2	L1	L2
DHM10030	3.0	.1181	6	40	80
DHM10033	3.3	.1299	6	47	87
DHM10035	3.5	.1378	6	47	87
DHM10040	4.0	.1575	6	53	93
DHM10042	4.2	.1654	6	60	100
DHM10045	4.5	.1772	6	60	100
DHM10050	5.0	.1969	6	66	106
DHM10055	5.5	.2165	6	73	113
DHM10060	6.0	.2362	6	79	119
DHM10065	6.5	.2559	8	86	126
DHM10068	6.8	.2677	8	92	132
DHM10070	7.0	.2756	8	92	132
DHM10075	7.5	.2953	8	99	139
DHM10080	8.0	.3150	8	105	145
DHM10085	8.5	.3346	10	112	156
DHM10090	9.0	.3543	10	118	162
DHM10095	9.5	.3740	10	126	170
DHM10100	10.0	.3937	10	132	176
DHM10105	10.5	.4134	12	139	188
DHM10110	11.0	.4330	12	145	194
DHM10115	11.5	.4527	12	152	201
DHM10120	12.0	.4724	12	158	207
DHM10125	12.5	.4921	14	165	214
DHM10130	13.0	.5118	14	171	220
DHM10135	13.5	.5314	14	178	227
DHM10140	14.0	.5512	14	184	233

15XD

Unit : mm

EDP No.	Drill Diameter Metric	Drill Diameter Decimal	Shank Diameter	Flute Length	Overall Length
TiAlN	D1		D2	L1	L2
DHM15030	3.0	.1181	6	55	95
DHM15035	3.5	.1378	6	64	104
DHM15040	4.0	.1575	6	73	113
DHM15045	4.5	.1772	6	82	122
DHM15050	5.0	.1969	6	91	131
DHM15055	5.5	.2165	6	100	140
DHM15060	6.0	.2362	6	109	149
DHM15070	7.0	.2756	8	127	167
DHM15080	8.0	.3150	8	145	185
DHM15090	9.0	.3543	10	163	207
DHM15100	10.0	.3937	10	182	226
DHM15110	11.0	.4330	12	200	249
DHM15120	12.0	.4724	12	21 8	267

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○	○		○	○				◎	○	◎	○	◎	○

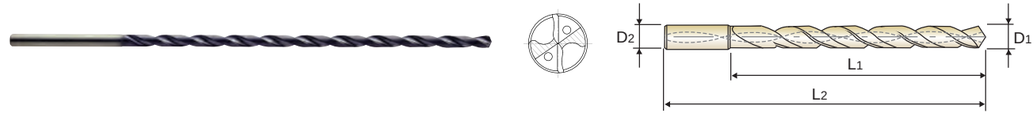
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

DREAM DRILLS MQL TYPE

DHM20 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
MQL with Coolant Holes (20XD)

- ▶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 TiAlN nano layer full coating
- ▶MQL system compatible (Minimum Quantity Lubrication)



CARBIDE | 30° | h6 | h7 | 140° | 45 bar | TiAlN | p.A174

EXTRA LONG

20×D (DHM20)

20XD

Unit : mm

EDP No.	Drill Diameter Metric	Drill Diameter Decimal	Shank Diameter	Flute Length	Overall Length
TiAlN	D1		D2	L1	L2
DHM20030	3.0	.1181	6	70	110
DHM20035	3.5	.1378	6	82	122
DHM20040	4.0	.1575	6	93	133
DHM20045	4.5	.1772	6	105	145
DHM20050	5.0	.1969	6	116	156
DHM20055	5.5	.2165	6	128	168
DHM20060	6.0	.2362	6	139	179
DHM20070	7.0	.2756	8	162	202
DHM20080	8.0	.3150	8	185	225
DHM20090	9.0	.3543	10	208	252
DHM20100	10.0	.3937	10	232	276
DHM20110	11.0	.4330	12	255	304
DHM20120	12.0	.4724	12	278	327

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○	○		○	○				◎	○	◎	○	◎	○

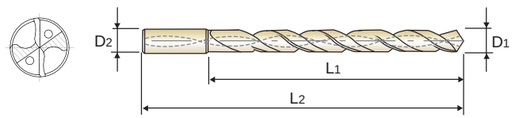
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

DREAM DRILLS MQL TYPE

DHM25 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
MQL with Coolant Holes (25XD)

- ▶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 TiAlN nano layer full coating
- ▶MQL system compatible (Minimum Quantity Lubrication)



CARBIDE | 30° | h6 | h7 | 140° | 45 bar | TiAlN p.A174

EXTRA LONG
25×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Inch	Decimal			
TiAlN	D1			D2	L1	L2
DHM25030	3.0		.1181	6	85	125
DHM25031	3.1		.1220	6	99	139
DHM25008F	3.175	1/8	.1250	6	99	139
DHM25032	3.2		.1260	6	99	139
DHM25033	3.3		.1299	6	99	139
DHM25034	3.4		.1339	6	99	139
DHM25035	3.5		.1378	6	99	139
DHM25036	3.6		.1417	6	113	153
DHM25037	3.7		.1457	6	113	153
DHM25038	3.8		.1496	6	113	153
DHM25039	3.9		.1535	6	113	153
DHM25040	4.0		.1575	6	113	153
DHM25041	4.1		.1614	6	127	167
DHM25042	4.2		.1654	6	127	167
DHM25043	4.3		.1693	6	127	167
DHM25044	4.4		.1732	6	127	167
DHM25045	4.5		.1772	6	127	167
DHM25046	4.6		.1811	6	141	181
DHM25047	4.7		.1850	6	141	181
DHM25048	4.8		.1890	6	141	181
DHM25049	4.9		.1929	6	141	181
DHM25050	5.0		.1969	6	141	181
DHM25051	5.1		.2008	6	155	195
DHM25052	5.2		.2047	6	155	195
DHM25053	5.3		.2087	6	155	195
DHM25054	5.4		.2126	6	155	195

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Inch	Decimal			
TiAlN	D1			D2	L1	L2
DHM25055	5.5		.2165	6	155	195
DHM25056	5.6		.2205	6	169	209
DHM25057	5.7		.2244	6	169	209
DHM25058	5.8		.2283	6	169	209
DHM25059	5.9		.2323	6	169	209
DHM25060	6.0		.2362	6	169	209
DHM25061	6.1		.2402	8	183	223
DHM25062	6.2		.2441	8	183	223
DHM25063	6.3		.2480	8	183	223
DHM25016F	6.350	1/4	.2500	8	183	223
DHM25064	6.4		.2520	8	183	223
DHM25065	6.5		.2559	8	183	223
DHM25206L	6.528	F	.2570	8	197	237
DHM25066	6.6		.2598	8	197	237
DHM25067	6.7		.2638	8	197	237
DHM25017F	6.746	17/64	.2656	8	197	237
DHM25068	6.8		.2677	8	197	237
DHM25069	6.9		.2717	8	197	237
DHM25209L	6.909	I	.2720	8	197	237
DHM25070	7.0		.2756	8	197	237
DHM25071	7.1		.2795	8	211	251
DHM25018F	7.142	9/32	.2812	8	211	251
DHM25072	7.2		.2835	8	211	251
DHM25073	7.3		.2874	8	211	251
DHM25074	7.4		.2913	8	211	251
DHM25075	7.5		.2953	8	211	251

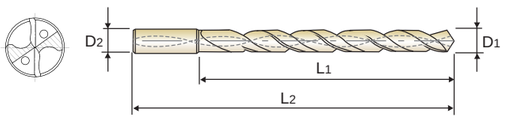
▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

DREAM DRILLS MQL TYPE
DHM25 SERIES
TiAlN-COATED SOLID CARBIDE DREAM DRILLS
MQL with Coolant Holes (25XD)
▶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 TiAlN nano layer full coating
▶MQL system compatible (Minimum Quantity Lubrication)



CARBIDE | 30° | h6 | h7 | 140° | 45 bar | TiAlN p.A174

EXTRA LONG
25×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Inch	Decimal			
TiAlN	D1			D2	L1	L2
DHM25019F	7.541	19/64	.2969	8	225	265
DHM25076	7.6		.2992	8	225	265
DHM25077	7.7		.3031	8	225	265
DHM25078	7.8		.3071	8	225	265
DHM25079	7.9		.3110	8	225	265
DHM25020F	7.938	5/16	.3125	8	225	265
DHM25080	8.0		.3150	8	225	265
DHM25081	8.1		.3189	10	239	283
DHM25082	8.2		.3228	10	239	283
DHM25083	8.3		.3268	10	239	283
DHM25021F	8.334	21/64	.3281	10	239	283
DHM25084	8.4		.3307	10	239	283
DHM25217L	8.433	Q	.3320	10	239	283
DHM25085	8.5		.3346	10	239	283
DHM25086	8.6		.3386	10	253	297
DHM25087	8.7		.3425	10	253	297
DHM25022F	8.733	11/32	.3438	10	253	297

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Inch	Decimal			
TiAlN	D1			D2	L1	L2
DHM25088	8.8		.3465	10	253	297
DHM25089	8.9		.3504	10	253	297
DHM25090	9.0		.3543	10	253	297
DHM25091	9.1		.3583	10	268	312
DHM25023F	9.129	23/64	.3594	10	268	312
DHM25092	9.2		.3622	10	268	312
DHM25093	9.3		.3661	10	268	312
DHM25221L	9.347	U	.3680	10	268	312
DHM25094	9.4		.3701	10	268	312
DHM25095	9.5		.3740	10	268	312
DHM25024F	9.525	3/8	.3750	10	282	326
DHM25096	9.6		.3780	10	282	326
DHM25097	9.7		.3819	10	282	326
DHM25098	9.8		.3858	10	282	326
DHM25099	9.9		.3898	10	282	326
DHM25025F	9.921	25/64	.3906	10	282	326
DHM25100	10.0		.3937	10	282	326

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

DREAM DRILLS MQL TYPE

DHM30 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
MQL with Coolant Holes (30XD)

- ▶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 TiAlN nano layer full coating
- ▶MQL system compatible (Minimum Quantity Lubrication)

CARBIDE | 30° | h6 | h7 | 140° | 45 bar | TiAlN p.A174

EXTRA LONG
30×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Inch	Decimal			
TiAlN	D1			D2	L1	L2
DHM30030	3.0		.1181	6	100	140
DHM30031	3.1		.1220	6	117	157
DHM30008F	3.175	1/8	.1250	6	117	157
DHM30032	3.2		.1260	6	117	157
DHM30033	3.3		.1299	6	117	157
DHM30034	3.4		.1339	6	117	157
DHM30035	3.5		.1378	6	117	157
DHM30036	3.6		.1417	6	133	173
DHM30037	3.7		.1457	6	133	173
DHM30038	3.8		.1496	6	133	173
DHM30039	3.9		.1535	6	133	173
DHM30040	4.0		.1575	6	133	173
DHM30041	4.1		.1614	6	150	190
DHM30042	4.2		.1654	6	150	190
DHM30043	4.3		.1693	6	150	190
DHM30044	4.4		.1732	6	150	190
DHM30045	4.5		.1772	6	150	190
DHM30046	4.6		.1811	6	166	206
DHM30047	4.7		.1850	6	166	206
DHM30048	4.8		.1890	6	166	206
DHM30049	4.9		.1929	6	166	206
DHM30050	5.0		.1969	6	166	206
DHM30051	5.1		.2008	6	183	223
DHM30052	5.2		.2047	6	183	223
DHM30053	5.3		.2087	6	183	223
DHM30054	5.4		.2126	6	183	223

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Inch	Decimal			
TiAlN	D1			D2	L1	L2
DHM30055	5.5		.2165	6	183	223
DHM30056	5.6		.2205	6	199	239
DHM30057	5.7		.2244	6	199	239
DHM30058	5.8		.2283	6	199	239
DHM30059	5.9		.2323	6	199	239
DHM30060	6.0		.2362	6	199	239
DHM30061	6.1		.2402	8	216	256
DHM30062	6.2		.2441	8	216	256
DHM30063	6.3		.2480	8	216	256
DHM30016F	6.350	1/4	.2500	8	216	256
DHM30064	6.4		.2520	8	216	256
DHM30065	6.5		.2559	8	216	256
DHM30206L	6.528	F	.2570	8	232	272
DHM30066	6.6		.2598	8	232	272
DHM30067	6.7		.2638	8	232	272
DHM30017F	6.746	17/64	.2656	8	232	272
DHM30068	6.8		.2677	8	232	272
DHM30069	6.9		.2717	8	232	272
DHM30209L	6.909	I	.2720	8	232	272
DHM30070	7.0		.2756	8	232	272
DHM30071	7.1		.2795	8	249	289
DHM30018F	7.142	9/32	.2812	8	249	289
DHM30072	7.2		.2835	8	249	289
DHM30073	7.3		.2874	8	249	289
DHM30074	7.4		.2913	8	249	289
DHM30075	7.5		.2953	8	249	289

▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

DREAM DRILLS MQL TYPE

DHM30 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
MQL with Coolant Holes (30XD)

- ▶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 TiAlN nano layer full coating
- ▶MQL system compatible (Minimum Quantity Lubrication)

CARBIDE | 30° | h6 | h7 | 140° | 45 bar | TiAlN p.A174

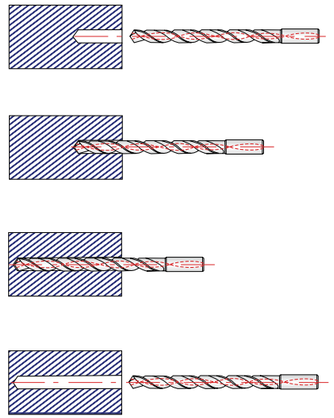
EXTRA LONG
30×D

Unit : inch

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Inch	Decimal			
TiAlN	D1			D2	L1	L2
DHM30019F	7.541	19/64	.2969	8	265	305
DHM30076	7.6		.2992	8	265	305
DHM30077	7.7		.3031	8	265	305
DHM30078	7.8		.3071	8	265	305

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Inch	Decimal			
TiAlN	D1			D2	L1	L2
DHM30079	7.9		.3110	8	265	305
DHM30020F	7.938	5/16	.3125	8	265	305
DHM30080	8.0		.3150	8	265	305

▶ Made to order in depth 35xD(Ø3-Ø6) & 40xD(Ø3-Ø6)



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%.

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

DREAM DRILLS MQL TYPE

RECOMMENDED CUTTING CONDITIONS

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

with COOLANT HOLES

ISO	VDI 3323	Material Description	SFM 10xD ~20xD	SFM 25xD ~30xD	Drill Diameter					
					METRIC	3.0	-	4.0	-	5.0
					FRACTIONAL	-	1/8	-	3/16	-
					DECIMAL	.1181	.1250	.1575	.1875	.1969
P	1	Non-alloy steel	395	329	RPM(10xD~20xD)	12730		9550	7640	
					RPM(25xD~30xD)	10610		7960	6370	
					FEED	.0031 - .0047		.0039 - .0055	.0047 - .0071	
	2		329	263	RPM(10xD~20xD)	10610		7960	6370	
					RPM(25xD~30xD)	8490		6370	5090	
					FEED	.0031 - .0047		.0039 - .0055	.0047 - .0071	
	3		263	214	RPM(10xD~20xD)	8490		6370	5090	
					RPM(25xD~30xD)	6900		5170	4140	
					FEED	.0024 - .0039		.0031 - .0047	.0039 - .0063	
	6	Low alloy steel	329	329	RPM(10xD~20xD)	10610		7960	6370	
					RPM(25xD~30xD)	10610		7960	6370	
					FEED	.0031 - .0047		.0039 - .0055	.0047 - .0071	
	7		230	197	RPM(10xD~20xD)	7430		5570	4460	
					RPM(25xD~30xD)	6370		4770	3820	
					FEED	.0024 - .0039		.0031 - .0047	.0039 - .0063	
	8		181	165	RPM(10xD~20xD)	5840		4380	3500	
					RPM(25xD~30xD)	5310		3980	3180	
					FEED	.0024 - .0039		.0031 - .0047	.0039 - .0063	
	10	High alloyed steel, and tool steel	197	165	RPM(10xD~20xD)	6370		4770	3820	
					RPM(25xD~30xD)	5310		3980	3180	
					FEED	.0020 - .0035		.0028 - .0043	.0031 - .0055	
	11		165	148	RPM(10xD~20xD)	5310		3980	3180	
					RPM(25xD~30xD)	4770		3580	2860	
					FEED	.0016 - .0031		.0024 - .0039	.0028 - .0051	
K	15	Grey cast iron	296	247	RPM(10xD~20xD)	9550		7160	5730	
					RPM(25xD~30xD)	7960		5970	4770	
					FEED	.0039 - .0055		.0047 - .0063	.0067 - .0091	
	16		230	197	RPM(10xD~20xD)	7430		5570	4460	
					RPM(25xD~30xD)	6370		4770	3820	
					FEED	.0039 - .0055		.0047 - .0063	.0067 - .0091	
	17	Nodular cast iron	329	263	RPM(10xD~20xD)	10610		7960	6370	
					RPM(25xD~30xD)	8490		6370	5090	
					FEED	.0039 - .0055		.0047 - .0063	.0067 - .0091	
	18		230	197	RPM(10xD~20xD)	7430		5570	4460	
					RPM(25xD~30xD)	6370		4770	3820	
					FEED	.0031 - .0047		.0039 - .0055	.0047 - .0071	
	19	Malleable cast iron	263	214	RPM(10xD~20xD)	8490		6370	5090	
					RPM(25xD~30xD)	6900		5170	4140	
					FEED	.0039 - .0055		.0047 - .0063	.0067 - .0091	
	20		230	181	RPM(10xD~20xD)	7430		5570	4460	
					RPM(25xD~30xD)	5840		4380	3500	
					FEED	.0031 - .0047		.0039 - .0055	.0047 - .0071	

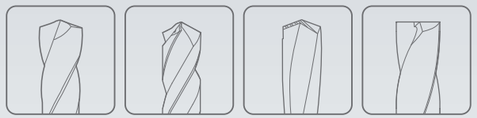
DREAM DRILLS MQL TYPE

RECOMMENDED CUTTING CONDITIONS

SFM = ft/min.
RPM = rev./min.
FEED = inch/rev.

Drill Diameter								
6.0	-	-	8.0	-	10.0	12.0	-	14.0
-	1/4	5/16	-	3/8	-	-	1/2	-
.2362	.2500	.3125	.3150	.3750	.3937	.4724	.5000	.5512
6370		4770		3820		3180	3020	2730
5310		3980		3180		2650	2510	2270
.0055 - .0079		.0071 - .0094		.0079 - .0102		.0087 - .0102	.0087 - .0102	.0098 - .0122
5310		3980		3180		2650	2510	2270
4240		3180		2550		2120	2010	1820
.0055 - .0079		.0071 - .0094		.0079 - .0102		.0087 - .0102	.0087 - .0102	.0098 - .0122
4240		3180		2550		2120	2010	1820
3450		2590		2070		1720	1630	1480
.0047 - .0071		.0055 - .0079		.0063 - .0087		.0071 - .0094	.0071 - .0094	.0079 - .0102
5310		3980		3180		2650	2510	2270
5310		3980		3180		2650	2510	2270
.0055 - .0079		.0071 - .0094		.0079 - .0102		.0087 - .0102	.0087 - .0102	.0098 - .0122
3710		2790		2230		1860	1760	1590
3180		2390		1910		1590	1510	1360
.0047 - .0071		.0055 - .0079		.0063 - .0087		.0071 - .0094	.0071 - .0094	.0079 - .0102
2920		2190		1750		1460	1380	1250
2650		1990		1590		1330	1260	1140
.0047 - .0071		.0055 - .0079		.0063 - .0087		.0071 - .0094	.0071 - .0094	.0079 - .0102
3180		2390		1910		1590	1510	1360
2650		1990		1590		1330	1260	1140
.0039 - .0063		.0047 - .0071		.0055 - .0079		.0063 - .0087	.0063 - .0087	.0071 - .0094
2650		1990		1590		1330	1260	1140
2390		1790		1430		1190	1130	1020
.0031 - .0055		.0039 - .0063		.0047 - .0071		.0051 - .0075	.0051 - .0075	.0059 - .0083
4770		3580		2860		2390	2260	2050
3980		2980		2390		1990	1890	1710
.0075 - .0098		.0087 - .0110		.0094 - .0118		.0110 - .0134	.0110 - .0134	.0118 - .0142
3710		2790		2230		1860	1760	1590
3180		2390		1910		1590	1510	1360
.0075 - .0098		.0087 - .0110		.0094 - .0118		.0110 - .0134	.0110 - .0134	.0118 - .0142
5310		3980		3180		2650	2510	2270
4240		3180		2550		2120	2010	1820
.0075 - .0098		.0087 - .0110		.0094 - .0118		.0110 - .0134	.0110 - .0134	.0118 - .0142
3710		2790		2230		1860	1760	1590
3180		2390		1910		1590	1510	1360
.0055 - .0079		.0071 - .0094		.0079 - .0102		.0087 - .0102	.0087 - .0102	.0098 - .0122
4240		3180		2550		2120	2010	1820
3450		2590		2070		1720	1630	1480
.0075 - .0098		.0087 - .0110		.0094 - .0118		.0110 - .0134	.0110 - .0134	.0118 - .0142
3710		2790		2230		1860	1760	1590
2920		2190		1750		1460	1380	1250
.0055 - .0079		.0071 - .0094		.0079 - .0102		.0087 - .0102	.0087 - .0102	.0098 - .0122

Global Cutting Tool Leader YG-1



DREAM DRILLS

Leading Through Innovation

SOLID CARBIDE

DREAM DRILLS
for HIGH HARDENED STEELS

- For High Hardened Steels (HRc 50 - 70)

SELECTION GUIDE

YG HOLEMAKING TOOLS

SERIES	DH501	DH500
DRILLING DEPTH	3XD	
TOOL MATERIAL	SOLID CARBIDE	
LENGTH	SHORT	
SIZE MIN	D1/8	D1.0
SIZE MAX	D3/4	D14.0
PAGE	A179	A181
SURFACE TREATMENT	TiAlN	

SOLID CARBIDE
DREAM DRILLS
for HIGH HARDENED STEELS

- For aluminum and aluminum alloys


Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A182

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	Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.	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		Hardened	550	55	◎	◎
	39			Hardened	630	60	◎	◎
	40	Chilled Cast Iron		Cast	400	42		
	41	Hardened Cast Iron		Hardened	550	55		

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
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SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

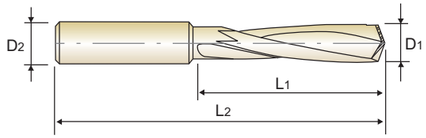
YG DREAM DRILLS for HIGH HARDENED STEELS

DH501 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
for High Hardened Steels (HRc50~70)

- ▶Drilling for High Hardened Steels; Quenched Steels, Tempered Steels (under HRc 70)
- ▶Special geometry design for Hardened Steels
- ▶Minimum of cutting load through special thinning
- ▶Performing good chip removal and powerful drilling
- ▶Tolerance : Dia. Tolerance ∅D1: See page A405





CARBIDE | 15° | h6 | h7 | 140° | TiAlN | p.A182

Unit : inch

EDP No.	Drill Diameter Fractional	Drill Diameter Decimal	Shank Diameter	Flute Length	Overall Length
TiAlN	D1		D2	L1	L2
DH501001	1/8	.1250	1/8	21/32	2
DH501002	#30	.1285	3/16	23/32	2
DH501003	#29	.1360	3/16	13/16	2
DH501004	#28	.1405	3/16	13/16	2
DH501005	9/64	.1406	3/16	13/16	2
DH501006	#27	.1440	3/16	13/16	2
DH501007	#26	.1470	3/16	13/16	2
DH501008	#25	.1495	3/16	7/8	2-1/16
DH501009	#24	.1520	3/16	7/8	2-1/16
DH501010	#23	.1540	3/16	7/8	2-1/16
DH501011	5/32	.1562	3/16	7/8	2-1/16
DH501012	#22	.1570	3/16	7/8	2-1/16
DH501013	#21	.1590	3/16	7/8	2-1/16
DH501014	#20	.1610	3/16	1	2-1/2
DH501015	#19	.1660	3/16	1	2-1/2
DH501016	11/64	.1719	3/16	1-1/8	2-3/4
DH501017	#15	.1800	3/16	1-1/8	2-3/4
DH501018	#14	.1820	3/16	1-1/8	2-3/4
DH501019	3/16	.1875	3/16	1-1/8	2-3/4
DH501020	#10	.1935	1/4	1-9/32	2-7/8
DH501021	#9	.1960	1/4	1-9/32	2-7/8
DH501022	#8	.1990	1/4	1-9/32	2-7/8
DH501023	#7	.2010	1/4	1-9/32	2-7/8
DH501024	13/64	.2031	1/4	1-9/32	2-7/8
DH501025	#6	.2040	1/4	1-9/32	2-7/8
DH501026	#5	.2055	1/4	1-9/32	2-7/8

EDP No.	Drill Diameter Fractional	Drill Diameter Decimal	Shank Diameter	Flute Length	Overall Length
TiAlN	D1		D2	L1	L2
DH501027	#4	.2090	1/4	1-9/32	2-7/8
DH501028	#3	.2130	1/4	1-13/32	3
DH501029	7/32	.2188	1/4	1-13/32	3
DH501030	#2	.2210	1/4	1-13/32	3
DH501031	#1	.2280	1/4	1-13/32	3
DH501032	15/64	.2344	1/4	1-13/32	3
DH501033	B	.2380	1/4	1-19/32	3-1/8
DH501034	C	.2420	1/4	1-19/32	3-1/8
DH501035	D	.2460	1/4	1-19/32	3-1/8
DH501036	1/4	.2500	1/4	1-19/32	3-1/8
DH501037	F	.2570	3/8	1-19/32	3-1/8
DH501038	G	.2610	3/8	1-19/32	3-1/8
DH501039	17/64	.2656	3/8	1-19/32	3-1/8
DH501040	I	.2720	3/8	1-25/32	3-3/8
DH501041	J	.2770	3/8	1-25/32	3-3/8
DH501042	9/32	.2812	3/8	1-25/32	3-3/8
DH501043	L	.2900	3/8	1-25/32	3-3/8
DH501044	M	.2950	3/8	1-25/32	3-3/8
DH501045	19/64	.2969	3/8	1-25/32	3-3/8
DH501046	N	.3020	3/8	1-31/32	3-7/8
DH501047	5/16	.3125	3/8	1-31/32	3-7/8
DH501048	O	.3160	3/8	1-31/32	3-7/8
DH501049	21/64	.3281	3/8	1-31/32	3-7/8
DH501050	Q	.3320	3/8	1-31/32	3-7/8
DH501051	R	.3390	3/8	2-1/4	4-1/8
DH501052	11/32	.3438	3/8	2-1/4	4-1/8

▶ NEXT PAGE

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended																				

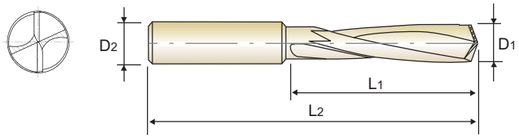
ISO	N										S						H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39.1	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	400 Rm	1050 Rm	550	630		400	550
Recommended																		◎	◎			

DREAM DRILLS for HIGH HARDENED STEELS

DH501 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
for High Hardened Steels (HRc50~70)

- ▶Drilling for High Hardened Steels; Quenched Steels, Tempered Steels (under HRc 70)
- ▶Special geometry design for Hardened Steels
- ▶Minimum of cutting load through special thinning
- ▶Performing good chip removal and powerful drilling
- ▶Tolerance : Dia. Tolerance ØD1: See page A405



CARBIDE | 15° | h6 | h7 | 140° | TiAlN p.A182

Unit : inch

EDP No.	Drill Diameter		Shank Diameter	Flute Length	Overall Length
	Fractional	Decimal			
TiAlN	D1		D2	L1	L2
DH501053	23/64	.3594	3/8	2-1/4	4-1/8
DH501054	U	.3680	3/8	2-1/4	4-1/8
DH501055	3/8	.3750	3/8	2-1/4	4-1/8
DH501056	V	.3770	1/2	2-1/2	4-3/8
DH501057	25/64	.3906	1/2	2-1/2	4-3/8
DH501058	X	.3970	1/2	2-1/2	4-3/8
DH501059	Y	.4040	1/2	2-1/2	4-3/8
DH501060	13/32	.4062	1/2	2-1/2	4-3/8
DH501061	Z	.4130	1/2	2-1/2	4-3/8
DH501062	27/64	.4219	1/2	2-13/16	4-5/8
DH501063	7/16	.4375	1/2	2-13/16	4-5/8
DH501064	29/64	.4531	1/2	2-13/16	4-5/8
DH501065	15/32	.4688	1/2	2-13/16	4-5/8
DH501066	31/64	.4844	1/2	2-13/16	4-5/8
DH501067	1/2	.5000	1/2	3-1/16	5
DH501068	33/64	.5156	5/8	3-1/16	5
DH501069	17/32	.5312	5/8	3-1/16	5
DH501070	35/64	.5469	5/8	3-1/16	5
DH501071	9/16	.5625	5/8	3-1/16	5
DH501072	37/64	.5781	5/8	3-9/32	5-1/4
DH501073	19/32	.5937	5/8	3-9/32	5-1/4
DH501074	39/64	.6094	5/8	3-9/32	5-1/4
DH501075	5/8	.6250	5/8	3-9/32	5-1/4
DH501076	41/64	.6406	3/4	3-9/32	5-1/4
DH501077	21/32	.6563	3/4	3-11/16	5-5/8
DH501078	43/64	.6719	3/4	3-11/16	5-5/8
DH501079	11/16	.6875	3/4	3-11/16	5-5/8
DH501080	45/64	.7031	3/4	3-11/16	5-5/8
DH501081	23/32	.7188	3/4	3-3/4	6
DH501082	47/64	.7344	3/4	3-3/4	6
DH501083	3/4	.7500	3/4	3-3/4	6

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended																				

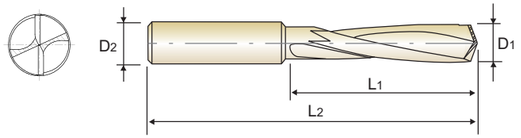
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39.1	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	400 Rm	1050 Rm	550	630		400	550
Recommended																		◎	◎			

DREAM DRILLS for HIGH HARDENED STEELS

DH500 SERIES

TiAlN-COATED SOLID CARBIDE DREAM DRILLS
for High Hardened Steels (HRc50~70)

- ▶Drilling for High Hardened Steels; Quenched Steels, Tempered Steels (under HRc 70)
- ▶Special geometry design for Hardened Steels
- ▶Minimum of cutting load through special thinning
- ▶Performing good chip removal and powerful drilling



CARBIDE | 15° | h6 | h7 | 140° | TiAlN p.A182

Unit : mm

EDP No.	Drill Diameter		Shank Diameter	Flute Length	Overall Length
	Metric	Decimal			
TiAlN	D1		D2	L1	L2
DH500010	1.0	.0394	3	6	40
DH500011	1.1	.0433	3	6	40
DH500012	1.2	.0472	3	6	40
DH500013	1.3	.0512	3	8	40
DH500014	1.4	.0551	3	8	40
DH500015	1.5	.0591	3	8	40
DH500016	1.6	.0630	3	10	40
DH500017	1.7	.0669	3	10	40
DH500018	1.8	.0709	3	10	40
DH500019	1.9	.0748	3	10	40
DH500020	2.0	.0787	3	12	42
DH500025	2.5	.0984	3	14	44
DH500026	2.6	.1024	3	16	44
DH500028	2.8	.1102	3	16	46
DH500030	3.0	.1181	3	18	46
DH500033	3.3	.1299	4	18	48
DH500034	3.4	.1339	4	20	50
DH500035	3.5	.1378	4	20	50
DH500038	3.8	.1496	4	22	52
DH500040	4.0	.1575	4	22	52
DH500041	4.1	.1614	6	25	65
DH500042	4.2	.1654	6	25	65
DH500043	4.3	.1693	6	28	68
DH500044	4.4	.1732	6	28	68
DH500045	4.5	.1772	6	28	68
DH500046	4.6	.1811	6	28	68
DH500048	4.8	.1890	6	32	72
DH500049	4.9	.1929	6	32	72
DH500050	5.0	.1969	6	32	72
DH500051	5.1	.2008	6	32	72
DH500052	5.2	.2047	6	32	72
DH500053	5.3	.2087	6	32	72
DH500055	5.5	.2165	6	35	75
DH500060	6.0	.2362	6	35	75
DH500062	6.2	.2441	8	40	80
DH500065	6.5	.2559	8	40	80
DH500068	6.8	.2677	8	45	85
DH500069	6.9	.2717	8	45	85
DH500070	7.0	.2756	8	45	85
DH500075	7.5	.2953	8	45	85
DH500080	8.0	.3150	8	50	98
DH500085	8.5	.3346	10	50	98
DH500086	8.6	.3386	10	57	105
DH500088	8.8	.3465	10	57	105
DH500090	9.0	.3543	10	57	105
DH500093	9.3	.3661	10	57	105
DH500095	9.5	.3740	10	57	105
DH500100	10.0	.3937	10	63	111
DH500102	10.2	.4016	12	63	111
DH500103	10.3	.4055	12	63	111
DH500105	10.5	.4134	12	71	111
DH500108	10.8	.4252	12	71	119
DH500110	11.0	.4331	12	71	119
DH500115	11.5	.4528	12	71	119
DH500120	12.0	.4724	12	71	119
DH500121	12.1	.4764	14	77	125
DH500140	14.0	.5512	14	77	125

◎ : 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		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	39.1	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	400 Rm	1050 Rm	550	630		400	550
Recommended																		◎	◎			

DREAM DRILLS for HIGH HARDENED STEELS

RECOMMENDED CUTTING CONDITIONS

DH501, DH500 SERIES

without COOLANT HOLES

SFM = ft/min.
RPM = rev./min.
FEED = inch/rev.

ISO	VDI 3323	Material Description	SFM		Drill Diameter										
				METRIC	3.0	-	4.0	-	5.0	6.0	-	-	8.0	-	10.0
				FRACTIONAL	-	1/8	-	3/16	-	-	1/4	5/16	-	3/8	-
				DECIMAL	.1181	.1250	.1575	.1875	.1969	.2362	.2500	.3125	.3150	.3750	.3937
H	38	Hardened steel	66	RPM	2120		1590	1270		1060		800		640	
				FEED	.0004 - .0012		.0004 - .0016	.0004 - .0016		.0004 - .0020		.0004 - .0020		.0004 - .0020	
	39.1		49	RPM	1590		1190	950		800		600		480	
				FEED	.0004 - .0012		.0004 - .0016	.0004 - .0016		.0004 - .0020		.0004 - .0020		.0004 - .0020	
	39.3		39	RPM	1270		950	760		640		480		380	
				FEED	.0004 - .0012		.0004 - .0016	.0004 - .0016		.0004 - .0020		.0004 - .0020		.0004 - .0020	

ISO	VDI 3323	Material Description	SFM		Drill Diameter							
				METRIC	12.0	-	14.0	-	-	16.0	18.0	-
				FRACTIONAL	-	1/2	-	9/16	5/8	-	-	3/4
				DECIMAL	.4724	.5000	.5512	.5625	.6250	.6299	.7087	.7500
H	38	Hardened steel	66	RPM	530	504	450		403		356	336
				FEED	.0004 - .0024	.0004 - .0024	.0004 - .0024		.0004 - .0024		.0004 - .0024	.0004 - .0024
	39.1		49	RPM	400	374	340		299		299	250
				FEED	.0004 - .0024	.0004 - .0024	.0004 - .0024		.0004 - .0024		.0004 - .0024	.0004 - .0024
	39.3		39	RPM	320	298	270		238		238	199
				FEED	.0004 - .0024	.0004 - .0024	.0004 - .0024		.0004 - .0024		.0004 - .0024	.0004 - .0024

Being the best through innovation

SOLID CARBIDE

STANDARD CARBIDE DRILLS

- General Purpose
- 118° Point

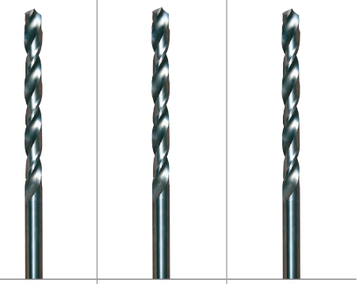
SELECTION GUIDE

YG HOLEMAKING TOOLS

SERIES	D5412 DH412	D5413 DH413	D5417 DH417
TOOL MATERIAL	SOLID CARBIDE		
LENGTH	JOBBER		
SIZE MIN	#60	A	D3/64
SIZE MAX	#1	Z	D1/2
PAGE	A185	A186	A187
SURFACE TREATMENT	Bright / TiAlN		

SOLID CARBIDE
STANDARD CARBIDE DRILLS

- General Purpose - 118° Point



Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A188

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	D5412 DH412	D5413 DH413	D5417 DH417
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, Graphite, CFRP, GFRP, etc.)	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		Hardened	550	55			
	39			Hardened	630	60			
	40	Chilled Cast Iron		Cast	400	42			
	41	Hardened Cast Iron		Hardened	550	55			

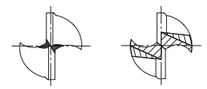
YG STANDARD CARBIDE DRILLS

DH412 SERIES
D5412 SERIES

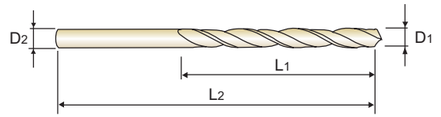
CARBIDE DRILLS

JOBBER

▶**Application** : Drilling steels in general, cast steels, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metals, non-ferrous light metals, abrasive plastics.



under .1181 inch .1181 inch & over



CARBIDE | 30° | h6 | h7 | 118° p.A188

$D_1=D_2$

▶ Wire gauge sizes

Unit : Inch

EDP No. Bright	EDP No. TiAlN	Diameter Wire gauge	Diameter Decimal	Flute Length	Overall Length
		$D_1 = D_2$		L_1	L_2
D5412101	DH412101	1	.2280	1-3/4	3
D5412102	DH412102	2	.2210	1-3/4	3
D5412103	DH412103	3	.2130	1-3/4	3
D5412104	DH412104	4	.2090	1-3/4	3
D5412105	DH412105	5	.2055	1-3/4	3
D5412106	DH412106	6	.2040	1-3/4	3
D5412107	DH412107	7	.2010	1-3/4	3
D5412108	DH412108	8	.1990	1-3/4	3
D5412109	DH412109	9	.1960	1- 3/4	3
D5412110	DH412110	10	.1935	1-5/8	2-3/4
D5412111	DH412111	11	.1910	1-5/8	2-3/4
D5412112	DH412112	12	.1890	1-5/8	2-3/4
D5412113	DH412113	13	.1850	1-5/8	2-3/4
D5412114	DH412114	14	.1820	1-5/8	2-3/4
D5412115	DH412115	15	.1800	1-5/8	2-3/4
D5412116	DH412116	16	.1770	1-5/8	2-3/4
D5412117	DH412117	17	.1730	1-5/8	2-3/4
D5412118	DH412118	18	.1695	1-5/8	2-3/4
D5412119	DH412119	19	.1660	1-5/8	2-3/4
D5412120	DH412120	20	.1610	1-3/8	2-1/2
D5412121	DH412121	21	.1590	1-3/8	2-1/2
D5412122	DH412122	22	.1570	1-3/8	2-1/2
D5412123	DH412123	23	.1540	1-3/8	2-1/2
D5412124	DH412124	24	.1520	1-3/8	2-1/2
D5412125	DH412125	25	.1495	1-3/8	2-1/2
D5412126	DH412126	26	.1470	1-3/8	2-1/2
D5412127	DH412127	27	.1440	1-3/8	2-1/2
D5412128	DH412128	28	.1405	1-3/8	2-1/2
D5412129	DH412129	29	.1360	1-3/8	2-1/2
D5412130	DH412130	30	.1285	1-1/4	2-1/4

EDP No. Bright	EDP No. TiAlN	Diameter Wire gauge	Diameter Decimal	Flute Length	Overall Length
		$D_1 = D_2$		L_1	L_2
D5412131	DH412131	31	.1200	1-1/4	2-1/4
D5412132	DH412132	32	.1160	1-1/4	2-1/4
D5412133	DH412133	33	.1130	1-1/4	2-1/4
D5412134	DH412134	34	.1110	1-1/4	2-1/4
D5412135	DH412135	35	.1100	1-1/4	2-1/4
D5412136	DH412136	36	.1065	1-1/4	2-1/4
D5412137	DH412137	37	.1040	1-1/4	2-1/4
D5412138	DH412138	38	.1015	1-1/4	2-1/4
D5412139	DH412139	39	.0995	1-1/4	2-1/4
D5412140	DH412140	40	.0980	1	2
D5412141	DH412141	41	.0960	1	2
D5412142	DH412142	42	.0935	1	2
D5412143	DH412143	43	.0890	1	2
D5412144	DH412144	44	.0860	1	2
D5412145	DH412145	45	.0820	7/8	1-3/4
D5412146	DH412146	46	.0810	7/8	1-3/4
D5412147	DH412147	47	.0785	7/8	1-3/4
D5412148	DH412148	48	.0760	7/8	1-3/4
D5412149	DH412149	49	.0730	7/8	1-3/4
D5412150	DH412150	50	.0700	7/8	1-3/4
D5412151	DH412151	51	.0670	3/4	1-1/2
D5412152	DH412152	52	.0635	3/4	1-1/2
D5412153	DH412153	53	.0595	3/4	1-1/2
D5412154	DH412154	54	.0550	3/4	1-1/2
D5412155	DH412155	55	.0520	3/4	1-1/2
D5412156	DH412156	56	.0465	3/4	1-1/2
D5412157	DH412157	57	.0430	3/4	1-1/2
D5412158	DH412158	58	.0420	3/4	1-1/2
D5412159	DH412159	59	.0410	3/4	1-1/2
D5412160	DH412160	60	.0400	3/4	1-1/2

▶ Other coating is available on you request.

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	○				○						○			○					

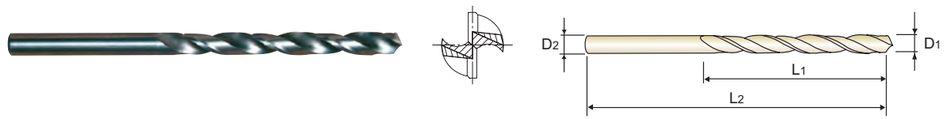
ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	◎	◎												○					

STANDARD CARBIDE DRILLS

DH413 SERIES
D5413 SERIES

CARBIDE DRILLS — *JOBBER*

▶ **Application** : Drilling steels in general, cast steels, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metals, non-ferrous light metals, abrasive plastics.



CARBIDE | 30° | h6 | h7 | 118° | p.A188

$D_1=D_2$

▶ Letter sizes

Unit : Inch

EDP No.		Diameter		Flute Length	Overall Length
		Letter	Decimal		
Bright	TiAlN	$D_1 = D_2$		L_1	L_2
D5413201	DH413201	A	.2340	2	3-1/4
D5413202	DH413202	B	.2380	2	3-1/4
D5413203	DH413203	C	.2420	2	3-1/4
D5413204	DH413204	D	.2460	2	3-1/4
D5413205	DH413205	E	.2500	2	3-1/4
D5413206	DH413206	F	.2570	2	3-1/4
D5413207	DH413207	G	.2610	2-1/8	3-1/2
D5413208	DH413208	H	.2660	2-1/8	3-1/2
D5413209	DH413209	I	.2720	2-1/8	3-1/2
D5413210	DH413210	J	.2770	2-1/8	3-1/2
D5413211	DH413211	K	.2810	2-1/8	3-1/2
D5413212	DH413212	L	.2900	2-1/8	3-1/2
D5413213	DH413213	M	.2950	2-3/8	3-3/4

EDP No.		Diameter		Flute Length	Overall Length
		Letter	Decimal		
Bright	TiAlN	$D_1 = D_2$		L_1	L_2
D5413214	DH413214	N	.3020	2-3/8	3-3/4
D5413215	DH413215	O	.3160	2-3/8	3-3/4
D5413216	DH413216	P	.3230	2-3/8	3-3/4
D5413217	DH413217	Q	.3320	2-1/2	4
D5413218	DH413218	R	.3390	2-1/2	4
D5413219	DH413219	S	.3480	2-1/2	4
D5413220	DH413220	T	.3580	2-3/4	4-1/4
D5413221	DH413221	U	.3680	2-3/4	4-1/4
D5413222	DH413222	V	.3770	2-3/4	4-1/4
D5413223	DH413223	W	.3860	2-7/8	4-1/2
D5413224	DH413224	X	.3970	2-7/8	4-1/2
D5413225	DH413225	Y	.4040	2-7/8	4-1/2
D5413226	DH413226	Z	.4130	2-7/8	4-1/2

▶ Other coating is available on you request.

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	○				○						○			○					

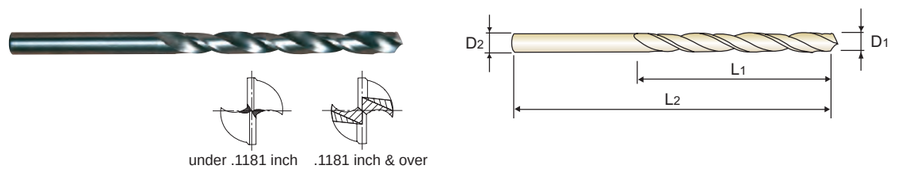
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	◎	◎												○					

STANDARD CARBIDE DRILLS

DH417 SERIES
D5417 SERIES

CARBIDE DRILLS — *JOBBER*

▶ **Application** : Drilling steels in general, cast steels, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metals, non-ferrous light metals, abrasive plastics.



CARBIDE | 30° | h6 | h7 | 118° | p.A188

$D_1=D_2$

▶ Fractional sizes

Unit : Inch

EDP No.		Diameter		Flute Length	Overall Length
		Fractional	Decimal		
Bright	TiAlN	$D_1 = D_2$		L_1	L_2
D5417003	DH417003	3/64	.0469	3/4	1-1/2
D5417004	DH417004	1/16	.0625	3/4	1-1/2
D5417005	DH417005	5/64	.0781	7/8	1-3/4
D5417006	DH417006	3/32	.0938	1	2
D5417007	DH417007	7/64	.1094	1-1/4	2-1/4
D5417008	DH417008	1/8	.1250	1-1/4	2-1/4
D5417009	DH417009	9/64	.1406	1-3/8	2-1/2
D5417010	DH417010	5/32	.1563	1-3/8	2-1/2
D5417011	DH417011	11/64	.1719	1-5/8	2-3/4
D5417012	DH417012	3/16	.1875	1-5/8	2-3/4
D5417013	DH417013	13/64	.2031	1-3/4	3
D5417014	DH417014	7/32	.2188	1-3/4	3
D5417015	DH417015	15/64	.2344	2	3-1/4
D5417016	DH417016	1/4	.2500	2	3-1/4
D5417017	DH417017	17/64	.2656	2-1/8	3-1/2

EDP No.		Diameter		Flute Length	Overall Length
		Fractional	Decimal		
Bright	TiAlN	$D_1 = D_2$		L_1	L_2
D5417018	DH417018	9/32	.2813	2-1/8	3-1/2
D5417019	DH417019	19/64	.2969	2-3/8	3-3/4
D5417020	DH417020	5/16	.3125	2-3/8	3-3/4
D5417021	DH417021	21/64	.3281	2-1/2	4
D5417022	DH417022	11/32	.3438	2-1/2	4
D5417023	DH417023	23/64	.3594	2-3/4	4-1/4
D5417024	DH417024	3/8	.3750	2-3/4	4-1/4
D5417025	DH417025	25/64	.3906	2-7/8	4-1/2
D5417026	DH417026	13/32	.4063	2-7/8	4-1/2
D5417027	DH417027	27/64	.4219	2-7/8	4-1/2
D5417028	DH417028	7/16	.4375	2-7/8	4-1/2
D5417029	DH417029	29/64	.4531	3	4-3/4
D5417030	DH417030	15/32	.4688	3	4-3/4
D5417031	DH417031	31/64	.4844	3	4-3/4
D5417032	DH417032	1/2	.5000	3	4-3/4

▶ Other coating is available on you request.

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	◎	◎												○					

STANDARD CARBIDE DRILLS

RECOMMENDED CUTTING CONDITIONS

DH412, DH413, DH417 D5412, D5413, D5417 SERIES

STANDARD CARBIDE DRILLS

SFM = ft/min.
RPM = rev./min.
FEED = inch/rev.

ISO	VDI 3323	Material Description	SFM	Drill Diameter			SFM	Drill Diameter			
				METRIC	1.0	2.0		METRIC	3.0	-	4.0
				FRACTIONAL	-	-		FRACTIONAL	-	1/8	-
				DECIMAL	.0394	.0787		DECIMAL	.1181	.1250	.1575
P	1	Non-alloy steel	180	RPM	17510	8750	230	RPM	7430		5570
				FEED	.0008 - .0012	.0008 - .0016		FEED	.0012 - .0020		.0012 - .0024
	2		150	RPM	14320	7160	200	RPM	6370		4770
				FEED	.0008 - .0012	.0008 - .0016		FEED	.0012 - .0020		.0012 - .0024
	6	Low alloy steel	115	RPM	11140	5570	165	RPM	5310		3980
				FEED	.0008 - .0012	.0008 - .0016		FEED	.0012 - .0020		.0012 - .0024
M	12	Stainless steel	50	RPM	4770	2390	80	RPM	2650		1990
				FEED	.0004 - .0008	.0004 - .0012		FEED	.0008 - .0016		.0008 - .0020
K	15	Grey cast iron	80	RPM	7960	3980	150	RPM	4770		3580
				FEED	.0012 - .0016	.0012 - .0020		FEED	.0016 - .0024		.0016 - .0028
N	21	Aluminum-wrought alloy	330	RPM	31830	15920	460	RPM	14850		11140
				FEED	.0016 - .0020	.0016 - .0024		FEED	.0020 - .0028		.0020 - .0031
	22		295	RPM	28650	14320	395	RPM	12730		9550
				FEED	.0016 - .0020	.0016 - .0024		FEED	.0020 - .0028		.0020 - .0031
	23	Aluminum-cast, alloyed	230	RPM	22280	11140	330	RPM	10610		7960
				FEED	.0016 - .0020	.0016 - .0024		FEED	.0020 - .0028		.0020 - .0031
	24		200	RPM	19100	9550	260	RPM	8490		6370
				FEED	.0016 - .0020	.0016 - .0024		FEED	.0020 - .0028		.0020 - .0031
S	36	Titanium Alloys	30	RPM	3180	1590	65	RPM	2120		1590
				FEED	.0004 - .0008	.0004 - .0012		FEED	.0008 - .0016		.0008 - .0020

SFM = ft/min.
RPM = rev./min.
FEED = inch/rev.

ISO	VDI 3323	Material Description	SFM	Drill Diameter										
				METRIC	-	5.0	6.0	-	-	8.0	-	10.0	12.0	-	13.0
				FRACTIONAL	3/16	-	-	1/4	5/16	-	3/8	-	-	1/2	-
				DECIMAL	.1875	.1969	.2362	.2500	.3125	.3150	.3750	.3937	.4724	.5000	.5118
P	1	Non-alloy steel	230	RPM	4460		3710		2790		2230		1860	1710	
				FEED	.0016 - .0028		.0020 - .0031		.0028 - .0039		.0031 - .0047		.0039 - .0055	.0047 - .0063	
	2		200	RPM	3820		3180		2390		1910		1590	1470	
				FEED	.0016 - .0028		.0020 - .0031		.0028 - .0039		.0031 - .0047		.0039 - .0055	.0047 - .0063	
	6	Low alloy steel	165	RPM	3180		2650		1990		1590		1330	1220	
				FEED	.0016 - .0028		.0020 - .0031		.0028 - .0039		.0031 - .0047		.0039 - .0055	.0047 - .0063	
M	12	Stainless steel	80	RPM	1590		1330		990		800		660	610	
				FEED	.0012 - .0024		.0016 - .0028		.0024 - .0035		.0028 - .0043		.0031 - .0047	.0035 - .0051	
K	15	Grey cast iron	150	RPM	2860		2390		1790		1430		1190	1100	
				FEED	.0020 - .0031		.0024 - .0035		.0035 - .0047		.0047 - .0063		.0055 - .0071	.0063 - .0079	
N	21	Aluminum-wrought alloy	460	RPM	8910		7430		5570		4460		3710	3430	
				FEED	.0024 - .0035		.0031 - .0043		.0047 - .0059		.0059 - .0075		.0075 - .0091	.0083 - .0098	
	22		395	RPM	7640		6370		4770		3820		3180	2940	
				FEED	.0024 - .0035		.0031 - .0043		.0047 - .0059		.0059 - .0075		.0075 - .0091	.0083 - .0098	
	23	Aluminum-cast, alloyed	330	RPM	6370		5310		3980		3180		2650	2450	
				FEED	.0024 - .0035		.0031 - .0043		.0047 - .0059		.0059 - .0075		.0075 - .0091	.0083 - .0098	
	24		260	RPM	5090		4240		3180		2550		2120	1960	
				FEED	.0024 - .0035		.0031 - .0043		.0047 - .0059		.0059 - .0075		.0075 - .0091	.0083 - .0098	
S	36	Titanium Alloys	65	RPM	1270		1060		800		640		530	490	
				FEED	.0012 - .0024		.0016 - .0028		.0024 - .0035		.0028 - .0043		.0031 - .0047	.0035 - .0051	

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HSS-PM

MULTI-1 DRILLS

- Premium HSS-PM Drills
- For Wide Range of Applications Particularly Stainless Steels and Titanium

SELECTION GUIDE

HOLEMAKING TOOLS

SERIES	CDRA05	CDRA06	CDRA07
TOOL MATERIAL	HSS-PM		
LENGTH	JOBBER		
SIZE MIN	D3/32	#45	B
SIZE MAX	D1/2	#1	Z
PAGE	A191	A192	A193
SURFACE TREATMENT	TiAlN		

HSS-PM

MULTI-1 DRILLS

Premium HSS-PM Drills
For Wide Range of Applications Particularly Stainless Steels and Titanium

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◎ : Excellent ○ : Good

Recommended cutting conditions : p.A194

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, Graphite, CFRP, GFRP, etc.	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		Hardened	550	55			
	39			Hardened	630	60			
	40	Chilled Cast Iron		Cast	400	42			
	41	Hardened Cast Iron		Hardened	550	55			

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

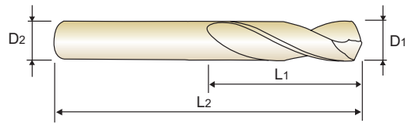
MULTI-1 DRILLS

CDRA05 SERIES

HSS-PM, MULTI-1 DRILLS

▶ **Application** : Structural steels, Carbon steels, Alloy steels, Prehardened steels, Mold steels, Stainless steels, Hardened steels(HRc30~45), Cast iron, Aluminum alloys, Nonferrous alloys, Titanium.

▶ **Advantage** : Point shape to maximize self-centering.
Flute design for the best chip evacuation.
Premium powder materials with excellent toughness.



HSS-PM | 30° | h6 | h7 | 135° | p.A194

▶ M15 / Fractional sizes

Unit : Inch

EDP No.	Diameter Fractional	Diameter Decimal	Shank Diameter	Flute Length	Overall Length
TiAlN	D1		D2	L1	L2
M15006	3/32	.0938	1/8	1/2	1-3/4
M15007	7/64	.1094	1/8	5/8	1-7/8
M15008	1/8	.1250	1/8	3/4	2
M15009	9/64	.1406	3/16	13/16	2-1/8
M15010	5/32	.1563	3/16	13/16	2-1/8
M15011	11/64	.1719	3/16	1	2-3/8
M15012	3/16	.1875	3/16	1	2-3/8
M15013	13/64	.2031	1/4	1-1/8	2-7/8
M15014	7/32	.2188	1/4	1-1/8	2-7/8
M15015	15/64	.2344	1/4	1-1/4	3
M15016	1/4	.2500	1/4	1-1/4	3
M15017	17/64	.2656	3/8	1-3/8	3-3/16
M15018	9/32	.2813	3/8	1-3/8	3-3/16
M15019	19/64	.2969	3/8	1-3/8	3-3/16

EDP No.	Diameter Fractional	Diameter Decimal	Shank Diameter	Flute Length	Overall Length
TiAlN	D1		D2	L1	L2
M15020	5/16	.3125	3/8	1-1/2	3-3/8
M15021	21/64	.3281	3/8	1-1/2	3-3/8
M15022	11/32	.3438	3/8	1-5/8	3-1/2
M15023	23/64	.3594	3/8	1-5/8	3-1/2
M15024	3/8	.3750	3/8	1-5/8	3-1/2
M15025	25/64	.3906	1/2	1-11/16	3-7/8
M15026	13/32	.4063	1/2	1-11/16	3-7/8
M15027	27/64	.4219	1/2	1-7/8	4-1/8
M15028	7/16	.4375	1/2	1-7/8	4-1/8
M15029	29/64	.4531	1/2	1-7/8	4-1/8
M15030	15/32	.4688	1/2	2	4-1/4
M15031	31/64	.4844	1/2	2	4-1/4
M15032	1/2	.5000	1/2	2	4-1/4

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○	○	○			○		◎						

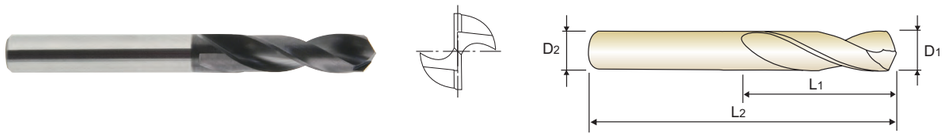
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○	○												○					

MULTI-1 DRILLS

CDRA06 SERIES

HSS-PM, MULTI-1 DRILLS

▶ **Application** : Structural steels, Carbon steels, Alloy steels, Prehardened steels, Mold steels, Stainless steels, Hardened steels(HRc30~45), Cast iron, Aluminum alloys, Nonferrous alloys, Titanium.
▶ **Advantage** : Point shape to maximize self-centering.
Flute design for the best chip evacuation.
Premium powder materials with excellent toughness.



HSS-PM 30° h6 h7 135° p.A194

▶ M16 / Wire gauge sizes

Unit : Inch

EDP No.	Diameter		Shank Diameter	Flute Length	Overall Length
	Wire gauge	Decimal			
TiAlN	D1		D2	L1	L2
M16045	45	.0820	1/8	3/4	2
M16044	44	.0860	1/8	3/4	2
M16043	43	.0890	1/8	3/4	2
M16042	42	.0935	1/8	3/4	2
M16041	41	.0960	1/8	13/16	2-1/16
M16040	40	.0980	1/8	13/16	2-1/16
M16039	39	.0995	1/8	13/16	2-1/4
M16038	38	.1015	1/8	13/16	2-1/4
M16037	37	.1040	1/8	13/16	2-1/4
M16036	36	.1065	1/8	13/16	2-1/4
M16035	35	.1100	1/8	7/8	2-5/16
M16034	34	.1110	1/8	7/8	2-5/16
M16033	33	.1130	1/8	7/8	2-5/16
M16032	32	.1160	1/8	7/8	2-5/16
M16031	31	.1120	1/8	7/8	2-5/16
M16030	30	.1285	3/16	15/16	2-3/8
M16029	29	.1360	3/16	15/16	2-3/8
M16028	28	.1405	3/16	15/16	2-3/8
M16027	27	.1440	3/16	1	2-7/16
M16026	26	.1470	3/16	1	2-7/16
M16025	25	.1495	3/16	1	2-7/16
M16024	24	.1520	3/16	1	2-7/16
M16023	23	.1540	3/16	1	2-7/16

EDP No.	Diameter		Shank Diameter	Flute Length	Overall Length
	Wire gauge	Decimal			
TiAlN	D1		D2	L1	L2
M16022	22	.1570	3/16	1-1/16	2-1/2
M16021	21	.1590	3/16	1-1/16	2-1/2
M16020	20	.1610	3/16	1-1/16	2-1/2
M16019	19	.1660	3/16	1-1/16	2-1/2
M16018	18	.1695	3/16	1-1/16	2-1/2
M16017	17	.1730	3/16	1-1/8	2-9/16
M16016	16	.1770	3/16	1-1/8	2-9/16
M16015	15	.1800	3/16	1-1/8	2-9/16
M16014	14	.1820	3/16	1-1/8	2-9/16
M16013	13	.1850	3/16	1-1/8	2-9/16
M16012	12	.1890	1/4	1-3/16	3
M16011	11	.1910	1/4	1-3/16	3
M16010	10	.1935	1/4	1-3/16	3
M16009	9	.1960	1/4	1-3/16	3
M16008	8	.1990	1/4	1-3/16	3
M16007	7	.2010	1/4	1-3/16	3
M16006	6	.2040	1/4	1-1/4	3-1/16
M16005	5	.2055	1/4	1-1/4	3-1/16
M16004	4	.2090	1/4	1-1/4	3-1/16
M16003	3	.2130	1/4	1-1/4	3-1/16
M16002	2	.2210	1/4	1-5/16	3-1/8
M16001	1	.2280	1/4	1-5/16	3-1/8

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○	○												○					

MULTI-1 DRILLS

CDRA07 SERIES

HSS-PM, MULTI-1 DRILLS

▶ **Application** : Structural steels, Carbon steels, Alloy steels, Prehardened steels, Mold steels, Stainless steels, Hardened steels(HRc30~45), Cast iron, Aluminum alloys, Nonferrous alloys, Titanium.
▶ **Advantage** : Point shape to maximize self-centering.
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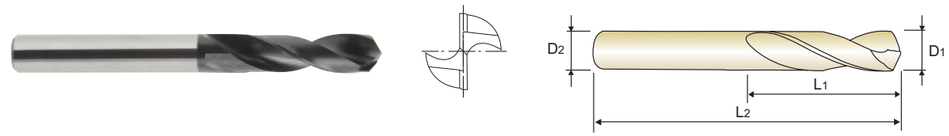


HSS-PM 30° h6 h7 135° p.A194

▶ M17 / Letter sizes

Unit : Inch

EDP No.	Diameter		Shank Diameter	Flute Length	Overall Length
	Letter	Decimal			
TiAlN	D1		D2	L1	L2
M1700B	B	.2380	1/4	1-3/8	3-3/16
M1700C	C	.2420	1/4	1-3/8	3-3/16
M1700D	D	.2460	1/4	1-3/8	3-3/16
M1700F	F	.2570	3/8	1-7/16	3-1/4
M1700G	G	.2610	3/8	1-7/16	3-1/4
M1700I	I	.2720	3/8	1-1/2	3-5/16
M1700J	J	.2770	3/8	1-1/2	3-5/16
M1700L	L	.2900	3/8	1-9/16	3-3/8
M1700M	M	.2950	3/8	1-9/16	3-3/8

EDP No.	Diameter		Shank Diameter	Flute Length	Overall Length
	Letter	Decimal			
TiAlN	D1		D2	L1	L2
M1700N	N	.3020	3/8	1-5/8	3-7/16
M1700O	O	.3160	3/8	1-11/16	3-1/2
M1700Q	Q	.3320	3/8	1-11/16	3-1/2
M1700R	R	.3390	3/8	1-11/16	3-1/2
M1700U	U	.3680	3/8	1-13/16	3-5/8
M1700V	V	.3770	1/2	1-7/8	3-31/32
M1700X	X	.3970	1/2	1-15/16	4-1/32
M1700Y	Y	.4040	1/2	1-15/16	4-1/32
M1700Z	Z	.4130	1/2	2	4-1/32

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○	○												○					

MULTI-1 DRILLS

RECOMMENDED CUTTING CONDITIONS

CDRA05, CDRA06, CDRA07 SERIES — MULTI-1 DRILLS

SFM = ft/min.
RPM = rev./min.
FEED = inch/rev.

ISO	VDI 3323	Material Description	SFM		Drill Diameter												
				METRIC	2.0	3.0	-	4.0	-	5.0	6.0	-	-	8.0	-	10.0	12.0	-
				FRACTIONAL	-	-	1/8	-	3/16	-	-	1/4	5/16	-	3/8	-		1/2
				DECIMAL	.0787	.1181	.1250	.1575	.1875	.1969	.2362	.2500	.3125	.3150	.3750	.3937		.5000
P	1	Non-alloy steel	130	RPM	6370	4240		3180	2550		2120		1590		1270		1060	
				FEED	.0012 - .0024	.0031 - .0047		.0035 - .0059	.0047 - .0071		.0055 - .0079		.0071 - .0094		.0071 - .0110		.0079 - .0118	
	2		120	RPM	5570	3710		2790	2230		1860		1390		1110		930	
				FEED	.0012 - .0024	.0031 - .0047		.0035 - .0059	.0047 - .0071		.0055 - .0079		.0071 - .0094		.0071 - .0110		.0079 - .0118	
	3		120	RPM	5570	3710		2790	2230		1860		1390		1110		930	
				FEED	.0012 - .0024	.0031 - .0047		.0035 - .0059	.0047 - .0071		.0055 - .0079		.0071 - .0094		.0071 - .0110		.0079 - .0118	
	6	Low alloy steel	120	RPM	5570	3710		2790	2230		1860		1390		1110		930	
				FEED	.0012 - .0024	.0031 - .0047		.0035 - .0059	.0047 - .0071		.0055 - .0079		.0071 - .0094		.0071 - .0110		.0079 - .0118	
	7		100	RPM	4770	3180		2390	1910		1590		1190		950		800	
				FEED	.0012 - .0020	.0024 - .0039		.0028 - .0051	.0039 - .0063		.0047 - .0071		.0055 - .0079		.0055 - .0094		.0063 - .0102	
	8		80	RPM	3980	2650		1990	1590		1330		990		800		660	
				FEED	.0008 - .0020	.0012 - .0028		.0016 - .0039	.0024 - .0047		.0028 - .0051		.0039 - .0079		.0047 - .0087		.0055 - .0094	
	9		70	RPM	3180	2120		1590	1270		1060		800		640		530	
				FEED	.0008 - .0020	.0012 - .0028		.0016 - .0039	.0024 - .0047		.0028 - .0051		.0039 - .0079		.0047 - .0087		.0055 - .0094	
M	12	Stainless steel	70	RPM	3180	2120		1590	1270		1060		800		640		530	
				FEED	.0012 - .0028	.0020 - .0035		.0024 - .0047	.0035 - .0059		.0047 - .0071		.0071 - .0094		.0079 - .0118		.0102 - .0142	
	14		50	RPM	2390	1590		1190	950		800		600		480		400	
				FEED	.0008 - .0020	.0012 - .0028		.0016 - .0039	.0024 - .0047		.0028 - .0051		.0039 - .0079		.0047 - .0087		.0055 - .0094	
K	15	Grey cast iron	130	RPM	6370	4240		3180	2550		2120		1590		1270		1060	
				FEED	.0016 - .0039	.0028 - .0051		.0035 - .0059	.0047 - .0071		.0051 - .0075		.0071 - .0094		.0079 - .0118		.0087 - .0126	
N	21	Aluminum-wrought alloy	300	RPM	14320	9550		7160	5730		4770		3580		2860		2390	
				FEED	.0051 - .0067	.0091 - .0106		.0106 - .0130	.0130 - .0154		.0157 - .0181		.0177 - .0201		.0201 - .0240		.0248 - .0287	
	22		300	RPM	14320	9550		7160	5730		4770		3580		2860		2390	
				FEED	.0051 - .0067	.0091 - .0106		.0106 - .0130	.0130 - .0154		.0157 - .0181		.0177 - .0201		.0201 - .0240		.0248 - .0287	
	23	Aluminum-cast, alloyed	260	RPM	12730	8490		6370	5090		4240		3180		2550		2120	
				FEED	.0051 - .0067	.0091 - .0106		.0106 - .0130	.0130 - .0154		.0157 - .0181		.0177 - .0201		.0201 - .0240		.0248 - .0287	
	24		230	RPM	11140	7430		5570	4460		3710		2790		2230		1860	
				FEED	.0039 - .0055	.0059 - .0075		.0079 - .0102	.0094 - .0118		.011 - .0134		.0118 - .0142		.0134 - .0173		.0142 - .0181	
S	36	Titanium Alloys	20	RPM	800	530		400	320		270		200		160		130	
				FEED	.0008 - .0020	.0012 - .0028		.0016 - .0031	.0024 - .0047		.0028 - .0051		.0035 - .0059		.0047 - .0087		.0055 - .0094	

HPD DRILLS

- High Performance for Stainless Steels

SELECTION GUIDE

HOLEMAKING TOOLS

SERIES	DJ543	DJ544
TOOL MATERIAL	HSS-E	
LENGTH	STUB	JOBBER
SIZE MIN	D2.0	D2.0
SIZE MAX	D13.0	D20.0
PAGE	A197	A199
SURFACE TREATMENT	TiN	

HSS-E
HPD DRILLS

- High Performance for Stainless Steels

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A202

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	DJ543	DJ544
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, Graphite, CFRP, GFRP, etc.)	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		Hardened	550	55		
	39			Hardened	630	60		
	40	Chilled Cast Iron		Cast	400	42		
	41	Hardened Cast Iron		Hardened	550	55		

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

HPD DRILLS

DJ543 SERIES

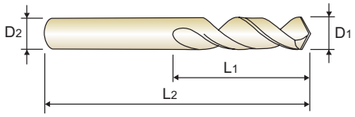
HSS-E, HPD-SUS DRILLS

STUB

▶ **Application** : Designed for drilling in stainless steels, mild steels, aluminum, aluminum alloy, aluminum die cast, copper, copper alloy, etc.
▶ **Advantage** : Self centering - center drilling is not required
Excellent positioning - bush is not necessary
Special Design - reaming is not required
- good chip removal
- powerful drilling

▶ **Plain Shank** : DIN6535-HA

four facet



HSS-E | 38° | h7 | h8 | 130° | 120° | p.A202

up to 4mm over 4mm

$D_1=D_2$

Unit : mm

EDP No.	Diameter Metric	Diameter Inch	Flute Length	Overall Length
TiN	$D_1 = D_2$		L_1	L_2
0201JCN	2.0	.0787	12	44
0211JCN	2.1	.0827	12	44
0221JCN	2.2	.0866	13	45
0231JCN	2.3	.0906	13	45
0241JCN	2.4	.0945	14	46
0251JCN	2.5	.0984	14	46
0261JCN	2.6	.1024	14	46
0271JCN	2.7	.1063	16	48
0281JCN	2.8	.1102	16	48
0291JCN	2.9	.1142	16	48
0301JCN	3.0	.1181	16	48
0311JCN	3.1	.1220	18	50
0321JCN	3.2	.1260	18	50
0331JCN	3.3	.1299	18	50
0341JCN	3.4	.1339	20	52
0351JCN	3.5	.1378	20	52
0361JCN	3.6	.1417	20	52
0371JCN	3.7	.1457	20	52
0381JCN	3.8	.1496	22	54
0391JCN	3.9	.1535	22	54
0401JCN	4.0	.1575	22	54
0411JCN	4.1	.1614	22	66
0421JCN	4.2	.1654	22	66
0431JCN	4.3	.1693	24	68
0441JCN	4.4	.1732	24	68
0451JCN	4.5	.1772	24	68
0461JCN	4.6	.1811	24	68
0471JCN	4.7	.1850	24	68

EDP No.	Diameter Metric	Diameter Inch	Flute Length	Overall Length
TiN	$D_1 = D_2$		L_1	L_2
0481JCN	4.8	.1890	26	70
0491JCN	4.9	.1929	26	70
0501JCN	5.0	.1969	26	70
0511JCN	5.1	.2008	26	70
0521JCN	5.2	.2047	26	70
0531JCN	5.3	.2087	26	70
0541JCN	5.4	.2126	28	72
0551JCN	5.5	.2165	28	72
0561JCN	5.6	.2205	28	72
0571JCN	5.7	.2244	28	72
0581JCN	5.8	.2283	28	72
0591JCN	5.9	.2323	28	72
0601JCN	6.0	.2362	28	72
0611JCN	6.1	.2402	31	75
0621JCN	6.2	.2441	31	75
0631JCN	6.3	.2480	31	75
0641JCN	6.4	.2520	31	75
0651JCN	6.5	.2559	31	75
0661JCN	6.6	.2598	31	75
0671JCN	6.7	.2638	31	75
0681JCN	6.8	.2677	34	78
0691JCN	6.9	.2717	34	78
0701JCN	7.0	.2756	34	78
0711JCN	7.1	.2795	34	78
0721JCN	7.2	.2835	34	78
0731JCN	7.3	.2874	34	78
0741JCN	7.4	.2913	34	78
0751JCN	7.5	.2953	34	78

* Individually packaged

▶ NEXT PAGE ◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎				○															

HPD DRILLS

DJ543 SERIES

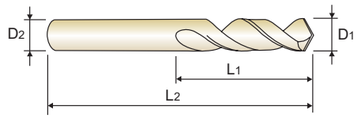
HSS-E, HPD-SUS DRILLS

STUB

▶ **Application** : Designed for drilling in stainless steels, mild steels, aluminum, aluminum alloy, aluminum die cast, copper, copper alloy, etc.
▶ **Advantage** : Self centering - center drilling is not required
Excellent positioning - bush is not necessary
Special Design - reaming is not required
- good chip removal
- powerful drilling

▶ **Plain Shank** : DIN6535-HA

four facet



HSS-E | 38° | h7 | h8 | 130° | 120° | p.A202

up to 4mm over 4mm

$D_1=D_2$

Unit : mm

EDP No.	Diameter		Flute Length	Overall Length
	Metric	Inch		
TiN	$D_1 = D_2$		L_1	L_2
0761JCN	7.6	.2992	37	81
0771JCN	7.7	.3031	37	81
0781JCN	7.8	.3071	37	81
0791JCN	7.9	.3110	37	81
0801JCN	8.0	.3150	37	81
0811JCN	8.1	.3189	37	87
0821JCN	8.2	.3228	37	87
0831JCN	8.3	.3268	37	87
0841JCN	8.4	.3307	37	87
0851JCN	8.5	.3346	37	87
0861JCN	8.6	.3386	40	90
0871JCN	8.7	.3425	40	90
0881JCN	8.8	.3465	40	90
0891JCN	8.9	.3504	40	90
0901JCN	9.0	.3543	40	90
0911JCN	9.1	.3583	40	90
0921JCN	9.2	.3622	40	90
0931JCN	9.3	.3661	40	90
0941JCN	9.4	.3701	40	90
0951JCN	9.5	.3740	40	90
0961JCN	9.6	.3780	43	93
0971JCN	9.7	.3819	43	93
0981JCN	9.8	.3858	43	93
0991JCN	9.9	.3898	43	93
1001JCN	10.0	.3937	43	93
1011JCN	10.1	.3976	43	100
1021JCN	10.2	.4016	43	100
1031JCN	10.3	.4055	43	100

EDP No.	Diameter		Flute Length	Overall Length
	Metric	Inch		
TiN	D_1		L_1	L_2
1041JCN	10.4	.4094	43	100
1051JCN	10.5	.4134	43	100
1061JCN	10.6	.4173	43	100
1071JCN	10.7	.4212	47	104
1081JCN	10.8	.4252	47	104
1091JCN	10.9	.4291	47	104
1101JCN	11.0	.4330	47	104
1111JCN	11.1	.4370	47	104
1121JCN	11.2	.4409	47	104
1131JCN	11.3	.4448	47	104
1141JCN	11.4	.4488	47	104
1151JCN	11.5	.4527	47	104
1161JCN	11.6	.4566	47	104
1171JCN	11.7	.4606	47	104
1181JCN	11.8	.4645	47	104
1191JCN	11.9	.4685	51	108
1201JCN	12.0	.4724	51	108
1211JCN	12.1	.4764	51	108
1221JCN	12.2	.4803	51	108
1231JCN	12.3	.4843	51	108
1241JCN	12.4	.4882	51	108
1251JCN	12.5	.4921	51	108
1261JCN	12.6	.4961	51	108
1271JCN	12.7	.5000	51	108
1281JCN	12.8	.5039	51	108
1291JCN	12.9	.5079	51	108
1301JCN	13.0	.5118	51	108

* Individually packaged

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎				○															

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

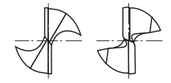
HPD DRILLS

DJ544 SERIES

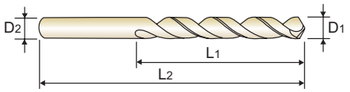
HSS-E, HPD-SUS DRILLS

JOBBER

▶ **Application** : Designed for drilling in stainless steels, mild steels, aluminum, aluminum alloy, aluminum die cast, copper, copper alloy, etc.
▶ **Advantage** : High helix-sharp cutting edges to avoid built-up and to be suitable for high performance drilling
Wide flute and stub length-increasing chip removal and reducing vibration and deflection.
High vanadium HSS-EX material with superior TiN coating - higher speed and feed, longer service life
High quality-good surface finishes, high productivity.



up to 13mm over 13mm



HSS-E | 38° | h7 | h8 | 130° | 120° | p.A202

up to 4mm over 4mm

$D_1=D_2$

Unit : mm

EDP No.	Diameter		Flute Length	Overall Length
	Metric	Inch		
TiN	$D_1 = D_2$		L_1	L_2
0201KCN	2.0	.0787	24	56
0211KCN	2.1	.0827	24	56
0221KCN	2.2	.0866	27	59
0231KCN	2.3	.0906	27	59
0241KCN	2.4	.0945	30	62
0251KCN	2.5	.0984	30	62
0261KCN	2.6	.1024	30	62
0271KCN	2.7	.1063	33	65
0281KCN	2.8	.1102	33	65
0291KCN	2.9	.1142	33	65
0301KCN	3.0	.1181	33	65
0311KCN	3.1	.1220	36	68
0321KCN	3.2	.1260	36	68
0331KCN	3.3	.1299	36	68
0341KCN	3.4	.1339	39	71
0351KCN	3.5	.1378	39	71
0361KCN	3.6	.1417	39	71
0371KCN	3.7	.1457	39	71
0381KCN	3.8	.1496	43	75
0391KCN	3.9	.1535	43	75
0401KCN	4.0	.1575	43	75
0411KCN	4.1	.1614	43	87
0421KCN	4.2	.1654	43	87
0431KCN	4.3	.1693	47	91

EDP No.	Diameter		Flute Length	Overall Length
	Metric	Inch		
TiN	D_1		D_2	L_2
0441KCN	4.4	.1732	47	91
0451KCN	4.5	.1772	47	91
0461KCN	4.6	.1811	47	91
0471KCN	4.7	.1850	47	91
0481KCN	4.8	.1890	52	96
0491KCN	4.9	.1929	52	96
0501KCN	5.0	.1969	52	96
0511KCN	5.1	.2008	52	96
0521KCN	5.2	.2047	52	96
0531KCN	5.3	.2087	52	96
0541KCN	5.4	.2126	57	101
0551KCN	5.5	.2165	57	101
0561KCN	5.6	.2205	57	101
0571KCN	5.7	.2244	57	101
0581KCN	5.8	.2283	57	101
0591KCN	5.9	.2323	57	101
0601KCN	6.0	.2362	57	101
0611KCN	6.1	.2402	63	107
0621KCN	6.2	.2441	63	107
0631KCN	6.3	.2480	63	107
0641KCN	6.4	.2520	63	107
0651KCN	6.5	.2559	63	107
0661KCN	6.6	.2598	63	107
0671KCN	6.7	.2638	63	107

* Individually packaged

▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎				○															

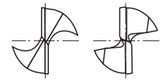
HPD DRILLS

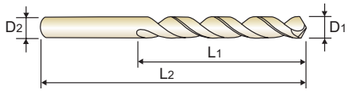
DJ544 SERIES

HSS-E, HPD-SUS DRILLS

JOBBER

▶**Application** : Designed for drilling in stainless steels, mild steels, aluminum, aluminum alloy, aluminum die cast, copper, copper alloy, etc.
▶**Advantage** : High helix-sharp cutting edges to avoid built-up and to be suitable for high performance drilling
Wide flute and stub length-increasing chip removal and reducing vibration and deflection.
High vanadium HSS-EX material with superior TiN coating - higher speed and feed, longer service life
High quality-good surface finishes, high productivity.





HSS-E | 38° | h7 | h8 | 130° | 120° | p.A202

up to 4mm

D_1=D_2

Unit : mm

EDP No.	Diameter		Flute Length	Overall Length
	Metric	Inch		
TiN	D_1 = D_2		L_1	L_2
0681KCN	6.8	.2677	69	113
0691KCN	6.9	.2717	69	113
0701KCN	7.0	.2756	69	113
0711KCN	7.1	.2795	69	113
0721KCN	7.2	.2835	69	113
0731KCN	7.3	.2874	69	113
0741KCN	7.4	.2913	69	113
0751KCN	7.5	.2953	69	113
0761KCN	7.6	.2992	75	119
0771KCN	7.7	.3031	75	119
0781KCN	7.8	.3071	75	119
0791KCN	7.9	.3110	75	119
0801KCN	8.0	.3150	75	119
0811KCN	8.1	.3189	75	125
0821KCN	8.2	.3228	75	125
0831KCN	8.3	.3268	75	125
0841KCN	8.4	.3307	75	125
0851KCN	8.5	.3346	75	125
0861KCN	8.6	.3386	81	131
0871KCN	8.7	.3425	81	131
0881KCN	8.8	.3465	81	131
0891KCN	8.9	.3504	81	131
0901KCN	9.0	.3543	81	131
0911KCN	9.1	.3583	81	131

EDP No.	Diameter		Flute Length	Overall Length
	Metric	Inch		
TiN	D_1		L_1	L_2
0921KCN	9.2	.3622	81	131
0931KCN	9.3	.3661	81	131
0941KCN	9.4	.3701	81	131
0951KCN	9.5	.3740	81	131
0961KCN	9.6	.3780	87	137
0971KCN	9.7	.3819	87	137
0981KCN	9.8	.3858	87	137
0991KCN	9.9	.3898	87	137
1001KCN	10.0	.3937	87	137
1011KCN	10.1	.3976	87	144
1021KCN	10.2	.4016	87	144
1031KCN	10.3	.4055	87	144
1041KCN	10.4	.4094	87	144
1051KCN	10.5	.4134	87	144
1061KCN	10.6	.4173	87	144
1071KCN	10.7	.4212	94	151
1081KCN	10.8	.4252	94	151
1091KCN	10.9	.4291	94	151
1101KCN	11.0	.4330	94	151
1111KCN	11.1	.4370	94	151
1121KCN	11.2	.4409	94	151
1131KCN	11.3	.4448	94	151
1141KCN	11.4	.4488	94	151
1151KCN	11.5	.4527	94	151

* Individually packaged

▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎				○															

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

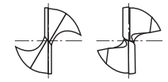
HPD DRILLS

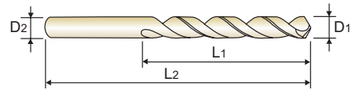
DJ544 SERIES

HSS-E, HPD-SUS DRILLS

JOBBER

▶**Application** : Designed for drilling in stainless steels, mild steels, aluminum, aluminum alloy, aluminum die cast, copper, copper alloy, etc.
▶**Advantage** : High helix-sharp cutting edges to avoid built-up and to be suitable for high performance drilling
Wide flute and stub length-increasing chip removal and reducing vibration and deflection.
High vanadium HSS-EX material with superior TiN coating - higher speed and feed, longer service life
High quality-good surface finishes, high productivity.





HSS-E | 38° | h7 | h8 | 130° | 120° | p.A202

up to 4mm over 4mm

D_1=D_2

Unit : mm

EDP No.	Diameter		Flute Length	Overall Length
	Metric	Inch		
TiN	D_1 = D_2		L_1	L_2
1161KCN	11.6	.4566	94	151
1171KCN	11.7	.4606	94	151
1181KCN	11.8	.4645	94	151
1191KCN	11.9	.4685	101	158
1201KCN	12.0	.4724	101	158
1211KCN	12.1	.4764	101	158
1221KCN	12.2	.4803	101	158
1231KCN	12.3	.4843	101	158
1241KCN	12.4	.4882	101	158
1251KCN	12.5	.4921	101	158
1261KCN	12.6	.4961	101	158
1271KCN	12.7	.5000	101	158
1281KCN	12.8	.5039	101	158
1291KCN	12.9	.5079	101	158
1301KCN	13.0	.5118	101	158
1351KCN	13.5	.5314	106	166
1401KCN	14.0	.5512	106	166

EDP No.	Diameter		Flute Length	Overall Length
	Metric	Inch		
TiN	D_1 = D_2		L_1	L_2
1411KCN	14.1	.5551	109	169
1451KCN	14.5	.5708	109	169
1501KCN	15.0	.5905	109	169
1551KCN	15.5	.6102	112	172
1561KCN	15.6	.6141	112	172
1601KCN	16.0	.6299	112	172
1651KCN	16.5	.6495	115	181
1701KCN	17.0	.6692	115	181
1751KCN	17.5	.6889	118	184
1761KCN	17.6	.6929	118	184
1801KCN	18.0	.7087	118	184
1851KCN	18.5	.7283	122	188
1901KCN	19.0	.7480	122	188
1951KCN	19.5	.7676	125	191
1961KCN	19.6	.7716	125	191
2001KCN	20.0	.7874	125	191

* Individually packaged

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎				○															

HPD DRILLS

RECOMMENDED CUTTING CONDITIONS

DJ543, DJ544 SERIES — HPD DRILLS for STAINLESS STEELS

SFM = ft/min.
RPM = rev./min.
FEED = inch/rev.

ISO	VDI 3323	Material Description	SFM	Drill Diameter									
				METRIC	2.0	3.0	-	4.0	-	5.0	6.0	-	-	8.0
				FRACTIONAL	-	-	1/8	-	3/16	-	-	1/4	5/16	-
				DECIMAL	.0787	.1181	.1250	.1575	.1875	.1969	.2362	.2500	.3125	.3150
P	1	Non-alloy steel	115	RPM	5570	3710		2790	2230		1860		1390	
				FEED	.0016 - .0039	.0028 - .0051		.0035 - .0059	.0047 - .0071		.0051 - .0075		.0071 - .0094	
M	12	Stainless steel	66	RPM	3180	2120		1590	1270		1060		800	
				FEED	.0012 - .0028	.0020 - .0035		.0024 - .0047	.0035 - .0059		.0047 - .0071		.0071 - .0094	
	13		59	RPM	2860	1910		1430	1150		950		720	
				FEED	.0012 - .0028	.0020 - .0035		.0024 - .0047	.0035 - .0059		.0047 - .0071		.0071 - .0094	
	14		49	RPM	2390	1590		1190	950		800		600	
				FEED	.0008 - .0020	.0012 - .0028		.0016 - .0039	.0024 - .0047		.0028 - .0051		.0039 - .0063	
N	21	Aluminum-wrought alloy	296	RPM	14320	9550		7160	5730		4770		3580	
				FEED	.0020 - .0047	.0039 - .0071		.0047 - .0087	.0059 - .0098		.0067 - .0106		.0098 - .0138	
	22		296	RPM	14320	9550		7160	5730		4770		3580	
				FEED	.0020 - .0047	.0039 - .0071		.0047 - .0087	.0059 - .0098		.0067 - .0106		.0098 - .0138	
	26	Copper and Copper Alloys (Bronze / Brass)	115	RPM	5570	3710		2790	2230		1860		1390	
				FEED	.0012 - .0024	.0020 - .0035		.0020 - .0043	.0031 - .0055		.0043 - .0067		.0055 - .0079	

SFM = ft/min.
RPM = rev./min.
FEED = inch/rev.

ISO	VDI 3323	Material Description	SFM	Drill Diameter									
				METRIC	-	10.0	12.0	-	14.0		16.0	18.0		20.0
				FRACTIONAL	3/8	-		1/2		5/8			3/4	
				DECIMAL	.3750	.3937		.5000		.6250	.6299	.7086	.7500	.7874
P	1	Non-alloy steel	115	RPM	1110	930		800		700		620	590	560
				FEED	.0079 - .0118	.0087 - .0126		.0098 - .0138		.0110 - .0150		.0134 - .0173	.0134 - .0173	.0138 - .0177
M	12	Stainless steel	66	RPM	640	530		450		400		350	340	320
				FEED	.0079 - .0118	.0102 - .0142		.0134 - .0173		.0150 - .0189		.0157 - .0197	.0157 - .0197	.0169 - .0209
	13		59	RPM	570	480		410		360		320	300	290
				FEED	.0079 - .0118	.0102 - .0142		.0134 - .0173		.0150 - .0189		.0157 - .0197	.0157 - .0197	.0169 - .0209
	14		49	RPM	480	400		340		300		270	250	240
				FEED	.0047 - .0087	.0055 - .0094		.0094 - .0134		.0110 - .0150		.0118 - .0157	.0118 - .0157	.0130 - .0169
N	21	Aluminum-wrought alloy	296	RPM	2860	2390		2050		1790		1590	1510	1430
				FEED	.0138 - .0177	.0157 - .0217		.0177 - .0236		.0217 - .0276		.0236 - .0295	.0236 - .0295	.0256 - .0315
	22		296	RPM	2860	2390		2050		1790		1590	1510	1430
				FEED	.0138 - .0177	.0157 - .0217		.0177 - .0236		.0217 - .0276		.0236 - .0295	.0236 - .0295	.0256 - .0315
	26	Copper and Copper Alloys (Bronze / Brass)	115	RPM	1110	930		800		700		620	590	560
				FEED	.0063 - .0102	.0071 - .0110		.0087 - .0126		.0102 - .0142		.0110 - .0150	.0110 - .0150	.0118 - .0157

Being the best through innovation

HSS, HSSCo8 & HSSCo5

GOLD-P DRILLS

GOLD-P COATING
- Competitive price and same performance as full TiN coating

SELECTION GUIDE

YG HOLEMAKING TOOLS

HSS, HSSCo8 & HSSCo5
GOLD-P DRILLS

GOLD-P COATING
- Competitive price and same performance as full TiN coating

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A224

							SERIES	D1GP182 D8182	D1GP139	D1GP138
							STANDARD		ANSI	
							LENGTH	JOBBER	JOBBER	JOBBER
							SIZE MIN	D3/64	A	#56
							SIZE MAX	D3/4	Z	#1
							PAGE	A206	A208	A209
							SURFACE TREATMENT	TiN		
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		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		Hardened	550	55				
	39			Hardened	630	60				
	40	Chilled Cast Iron		Cast	400	42				
	41	Hardened Cast Iron		Hardened	550	55				

D2GP185	D2GP186	D2GP187	D1GP195	DLGP511	DLGP512	DLGP513	DLGP506
	ANSI		DIN338		ANSI		DIN338
JOBBER	JOBBER	JOBBER	JOBBER	JOBBER	JOBBER	JOBBER	JOBBER
D3/64	A	#56	D5/64	A	#47	D1.0	D2.0
D1/2	Z	#1	D1/2	Z	#1	D13.0	D13.0
A210	A211	A212	A214	A217	A218	A219	A220
TiN							
◎	◎	◎	◎	◎	◎	◎	◎	1	
◎	◎	◎	◎	◎	◎	◎	◎	2	
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								41	

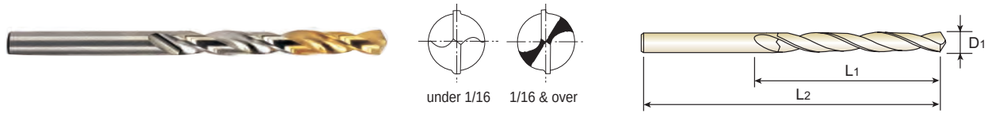
GOLD-P DRILLS

D1GP182 SERIES
D8182 SERIES

HSS, STRAIGHT SHANK, GOLD-P COATED

JOBBER

- ▶**Flute Geometry** : Right hand helix, wider flutes
- ▶**Point Angle** : 135°
  under 1/16 : Normal point
  1/16 & over : Split point
- ▶**Surface treatment** : Bright body TiN coating on working part
  over TiN coating on flute length
- ▶**Application** : Drilling in steel, cast steel alloyed and Non-alloyed, grey cast iron, graphite, malleable cast iron



ANSI HSS N 30° h8 135° — D1 Ø3/64, 118°

p.A224

▶ Fractional sizes

Unit : Inch

EDP No.	Diameter Fractional D1	Diameter Decimal D1	Flute Length L1	Overall Length L2
* D1GP113003	3/64	.0469	3/4	1-3/4
* D1GP182001	1/64	.0156	3/16	3/4
* D1GP182002	1/32	.0313	1/2	1-3/8
* D1GP182004	1/16	.0625	7/8	1-7/8
* D1GP182005	5/64	.0781	1	2
* D1GP182006	3/32	.0938	1-1/4	2-1/4
* D1GP182007	7/64	.1094	1-1/2	2-5/8
* D1GP182008	1/8	.1250	1-5/8	2-3/4
* D1GP182009	9/64	.1406	1-3/4	2-7/8
* D1GP182010	5/32	.1563	2	3-1/8
* D1GP182011	11/64	.1719	2-1/8	3-1/4
* D1GP182012	3/16	.1875	2-5/16	3-1/2
* D1GP182013	13/64	.2031	2-7/16	3-5/8
* D1GP182014	7/32	.2188	2-1/2	3-3/4
* D1GP182015	15/64	.2344	2-5/8	3-7/8
* D1GP182016	1/4	.2500	2-3/4	4
* D1GP182017	17/64	.2656	2-7/8	4-1/8
* D1GP182018	9/32	.2813	2-15/16	4-1/4
* D1GP182019	19/64	.2969	3-1/16	4-3/8
* D1GP182020	5/16	.3125	3-3/16	4-1/2

EDP No.	Diameter Fractional D1	Diameter Decimal D1	Flute Length L1	Overall Length L2
** D1GP182021	21/64	.3281	3-5/16	4-5/8
** D1GP182022	11/32	.3438	3-7/16	4-3/4
** D1GP182023	23/64	.3594	3-1/2	4-7/8
** D1GP182024	3/8	.3750	3-5/8	5
** D1GP182025	25/64	.3906	3-3/4	5-1/8
** D1GP182026	13/32	.4063	3-7/8	5-1/4
** D1GP182027	27/64	.4219	3-15/16	5-3/8
** D1GP182028	7/16	.4375	4-1/16	5-1/2
** D1GP182029	29/64	.4531	4-3/16	5-5/8
** D1GP182030	15/32	.4688	4-5/16	5-3/4
** D1GP182031	31/64	.4844	4-3/8	5-7/8
** D1GP182032	1/2	.5000	4-1/2	6
** D8182033	33/64	.5156	4-13/16	6-5/8
** D8182034	17/32	.5312	4-13/16	6-5/8
** D8182035	35/64	.5469	4-13/16	6-5/8
** D8182036	9/16	.5625	4-13/16	6-5/8
** D8182037	37/64	.5781	4-13/16	6-5/8
⁂ D8182038	19/32	.5937	5-3/16	7-1/8
⁂ D8182039	39/64	.6094	5-3/16	7-1/8
⁂ D8182040	5/8	.6250	5-3/16	7-1/8

* 10pcs per package
** 5pcs per package
⁂ 3pcs per package

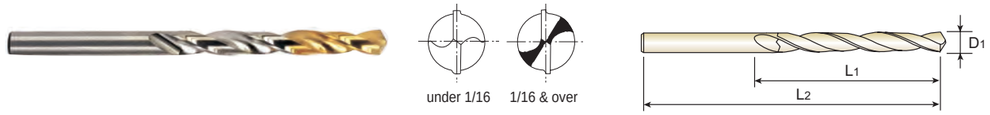
Tolerance Diameter (Inch)	
up to 1/8(.1250)	0 ~ -.0005
over 1/8(.1250) up to 1/4(.2500)	0 ~ -.0007
over 1/4(.2500) up to 1/2(.5000)	0 ~ -.0010

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

GOLD-P DRILLS
D1GP182 SERIES
HSS, STRAIGHT SHANK, GOLD-P COATED
JOBBER
▶Flute Geometry : Right hand helix, wider flutes
▶Point Angle : 135°
under 1/16 : Normal point
1/16 & over : Split point
▶Surface treatment : Bright body TiN coating on working part
over TiN coating on flute length
▶Application : Drilling in steel, cast steel alloyed and Non-alloyed, grey cast iron, graphite, malleable cast iron



ANSI HSS N 30° h8 135° — D1 Ø3/64, 118°
p.A224
▶ Fractional sizes
Unit : Inch

EDP No.	Diameter Fractional D1	Diameter Decimal D1	Flute Length L1	Overall Length L2
⁂ D8182042	21/32	.6563	5-3/16	7-1/8
⁂ D8182044	11/16	.6875	5-5/8	7-5/8
⁂ D8182045	45/64	.7031	5-5/8	7-5/8

EDP No.	Diameter Fractional D1	Diameter Decimal D1	Flute Length L1	Overall Length L2
⁂ D8182046	23/32	.7188	5-5/8	7-5/8
⁂ D8182047	47/64	.7344	5-5/8	7-5/8
⁂ D8182048	3/4	.7500	6	8

⁂ 3pcs per package

Tolerance Diameter (Inch)	
up to 1/8(.1250)	0 ~ -.0005
over 1/8(.1250) up to 1/4(.2500)	0 ~ -.0007
over 1/4(.2500) up to 1/2(.5000)	0 ~ -.0010

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

GOLD-P DRILLS

D1GP139 SERIES

HSS, STRAIGHT SHANK, GOLD-P COATED

JOBBER

- ▶**Flute Geometry** : Right hand helix, wider flutes
- ▶**Point Angle** : 135°: Split point
- ▶**Surface treatment** : Bright body TiN coating on working part
- ▶**Application** : Drilling in steel, cast steel alloyed and Non-alloyed, grey cast iron, graphite, malleable cast iron

ANSI HSS N ≈ 30° h8 135° p.A224

▶ Letter sizes

Unit : Inch

EDP No.	Diameter Letter	Diameter Decimal	Flute Length	Overall Length
	D1		L1	L2
* D1GP139101	A	.2340	2-5/8	3-7/8
* D1GP139102	B	.2380	2-3/4	4
* D1GP139103	C	.2420	2-3/4	4
* D1GP139104	D	.2460	2-3/4	4
* D1GP139105	E	.2500	2-3/4	4
* D1GP139106	F	.2570	2-7/8	4-1/8
* D1GP139107	G	.2610	2-7/8	4-1/8
* D1GP139108	H	.2660	2-7/8	4-1/8
* D1GP139109	I	.2720	2-7/8	4-1/8
* D1GP139110	J	.2770	2-7/8	4-1/8
* D1GP139111	K	.2810	2-15/16	4-1/4
* D1GP139112	L	.2900	2-15/16	4-1/4
* D1GP139113	M	.2950	3-1/16	4-3/8
* D1GP139114	N	.3020	3-1/16	4-3/8
* D1GP139115	O	.3160	3-3/16	4-1/2
* D1GP139116	P	.3230	3-5/16	4-5/8
** D1GP139117	Q	.3320	3-7/16	4-3/4
** D1GP139118	R	.3390	3-7/16	4-3/4
** D1GP139119	S	.3480	3-1/2	4-7/8
** D1GP139120	T	.3580	3-1/2	4-7/8
** D1GP139121	U	.3680	3-5/8	5
** D1GP139122	V	.3770	3-5/8	5
** D1GP139123	W	.3860	3-3/4	5-1/8
** D1GP139124	X	.3970	3-3/4	5-1/8
** D1GP139125	Y	.4040	3-7/8	5-1/4
** D1GP139126	Z	.4130	3-7/8	5-1/4

* 10pcs per package
** 5pcs per package

Tolerance Diameter (Inch)	
up to 1/8(.1250)	0 ~ -.0005
over 1/8(.1250) up to 1/4(.2500)	0 ~ -.0007
over 1/4(.2500) up to 1/2(.5000)	0 ~ -.0010

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550			
Recommended	○	○	○						○							○								

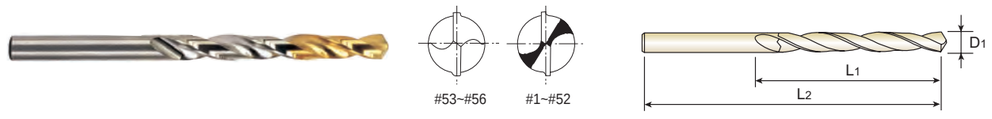
GOLD-P DRILLS

D1GP138 SERIES

HSS, STRAIGHT SHANK, GOLD-P COATED

JOBBER

- ▶**Flute Geometry** : Right hand helix, wider flutes
- ▶**Point Angle** : 135°, Split point
  Wire gauge size #53~#56 : Normal point
  Wire gauge size #1~#52 : Split point
- ▶**Surface treatment** : Bright body TiN coating on working part
- ▶**Application** : Drilling in steel, cast steel alloyed and Non-alloyed, grey cast iron, graphite, malleable cast iron



ANSI HSS N ≈ 30° h8 135° 118° p.A224
#53~#56 #1~#52

▶ Wire gauge sizes

Unit : Inch

EDP No.	Diameter Wire gauge	Diameter Decimal	Flute Length	Overall Length
	D1		L1	L2
* D1GP138256	1	.2280	2-5/8	3-7/8
* D1GP138255	2	.2210	2-5/8	3-7/8
* D1GP138254	3	.2130	2-1/2	3-3/4
* D1GP138253	4	.2090	2-1/2	3-3/4
* D1GP138252	5	.2055	2-1/2	3-3/4
* D1GP138251	6	.2040	2-1/2	3-3/4
* D1GP138250	7	.2010	2-7/16	3-5/8
* D1GP138249	8	.1990	2-7/16	3-5/8
* D1GP138248	9	.1960	2-7/16	3-5/8
* D1GP138247	10	.1935	2-7/16	3-5/8
* D1GP138246	11	.1910	2-5/16	3-1/2
* D1GP138245	12	.1890	2-5/16	3-1/2
* D1GP138244	13	.1850	2-5/16	3-1/2
* D1GP138243	14	.1820	2-3/16	3-3/8
* D1GP138242	15	.1800	2-3/16	3-3/8
* D1GP138241	16	.1770	2-3/16	3-3/8
* D1GP138240	17	.1730	2-3/16	3-3/8
* D1GP138239	18	.1695	2-1/8	3-1/4
* D1GP138238	19	.1660	2-1/8	3-1/4
* D1GP138237	20	.1610	2-1/8	3-1/4
* D1GP138236	21	.1590	2-1/8	3-1/4
* D1GP138235	22	.1570	2	3-1/8
* D1GP138234	23	.1540	2	3-1/8
* D1GP138233	24	.1520	2	3-1/8
* D1GP138232	25	.1495	1-7/8	3
* D1GP138231	26	.1470	1-7/8	3
* D1GP138230	27	.1440	1-7/8	3
* D1GP138229	28	.1405	1-3/4	2-7/8
* D1GP138228	29	.1360	1-3/4	2-7/8
* D1GP138227	30	.1285	1-5/8	2-3/4
* D1GP138226	31	.1200	1-5/8	2-3/4
* D1GP138225	32	.1160	1-5/8	2-3/4
* D1GP138224	33	.1130	1-1/2	2-5/8
* D1GP138223	34	.1110	1-1/2	2-5/8
* D1GP138222	35	.1100	1-1/2	2-5/8
* D1GP138221	36	.1065	1-7/16	2-1/2
* D1GP138220	37	.1040	1-7/16	2-1/2
* D1GP138219	38	.1015	1-7/16	2-1/2
* D1GP138218	39	.0995	1-3/8	2-3/8
* D1GP138217	40	.0980	1-3/8	2-3/8
* D1GP138216	41	.0960	1-3/8	2-3/8
* D1GP138215	42	.0935	1-1/4	2-1/4
* D1GP138214	43	.0890	1-1/4	2-1/4
* D1GP138213	44	.0860	1-1/8	2-1/8
* D1GP138212	45	.0820	1-1/8	2-1/8
* D1GP138211	46	.0810	1-1/8	2-1/8
* D1GP138210	47	.0785	1	2
* D1GP138209	48	.0760	1	2
* D1GP138208	49	.0730	1	2
* D1GP138207	50	.0700	1	2
* D1GP138206	51	.0670	1	2
* D1GP138205	52	.0635	7/8	1-7/8
* D1GP134204	53	.0595	7/8	1-7/8
* D1GP134203	54	.0550	7/8	1-7/8
* D1GP134202	55	.0520	7/8	1-7/8
* D1GP134201	56	.0465	3/4	1-3/4

* 10pcs per package
▶ **Tolerance** : See page 000

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550			
Recommended	○	○	○						○							○								

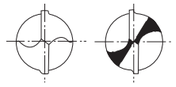
GOLD-P DRILLS

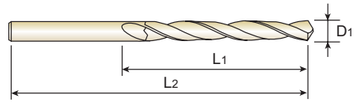
D2GP185 SERIES

HSSCo8, STRAIGHT SHANK, GOLD-P COATED

JOBBER

- ▶**Flute Geometry** : Right hand helix, wider flutes
- ▶**Point Angle** : 135˚
  under 1/16 : Normal point
  1/16 & over : Split point
- ▶**Surface treatment** : Bright body TiN coating on working part
- ▶**Application** : Drilling in steel, cast steel alloyed and Non-alloyed, grey cast iron, graphite, malleable cast iron





ANSI | HSS Co8 | N ≈ 30° | h8 | 135° | p.A224

▶ Fractional sizes

Unit : Inch

EDP No.	Diameter Fractional	Diameter Decimal	Flute Length	Overall Length
	D1		L1	L2
D2185001	1/64	.0156	3/16	3/4
D2185002	1/32	.0313	1/2	1_3/8
* D2GP185003	3/64	.0469	3/4	1-3/4
* D2GP185004	1/16	.0625	7/8	1-7/8
* D2GP185005	5/64	.0781	1	2
* D2GP185006	3/32	.0938	1-1/4	2-1/4
* D2GP185007	7/64	.1094	1-1/2	2-5/8
* D2GP185008	1/8	.1250	1-5/8	2-3/4
* D2GP185009	9/64	.1406	1-3/4	2-7/8
* D2GP185010	5/32	.1563	2	3-1/8
* D2GP185011	11/64	.1719	2-1/8	3-1/4
* D2GP185012	3/16	.1875	2-5/16	3-1/2
* D2GP185013	13/64	.2031	2-7/16	3-5/8
* D2GP185014	7/32	.2188	2-1/2	3-3/4
* D2GP185015	15/64	.2344	2-5/8	3-7/8
* D2GP185016	1/4	.2500	2-3/4	4
* D2GP185017	17/64	.2656	2-7/8	4-1/8
* D2GP185018	9/32	.2813	2-15/16	4-1/4
* D2GP185019	19/64	.2969	3-1/16	4-3/8
* D2GP185020	5/16	.3125	3-3/16	4-1/2
** D2GP185021	21/64	.3281	3-5/16	4-5/8
** D2GP185022	11/32	.3438	3-7/16	4-3/4
** D2GP185023	23/64	.3594	3-1/2	4-7/8
** D2GP185024	3/8	.3750	3-5/8	5
** D2GP185025	25/64	.3906	3-3/4	5-1/8
** D2GP185026	13/32	.4063	3-7/8	5-1/4
** D2GP185027	27/64	.4219	3-15/16	5-3/8
** D2GP185028	7/16	.4375	4-1/16	5-1/2
** D2GP185029	29/64	.4531	4-3/16	5-5/8
** D2GP185030	15/32	.4688	4-5/16	5-3/4
** D2GP185031	31/64	.4844	4-3/8	5-7/8
** D2GP185032	1/2	.5000	4-1/2	6

* 10pcs per package
** 5pcs per package

Tolerance Diameter (Inch)	
up to 1/8(.1250)	0 ~ -.0005
over 1/8(.1250) up to 1/4(.2500)	0 ~ -.0007
over 1/4(.2500) up to 1/2(.5000)	0 ~ -.0010

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

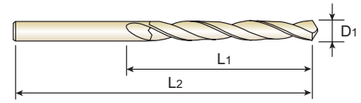
GOLD-P DRILLS

D2GP186 SERIES

HSSCo8, STRAIGHT SHANK, GOLD-P COATED

JOBBER

- ▶**Flute Geometry** : Right hand helix, wider flutes
- ▶**Point Angle** : 135° : Split point
- ▶**Surface treatment** : Bright body TiN coating on working part
- ▶**Application** : Drilling in steel, cast steel alloyed and Non-alloyed, grey cast iron, graphite, malleable cast iron



ANSI | HSS Co8 | N ≈ 30° | h8 | 135° | p.A224

▶ Letter sizes

Unit : Inch

EDP No.	Diameter Letter	Diameter Decimal	Flute Length	Overall Length
	D1		L1	L2
* D2GP186101	A	.2340	2-5/8	3-7/8
* D2GP186102	B	.2380	2-3/4	4
* D2GP186103	C	.2420	2-3/4	4
* D2GP186104	D	.2460	2-3/4	4
* D2GP185105	E	.2500	2-3/4	4
* D2GP186106	F	.2570	2-7/8	4-1/8
* D2GP186107	G	.2610	2-7/8	4-1/8
* D2GP186108	H	.2660	2-7/8	4-1/8
* D2GP186109	I	.2720	2-7/8	4-1/8
* D2GP186110	J	.2770	2-7/8	4-1/8
* D2GP186111	K	.2810	2-15/16	4-1/4
* D2GP186112	L	.2900	2-15/16	4-1/4
* D2GP186113	M	.2950	3-1/16	4-3/8
* D2GP186114	N	.3020	3-1/16	4-3/8
* D2GP186115	O	.3160	3-3/16	4-1/2
* D2GP186116	P	.3230	3-5/16	4-5/8
** D2GP186117	Q	.3320	3-7/16	4-3/4
** D2GP186118	R	.3390	3-7/16	4-3/4
** D2GP186119	S	.3480	3-1/2	4-7/8
** D2GP186120	T	.3580	3-1/2	4-7/8
** D2GP186121	U	.3680	3-5/8	5
** D2GP186122	V	.3770	3-5/8	5
** D2GP186123	W	.3860	3-3/4	5-1/8
** D2GP186124	X	.3970	3-3/4	5-1/8
** D2GP186125	Y	.4040	3-7/8	5-1/4
** D2GP186126	Z	.4130	3-7/8	5-1/4

* 10pcs per package
** 5pcs per package

Tolerance Diameter (Inch)	
up to 1/8(.1250)	0 ~ -.0005
over 1/8(.1250) up to 1/4(.2500)	0 ~ -.0007
over 1/4(.2500) up to 1/2(.5000)	0 ~ -.0010

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

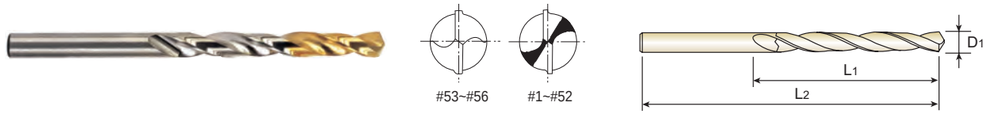
GOLD-P DRILLS

D2GP187 SERIES

HSSCo8, STRAIGHT SHANK, GOLD-P COATED

JOBBER

- ▶**Flute Geometry** : Right hand helix, wider flutes
- ▶**Point Angle** : 135° : Split point
  Wire gauge size #53~#56 : Normal point
  Wire gauge size #1~#52 : Split point
- ▶**Surface treatment** : Bright body TiN coating on working part
- ▶**Application** : Drilling in steel, cast steel alloyed and Non-alloyed, grey cast iron, graphite, malleable cast iron



ANSI | HSS Co8 | N ≈ 30° | h8 | 135° p.A224

▶ Wire gauge sizes

Unit : Inch

EDP No.	Diameter		Flute Length	Overall Length
	Wire gauge	Decimal	D1	L1	L2
* D2GP187256	1	.2280	2-5/8	3-7/8
* D2GP187255	2	.2210	2-5/8	3-7/8
* D2GP187254	3	.2130	2-1/2	3-3/4
* D2GP187253	4	.2090	2-1/2	3-3/4
* D2GP187252	5	.2055	2-1/2	3-3/4
* D2GP187251	6	.2040	2-1/2	3-3/4
* D2GP187250	7	.2010	2-7/16	3-5/8
* D2GP187249	8	.1990	2-7/16	3-5/8
* D2GP187248	9	.1960	2-7/16	3-5/8
* D2GP187247	10	.1935	2-7/16	3-5/8
* D2GP187246	11	.1910	2-5/16	3-1/2
* D2GP187245	12	.1890	2-5/16	3-1/2
* D2GP187244	13	.1850	2-5/16	3-1/2
* D2GP187243	14	.1820	2-3/16	3-3/8
* D2GP187242	15	.1800	2-3/16	3-3/8
* D2GP187241	16	.1770	2-3/16	3-3/8
* D2GP187240	17	.1730	2-3/16	3-3/8
* D2GP187239	18	.1695	2-1/8	3-1/4
* D2GP187238	19	.1660	2-1/8	3-1/4
* D2GP187237	20	.1610	2-1/8	3-1/4

EDP No.	Diameter		Flute Length	Overall Length
	Wire gauge	Decimal	D1	L1	L2
* D2GP187236	21	.1590	2-1/8	3-1/4
* D2GP187235	22	.1570	2	3-1/8
* D2GP187234	23	.1540	2	3-1/8
* D2GP187233	24	.1520	2	3-1/8
* D2GP187232	25	.1495	1-7/8	3
* D2GP187231	26	.1470	1-7/8	3
* D2GP187230	27	.1440	1-7/8	3
* D2GP187229	28	.1405	1-3/4	2-7/8
* D2GP187228	29	.1360	1-3/4	2-7/8
* D2GP187227	30	.1285	1-5/8	2-3/4
* D2GP187226	31	.1200	1-5/8	2-3/4
* D2GP187225	32	.1160	1-5/8	2-3/4
* D2GP187224	33	.1130	1-1/2	2-5/8
* D2GP187223	34	.1110	1-1/2	2-5/8
* D2GP187222	35	.1100	1-1/2	2-5/8
* D2GP187221	36	.1065	1-7/16	2-1/2
* D2GP187220	37	.1040	1-7/16	2-1/2
* D2GP187219	38	.1015	1-7/16	2-1/2
* D2GP187218	39	.0995	1-3/8	2-3/8
* D2GP187217	40	.0980	1-3/8	2-3/8

* 10pcs per package

▶ **Tolerance** : See page 000

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P																			
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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

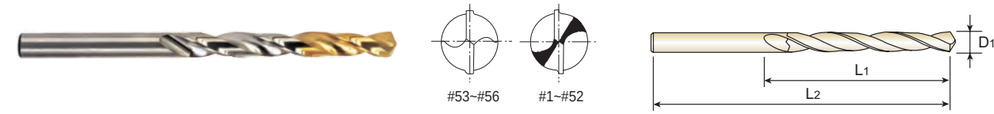
GOLD-P DRILLS

D2GP187 SERIES

HSSCo8, STRAIGHT SHANK, GOLD-P COATED

JOBBER

- ▶**Flute Geometry** : Right hand helix, wider flutes
- ▶**Point Angle** : 135° : Split point
  Wire gauge size #53~#56 : Normal point
  Wire gauge size #1~#52 : Split point
- ▶**Surface treatment** : Bright body TiN coating on working part
- ▶**Application** : Drilling in steel, cast steel alloyed and Non-alloyed, grey cast iron, graphite, malleable cast iron



ANSI | HSS Co8 | N ≈ 30° | h8 | 135° p.A224

▶ Wire gauge sizes

Unit : Inch

EDP No.	Diameter		Flute Length	Overall Length
	Wire gauge	Decimal	D1	L1	L2
* D2GP187216	41	.0960	1-3/8	2-3/8
* D2GP187215	42	.0935	1-1/4	2-1/4
* D2GP187214	43	.0890	1-1/4	2-1/4
* D2GP187213	44	.0860	1-1/8	2-1/8
* D2GP187212	45	.0820	1-1/8	2-1/8
* D2GP187211	46	.0810	1-1/8	2-1/8
* D2GP187210	47	.0785	1	2
* D2GP187209	48	.0760	1	2

EDP No.	Diameter		Flute Length	Overall Length
	Wire gauge	Decimal	D1	L1	L2
* D2GP187208	49	.0730	1	2
* D2GP187207	50	.0700	1	2
* D2GP187206	51	.0670	1	2
* D2GP187205	52	.0635	7/8	1-7/8
* D2GP187204	53	.0595	7/8	1-7/8
* D2GP187203	54	.0550	7/8	1-7/8
* D2GP187202	55	.0520	7/8	1-7/8
* D2GP187201	56	.0465	3/4	1-3/4

* 10pcs per package

▶ **Tolerance** : See page 000

◎ : Excellent ○ : Good

ISO	P																			
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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

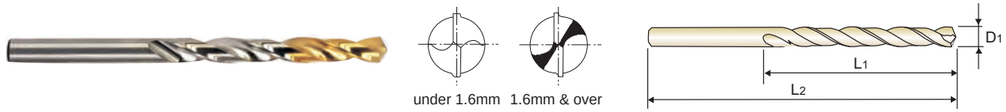
GOLD-P DRILLS

DLGP195 SERIES

HSSCo5, STRAIGHT SHANK DRILLS, GOLD-P COATED

JOBBER

- ▶**Flute Geometry** : Right hand helix
- ▶**Point Angle** : 135˚
  under 1.6mm : Normal point
  1.6mm & over : Split point
- ▶**Surface treatment** : Bright body, TiN coating on working area
- ▶**Application** : Drilling to steels, cast steels alloyed and Non-alloyed, grey cast iron, graphite, malleable cast iron



DIN 338 | HSS Co5 | 33° | h8 | 135° p.A224

Unit : Inch

EDP No.	Diameter Metric D1	Diameter Inch D1	Flute Length L1	Overall Length L2
* DLGP195010	1.0	.0394	12	34
* DLGP195011	1.1	.0433	14	36
* DLGP195012	1.2	.0472	16	38
* DLGP195013	1.3	.0512	16	38
* DLGP195014	1.4	.0551	18	40
* DLGP195015	1.5	.0591	18	40
* DLGP195016	1.6	.0630	20	43
* DLGP195017	1.7	.0669	20	43
* DLGP195018	1.8	.0709	22	46
* DLGP195019	1.9	.0748	22	46
* DLGP195020	2.0	.0787	24	49
* DLGP195021	2.1	.0827	24	49
* DLGP195022	2.2	.0866	27	53
* DLGP195023	2.3	.0906	27	53
* DLGP195024	2.4	.0945	30	57
* DLGP195025	2.5	.0984	30	57
* DLGP195026	2.6	.1024	30	57
* DLGP195027	2.7	.1063	33	61
* DLGP195028	2.8	.1102	33	61
* DLGP195029	2.9	.1142	33	61
* DLGP195030	3.0	.1181	33	61
* DLGP195031	3.1	.1220	36	65
* DLGP195032	3.2	.1260	36	65
* DLGP195033	3.3	.1299	36	65

EDP No.	Diameter Metric D1	Diameter Inch D1	Flute Length L1	Overall Length L2
* DLGP195034	3.4	.1339	39	70
* DLGP195035	3.5	.1378	39	70
* DLGP195036	3.6	.1417	39	70
* DLGP195037	3.7	.1457	39	70
* DLGP195038	3.8	.1496	43	75
* DLGP195039	3.9	.1535	43	75
* DLGP195040	4.0	.1575	43	75
* DLGP195041	4.1	.1614	43	75
* DLGP195042	4.2	.1654	43	75
* DLGP195043	4.3	.1693	47	80
* DLGP195044	4.4	.1732	47	80
* DLGP195045	4.5	.1772	47	80
* DLGP195046	4.6	.1811	47	80
* DLGP195047	4.7	.1850	47	80
* DLGP195048	4.8	.1890	52	86
* DLGP195049	4.9	.1929	52	86
* DLGP195050	5.0	.1969	52	86
* DLGP195051	5.1	.2008	52	86
* DLGP195052	5.2	.2047	52	86
* DLGP195053	5.3	.2087	52	86
* DLGP195054	5.4	.2126	57	93
* DLGP195055	5.5	.2165	57	93
* DLGP195056	5.6	.2205	57	93
* DLGP195057	5.7	.2244	57	93

* 10pcs per package

▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

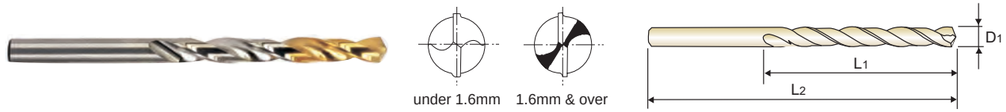
GOLD-P DRILLS

DLGP195 SERIES

HSSCo5, STRAIGHT SHANK DRILLS, GOLD-P COATED

JOBBER

▶Flute Geometry : Right hand helix
▶Point Angle : 135°
under 1.6mm : Normal point
1.6mm & over : Split point
▶Surface treatment : Bright body, TiN coating on working area
▶Application : Drilling to steels, cast steels alloyed and Non-alloyed, grey cast iron, graphite, malleable cast iron



DIN 338 | HSS Co5 | 33° | h8 | 135° p.A224

Unit : Inch

EDP No.	Diameter Metric D1	Diameter Inch D1	Flute Length L1	Overall Length L2
* DLGP195058	5.8	.2283	57	93
* DLGP195059	5.9	.2323	57	93
* DLGP195060	6.0	.2362	57	93
* DLGP195061	6.1	.2402	63	101
* DLGP195062	6.2	.2441	63	101
* DLGP195063	6.3	.2480	63	101
* DLGP195064	6.4	.2520	63	101
* DLGP195065	6.5	.2559	63	101
* DLGP195066	6.6	.2598	63	101
* DLGP195067	6.7	.2638	63	101
* DLGP195068	6.8	.2677	69	109
* DLGP195069	6.9	.2717	69	109
* DLGP195070	7.0	.2756	69	109
* DLGP195071	7.1	.2795	69	109
* DLGP195072	7.2	.2835	69	109
* DLGP195073	7.3	.2874	69	109
* DLGP195074	7.4	.2913	69	109
* DLGP195075	7.5	.2953	69	109
* DLGP195076	7.6	.2992	75	117
* DLGP195077	7.7	.3031	75	117
* DLGP195078	7.8	.3071	75	117
* DLGP195079	7.9	.3110	75	117
* DLGP195080	8.0	.3150	75	117
* DLGP195081	8.1	.3189	75	117

EDP No.	Diameter Metric D1	Diameter Inch D1	Flute Length L1	Overall Length L2
* DLGP195082	8.2	.3228	75	117
* DLGP195083	8.3	.3268	75	117
** DLGP195084	8.4	.3307	75	117
** DLGP195085	8.5	.3346	75	117
** DLGP195086	8.6	.3386	81	125
** DLGP195087	8.7	.3425	81	125
** DLGP195088	8.8	.3465	81	125
** DLGP195089	8.9	.3504	81	125
** DLGP195090	9.0	.3543	81	125
** DLGP195091	9.1	.3583	81	125
** DLGP195092	9.2	.3622	81	125
** DLGP195093	9.3	.3661	81	125
** DLGP195094	9.4	.3701	81	125
** DLGP195095	9.5	.3740	81	125
** DLGP195096	9.6	.3780	87	133
** DLGP195097	9.7	.3819	87	133
** DLGP195098	9.8	.3858	87	133
** DLGP195099	9.9	.3898	87	133
** DLGP195100	10.0	.3937	87	133
** DLGP195101	10.1	.3976	87	133
** DLGP195102	10.2	.4016	87	133
** DLGP195103	10.3	.4055	87	133
** DLGP195104	10.4	.4094	87	133
** DLGP195105	10.5	.4134	87	133

* 10pcs per package
** 5pcs per package

▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

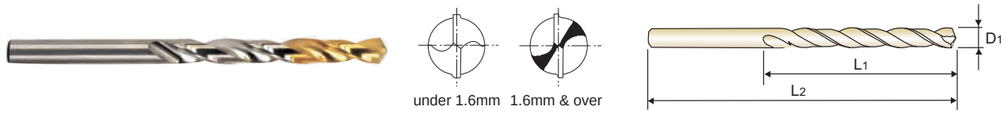
GOLD-P DRILLS

DLGP195 SERIES

HSSCo5, STRAIGHT SHANK DRILLS, GOLD-P COATED

JOBBER

- ▶**Flute Geometry** : Right hand helix
- ▶**Point Angle** : 135˚
  under 1.6mm : Normal point
  1.6mm & over : Split point
- ▶**Surface treatment** : Bright body, TiN coating on working area
- ▶**Application** : Drilling to steels, cast steels alloyed and Non-alloyed, grey cast iron, graphite, malleable cast iron



DIN 338 | HSS Co5 | 33° | h8 | 135° p.A224

Unit : Inch

EDP No.	Diameter Metric D1	Diameter Inch D1	Flute Length L1	Overall Length L2
** DLGP195106	10.6	.4173	87	133
** DLGP195107	10.7	.4212	94	142
** DLGP195108	10.8	.4252	94	142
** DLGP195109	10.9	.4291	94	142
** DLGP195110	11.0	.4330	94	142
** DLGP195111	11.1	.4370	94	142
** DLGP195112	11.2	.4409	94	142
** DLGP195113	11.3	.4448	94	142
** DLGP195114	11.4	.4488	94	142
** DLGP195115	11.5	.4527	94	142
** DLGP195116	11.6	.4566	94	142
** DLGP195117	11.7	.4606	94	142
** DLGP195118	11.8	.4645	94	142
** DLGP195119	11.9	.4685	101	151
** DLGP195120	12.0	.4724	101	151
** DLGP195121	12.1	.4764	101	151
** DLGP195122	12.2	.4803	101	151
** DLGP195123	12.3	.4843	101	151
** DLGP195124	12.4	.4882	101	151
** DLGP195125	12.5	.4921	101	151
** DLGP195126	12.6	.4921	101	151
** DLGP195127	12.7	.5000	101	151
** DLGP195128	12.8	.5039	101	151
** DLGP195129	12.9	.5079	101	151
** DLGP195130	13.0	.5118	101	151

** 5pcs per package

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

GOLD-P DRILLS

DLGP511 SERIES

HSSCo5, STRAIGHT SHANK PARABOLIC FLUTE, GOLD-P COATED

JOBBER

- ▶**Flute Geometry** : Right hand spiral, 38° helix, parabolic flute.
- ▶**Point Angle** : 130° : Split point
- ▶**Surface treatment** : Bright body TiN coating on working part
- ▶**Application** : Improved chip removal in most materials, especially in deep drilling applications.

ANSI | HSS Co5 | W 38° | h8 | 130° p.A224

▶ Fractional sizes

Unit : Inch

EDP No.	Diameter Fractional D1	Diameter Decimal D1	Flute Length L1	Overall Length L2
* DLGP511005	5/64	.0781	1	2
* DLGP511006	3/32	.0938	1-1/4	2-1/4
* DLGP511007	7/64	.1094	1-1/2	2-5/8
* DLGP511008	1/8	.1250	1-5/8	2-3/4
* DLGP511009	9/64	.1406	1-3/4	2-7/8
* DLGP511010	5/32	.1563	2	3-1/8
* DLGP511011	11/64	.1719	2-1/8	3-1/4
* DLGP511012	3/16	.1875	2-5/16	3-1/2
* DLGP511013	13/64	.2031	2-7/16	3-5/8
* DLGP511014	7/32	.2188	2-1/2	3-3/4
* DLGP511015	15/64	.2344	2-5/8	3-7/8
* DLGP511016	1/4	.2500	2-3/4	4
* DLGP511017	17/64	.2656	2-7/8	4-1/8
* DLGP511018	9/32	.2813	2-15/16	4-1/4
* DLGP511019	19/64	.2969	3-1/16	4-3/8
* DLGP511020	5/16	.3125	3-3/16	4-1/2
** DLGP511021	21/64	.3281	3-5/16	4-5/8
** DLGP511022	11/32	.3438	3-7/16	4-3/4
** DLGP511023	23/64	.3594	3-1/2	4-7/8
** DLGP511024	3/8	.3750	3-5/8	5
** DLGP511025	25/64	.3906	3-3/4	5-1/8
** DLGP511026	13/32	.4063	3-7/8	5-1/4
** DLGP511027	27/64	.4219	3-15/16	5-3/8
** DLGP511028	7/16	.4375	4-1/16	5-1/2
** DLGP511029	29/64	.4531	4-3/16	5-5/8
** DLGP511030	15/32	.4688	4-5/16	5-3/4
** DLGP511031	31/64	.4844	4-3/8	5-7/8
** DLGP511032	1/2	.5000	4-1/2	6

* 10pcs per package
** 5pcs per package

Tolerance Diameter (Inch)	
up to 1/8(.1250)	0 ~ -.0005
over 1/8(.1250) up to 1/4(.2500)	0 ~ -.0007
over 1/4(.2500) up to 1/2(.5000)	0 ~ -.0010

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

GOLD-P DRILLS

DLGP512 SERIES

HSSCo5, STRAIGHT SHANK PARABOLIC FLUTE, GOLD-P COATED

JOBBER

- **Flute Geometry** : Right hand spiral, 38° helix, parabolic flute.
- **Point Angle** : 130° : Split point
- **Surface treatment** : Bright body TiN coating on working part
- **Application** : Improved chip removal in most materials, especially in deep drilling applications.

ANSI | HSS Co5 | W 38° | h8 | 130° | p.A224

▶ Wire gauge sizes

Unit : Inch

EDP No.	Diameter		Flute Length	Overall Length
	Wire gauge	Decimal		
	D1		L1	L2
* DLGP512247	1	.2280	2-5/8	3-7/8
* DLGP512246	2	.2210	2-5/8	3-7/8
* DLGP512245	3	.2130	2-1/2	3-3/4
* DLGP512244	4	.2090	2-1/2	3-3/4
* DLGP512243	5	.2055	2-1/2	3-3/4
* DLGP512242	6	.2040	2-1/2	3-3/4
* DLGP512241	7	.2010	2-7/16	3-5/8
* DLGP512240	8	.1990	2-7/16	3-5/8
* DLGP512239	9	.1960	2-7/16	3-5/8
* DLGP512238	10	.1935	2-7/16	3-5/8
* DLGP512237	11	.1910	2-5/16	3-1/2
* DLGP512236	12	.1890	2-5/16	3-1/2
* DLGP512235	13	.1850	2-5/16	3-1/2
* DLGP512234	14	.1820	2-3/16	3-3/8
* DLGP512233	15	.1800	2-3/16	3-3/8
* DLGP512232	16	.1770	2-3/16	3-3/8
* DLGP512231	17	.1730	2-3/16	3-3/8
* DLGP512230	18	.1695	2-1/8	3-1/4
* DLGP512229	19	.1660	2-1/8	3-1/4
* DLGP512228	20	.1610	2-1/8	3-1/4
* DLGP512227	21	.1590	2-1/8	3-1/4
* DLGP512226	22	.1570	2	3-1/8
* DLGP512225	23	.1540	2	3-1/8
* DLGP512224	24	.1520	2	3-1/8

EDP No.	Diameter		Flute Length	Overall Length
	Wire gauge	Decimal		
	D1		L1	L2
* DLGP512223	25	.1495	1-7/8	3
* DLGP512222	26	.1470	1-7/8	3
* DLGP512221	27	.1440	1-7/8	3
* DLGP512220	28	.1405	1-3/4	2-7/8
* DLGP512219	29	.1360	1-3/4	2-7/8
* DLGP512218	30	.1285	1-5/8	2-3/4
* DLGP512217	31	.1200	1-5/8	2-3/4
* DLGP512216	32	.1160	1-5/8	2-3/4
* DLGP512215	33	.1130	1-1/2	2-5/8
* DLGP512214	34	.1110	1-1/2	2-5/8
* DLGP512213	35	.1100	1-1/2	2-5/8
* DLGP512212	36	.1065	1-7/16	2-1/2
* DLGP512211	37	.1040	1-7/16	2-1/2
* DLGP512210	38	.1015	1-7/16	2-1/2
* DLGP512209	39	.0995	1-3/8	2-3/8
* DLGP512208	40	.0980	1-3/8	2-3/8
* DLGP512207	41	.0960	1-3/8	2-3/8
* DLGP512206	42	.0935	1-1/4	2-1/4
* DLGP512205	43	.0890	1-1/4	2-1/4
* DLGP512204	44	.0860	1-1/8	2-1/8
* DLGP512203	45	.0820	1-1/8	2-1/8
* DLGP512202	46	.0810	1-1/8	2-1/8
* DLGP512201	47	.0785	1	2

* 10pcs per package

▶ **Tolerance** : See page 000

◎ : Excellent ○ : Good

ISO	P																			
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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

GOLD-P DRILLS

DLGP513 SERIES

HSSCo5, STRAIGHT SHANK PARABOLIC FLUTE, GOLD-P COATED

JOBBER

- **Flute Geometry** : Right hand spiral, 38° helix, parabolic flute.
- **Point Angle** : 130° : Split point
- **Surface treatment** : Bright body TiN coating on working part
- **Application** : Improved chip removal in most materials, especially in deep drilling applications.

ANSI | HSS Co5 | W 38° | h8 | 130° | p.A224

▶ Letter sizes

Unit : Inch

EDP No.	Diameter		Flute Length	Overall Length
	Letter	Decimal		
	D1		L1	L2
* DLGP513101	A	.2340	2-5/8	3-7/8
* DLGP513102	B	.2380	2-3/4	4
* DLGP513103	C	.2420	2-3/4	4
* DLGP513104	D	.2460	2-3/4	4
* DLGP513105	E	.2500	2-3/4	4
* DLGP513106	F	.2570	2-7/8	4-1/8
* DLGP513107	G	.2610	2-7/8	4-1/8
* DLGP513108	H	.2660	2-7/8	4-1/8
* DLGP513109	I	.2720	2-7/8	4-1/8
* DLGP513110	J	.2770	2-7/8	4-1/8
* DLGP513111	K	.2810	2-15/16	4-1/4
* DLGP513112	L	.2900	2-15/16	4-1/4
* DLGP513113	M	.2950	3-1/16	4-3/8

EDP No.	Diameter		Flute Length	Overall Length
	Letter	Decimal		
	D1		L1	L2
* DLGP513114	N	.3020	3-1/16	4-3/8
* DLGP513115	O	.3160	3-3/16	4-1/2
* DLGP513116	P	.3230	3-5/16	4-5/8
** DLGP513117	Q	.3320	3-7/16	4-3/4
** DLGP513118	R	.3390	3-7/16	4-3/4
** DLGP513119	S	.3480	3-1/2	4-7/8
** DLGP513120	T	.3580	3-1/2	4-7/8
** DLGP513121	U	.3680	3-5/8	5
** DLGP513122	V	.3770	3-5/8	5
** DLGP513123	W	.3860	3-3/4	5-1/8
** DLGP513124	X	.3970	3-3/4	5-1/8
** DLGP513125	Y	.4040	3-7/8	5-1/4
** DLGP513126	Z	.4130	3-7/8	5-1/4

* 10pcs per package
** 5pcs per package

Tolerance Diameter (Inch)	
up to 1/8(.1250)	0 ~ -.0005
over 1/8(.1250) up to 1/4(.2500)	0 ~ -.0007
over 1/4(.2500) up to 1/2(.5000)	0 ~ -.0010

◎ : Excellent ○ : Good

ISO	P																			
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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

GOLD-P DRILLS

DLGP506 SERIES

HSSCo5, STRAIGHT SHANK PARABOLIC FLUTE, GOLD-P COATED

JOBBER

- ▶**Flute Geometry** : Right hand, 38° helix, Parabolic flutes
- ▶**Point Angle** : 130˚, Split point giving higher chip removal.
- ▶**Surface treatment** : Bright body, TiN coating on working area.
- ▶**Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, Special aluminum or magnesium alloys.

DIN 338 | HSS Co5 | W 38° | h8 | 130° p.A224

Unit : Inch

EDP No.	Diameter Metric D1	Diameter Inch D1	Flute Length L1	Overall Length L2
* DLGP506020	2.0	.0787	24	49
* DLGP506021	2.1	.0827	24	49
* DLGP506022	2.2	.0866	27	53
* DLGP506023	2.3	.0906	27	53
* DLGP506024	2.4	.0945	30	57
* DLGP506025	2.5	.0984	30	57
* DLGP506026	2.6	.1024	30	57
* DLGP506027	2.7	.1063	33	61
* DLGP506028	2.8	.1102	33	61
* DLGP506029	2.9	.1142	33	61
* DLGP506030	3.0	.1181	33	61
* DLGP506031	3.1	.1220	36	65
* DLGP506032	3.2	.1260	36	65
* DLGP506033	3.3	.1299	36	65
* DLGP506034	3.4	.1339	39	70
* DLGP506035	3.5	.1378	39	70
* DLGP506036	3.6	.1417	39	70
* DLGP506037	3.7	.1457	39	70
* DLGP506038	3.8	.1496	43	75
* DLGP506039	3.9	.1535	43	75
* DLGP506040	4.0	.1575	43	75
* DLGP506041	4.1	.1614	43	75
* DLGP506042	4.2	.1654	43	75
* DLGP506043	4.3	.1693	47	80
* DLGP506044	4.4	.1732	47	80
* DLGP506045	4.5	.1772	47	80
* DLGP506046	4.6	.1811	47	80
* DLGP506047	4.7	.1850	47	80
* DLGP506048	4.8	.1890	52	86
* DLGP506049	4.9	.1929	52	86
* DLGP506050	5.0	.1969	52	86
* DLGP506051	5.1	.2008	52	86
* DLGP506052	5.2	.2047	52	86
* DLGP506053	5.3	.2087	52	86
* DLGP506054	5.4	.2126	57	93
* DLGP506055	5.5	.2165	57	93
* DLGP506056	5.6	.2205	57	93
* DLGP506057	5.7	.2244	57	93
* DLGP506058	5.8	.2283	57	93
* DLGP506059	5.9	.2323	57	93
* DLGP506060	6.0	.2362	57	93
* DLGP506061	6.1	.2402	63	101
* DLGP506062	6.2	.2441	63	101
* DLGP506063	6.3	.2480	63	101
* DLGP506064	6.4	.2520	63	101
* DLGP506065	6.5	.2559	63	101
* DLGP506066	6.6	.2598	63	101
* DLGP506067	6.7	.2638	63	101

* 10pcs per package

▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

GOLD-P DRILLS

DLGP506 SERIES

HSSCo5, STRAIGHT SHANK PARABOLIC FLUTE, GOLD-P COATED

JOBBER

▶Flute Geometry : Right hand, 38° helix, Parabolic flutes
▶Point Angle : 130˚, Split point giving higher chip removal.
▶Surface treatment : Bright body, TiN coating on working area.
▶Application : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, Special aluminum or magnesium alloys.

DIN 338 | HSS Co5 | W 38° | h8 | 130° p.A224

Unit : Inch

EDP No.	Diameter Metric D1	Diameter Inch D1	Flute Length L1	Overall Length L2
* DLGP506068	6.8	.2677	69	109
* DLGP506069	6.9	.2717	69	109
* DLGP506070	7.0	.2756	69	109
* DLGP506071	7.1	.2795	69	109
* DLGP506072	7.2	.2835	69	109
* DLGP506073	7.3	.2874	69	109
* DLGP506074	7.4	.2913	69	109
* DLGP506075	7.5	.2953	69	109
* DLGP506076	7.6	.2992	75	117
* DLGP506077	7.7	.3031	75	117
* DLGP506078	7.8	.3071	75	117
* DLGP506079	7.9	.3110	75	117
* DLGP506080	8.0	.3150	75	117
* DLGP506081	8.1	.3189	75	117
* DLGP506082	8.2	.3228	75	117
* DLGP506083	8.3	.3268	75	117
** DLGP506084	8.4	.3307	75	117
** DLGP506085	8.5	.3346	75	117
** DLGP506086	8.6	.3386	81	125
** DLGP506087	8.7	.3425	81	125
** DLGP506088	8.8	.3465	81	125
** DLGP506089	8.9	.3504	81	125
** DLGP506090	9.0	.3543	81	125
** DLGP506091	9.1	.3583	81	125
** DLGP506092	9.2	.3622	81	125
** DLGP506093	9.3	.3661	81	125
** DLGP506094	9.4	.3701	81	125
** DLGP506095	9.5	.3740	81	125
** DLGP506096	9.6	.3780	87	133
** DLGP506097	9.7	.3819	87	133
** DLGP506098	9.8	.3858	87	133
** DLGP506099	9.9	.3898	87	133
** DLGP506100	10.0	.3937	87	133
** DLGP506101	10.1	.3976	87	133
** DLGP506102	10.2	.4016	87	133
** DLGP506103	10.3	.4055	87	133
** DLGP506104	10.4	.4094	87	133
** DLGP506105	10.5	.4134	87	133
** DLGP506106	10.6	.4173	87	133
** DLGP506107	10.7	.4212	94	142
** DLGP506108	10.8	.4252	94	142
** DLGP506109	10.9	.4291	94	142
** DLGP506110	11.0	.4330	94	142
** DLGP506111	11.1	.4370	94	142
** DLGP506112	11.2	.4409	94	142
** DLGP506113	11.3	.4448	94	142
** DLGP506114	11.4	.4488	94	142
** DLGP506115	11.5	.4527	94	142

* 10pcs per package
** 5pcs per package

▶ NEXT PAGE

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

GOLD-P DRILLS

DLGP506 SERIES

HSSCo5, STRAIGHT SHANK PARABOLIC FLUTE, GOLD-P COATED

JOBBER

- ▶**Flute Geometry** : Right hand, 38° helix, Parabolic flutes
- ▶**Point Angle** : 130˚, Split point giving higher chip removal.
- ▶**Surface treatment** : Bright body, TiN coating on working area.
- ▶**Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, Special aluminum or magnesium alloys.

DIN 338 | HSS Co5 | W 38° | h8 | 130˚

p.A224

Unit : Inch

EDP No.	Diameter Metric D1	Diameter Inch D1	Flute Length L1	Overall Length L2
** DLGP506116	11.6	.4566	94	142
** DLGP506117	11.7	.4606	94	142
** DLGP506118	11.8	.4645	94	142
** DLGP506119	11.9	.4685	101	151
** DLGP506120	12.0	.4724	101	151
** DLGP506121	12.1	.4764	101	151
** DLGP506122	12.2	.4803	101	151
** DLGP506123	12.3	.4843	101	151
** DLGP506124	12.4	.4882	101	151
** DLGP506125	12.5	.4921	101	151

EDP No.	Diameter Metric D1	Diameter Inch D1	Flute Length L1	Overall Length L2
** DLGP506126	12.6	.4921	101	151
** DLGP506127	12.7	.5000	101	151
** DLGP506128	12.8	.5039	101	151
** DLGP506129	12.9	.5079	101	151
** DLGP506130	13.0	.5118	101	151

** 5pcs per package

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

GOLD-P DRILLS

GOLD-P COATED DRILL SETS

EDP No.	Series No.	Description	SIZE	Q'TY
D1GP138 SET	D1GP SET924	HSS Straight Shank, Split Point (53 ~56 : NORMAL point)	#1~#56(Wire gauge)	56 pcs
D1GP139 SET	D1GP SET925	HSS Straight Shank, Split Point	A~Z(Letter)	26 pcs
D1GP182 SET	D1GP SET926	HSS Straight Shank, Split Point	Ø1/16~Ø1/2(Fracitional)	29 pcs
D2GP185 SET	D2GP SET927	HSSCo8 Straight Shank, Split Point	Ø1/16~Ø1/2(Fracitional)	29 pcs
D2GP186 SET	D2GP SET928	HSSCo8 Straight Shank, Split Point	A~Z(Letter)	26 pcs
D2GP187 SET	D2GP SET930	HSSCo8 Straight Shank, Split Point (53 ~56 : NORMAL point)	#1~#56(Wire gauge)	56 pcs
DLGP511 SET	DLGP SET931	HSSCo5 Straight Shank, Split Point	Ø5/64~Ø1/2(Fracitional)	28 pcs
DLGP513 SET	DLGP SET933	HSSCo5 Straight Shank, Split Point	A~Z(Letter)	26 pcs

GOLD-P DRILLS

RECOMMENDED CUTTING CONDITIONS

D1GP182, D1GP139, D1GP138, D2GP185, D2GP186, D2GP187, DLGP195 SERIES

HSS, HSSCo5 & HSSCo8 STRAIGHT SHANK, GOLD-P COATED

RPM = rev./min.
FEED = inch/rev.

ISO	VDI 3323	Material Description	SFM	Drill Diameter												
				METRIC	2.0	3.0	-	4.0	6.0	-	-	8.0	-	10.0	-	13
				FRACTIONAL	-	-	1/8	-	-	1/4	5/16	-	3/8	-	1/2	
				DECIMAL	.0787	.1181	.1250	.1575	.2362	.2500	.3125	.3150	.3750	.3937	.5000	.5118
P	1	Non-alloy steel	132	RPM	6370	4240		3180	2120		2120		1270		980	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0063		.0063 - .0087		.0071 - .0094	
	2		115	RPM	5570	3710		2790	1860		1860		1110		860	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0063		.0063 - .0087		.0071 - .0094	
	3		99	RPM	4770	3180		2390	1590		1590		950		730	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0063		.0063 - .0087		.0071 - .0094	
	4		66	RPM	3180	2120		1590	1060		1060		640		490	
				FEED	.0008 - .0020	.0008 - .0024		.0016 - .0031	.0016 - .0039		.0016 - .0039		.0031 - .0055		.0047 - .0071	
	6	Low alloy steel	115	RPM	5570	3710		2790	1860		1860		1110		860	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0063		.0063 - .0087		.0071 - .0094	
	7		99	RPM	4770	3180		2390	1590		1590		950		730	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0063		.0063 - .0087		.0071 - .0094	
	8		99	RPM	4770	3180		2390	1590		1590		950		730	
				FEED	.0008 - .0020	.0008 - .0024		.0016 - .0031	.0016 - .0039		.0016 - .0039		.0031 - .0055		.0047 - .0071	
	10	High alloyed steel, and tool steel	66	RPM	3180	2120		1590	1060		1060		640		490	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0063		.0063 - .0087		.0071 - .0094	
M	12	Stainless steel	82	RPM	3980	2650		1990	1330		1330		800		610	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0063		.0063 - .0087		.0071 - .0094	
	13		66	RPM	3180	2120		1590	1060		1060		640		490	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0063		.0063 - .0087		.0071 - .0094	
	14		49	RPM	2390	1590		1190	800		800		480		370	
				FEED	.0008 - .0020	.0008 - .0024		.0016 - .0031	.0016 - .0039		.0016 - .0039		.0031 - .0055		.0047 - .0071	
K	15	Grey cast iron	132	RPM	6370	4240		3180	2120		2120		1270		980	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0063		.0063 - .0087		.0071 - .0094	
	16		115	RPM	5570	3710		2790	1860		1860		1110		860	
				FEED	.0008 - .0020	.0008 -.0024		.0016 - .0031	.0016 - .0039		.0016 - .0039		.0031 - .0055		.0047 - .0071	
	17	Nodular cast iron	132	RPM	6370	4240		3180	2120		2120		1270		980	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0063		.0063 - .0087		.0071 - .0094	
	18		99	RPM	4770	3180		2390	1590		1590		950		730	
				FEED	.0008 - .0020	.0008 - .0024		.0016 - .0031	.0016 - .0039		.0016 - .0039		.0031 - .0055		.0047 - .0071	
	19	Malleable cast iron	115	RPM	5570	3710		2790	1860		1860		1110		860	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0063		.0063 - .0087		.0071 - .0094	
	20		99	RPM	4770	3180		2390	1590		1590		950		730	
				FEED	.0008 - .0020	.0008 - .0024		.0016 - .0031	.0016 - .0039		.0016 - .0039		.0031 - .0055		.0047 - .0071	
N	21	Aluminum-wrought alloy	214	RPM	10350	6900		5170	3450		3450		2070		1590	
				FEED	.0020 - .0035	.0028 - .0043		.0047 - .0063	.0047 - .0071		.0047 - .0071		.0063 - .0087		.0087 - .011	
	22		214	RPM	10350	6900		5170	3450		3450		2070		1590	
				FEED	.0020 - .0035	.0028 - .0043		.0047 - .0063	.0047 - .0071		.0047 - .0071		.0063 - .0087		.0087 - .011	
	23	Aluminum-cast, alloyed	165	RPM	7960	5310		3980	2650		2650		1590		1220	
				FEED	.0020 - .0035	.0028 - .0043		.0047 - .0063	.0047 - .0071		.0047 - .0071		.0063 - .0087		.0087 - .011	
	29	Non Metallic Materials	99	RPM	4770	3180		2390	1590		1590		950		730	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0063		.0063 - .0087		.0071 - .0094	
S	36	Titanium Alloys	66	RPM	3180	2120		1590	1060		1060		640		490	
				FEED	.0008 - .0020	.0008 - .0024		.0016 - .0031	.0020 - .0035		.0020 - .0035		.0028 - .0051		.0031 - .0055	

Being the best through innovation

HSS, HSS-E & HSSCo8

STRAIGHT SHANK DRILLS

- **HSS Drills for soft materials & HSS cobalt Drills for tough materials**

SELECTION GUIDE

YG HOLEMAKING TOOLS

HSS, HSS-E & HSSCo8
STRAIGHT SHANK DRILLS

- HSS Drills for soft materials & HSS cobalt Drills for tough materials

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A242

							D1118	D1115	D1119
SERIES									
STANDARD							ANSI		
LENGTH							SCREW MACHINE		
SIZE MIN							D3/64	A	#60
SIZE MAX							D1/2	Z	#1
PAGE							A228	A229	A230
SURFACE TREATMENT							Coloring		
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, Graphite, CFRP, GFRP, etc.)	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		Hardened	550	55			
	39			Hardened	630	60			
	40	Chilled Cast Iron		Cast	400	42			
	41	Hardened Cast Iron		Hardened	550	55			

D2146 D4146	D2147 D4147	D2148 D4148	DN514	DN516	DN515	DL517 DX517	D4107
			ANSI				DIN1897
			SCREW MACHINE			TAPER	STUB
D3/64	A	#60	D3/32	A	#47	D5/64	D1.0
D1/2	Z	#1	D1/2	Z	#1	D1/2	D31.0
A231	A232	A233	A235	A236	A237	A238	A239
Bright TiN	Bright TiN	Bright TiN	TiN	TiN	TiN	Bright TiCN	TiN
◎	◎	◎	◎	◎	◎	◎	◎
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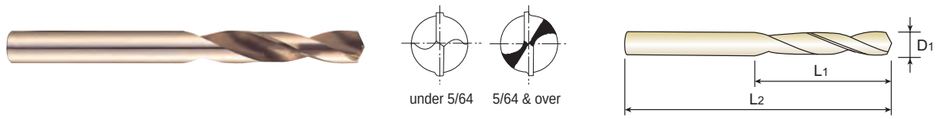
CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

STRAIGHT SHANK DRILLS

D1118 SERIES

HSS, STRAIGHT SHANK SCREW MACHINE

▶**Flute Geometry** : Right hand spiral, wider flutes
▶**Point Angle** : 135˚
under 1/16 : Normal point
1/16 & over : Split point
▶**Application** : Drilling in steel, cast steel alloyed and Non-alloyed, grey cast iron, graphite, malleable cast iron



ANSI HSS N 20~30° ANSI 135° p.A242

▶ Fractional sizes

Unit : Inch

EDP No.	Diameter		Flute Length	Overall Length
	Fractional	Decimal		
Coloring	D1		L1	L2
*D1118003	3/64	.0469	1/2	1-3/8
*D1118004	1/16	.0625	5/8	1-5/8
*D1118005	5/64	.0781	11/16	1-11/16
*D1118006	3/32	.0938	3/4	1-3/4
*D1118007	7/64	.1094	13/16	1-13/16
*D1118008	1/8	.1250	7/8	1-7/8
*D1118009	9/64	.1406	15/16	1-15/16
*D1118010	5/32	.1563	1	2-1/16
*D1118011	11/64	.1719	1-1/16	2-1/8
*D1118012	3/16	.1875	1-1/8	2-3/16
*D1118013	13/64	.2031	1-3/16	2-1/4
*D1118014	7/32	.2188	1-1/4	2-3/8
*D1118015	15/64	.2344	1-5/16	2-7/16
*D1118016	1/4	.2500	1-3/8	2-1/2
*D1118017	17/64	.2656	1-7/16	2-5/8
*D1118018	9/32	.2813	1-1/2	2-11/16
*D1118019	19/64	.2969	1-9/16	2-3/4
*D1118020	5/16	.3125	1-5/8	2-13/16
*D1118021	21/64	.3281	1-11/16	2-15/16
*D1118022	11/32	.3438	1-11/16	3
**D1118023	23/64	.3594	1-3/4	3-1/16
**D1118024	3/8	.3750	1-13/16	3-1/8
**D1118025	25/64	.3906	1-7/8	3-1/4
**D1118026	13/32	.4063	1-15/16	3-5/16
**D1118027	27/64	.4219	2	3-3/8
**D1118028	7/16	.4375	2-1/16	3-7/16
**D1118029	29/64	.4531	2-1/8	3-9/16
**D1118030	15/32	.4688	2-1/8	3-5/8
**D1118031	31/64	.4844	2-3/16	3-11/16
**D1118032	1/2	.5000	2-1/4	3-3/4

* 10pcs per package
** 5pcs per package

Tolerance Diameter (Inch)	
up to 1/8(.1250)	0 ~ -.0005
over 1/8(.1250) up to 1/4(.2500)	0 ~ -.0007
over 1/4(.2500) up to 1/2(.5000)	0 ~ -.0010

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

STRAIGHT SHANK DRILLS

D1115 SERIES

HSS, STRAIGHT SHANK SCREW MACHINE

▶**Flute Geometry** : Right hand spiral, wider flutes
▶**Point Angle** : 135° : Split point
▶**Application** : Drilling in steel, cast steel alloyed and Non-alloyed, grey cast iron, graphite, malleable cast iron

ANSI HSS N 20~30° ANSI 135° p.A242

▶ Letter sizes

Unit : Inch

EDP No.	Diameter		Flute Length	Overall Length
	Letter	Decimal		
Coloring	D1		L1	L2
*D1115201	A	.2340	1-5/16	2-7/16
*D1115202	B	.2380	1-3/8	2-1/2
*D1115203	C	.2420	1-3/8	2-1/2
*D1115204	D	.2460	1-3/8	2-1/2
*D1115205	E	.2500	1-3/8	2-1/2
*D1115206	F	.2570	1-7/16	2-5/8
*D1115207	G	.2610	1-7/16	2-5/8
*D1115208	H	.2660	1-1/2	2-11/16
*D1115209	I	.2720	1-1/2	2-11/16
*D1115210	J	.2770	1-1/2	2-11/16
*D1115211	K	.2810	1-1/2	2-11/16
*D1115212	L	.2900	1-9/16	2-3/4
*D1115213	M	.2950	1-9/16	2-3/4
*D1115214	N	.3020	1-5/8	2-13/16
*D1115215	O	.3160	1-11/16	2-15/16
*D1115216	P	.3230	1-11/16	2-15/16
**D1115217	Q	.3320	1-11/16	3
**D1115218	R	.3390	1-11/16	3
**D1115219	S	.3480	1-3/4	3-1/16
**D1115220	T	.3580	1-3/4	3-1/16
**D1115221	U	.3680	1-13/16	3-1/8
**D1115222	V	.3770	1-7/8	3-1/4
**D1115223	W	.3860	1-7/8	3-1/4
**D1115224	X	.3970	1-15/16	3-5/16
**D1115225	Y	.4040	1-15/16	3-5/16
**D1115226	Z	.4130	2	3-3/8

* 10pcs per package
** 5pcs per package

Tolerance Diameter (Inch)	
up to 1/8(.1250)	0 ~ -.0005
over 1/8(.1250) up to 1/4(.2500)	0 ~ -.0007
over 1/4(.2500) up to 1/2(.5000)	0 ~ -.0010

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○	○	○	○	○		○	

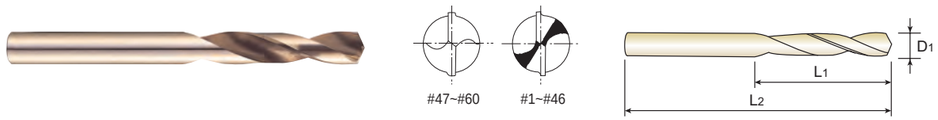
ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

STRAIGHT SHANK DRILLS

D1119 SERIES

HSS, STRAIGHT SHANK SCREW MACHINE

▶**Flute Geometry** : Right hand spiral, wider flutes
▶**Point Angle** : 135° : Split point
Wire gauge size #47~#60 : Normal point
Wire gauge size #1~#46 : Split point
▶**Application** : Drilling in steel, cast steel alloyed and Non-alloyed, grey cast iron, graphite, malleable cast iron



ANSI HSS N 20~30° ANSI 135° p.A242

▶ Wire gauge sizes

Unit : Inch

EDP No.	Diameter		Flute Length	Overall Length
	Wire gauge	Decimal		
Coloring	D1		L1	L2
*D1119201	1	.2280	1-5/16	2-7/16
*D1119202	2	.2210	1-5/16	2-7/16
*D1119203	3	.2130	1-1/4	2-3/8
*D1119204	4	.2090	1-1/4	2-3/8
*D1119205	5	.2055	1-1/4	2-3/8
*D1119206	6	.2040	1-1/4	2-3/8
*D1119207	7	.2010	1-3/16	2-1/4
*D1119208	8	.1990	1-3/16	2-1/4
*D1119209	9	.1960	1-3/16	2-1/4
*D1119210	10	.1935	1-3/16	2-1/4
*D1119211	11	.1910	1-3/16	2-1/4
*D1119212	12	.1890	1-3/16	2-1/4
*D1119213	13	.1850	1-1/8	2-3/16
*D1119214	14	.1820	1-1/8	2-3/16
*D1119215	15	.1800	1-1/8	2-3/16
*D1119216	16	.1770	1-1/8	2-3/16
*D1119217	17	.1730	1-1/8	2-3/16
*D1119218	18	.1695	1-1/16	2-1/8
*D1119219	19	.1660	1-1/16	2-1/8
*D1119220	20	.1610	1-1/16	2-1/8
*D1119221	21	.1590	1-1/16	2-1/8
*D1119222	22	.1570	1-1/16	2-1/8
*D1119223	23	.1540	1	2-1/16
*D1119224	24	.1520	1	2-1/16
*D1119225	25	.1495	1	2-1/16
*D1119226	26	.1470	1	2-1/16
*D1119227	27	.1440	1	2-1/16
*D1119228	28	.1405	15/16	1-15/16
*D1119229	29	.1360	15/16	1-15/16
*D1119230	30	.1285	15/16	1-15/16

EDP No.	Diameter		Flute Length	Overall Length
	Wire gauge	Decimal		
Coloring	D1		L1	L2
*D1119231	31	.1200	7/8	1-7/8
*D1119232	32	.1160	7/8	1-7/8
*D1119233	33	.1130	7/8	1-7/8
*D1119234	34	.1110	7/8	1-7/8
*D1119235	35	.1100	7/8	1-7/8
*D1119236	36	.1065	13/16	1-13/16
*D1119237	37	.1040	13/16	1-13/16
*D1119238	38	.1015	13/16	1-13/16
*D1119239	39	.0995	13/16	1-13/16
*D1119240	40	.0980	13/16	1-13/16
*D1119241	41	.0960	13/16	1-13/16
*D1119242	42	.0935	3/4	1-3/4
*D1119243	43	.0890	3/4	1-3/4
*D1119244	44	.0860	3/4	1-3/4
*D1119245	45	.0820	3/4	1-3/4
*D1119246	46	.0810	3/4	1-3/4
*D1119247	47	.0785	11/16	1-11/16
*D1119248	48	.0760	11/16	1-11/16
*D1119249	49	.0730	11/16	1-11/16
*D1119250	50	.0700	11/16	1-11/16
*D1119251	51	.0670	11/16	1-11/16
*D1119252	52	.0635	11/16	1-11/16
*D1119253	53	.0595	5/8	1-5/8
*D1119254	54	.0550	5/8	1-5/8
*D1119255	55	.0520	5/8	1-5/8
*D1119256	56	.0465	1/2	1-3/8
*D1119257	57	.0430	1/2	1-3/8
*D1119258	58	.0420	1/2	1-3/8
*D1119259	59	.0410	1/2	1-3/8
*D1119260	60	.0400	1/2	1-3/8

▶ **Tolerance** : See page 218 / * 10pcs per package

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○	○	○	○	○		○	

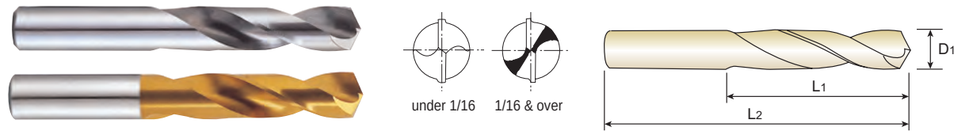
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

STRAIGHT SHANK DRILLS

UN-COATED D2146 SERIES
TiN-COATED D4146 SERIES

HSSCo8, STRAIGHT SHANK SCREW MACHINE

▶**Flute Geometry** : Right hand spiral, wider flutes
▶**Point Angle** : 135°
under 1/16 : Normal point
1/16 & over : Split point
▶**Application** : Drilling in steel, cast steel alloyed and Non-alloyed, grey cast iron, graphite, malleable cast iron



ANSI HSS Co8 N 20~30° ANSI 135° p.A242

▶ Fractional sizes

Unit : Inch

EDP No.		Drill Diameter		Flute Length	Overall Length
		Fractional	Decimal		
Bright	TiN	D1		L1	L2
*D2146003	D4146003	3/64	.0469	1/2	1-3/8
*D2146004	D4146004	1/16	.0625	5/8	1-5/8
*D2146005	D4146005	5/64	.0781	11/16	1-11/16
*D2146006	D4146006	3/32	.0938	3/4	1-3/4
**D2146007	D4146007	7/64	.1094	13/16	1-13/16
**D2146008	D4146008	1/8	.1250	7/8	1-7/8
**D2146009	D4146009	9/64	.1406	15/16	1-15/16
**D2146010	D4146010	5/32	.1563	1	2-1/16
**D2146011	D4146011	11/64	.1719	1-1/16	2-1/8
**D2146012	D4146012	3/16	.1875	1-1/8	2-3/16
**D2146013	D4146013	13/64	.2031	1-3/16	2-1/4
**D2146014	D4146014	7/32	.2188	1-1/4	2-3/8
**D2146015	D4146015	15/64	.2344	1-5/16	2-7/16
**D2146016	D4146016	1/4	.2500	1-3/8	2-1/2
**D2146017	D4146017	17/64	.2656	1-7/16	2-5/8
**D2146018	D4146018	9/32	.2813	1-1/2	2-11/16
**D2146019	D4146019	19/64	.2969	1-9/16	2-3/4
**D2146020	D4146020	5/16	.3125	1-5/8	2-13/16
**D2146021	D4146021	21/64	.3281	1-11/16	2-15/16
**D2146022	D4146022	11/32	.3438	1-11/16	3
**D2146023	D4146023	23/64	.3594	1-3/4	3-1/16
**D2146024	D4146024	3/8	.3750	1-13/16	3-1/8
**D2146025	D4146025	25/64	.3906	1-7/8	3-1/4
**D2146026	D4146026	13/32	.4063	1-15/16	3-5/16
**D2146027	D4146027	27/64	.4219	2	3-3/8
**D2146028	D4146028	7/16	.4375	2-1/16	3-7/16
**D2146029	D4146029	29/64	.4531	2-1/8	3-9/16
**D2146030	D4146030	15/32	.4688	2-1/8	3-5/8
**D2146031	D4146031	31/64	.4844	2-3/16	3-11/16
**D2146032	D4146032	1/2	.5000	2-1/4	3-3/4

▶ **Tolerance** : See page 218 / * 10pcs per package ** 5pcs per package

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○	○	○	○	○		○	

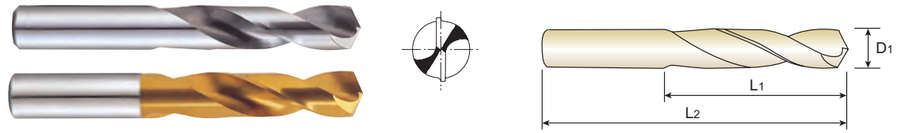
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

STRAIGHT SHANK DRILLS

UN-COATED D2147 SERIES
TiN-COATED D4147 SERIES

HSSCo8, STRAIGHT SHANK SCREW MACHINE

▶**Flute Geometry** : Right hand spiral, wider flutes
▶**Point Angle** : 135° : Split point
▶**Application** : Drilling in steel, cast steel alloyed and Non-alloyed, grey cast iron, graphite, malleable cast iron



ANSI | HSS Co8 | N 20~30° | ANSI | 135° | p.A242

▶ Letter sizes

Unit : Inch

EDP No.		Drill Diameter		Flute Length	Overall Length
		Letter	Decimal		
Bright	TiN	D1		L1	L2
** D2147201	D4147201	A	.2340	1-5/16	2-7/16
** D2147202	D4147202	B	.2380	1-3/8	2-1/2
** D2147203	D4147203	C	.2420	1-3/8	2-1/2
** D2147204	D4147204	D	.2460	1-3/8	2-1/2
** D2147205	D4147205	E	.2500	1-3/8	2-1/2
** D2147206	D4147206	F	.2570	1-7/16	2-5/8
** D2147207	D4147207	G	.2610	1-7/16	2-5/8
** D2147208	D4147208	H	.2660	1-1/2	2-11/16
** D2147209	D4147209	I	.2720	1-1/2	2-11/16
** D2147210	D4147210	J	.2770	1-1/2	2-11/16
** D2147211	D4147211	K	.2810	1-1/2	2-11/16
** D2147212	D4147212	L	.2900	1-9/16	2-3/4
** D2147213	D4147213	M	.2950	1-9/16	2-3/4
** D2147214	D4147214	N	.3020	1-5/8	2-13/16
** D2147215	D4147215	O	.3160	1-11/16	2-15/16
** D2147216	D4147216	P	.3230	1-11/16	2-15/16
** D2147217	D4147217	Q	.3320	1-11/16	3
** D2147218	D4147218	R	.3390	1-11/16	3
** D2147219	D4147219	S	.3480	1-3/4	3-1/16
** D2147220	D4147220	T	.3580	1-3/4	3-1/16
** D2147221	D4147221	U	.3680	1-13/16	3-1/8
** D2147222	D4147222	V	.3770	1-7/8	3-1/4
** D2147223	D4147223	W	.3860	1-7/8	3-1/4
** D2147224	D4147224	X	.3970	1-15/16	3-5/16
** D2147225	D4147225	Y	.4040	1-15/16	3-5/16
** D2147226	D4147226	Z	.4130	2	3-3/8

▶ **Tolerance** : See page 218 / ** 5pcs per package

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

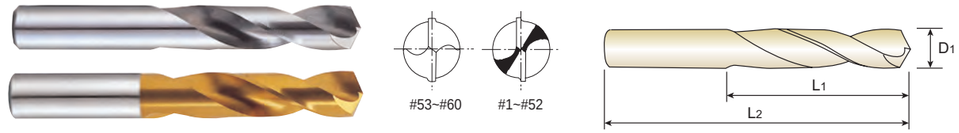
CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

STRAIGHT SHANK DRILLS

UN-COATED D2148 SERIES
TiN-COATED D4148 SERIES

HSSCo8, STRAIGHT SHANK SCREW MACHINE

▶**Flute Geometry** : Right hand spiral, wider flutes
▶**Point Angle** : 135° : Split point
Wire gauge size #53~#60 : Normal point
Wire gauge size #1~#52 : Split point
▶**Application** : Drilling in steel, cast steel alloyed and Non-alloyed, grey cast iron, graphite, malleable cast iron



ANSI | HSS Co8 | N 20~30° | ANSI | 135° | p.A242

▶ Wire gauge sizes

Unit : Inch

EDP No.		Drill Diameter		Flute Length	Overall Length
		Wire gauge	Decimal		
Bright	TiN	D1		L1	L2
** D2148101	D4148101	1	.2280	1-5/16	2-7/16
** D2148102	D4148102	2	.2210	1-5/16	2-7/16
** D2148103	D4148103	3	.2130	1-1/4	2-3/8
** D2148104	D4148104	4	.2090	1-1/4	2-3/8
** D2148105	D4148105	5	.2055	1-1/4	2-3/8
** D2148106	D4148106	6	.2040	1-1/4	2-3/8
** D2148107	D4148107	7	.2010	1-3/16	2-1/4
** D2148108	D4148108	8	.1990	1-3/16	2-1/4
** D2148109	D4148109	9	.1960	1-3/16	2-1/4
** D2148110	D4148110	10	.1935	1-3/16	2-1/4
** D2148111	D4148111	11	.1910	1-3/16	2-1/4
** D2148112	D4148112	12	.1890	1-3/16	2-1/4
** D2148113	D4148113	13	.1850	1-1/8	2-3/16
** D2148114	D4148114	14	.1820	1-1/8	2-3/16
** D2148115	D4148115	15	.1800	1-1/8	2-3/16
** D2148116	D4148116	16	.1770	1-1/8	2-3/16
** D2148117	D4148117	17	.1730	1-1/8	2-3/16
** D2148118	D4148118	18	.1695	1-1/16	2-1/8
** D2148119	D4148119	19	.1660	1-1/16	2-1/8
** D2148120	D4148120	20	.1610	1-1/16	2-1/8
** D2148121	D4148121	21	.1590	1-1/16	2-1/8
** D2148122	D4148122	22	.1570	1-1/16	2-1/8
** D2148123	D4148123	23	.1540	1	2-1/16
** D2148124	D4148124	24	.1520	1	2-1/16
** D2148125	D4148125	25	.1495	1	2-1/16
** D2148126	D4148126	26	.1470	1	2-1/16
** D2148127	D4148127	27	.1440	1	2-1/16
** D2148128	D4148128	28	.1405	15/16	1-15/16
** D2148129	D4148129	29	.1360	15/16	1-15/16
** D2148130	D4148130	30	.1285	15/16	1-15/16

▶ **Tolerance** : See page 218 / ** 5pcs per package

◎ : 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		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○	○	○	○	○		○		

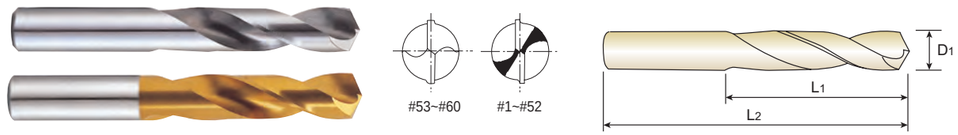
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

STRAIGHT SHANK DRILLS

UN-COATED D2148 SERIES
TiN-COATED D4148 SERIES

HSSCo8, STRAIGHT SHANK SCREW MACHINE

▶**Flute Geometry** : Right hand spiral, wider flutes
▶**Point Angle** : 135° : Split point
Wire gauge size #53~#60 : Normal point
Wire gauge size #1~#52 : Split point
▶**Application** : Drilling in steel, cast steel alloyed and Non-alloyed, grey cast iron, graphite, malleable cast iron



ANSI | HSS Co8 | N 20~30° | ANSI | 135° | p.A242

▶ Wire gauge sizes

Unit : Inch

EDP No.		Drill Diameter		Flute Length	Overall Length
		Wire gauge	Decimal		
Bright	TiN	D1		L1	L2
** D2148131	D4148131	31	.1200	7/8	1-7/8
** D2148132	D4148132	32	.1160	7/8	1-7/8
** D2148133	D4148133	33	.1130	7/8	1-7/8
** D2148134	D4148134	34	.1110	7/8	1-7/8
** D2148135	D4148135	35	.1100	7/8	1-7/8
** D2148136	D4148136	36	.1065	13/16	1-13/16
* D2148137	D4148137	37	.1040	13/16	1-13/16
* D2148138	D4148138	38	.1015	13/16	1-13/16
* D2148139	D4148139	39	.0995	13/16	1-13/16
* D2148140	D4148140	40	.0980	13/16	1-13/16
* D2148141	D4148141	41	.0960	13/16	1-13/16
* D2148142	D4148142	42	.0935	3/4	1-3/4
* D2148143	D4148143	43	.0890	3/4	1-3/4
* D2148144	D4148144	44	.0860	3/4	1-3/4
* D2148145	D4148145	45	.0820	3/4	1-3/4
* D2148146	D4148146	46	.0810	3/4	1-3/4
* D2148147	D4148147	47	.0785	11/16	1-11/16
* D2148148	D4148148	48	.0760	11/16	1-11/16
* D2148149	D4148149	49	.0730	11/16	1-11/16
* D2148150	D4148150	50	.0700	11/16	1-11/16
* D2148151	D4148151	51	.0670	11/16	1-11/16
* D2148152	D4148152	52	.0635	11/16	1-11/16
* D2148153	D4148153	53	.0595	5/8	1-5/8
* D2148154	D4148154	54	.0550	5/8	1-5/8
* D2148155	D4148155	55	.0520	5/8	1-5/8
* D2148156	D4148156	56	.0465	1/2	1-3/8
* D2148157	D4148157	57	.0430	1/2	1-3/8
* D2148158	D4148158	58	.0420	1/2	1-3/8
* D2148159	D4148159	59	.0410	1/2	1-3/8
* D2148160	D4148160	60	.0400	1/2	1-3/8

▶ **Tolerance** : See page 218 / * 10pcs per package ** cs per package

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

STRAIGHT SHANK DRILLS

DN514 SERIES

HSSCo5, STRAIGHT SHANK PARABOLIC FLUTE SCREW MACHINE, TiN COATED

▶**Flute Geometry** : Right hand spiral, Parabolic flute
38° helix
▶**Point Angle** : 130° : Split point
▶**Application** : Improved chip removal in most materials, especially in deep drilling applications.

ANSI | HSS-E | W 38° | ANSI | 130° | p.A244

▶ Fractional sizes

Unit : Inch

EDP No.	Diameter		Flute Length	Overall Length
	Fractional	Decimal		
TiN	D1		L1	L2
* DN514006	3/32	.0938	3/4	1-3/4
** DN514007	7/64	.1094	13/16	1-13/16
** DN514008	1/8	.1250	7/8	1-7/8
** DN514009	9/64	.1406	15/16	1-15/16
** DN514010	5/32	.1563	1	2-1/16
** DN514011	11/64	.1719	1-1/16	2-1/8
** DN514012	3/16	.1875	1-1/8	2-3/16
** DN514013	13/64	.2031	1-3/16	2-1/4
** DN514014	7/32	.2188	1-1/4	2-3/8
** DN514015	15/64	.2344	1-5/16	2-7/16
** DN514016	1/4	.2500	1-3/8	2-1/2
** DN514017	17/64	.2656	1-7/16	2-5/8
** DN514018	9/32	.2813	1-1/2	2-11/16
** DN514019	19/64	.2969	1-9/16	2-3/4

EDP No.	Diameter		Flute Length	Overall Length
	Fractional	Decimal		
TiN	D1		L1	L2
** DN514020	5/16	.3125	1-5/8	2-13/16
** DN514021	21/64	.3281	1-11/16	2-15/16
** DN514022	11/32	.3438	1-11/16	3
** DN514023	23/64	.3594	1-3/4	3-1/16
** DN514024	3/8	.3750	1-13/16	3-1/8
** DN514025	25/64	.3906	1-7/8	3-1/4
** DN514026	13/32	.4063	1-15/16	3-5/16
** DN514027	27/64	.4219	2	3-3/8
** DN514028	7/16	.4375	2-1/16	3-7/16
** DN514029	29/64	.4531	2-1/8	3-9/16
** DN514030	15/32	.4688	2-1/8	3-5/8
** DN514031	31/64	.4844	2-3/16	3-11/16
** DN514032	1/2	.5000	2-1/4	3-3/4

* 10pcs per package
** 5pcs per package

Tolerance Diameter (Inch)	
up to 1/8(.1250)	0 ~ -.0005
over 1/8(.1250) up to 1/4(.2500)	0 ~ -.0007
over 1/4(.2500) up to 1/2(.5000)	0 ~ -.0010

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

STRAIGHT SHANK DRILLS

DN515 SERIES

HSSCo5, STRAIGHT SHANK PARABOLIC FLUTE SCREW MACHINE, TiN COATED

▶**Flute Geometry** : Right hand spiral, Parabolic flute
38° helix
▶**Point Angle** : 130° : Split point
▶**Application** : Improved chip removal in most materials, especially in deep drilling applications.

ANSI HSS-E W 38° ANSI 130° p.A244

▶ Wire gauge sizes

Unit : Inch

EDP No.	Diameter		Flute Length	Overall Length
	Wire gauge	Decimal		
TiN	D1		L1	L2
** DN515201	1	.2280	1-5/16	2-7/16
** DN515202	2	.2210	1-5/16	2-7/16
** DN515203	3	.2130	1-1/4	2-3/8
** DN515204	4	.2090	1-1/4	2-3/8
** DN515205	5	.2055	1-1/4	2-3/8
** DN515206	6	.2040	1-1/4	2-3/8
** DN515207	7	.2010	1-3/16	2-1/4
** DN515208	8	.1990	1-3/16	2-1/4
** DN515209	9	.1960	1-3/16	2-1/4
** DN515210	10	.1935	1-3/16	2-1/4
** DN515211	11	.1910	1-3/16	2-1/4
** DN515212	12	.1890	1-3/16	2-1/4
** DN515213	13	.1850	1-1/8	2-3/16
** DN515214	14	.1820	1-1/8	2-3/16
** DN515215	15	.1800	1-1/8	2-3/16
** DN515216	16	.1770	1-1/8	2-3/16
** DN515217	17	.1730	1-1/8	2-3/16
** DN515218	18	.1695	1-1/16	2-1/8
** DN515219	19	.1660	1-1/16	2-1/8
** DN515220	20	.1610	1-1/16	2-1/8
** DN515221	21	.1590	1-1/16	2-1/8
** DN515222	22	.1570	1-1/16	2-1/8
** DN515223	23	.1540	1	2-1/16
** DN515224	24	.1520	1	2-1/16

EDP No.	Diameter		Flute Length	Overall Length
	Wire gauge	Decimal		
TiN	D1		L1	L2
** DN515225	25	.1495	1	2-1/16
** DN515226	26	.1470	1	2-1/16
** DN515227	27	.1440	1	2-1/16
** DN515228	28	.1405	15/16	1-15/16
** DN515229	29	.1360	15/16	1-15/16
** DN515230	30	.1285	15/16	1-15/16
** DN515231	31	.1200	7/8	1-7/8
** DN515232	32	.1160	7/8	1-7/8
** DN515233	33	.1130	7/8	1-7/8
** DN515234	34	.1110	7/8	1-7/8
** DN515235	35	.1100	7/8	1-7/8
** DN515236	36	.1065	13/16	1-13/16
* DN515237	37	.1040	13/16	1-13/16
* DN515238	38	.1015	13/16	1-13/16
* DN515239	39	.0995	13/16	1-13/16
* DN515240	40	.0980	13/16	1-13/16
* DN515241	41	.0960	13/16	1-13/16
* DN515242	42	.0935	3/4	1-3/4
* DN515243	43	.0890	3/4	1-3/4
* DN515244	44	.0860	3/4	1-3/4
* DN515245	45	.0820	3/4	1-3/4
* DN515246	46	.0810	3/4	1-3/4
* DN515247	47	.0785	11/16	1-11/16

* 10pcs per package
** 5pcs per package

Tolerance Diameter (Inch)	
up to 1/8(.1250)	0 ~ -.0005
over 1/8(.1250) up to 1/4(.2500)	0 ~ -.0007
over 1/4(.2500) up to 1/2(.5000)	0 ~ -.0010

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

STRAIGHT SHANK DRILLS

DN516 SERIES

HSSCo5, STRAIGHT SHANK PARABOLIC FLUTE SCREW MACHINE, TiN COATED

▶**Flute Geometry** : Right hand spiral, Parabolic flute
38° helix
▶**Point Angle** : 130° : Split point
▶**Application** : Improved chip removal in most materials, especially in deep drilling applications.

ANSI HSS-E W 38° ANSI 130° p.A244

▶ Letter sizes

Unit : Inch

EDP No.	Diameter		Flute Length	Overall Length
	Letter	Decimal		
TiN	D1		L1	L2
** DN516101	A	.2340	1-5/16	2-7/16
** DN516102	B	.2380	1-3/8	2-1/2
** DN516103	C	.2420	1-3/8	2-1/2
** DN516104	D	.2460	1-3/8	2-1/2
** DN516105	E	.2500	1-3/8	2-1/2
** DN516106	F	.2570	1-7/16	2-5/8
** DN516107	G	.2610	1-7/16	2-5/8
** DN516108	H	.2660	1-1/2	2-11/16
** DN516109	I	.2720	1-1/2	2-11/16
** DN516110	J	.2770	1-1/2	2-11/16
** DN516111	K	.2810	1-1/2	2-11/16
** DN516112	L	.2900	1-9/16	2-3/4
** DN516113	M	.2950	1-9/16	2-3/4

EDP No.	Diameter		Flute Length	Overall Length
	Letter	Decimal		
TiN	D1		L1	L2
** DN516114	N	.3020	1-5/8	2-13/16
** DN516115	O	.3160	1-11/16	2-15/16
** DN516116	P	.3230	1-11/16	2-15/16
** DN516117	Q	.3320	1-11/16	3
** DN516118	R	.3390	1-11/16	3
** DN516119	S	.3480	1-3/4	3-1/16
** DN516120	T	.3580	1-3/4	3-1/16
** DN516121	U	.3680	1-13/16	3-1/8
** DN516122	V	.3770	1-7/8	3-1/4
** DN516123	W	.3860	1-7/8	3-1/4
** DN516124	X	.3970	1-15/16	3-5/16
** DN516125	Y	.4040	1-15/16	3-5/16
** DN516126	Z	.4130	2	3-3/8

** 5pcs per package

Tolerance Diameter (Inch)	
up to 1/8(.1250)	0 ~ -.0005
over 1/8(.1250) up to 1/4(.2500)	0 ~ -.0007
over 1/4(.2500) up to 1/2(.5000)	0 ~ -.0010

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○					○	○	○	○	○	○

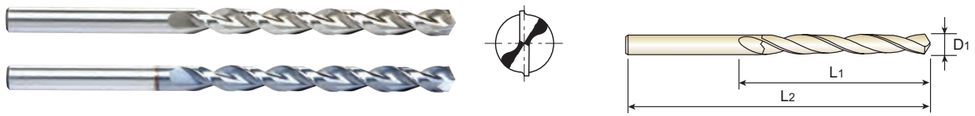
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

STRAIGHT SHANK DRILLS

UN-COATED DL517 SERIES
TiCN-COATED DX517 SERIES

HSSCo5, STRAIGHT SHANK PARABOLIC FLUTE TAPER LENGTH, TiCN COATED

▶Flute Geometry : Right hand spiral, Parabolic flute
38° helix
▶Point Angle : 130° : Split point
▶Application : Improved chip removal in most materials, especially in deep drilling applications.



ANSI HSS-E W 38° ANSI 130° p.A244

▶ Fractional sizes

Unit : Inch

EDP No.		Drill Diameter		Flute Length	Overall Length
		Fractional	Decimal		
Bright	TiCN	D1		L1	L2
* DL517005	DX517005	5/64	.0781	2	3-3/4
* DL517006	DX517006	3/32	.0938	2-1/4	4-1/4
* DL517007	DX517007	7/64	.1094	2-1/2	4-5/8
* DL517008	DX517008	1/8	.1250	2-3/4	5-1/8
* DL517009	DX517009	9/64	.1406	3	5-3/8
* DL517010	DX517010	5/32	.1563	3	5-3/8
* DL517011	DX517011	11/64	.1719	3-3/8	5-3/4
* DL517012	DX517012	3/16	.1875	3-3/8	5-3/4
* DL517013	DX517013	13/64	.2031	3-5/8	6
* DL517014	DX517014	7/32	.2188	3-5/8	6
* DL517015	DX517015	15/64	.2344	3-3/4	6-1/8
** DL517016	DX517016	1/4	.2500	3-3/4	6-1/8
** DL517017	DX517017	17/64	.2656	3-7/8	6-1/4
** DL517018	DX517018	9/32	.2813	3-7/8	6-1/4
** DL517019	DX517019	19/64	.2969	4	6-3/8
** DL517020	DX517020	5/16	.3125	4	6-3/8
** DL517021	DX517021	21/64	.3281	4-1/8	6-1/2
** DL517022	DX517022	11/32	.3438	4-1/8	6-3/4
** DL517023	DX517023	23/64	.3594	4-1/4	6-3/4
** DL517024	DX517024	3/8	.3750	4-1/4	6-3/4
** DL517025	DX517025	25/64	.3906	4-3/8	7
** DL517026	DX517026	13/32	.4063	4-3/8	7
** DL517027	DX517027	27/64	.4219	4-5/8	7-1/4
** DL517028	DX517028	7/16	.4375	4-5/8	7-1/4
** DL517029	DX517029	29/64	.4531	4-3/4	7-1/2
** DL517030	DX517030	15/32	.4688	4-3/4	7-1/2
** DL517031	DX517031	31/64	.4844	4-3/4	7-3/4
** DL517032	DX517032	1/2	.5000	4-3/4	7-3/4

▶ **Tolerance** : See page 218

* 10pcs per package ** 5pcs per package

◎ : Excellent ○ : Good

ISO	P																			
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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

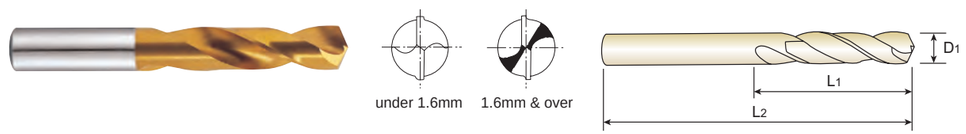
STRAIGHT SHANK DRILLS

D4107 SERIES

HSSCo8, STRAIGHT SHANK DRILL, TiN COATED

STUB

▶**Flute Geometry** : Right hand spiral helix
▶**Point Angle** : 135˚
under 1.6mm : Normal point
1.6mm & over : Split point
▶**Surface Treatment** : TiN Coating
▶**Application** : Drills suitable for drilling in thin materials with portable drills. Special twist drills for automatic and turret lathes.



DIN 1897 HSS Co8 33° h8 135° p.A244

Unit : mm

EDP No.	Diameter		Flute Length	Overall Length
	Metric	Inch		
TiN	D1		L1	L2
* D4107010	1.0	.0394	6	26
* D4107011	1.1	.0433	7	28
* D4107012	1.2	.0472	8	30
* D4107912	1.25	.0492	8	30
* D4107013	1.3	.0512	8	30
* D4107014	1.4	.0551	9	32
* D4107015	1.5	.0591	9	32
* D4107016	1.6	.0630	10	34
* D4107017	1.7	.0669	10	34
* D4107917	1.75	.0689	11	36
* D4107018	1.8	.0709	11	36
* D4107019	1.9	.0748	11	36
* D4107020	2.0	.0787	12	38
* D4107021	2.1	.0827	12	38
* D4107022	2.2	.0866	13	40
* D4107925	2.25	.0886	13	40
* D4107023	2.3	.0906	13	40
* D4107024	2.4	.0945	14	43
* D4107025	2.5	.0984	14	43
* D4107026	2.6	.1024	14	43
* D4107027	2.7	.1063	16	46
** D4107927	2.75	.1083	16	46
** D4107028	2.8	.1102	16	46
** D4107029	2.9	.1142	16	46
** D4107030	3.0	.1181	16	46
** D4107031	3.1	.1220	18	49
** D4107032	3.2	.1260	18	49
** D4107932	3.25	.1280	18	49
** D4107033	3.3	.1299	18	49
** D4107034	3.4	.1339	20	52

EDP No.	Diameter		Flute Length	Overall Length
	Metric	Inch		
TiN	D1		L1	L2
** D4107035	3.5	.1378	20	52
** D4107036	3.6	.1417	20	52
** D4107037	3.7	.1457	20	52
** D4107937	3.75	.1476	20	52
** D4107038	3.8	.1496	22	55
** D4107039	3.9	.1535	22	55
** D4107040	4.0	.1575	22	55
** D4107041	4.1	.1614	22	55
** D4107042	4.2	.1654	22	55
** D4107942	4.25	.1673	22	55
** D4107043	4.3	.1693	24	58
** D4107044	4.4	.1732	24	58
** D4107045	4.5	.1772	24	58
** D4107046	4.6	.1811	24	58
** D4107946	4.65	.1831	24	58
** D4107047	4.7	.1850	24	58
** D4107947	4.75	.1870	24	58
** D4107048	4.8	.1890	26	62
** D4107049	4.9	.1929	26	62
** D4107050	5.0	.1969	26	62
** D4107051	5.1	.2008	26	62
** D4107052	5.2	.2047	26	62
** D4107952	5.25	.2067	26	62
** D4107053	5.3	.2087	26	62
** D4107054	5.4	.2126	28	66
** D4107055	5.5	.2165	28	66
** D4107955	5.55	.2185	28	66
** D4107056	5.6	.2205	28	66
** D4107057	5.7	.2244	28	66
** D4107957	5.75	.2264	28	66

▶ The HSSCo5(DL107) is available when you need.
The TiN(D4107), TiCN(D7107) and TiAlN(DQ107) are available on your request.

* 10pcs per package ** 5pcs per package

◎ : Excellent ○ : Good

ISO	P																			
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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

STRAIGHT SHANK DRILLS

D4107 SERIES

HSSCo8, STRAIGHT SHANK DRILL, TiN COATED

STUB

- ▶**Flute Geometry** : Right hand spiral helix
- ▶**Point Angle** : 135˚
  under 1.6mm : Normal point
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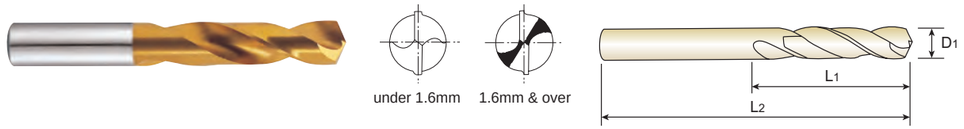
- ▶**Application** : Drills suitable for drilling in thin materials with portable drills. Special twist drills for automatic and turret lathes.



DIN 1897 | HSS Co8 | 33° | h8 | 135° | p.A244

Unit : mm

EDP No.	Diameter		Flute Length	Overall Length
	Metric	Inch		
TiN	D1		L1	L2
** D4107058	5.8	.2283	28	66
** D4107059	5.9	.2323	28	66
** D4107060	6.0	.2362	28	66
** D4107061	6.1	.2402	31	70
** D4107062	6.2	.2441	31	70
** D4107962	6.25	.2461	31	70
** D4107063	6.3	.2480	31	70
** D4107064	6.4	.2520	31	70
** D4107065	6.5	.2559	31	70
** D4107066	6.6	.2598	31	70
** D4107067	6.7	.2638	31	70
** D4107967	6.75	.2657	34	74
** D4107068	6.8	.2677	34	74
** D4107069	6.9	.2717	34	74
** D4107070	7.0	.2756	34	74
** D4107071	7.1	.2795	34	74
** D4107072	7.2	.2835	34	74
** D4107972	7.25	.2854	34	74
** D4107073	7.3	.2874	34	74
** D4107074	7.4	.2913	34	74
** D4107974	7.45	.2933	34	74
** D4107075	7.5	.2953	34	74
** D4107076	7.6	.2992	37	79
** D4107077	7.7	.3031	37	79
** D4107977	7.75	.3051	37	79
** D4107078	7.8	.3071	37	79
** D4107079	7.9	.3110	37	79
** D4107080	8.0	.3150	37	79
** D4107081	8.1	.3189	37	79
** D4107082	8.2	.3228	37	79

EDP No.	Diameter		Flute Length	Overall Length
	Metric	Inch		
TiN	D1		L1	L2
** D4107982	8.25	.3248	37	79
** D4107083	8.3	.3268	37	79
** D4107084	8.4	.3307	37	79
** D4107085	8.5	.3346	37	79
** D4107086	8.6	.3386	40	84
** D4107087	8.7	.3425	40	84
** D4107987	8.75	.3445	40	84
** D4107088	8.8	.3465	40	84
** D4107089	8.9	.3504	40	84
** D4107090	9.0	.3543	40	84
** D4107091	9.1	.3583	40	84
** D4107092	9.2	.3622	40	84
** D4107992	9.25	.3642	40	84
** D4107093	9.3	.3661	40	84
** D4107993	9.35	.3681	40	84
** D4107094	9.4	.3701	40	84
** D4107095	9.5	.3740	40	84
** D4107096	9.6	.3780	43	89
** D4107097	9.7	.3819	43	89
** D4107997	9.75	.3839	43	89
** D4107098	9.8	.3858	43	89
** D4107099	9.9	.3898	43	89
** D4107100	10.0	.3937	43	89
** D4107102	10.2	.4016	43	89
** D4107802	10.25	.4035	43	89
** D4107105	10.5	.4134	43	89
** D4107807	10.75	.4232	47	95
** D4107110	11.0	.4330	47	95
** D4107812	11.25	.4429	47	95
** D4107115	11.5	.4527	47	95

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** 5pcs per package

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
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STRAIGHT SHANK DRILLS

D4107 SERIES

HSSCo8, STRAIGHT SHANK DRILL, TiN COATED

STUB

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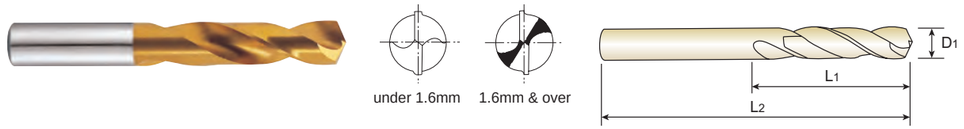

DIN 1897 | HSS Co8 | 33° | h8 | 135° | p.A244

Unit : mm

EDP No.	Diameter		Flute Length	Overall Length
	Metric	Inch		
TiN	D1		L1	L2
** D4107817	11.75	.4626	47	95
** D4107118	11.8	.4645	47	95
** D4107120	12.0	.4724	51	102
** D4107822	12.25	.4823	51	102
** D4107125	12.5	.4921	51	102
** D4107827	12.75	.5020	51	102
** D4107130	13.0	.5118	51	102
- D4107832	13.25	.5217	54	107
- D4107135	13.5	.5314	54	107
- D4107837	13.75	.5413	54	107
- D4107138	13.8	.5433	54	107
- D4107140	14.0	.5512	54	107
- D4107842	14.25	.5610	56	111
- D4107145	14.5	.5708	56	111
- D4107847	14.75	.5807	56	111
- D4107150	15.0	.5905	56	111
- D4107852	15.25	.6004	58	115
- D4107155	15.5	.6102	58	115
- D4107857	15.75	.6201	58	115
- D4107160	16.0	.6299	58	115
- D4107862	16.25	.6398	60	119
- D4107165	16.5	.6495	60	119
- D4107867	16.75	.6594	60	119
- D4107170	17.0	.6692	60	119
- D4107872	17.25	.6791	62	123
- D4107175	17.5	.6889	62	123

EDP No.	Diameter		Flute Length	Overall Length
	Metric	Inch		
TiN	D1		L1	L2
- D4107877	17.75	.6907	62	123
- D4107180	18.0	.7087	62	123
- D4107882	18.25	.7185	64	127
- D4107185	18.5	.7283	64	127
- D4107887	18.75	.7382	64	127
- D4107190	19.0	.7480	64	127
- D4107892	19.25	.7579	66	131
- D4107195	19.5	.7676	66	131
- D4107897	19.75	.7776	66	131
- D4107200	20.0	.7874	66	131
- D4107205	20.5	.8071	68	136
- D4107210	21.0	.8268	68	136
- D4107215	21.5	.8465	70	141
- D4107220	22.0	.8661	70	141
- D4107225	22.5	.8858	72	146
- D4107230	23.0	.9055	72	146
- D4107235	23.5	.9252	72	146
- D4107240	24.0	.9449	75	151
- D4107245	24.5	.9646	75	151
- D4107250	25.0	.9843	75	151
- D4107260	26.0	1.0236	78	156
- D4107270	27.0	1.0630	81	162
- D4107280	28.0	1.1024	81	162
- D4107290	29.0	1.1417	84	168
- D4107300	30.0	1.1811	84	168
- D4107310	31.0	1.2205	87	174

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** 5pcs per package
- 1pcs per package

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

STRAIGHT SHANK DRILLS

RECOMMENDED CUTTING CONDITIONS

D1118, D1115, D1119, D2146, D2147, D2148 SERIES

HSS STRAIGHT SHANK DRILLS

SFM = ft/min.
RPM = rev./min.
FEED = inch/rev.

ISO	VDI 3323	Material Description	SFM	Drill Diameter										
				METRIC	2.0	3.0	-	4.0	6.0	-	-	8.0	-	10.0
				FRACTIONAL	-	-	1/8	-	-	1/4	5/16	-	3/8	-
				DECIMAL	.0787	.1181	.1250	.1575	.2362	.2500	.3125	.3150	.3750	.3937
P	1	Non-alloy steel	99	RPM	4770	3180		2390	1590		1190			950
				FEED	.0008 - .0016	.0012 - .0020		.0016 - .0024	.0020 - .0031		.0039 - .0051			.0043 - .0059
	2		82	RPM	3980	2650		1990	1330		990			800
				FEED	.0008 - .0016	.0012 - .0020		.0016 - .0024	.0020 - .0031		.0039 - .0051			.0043 - .0059
	3		66	RPM	3180	2120		1590	1060		800			640
				FEED	.0008 - .0016	.0012 - .0020		.0016 - .0024	.0020 - .0031		.0039 - .0051			.0043 - .0059
	4		66	RPM	3180	2120		1590	1060		800			640
				FEED	.0004 - .0008	.0004 - .0012		.0008 - .0016	.0008 - .0020		.0012 - .0024			.0012 - .0024
	6	Low alloy steel	82	RPM	3980	2650		1990	1330		990			800
				FEED	.0008 - .0016	.0012 - .0020		.0016 - .0024	.0020 - .0031		.0039 - .0051			.0043 - .0059
	7		66	RPM	3180	2120		1590	1060		800			640
				FEED	.0008 - .0016	.0012 - .0020		.0016 - .0024	.0020 - .0031		.0039 - .0051			.0043 - .0059
	8		66	RPM	3180	2120		1590	1060		800			640
				FEED	.0004 - .0008	.0004 - .0012		.0008 - .0016	.0008 - .0020		.0012 - .0024			.0012 - .0024
	10	High alloyed steel, and tool steel	49	RPM	2390	1590		1190	800		600			480
				FEED	.0008 - .0016	.0012 - .0020		.0016 - .0024	.0020 - .0031		.0039 - .0051			.0043 - .0059
M	12	Stainless steel	66	RPM	3180	2120		1590	1060		800			640
				FEED	.0008 - .0016	.0012 - .0020		.0016 - .0024	.0020 - .0031		.0039 - .0051			.0043 - .0059
	13		49	RPM	2390	1590		1190	800		600			480
				FEED	.0008 - .0016	.0012 - .0020		.0016 - .0024	.0020 - .0031		.0039 - .0051			.0043 - .0059
	14		33	RPM	1590	1060		800	530		400			320
				FEED	.0004 - .0008	.0004 - .0012		.0008 - .0016	.0008 - .0020		.0012 - .0024			.0012 - .0024
K	15	Grey cast iron	99	RPM	4770	3180		2390	1590		1190			950
				FEED	.0008 - .0016	.0012 - .0020		.0016 - .0024	.0020 - .0031		.0039 - .0051			.0043 - .0059
	16		82	RPM	3980	2650		1990	1330		990			800
				FEED	.0004 - .0008	.0004 - .0012		.0008 - .0016	.0008 - .0020		.0012 - .0024			.0012 - .0024
	17	Nodular cast iron	99	RPM	4770	3180		2390	1590		1190			950
				FEED	.0008 - .0016	.0012 - .0020		.0016 - .0024	.0020 - .0031		.0039 - .0051			.0043 - .0059
	19	Malleable cast iron	82	RPM	3980	2650		1990	1330		990			800
				FEED	.0008 - .0016	.0012 - .0020		.0016 - .0024	.0020 - .0031		.0039 - .0051			.0043 - .0059
N	21	Aluminum-wrought alloy	181	RPM	8750	5840		4380	2920		2190			1750
				FEED	.0012 - .0024	.0020 - .0035		.0028 - .0043	.0047 - .0063		.0047 - .0071			.0055 - .0079
	22		181	RPM	8750	5840		4380	2920		2190			1750
				FEED	.0012 - .0024	.0020 - .0035		.0028 - .0043	.0047 - .0063		.0047 - .0071			.0055 - .0079
	23	Aluminum-cast, alloyed	132	RPM	6370	4240		3180	2120		1590			1270
				FEED	.0012 - .0024	.0020 - .0035		.0028 - .0043	.0047 - .0063		.0047 - .0071			.0055 - .0079
	29	Non Metallic Materials	66	RPM	3180	2120		1590	1060		800			640
				FEED	.0008 - .0016	.0012 - .0020		.0016 - .0024	.002 - .0031		.0039 - .0051			.0043 - .0059
	36	Titanium Alloys	33	RPM	1590	1060		800	530		400			320
				FEED	.0004 - .0012	.0008 - .0016		.0012 - .0020	.0016 - .0028		.0020 - .0031			.0020 - .0035

STRAIGHT SHANK DRILLS
RECOMMENDED CUTTING CONDITIONS

SFM = ft/min.
RPM = rev./min.
FEED = inch/rev.

VDI 3323	Drill Diameter									
	METRIC	-	13.0		16.0	18.0	-	20.0	-	30.0
	FRACTIONAL	1/2			5/8	-	3/4	-	1"	
	DECIMAL	.5000	.5118	.6250	.6299	.7086	0.75	.7874	1.0000	
1	RPM	730		600		530	500	480	380	320
	FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .0110	.0087 - .0110
2	RPM	610		500		440	420	400	310	270
	FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .0110	.0087 - .0110
3	RPM	490		400		350	340	320	250	210
	FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .0110	.0087 - .0110
4	RPM	490		400		350	340	320	250	210
	FEED	.0016 - .0039		.0024 - .0047		.0031 - .0055	.0035 - .0059	.0039 - .0063	.0047 - .0071	.0047 - .0071
6	RPM	610		500		440	420	400	310	270
	FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .0110	.0087 - .0110
7	RPM	490		400		350	340	320	250	210
	FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .0110	.0087 - .0110
8	RPM	490		400		350	340	320	250	210
	FEED	.0016 - .0039		.0024 - .0047		.0031 - .0055	.0035 - .0059	.0039 - .0063	.0047 - .0071	.0047 - .0071
10	RPM	370		300		270	250	240	190	160
	FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .0110	.0087 - .0110
12	RPM	490		400		350	340	320	250	210
	FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .0110	.0087 - .0110
13	RPM	370		300		270	250	240	190	160
	FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .0110	.0087 - .0110
14	RPM	240		200		180	170	160	130	110
	FEED	.0016 - .0039		.0024 - .0047		.0031 - .0055	.0035 - .0059	.0039 - .0063	.0047 - .0071	.0047 - .0071
15	RPM	730		600		530	500	480	380	320
	FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098		.0087 - .0110
16	RPM	610		500		440	420	400	310	270
	FEED	.0016 - .0039		.0024 - .0047		.0031 - .0055	.0035 - .0059	.0039 - .0063	.0047 - .0071	.0047 - .0071
17	RPM	730		600		530	500	480	380	320
	FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .0110	.0087 - .0110
19	RPM	610		500		440	420	400	310	270
	FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .0110	.0087 - .0110
21	RPM	1350		1090		970	920	880	690	580
	FEED	.0063 - .0087		.0071 - .0094		.0079 - .0110	.0079 - .0118	.0079 - .0118	.0110 - .0150	.0110 - .0150
22	RPM	1350		1090		970	920	880	690	580
	FEED	.0063 - .0087		.0071 - .0094		.0079 - .0110	.0079 - .0118	.0079 - .0118	.0110 - .0150	.0110 - .0150
23	RPM	980		800		710	670	640	500	420
	FEED	.0063 - .0087		.0071 - .0094		.0079 - .0110	.0079 - .0118	.0079 - .0118	.0110 - .0150	.0110 - .0150
29	RPM	490		400		350	340	320	250	210
	FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .0110	.0087 - .0110
36	RPM	240		200		180	170	160	130	110
	FEED	.0024 - .0039		.0020 - .0043		.0024 - .0047	.0030 - .0049	.0035 - .0051	.0047 - .0071	.0047 - .0071

STRAIGHT SHANK DRILLS

RECOMMENDED CUTTING CONDITIONS

D4107, DN514, DN515, DN516, DX517 SERIES

COATED HSS STRAIGHT SHANK DRILLS

SFM = ft/min.
RPM = rev./min.
FEED = inch/rev.

ISO	VDI 3323	Material Description	SFM	Drill Diameter												
				METRIC	2.0	3.0	-	4.0	6.0	-	-	8.0	-	10.0	-	13
				FRACTIONAL	-	-	1/8	-	-	1/4	5/16	-	3/8	-	1/2	-
				DECIMAL	.0787	.1181	.1250	.1575	.2362	.2500	.3125	.3150	.3750	.3937	.5000	.5118
P	1	Non-alloy steel	132	RPM	6370	4240		3180	2120		1590		1270		980	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0071		.0063 - .0087		.0071 - .0094	
	2		115	RPM	5570	3710		2790	1860		1390		1110		860	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0071		.0063 - .0087		.0071 - .0094	
	3		99	RPM	4770	3180		2390	1590		1190		950		730	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0071		.0063 - .0087		.0071 - .0094	
	4		66	RPM	3180	2120		1590	1060		800		640		490	
				FEED	.0008 - .0020	.0008 - .0024		.0016 - .0031	.0016 - .0039		.0024 - .0047		.0031 - .0055		.0047 - .0071	
	6	Low alloy steel	115	RPM	5570	3710		2790	1860		1390		1110.000		860	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0071		.0063 - .0087		.0071 - .0094	
	7		99	RPM	4770	3180		2390	1590		1190		950		730	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0071		.0063 - .0087		.0071 - .0094	
	8		99	RPM	4770	3180		2390	1590		1190		950		730	
				FEED	.0008 - .0020	.0008 - .0024		.0016 - .0031	.0016 - .0039		.0024 - .0047		.0031 - .0055		.0047 - .0071	
	10	High alloyed steel, and tool steel	66	RPM	3180	2120		1590	1060		800		640		490	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0071		.0063 - .0087		.0071 - .0094	
M	12	Stainless steel	82	RPM	3980	2650		1990	1330		990		800		610	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0071		.0063 - .0087		.0071 - .0094	
	13		66	RPM	3180	2120		1590	1060		800		640		490	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0071		.0063 - .0087		.0071 - .0094	
	14		49	RPM	2390	1590		1190	800		600		480		370	
				FEED	.0008 - .0020	.0008 - .0024		.0016 - .0031	.0016 - .0039		.0024 - .0047		.0031 - .0055		.0047 - .0071	
K	15	Grey cast iron	132	RPM	6370	4240		3180	2120		1590		1270		980	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0071		.0063 - .0087		.0071 - .0094	
	16		115	RPM	5570	3710		2790	1860		1390		1110		860	
				FEED	.0008 - .0020	.0008 - .0024		.0016 - .0031	.0016 - .0039		.0024 - .0047		.0031 - .0055		.0047 - .0071	
	17	Nodular cast iron Mallable cast iron	132	RPM	6370	4240		3180	2120		1590		1270		980	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0071		.0063 - .0087		.0071 - .0094	
	18		99	RPM	4770	3180		2390	1590		1190		950		730	
				FEED	.0008 - .0020	.0008 - .0024		.0016 - .0031	.0016 - .0039		.0024 - .0047		.0031 - .0055		.0047 - .0071	
	19	Malleable cast iron	115	RPM	5570	3710		2790	1860		1390		1110		860	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0071		.0063 - .0087		.0071 - .0094	
	20		99	RPM	4770	3180		2390	1590		1190		950		730	
				FEED	.0008 - .0020	.0008 - .0024		.0016 - .0031	.0016 - .0039		.0024 - .0047		.0031 - .0055		.0047 - .0071	
N	21	Aluminum-wrought alloy	214	RPM	10350	6900		5170	3450		2590		2070		1590	
				FEED	.0020 - .0035	.0028 - .0043		.0047 - .0063	.0047 - .0071		.0055 - .0079		.0063 - .0087		.0087 - .0110	
	22		214	RPM	10350	6900		5170	3450		2590		2070		1590	
				FEED	.0020 - .0035	.0028 - .0043		.0047 - .0063	.0047 - .0071		.0055 - .0079		.0063 - .0087		.0087 - .0110	
	23	Aluminum-cast, alloyed	165	RPM	7960	5310		3980	2650		1990		1590		1220	
				FEED	.0020 - .0035	.0028 - .0043		.0047 - .0063	.0047 - .0071		.0055 - .0079		.0063 - .0087		.0087 - .0110	
	29	Non Metallic Materials	99	RPM	4770	3180		2390	1590		1190		950		730	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0071		.0063 - .0087		.0071 - .0094	
	36	Titanium Alloys	66	RPM	3180	2120		1590	1060		800		640		490	
				FEED	.0008 - .0020	.0008 - .0024		.0016 - .0031	.0020 - .0035		.0024 - .0039		.0028 - .0051		.0031 - .0055	

Being the best through innovation

HSSCo5 & HSS

AIRCRAFT DRILLS

- 6 and 12 inch Length Drills

SELECTION GUIDE

YG HOLEMAKING TOOLS

SERIES	DL601 DL604	DL602 DL605	DL603 DL606	D1631 D1634	D1632 D1635	D1633 D1636
STANDARD	NAS907		NAS907			
LENGTH	EXTENTION		EXTENTION			
SIZE MIN	D5/64	A	#43	D5/64	A	#43
SIZE MAX	D1/2	Z	#1	D1/2	Z	#1
PAGE	A248	A249	A250	A251	A252	A253
SURFACE TREATMENT	Coloring		Coloring	Steam Oxide		

HSSCo5 & HSS
AIRCRAFT DRILLS

- 6 and 12 inch Length Drills

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A254

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	DL601 DL604	DL602 DL605	DL603 DL606	D1631 D1634	D1632 D1635	D1633 D1636	
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	◎	◎	◎	◎	◎	1
	2		About 0.45% C	Annealed	190	13	◎	◎	◎	◎	◎	◎	2
	3		About 0.45% C	Quenched & Tempered	250	25	◎	◎	◎	◎	◎	◎	3
	4		About 0.75% C	Annealed	270	28	○	○	○	○	○	○	4
	5		About 0.75% C	Quenched & Tempered	300	32							5
	6	Low alloy steel		Annealed	180	10	◎	◎	◎	◎	◎	◎	6
	7			Quenched & Tempered	275	29	○	○	○	○	○	○	7
	8			Quenched & Tempered	300	32	○	○	○	○	○	○	8
	9			Quenched & Tempered	350	38							9
	10	High alloyed steel, and tool steel		Annealed	200	15	○	○	○	○	○	○	10
	11			Quenched & Tempered	325	35							11
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	◎	◎	◎	◎	◎	◎	12
	13		Martensitic	Quenched & Tempered	240	23	○	○	○	○	○	○	13
	14		Austenitic		180	10	○	○	○	○	○	○	14
K	15	Grey cast iron	Pearlitic / ferritic		180	10	○	○	○	○	○	○	15
	16		Pearlitic (Martensitic)		260	26	○	○	○	○	○	○	16
	17	Nodular cast iron	Ferritic		160	3	○	○	○	○	○	○	17
	18		Pearlitic		250	25							18
	19	Malleable cast iron	Ferritic		130		○	○	○	○	○	○	19
	20		Pearlitic		230	21							20
N	21	Aluminum-wrought alloy	Not Curable		60		○	○	○	○	○	○	21
	22		Curable	Hardened	100		○	○	○	○	○	○	22
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		○	○	○	○	○	○	23
	24		≤ 12% Si, Curable	Hardened	90								24
	25		> 12% Si, Not Curable		130								25
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110								26
	27		CuZn, CuSnZn (Brass)		90								27
	28		CuSn, lead-free copper and electrolytic copper		100								28
	29	Non Metallic Materials (Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.)	Duroplastic, Fiber Reinforced Plastic				○	○	○	○	○	○	29
	30		Rubber, Wood, etc.										30
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15							31
	32			Cured	280	30							32
	33		Ni or Co Based	Annealed	250	25							33
	34			Cured	350	38							34
	35			Cast	320	34							35
	36	Titanium Alloys	Pure Titanium		400 Rm		○	○	○	○	○	○	36
	37		Alpha + Beta Alloys	Hardened	1050 Rm								37
H	38	Hardened steel		Hardened	550	55							38
	39			Hardened	630	60							39
	40	Chilled Cast Iron		Cast	400	42							40
	41	Hardened Cast Iron		Hardened	550	55							41

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

AIRCRAFT DRILLS

DL601 SERIES
DL604 SERIES

HSSCo5, AIRCRAFT EXTENSION DRILL 135° SPLIT POINT COLORING

▶**Flute Geometry** : Right hand spiral, 30° helix
▶**Point Angle** : 135° : Split point
▶**Application** : Improved chip removal in most materials, especially in deep drilling applications.

HSS Co5 | NAS 907 | N 30° | 135° p.A254

▶ Fractional sizes

Unit : Inch

EDP No.	Diameter		Flute Length	Overall Length
	Fractional	Decimal		
Coloring	D1		L1	L2
* DL601005	5/64	.0781	1	6
* DL601006	3/32	.0938	1-1/4	6
* DL601007	7/64	.1094	1-1/2	6
* DL601008	1/8	.1250	1-5/8	6
* DL601009	9/64	.1406	1-3/4	6
* DL601010	5/32	.1563	2	6
* DL601011	11/64	.1719	2-1/8	6
* DL601012	3/16	.1875	2-5/16	6
* DL601013	13/64	.2031	2-7/16	6
* DL601014	7/32	.2188	2-1/2	6
* DL601015	15/64	.2344	2-5/8	6
** DL601016	1/4	.2500	2-3/4	6
** DL601017	17/64	.2656	2-7/8	6
** DL601018	9/32	.2813	2-15/16	6
** DL601019	19/64	.2969	3-1/16	6
** DL601020	5/16	.3125	3-3/16	6
** DL601021	21/64	.3281	3-5/16	6
** DL601022	11/32	.3438	3-7/16	6
** DL601023	23/64	.3594	3-1/2	6
** DL601024	3/8	.3750	3-5/8	6
** DL601025	25/64	.3906	3-3/4	6
** DL601026	13/32	.4063	3-7/8	6
** DL601027	27/64	.4219	3-15/16	6
** DL601028	7/16	.4375	4-1/16	6

EDP No.	Diameter		Flute Length	Overall Length
	Fractional	Decimal		
Coloring	D1		L1	L2
** DL601029	29/64	.4531	4-3/16	6
** DL601030	15/32	.4688	4-5/16	6
** DL601031	31/64	.4844	4-3/8	6
** DL601032	1/2	.5000	4-1/2	6
** DL604014	7/32	.2188	2-1/2	12
** DL604015	15/64	.2344	2-5/8	12
** DL604016	1/4	.2500	2-3/4	12
** DL604017	17/64	.2656	2-7/8	12
** DL604018	9/32	.2813	2-15/16	12
** DL604019	19/64	.2969	3-1/16	12
** DL604020	5/16	.3125	3-3/16	12
** DL604021	21/64	.3281	3-5/16	12
** DL604022	11/32	.3438	3-7/16	12
** DL604023	23/64	.3594	3-1/2	12
** DL604024	3/8	.3750	3-5/8	12
** DL604025	25/64	.3906	3-3/4	12
** DL604026	13/32	.4063	3-7/8	12
** DL604027	27/64	.4219	3-15/16	12
** DL604028	7/16	.4375	4-1/16	12
** DL604029	29/64	.4531	4-3/16	12
** DL604030	15/32	.4688	4-5/16	12
** DL604031	31/64	.4844	4-3/8	12
** DL604032	1/2	.5000	4-1/2	12

* 10pcs per package
** 5pcs per package

Tolerance Diameter (Inch)	
up to 1/8(.1250)	0 ~ -.0005
over 1/8(.1250) up to 1/4(.2500)	0 ~ -.0007
over 1/4(.2500) up to 1/2(.5000)	0 ~ -.0010

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○	○	○	○	○		○	

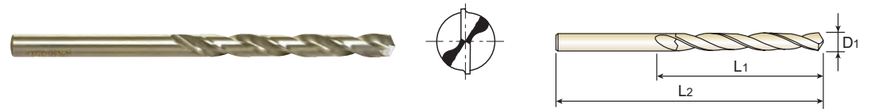
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

AIRCRAFT DRILLS

DL602 SERIES
DL605 SERIES

HSSCo5, AIRCRAFT EXTENSION DRILL 135° SPLIT POINT COLORING

▶**Flute Geometry** : Right hand spiral, 30° helix
▶**Point Angle** : 135° : Split point
▶**Application** : Improved chip removal in most materials, especially in deep drilling applications.



HSS Co5 | NAS 907 | N 30° | 135° p.A254

▶ Letter sizes

Unit : Inch

EDP No.	Diameter		Flute Length	Overall Length
	Letter	Decimal		
Coloring	D1		L1	L2
* DL602101	A	.2340	2-5/8	6
** DL602102	B	.2380	2-3/4	6
** DL602103	C	.2420	2-3/4	6
** DL602104	D	.2460	2-3/4	6
** DL602105	E	.2500	2-3/4	6
** DL602106	F	.2570	2-7/8	6
** DL602107	G	.2610	2-7/8	6
** DL602108	H	.2660	2-7/8	6
** DL602109	I	.2720	2-7/8	6
** DL602110	J	.2770	2-7/8	6
** DL602111	K	.2810	2-15/16	6
** DL602112	L	.2900	2-15/16	6
** DL602113	M	.2950	3-1/16	6
** DL602114	N	.3020	3-1/16	6
** DL602115	O	.3160	3-3/16	6
** DL602116	P	.3230	3-5/16	6
** DL602117	Q	.3320	3-7/16	6
** DL602118	R	.3390	3-7/16	6
** DL602119	S	.3480	3-1/2	6
** DL602120	T	.3580	3-1/2	6
** DL602121	U	.3680	3-5/8	6
** DL602122	V	.3770	3-5/8	6
** DL602123	W	.3860	3-3/4	6
** DL602124	X	.3970	3-3/4	6
** DL602125	Y	.4040	3-7/8	6
** DL602126	Z	.4130	3-7/8	6

EDP No.	Diameter		Flute Length	Overall Length
	Letter	Decimal		
Coloring	D1		L1	L2
* DL605101	A	.2340	2-5/8	12
** DL605102	B	.2380	2-3/4	12
** DL605103	C	.2420	2-3/4	12
** DL605104	D	.2460	2-3/4	12
** DL605105	E	.2500	2-3/4	12
** DL605106	F	.2570	2-7/8	12
** DL605107	G	.2610	2-7/8	12
** DL605108	H	.2660	2-7/8	12
** DL605109	I	.2720	2-7/8	12
** DL605110	J	.2770	2-7/8	12
** DL605111	K	.2810	2-15/16	12
** DL605112	L	.2900	2-15/16	12
** DL605113	M	.2950	3-1/16	12
** DL605114	N	.3020	3-1/16	12
** DL605115	O	.3160	3-3/16	12
** DL605116	P	.3230	3-5/16	12
** DL605117	Q	.3320	3-7/16	12
** DL605118	R	.3390	3-7/16	12
** DL605119	S	.3480	3-1/2	12
** DL605120	T	.3580	3-1/2	12
** DL605121	U	.3680	3-5/8	12
** DL605122	V	.3770	3-5/8	12
** DL605123	W	.3860	3-3/4	12
** DL605124	X	.3970	3-3/4	12
** DL605125	Y	.4040	3-7/8	12
** DL605126	Z	.4130	3-7/8	12

▶ **Tolerance** : See page 240

* 10pcs per package
** 5pcs per package

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

AIRCRAFT DRILLS

DL603 SERIES
DL606 SERIES

HSSCo5, AIRCRAFT EXTENSION DRILL 135° SPLIT POINT COLORING

▶**Flute Geometry** : Right hand spiral, 30° helix
▶**Point Angle** : 135° : Split point
▶**Application** : Improved chip removal in most materials, especially in deep drilling applications.

HSS Co5 | NAS 907 | N 30° | 135° p.A254

▶ Wire gauge sizes

Unit : Inch

EDP No.	Diameter		Flute Length	Overall Length
	Wire gauge	Decimal		
Coloring	D1		L1	L2
* DL603256	1	.2280	2-5/8	6
* DL603255	2	.2210	2-5/8	6
* DL603254	3	.2130	2-1/2	6
* DL603253	4	.2090	2-1/2	6
* DL603252	5	.2055	2-1/2	6
* DL603251	6	.2040	2-1/2	6
* DL603250	7	.2010	2-7/16	6
* DL603249	8	.1990	2-7/16	6
* DL603248	9	.1960	2-7/16	6
* DL603247	10	.1935	2-7/16	6
* DL603246	11	.1910	2-5/16	6
* DL603245	12	.1890	2-5/16	6
* DL603244	13	.1850	2-5/16	6
* DL603243	14	.1820	2-3/16	6
* DL603242	15	.1800	2-3/16	6
* DL603241	16	.1770	2-3/16	6
* DL603240	17	.1730	2-3/16	6
* DL603239	18	.1695	2-1/8	6
* DL603238	19	.1660	2-1/8	6
* DL603237	20	.1610	2-1/8	6
* DL603236	21	.1590	2-1/8	6
* DL603235	22	.1570	2	6
* DL603234	23	.1540	2	6

EDP No.	Diameter		Flute Length	Overall Length
	Wire gauge	Decimal		
Coloring	D1		L1	L2
* DL603233	24	.1520	2	6
* DL603232	25	.1495	1-7/8	6
* DL603231	26	.1470	1-7/8	6
* DL603230	27	.1440	1-7/8	6
* DL603229	28	.1405	1-3/4	6
* DL603228	29	.1360	1-3/4	6
* DL603227	30	.1280	1-5/8	6
* DL603226	31	.1200	1-5/8	6
* DL603225	32	.1160	1-5/8	6
* DL603224	33	.1130	1-1/2	6
* DL603223	34	.1110	1-1/2	6
* DL603222	35	.1100	1-1/2	6
* DL603221	36	.1065	1-7/16	6
* DL603220	37	.1040	1-7/16	6
* DL603219	38	.1015	1-7/16	6
* DL603218	39	.0995	1-3/8	6
* DL603217	40	.0980	1-3/8	6
* DL603216	41	.0960	1-3/8	6
* DL603215	42	.0935	1-1/4	6
* DL603214	43	.0890	1-1/4	6
* DL606256	1	.2280	2-5/8	12
* DL606254	3	.2130	2-1/2	12

* 10pcs per package

Tolerance Diameter (Inch)	
up to 1/8(.1250)	0 ~ -.0005
over 1/8(.1250) up to 1/4(.2500)	0 ~ -.0007
over 1/4(.2500) up to 1/2(.5000)	0 ~ -.0010

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○	○	○	○	○		○	

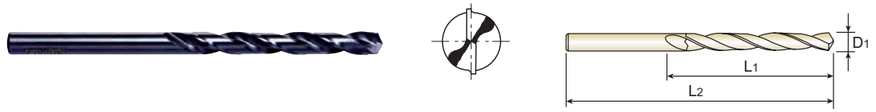
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○	○	○	○	○		○		

AIRCRAFT DRILLS

D1631 SERIES
D1634 SERIES

HSS, AIRCRAFT EXTENSION DRILL 135° SPLIT POINT STEAM OXIDE

▶**Flute Geometry** : Right hand spiral, 30° helix
▶**Point Angle** : 135° : Split point
▶**Application** : Improved chip removal in most materials, especially in deep drilling applications.



HSS | NAS 907 | N 30° | 135° p.A254

▶ Fractional sizes

Unit : Inch

EDP No.	Diameter		Flute Length	Overall Length
	Fractional	Decimal		
Steam Oxide	D1		L1	L2
* D1631005	5/64	.0781	1	6
* D1631006	3/32	.0938	1-1/4	6
* D1631007	7/64	.1094	1-1/2	6
* D1631008	1/8	.1250	1-5/8	6
* D1631009	9/64	.1406	1-3/4	6
* D1631010	5/32	.1563	2	6
* D1631011	11/64	.1719	2-1/8	6
* D1631012	3/16	.1875	2-5/16	6
* D1631013	13/64	.2031	2-7/16	6
* D1631014	7/32	.2188	2-1/2	6
* D1631015	15/64	.2344	2-5/8	6
** D1631016	1/4	.2500	2-3/4	6
** D1631017	17/64	.2656	2-7/8	6
** D1631018	9/32	.2813	2-15/16	6
** D1631019	19/64	.2969	3-1/16	6
** D1631020	5/16	.3125	3-3/16	6
** D1631021	21/64	.3281	3-5/16	6
** D1631022	11/32	.3438	3-7/16	6
** D1631023	23/64	.3594	3-1/2	6
** D1631024	3/8	.3750	3-5/8	6
** D1631025	25/64	.3906	3-3/4	6
** D1631026	13/32	.4063	3-7/8	6
** D1631027	27/64	.4219	3-15/16	6
** D1631028	7/16	.4375	4-1/16	6

EDP No.	Diameter		Flute Length	Overall Length
	Fractional	Decimal		
Steam Oxide	D1		L1	L2
** D1631029	29/64	.4531	4-3/16	6
** D1631030	15/32	.4688	4-5/16	6
** D1631031	31/64	.4844	4-3/8	6
** D1631032	1/2	.5000	4-1/2	6
** D1634014	7/32	.2188	2-1/2	12
** D1634015	15/64	.2344	2-5/8	12
** D1634016	1/4	.2500	2-3/4	12
** D1634017	17/64	.2656	2-7/8	12
** D1634018	9/32	.2813	2-15/16	12
** D1634019	19/64	.2969	3-1/16	12
** D1634020	5/16	.3125	3-3/16	12
** D1634021	21/64	.3281	3-5/16	12
** D1634022	11/32	.3438	3-7/16	12
** D1634023	23/64	.3594	3-1/2	12
** D1634024	3/8	.3750	3-5/8	12
** D1634025	25/64	.3906	3-3/4	12
** D1634026	13/32	.4063	3-7/8	12
** D1634027	27/64	.4219	3-15/16	12
** D1634028	7/16	.4375	4-1/16	12
** D1634029	29/64	.4531	4-3/16	12
** D1634030	15/32	.4688	4-5/16	12
** D1634031	31/64	.4844	4-3/8	12
** D1634032	1/2	.5000	4-1/2	12

* 10pcs per package
** 5pcs per package

Tolerance Diameter (Inch)	
up to 1/8(.1250)	0 ~ -.0005
over 1/8(.1250) up to 1/4(.2500)	0 ~ -.0007
over 1/4(.2500) up to 1/2(.5000)	0 ~ -.0010

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○	○	○	○	○		○	

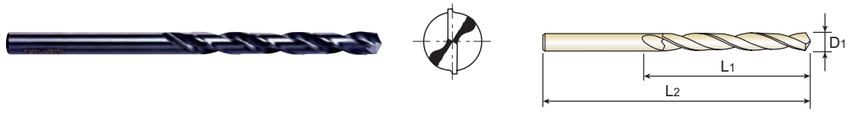
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○			○	○	○		○		○	○	○	○	○	○		○		

AIRCRAFT DRILLS

D1632 SERIES
D1635 SERIES

HSS, AIRCRAFT EXTENSION DRILL 135° SPLIT POINT STEAM OXIDE

▶**Flute Geometry** : Right hand spiral, 30° helix
▶**Point Angle** : 135° : Split point
▶**Application** : Improved chip removal in most materials, especially in deep drilling applications.



HSS | NAS 907 | N 30° | 135° | p.A254

▶ Letter sizes

Unit : Inch

EDP No.	Diameter		Flute Length	Overall Length
Steam Oxide	Letter	Decimal	L_1	L_2
* D1632101	A	.2340	2-5/8	6
** D1632102	B	.2380	2-3/4	6
** D1632103	C	.2420	2-3/4	6
** D1632104	D	.2460	2-3/4	6
** D1632105	E	.2500	2-3/4	6
** D1632106	F	.2570	2-7/8	6
** D1632107	G	.2610	2-7/8	6
** D1632108	H	.2660	2-7/8	6
** D1632109	I	.2720	2-7/8	6
** D1632110	J	.2770	2-7/8	6
** D1632111	K	.2810	2-15/16	6
** D1632112	L	.2900	2-15/16	6
** D1632113	M	.2950	3-1/16	6
** D1632114	N	.3020	3-1/16	6
** D1632115	O	.3160	3-3/16	6
** D1632116	P	.3230	3-5/16	6
** D1632117	Q	.3320	3-7/16	6
** D1632118	R	.3390	3-7/16	6
** D1632119	S	.3480	3-1/2	6
** D1632120	T	.3580	3-1/2	6
** D1632121	U	.3680	3-5/8	6
** D1632122	V	.3770	3-5/8	6
** D1632123	W	.3860	3-3/4	6
** D1632124	X	.3970	3-3/4	6
** D1632125	Y	.4040	3-7/8	6
** D1632126	Z	.4130	3-7/8	6

EDP No.	Diameter		Flute Length	Overall Length
Steam Oxide	Letter	Decimal	L_1	L_2
* D1635101	A	.2340	2-5/8	12
** D1635102	B	.2380	2-3/4	12
** D1635103	C	.2420	2-3/4	12
** D1635104	D	.2460	2-3/4	12
** D1635105	E	.2500	2-3/4	12
** D1635106	F	.2570	2-7/8	12
** D1635107	G	.2610	2-7/8	12
** D1635108	H	.2660	2-7/8	12
** D1635109	I	.2720	2-7/8	12
** D1635110	J	.2770	2-7/8	12
** D1635111	K	.2810	2-15/16	12
** D1635112	L	.2900	2-15/16	12
** D1635113	M	.2950	3-1/16	12
** D1635114	N	.3020	3-1/16	12
** D1635115	O	.3160	3-3/16	12
** D1635116	P	.3230	3-5/16	12
** D1635117	Q	.3320	3-7/16	12
** D1635118	R	.3390	3-7/16	12
** D1635119	S	.3480	3-1/2	12
** D1635120	T	.3580	3-1/2	12
** D1635121	U	.3680	3-5/8	12
** D1635122	V	.3770	3-5/8	12
** D1635123	W	.3860	3-3/4	12
** D1635124	X	.3970	3-3/4	12
** D1635125	Y	.4040	3-7/8	12
** D1635126	Z	.4130	3-7/8	12

▶ **Tolerance** : See page 240

* 10pcs per package
** 5pcs per package

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

AIRCRAFT DRILLS

D1633 SERIES
D1636 SERIES

HSS, AIRCRAFT EXTENSION DRILL 135° SPLIT POINT STEAM OXIDE

▶**Flute Geometry** : Right hand spiral, 30° helix
▶**Point Angle** : 135° : Split point
▶**Application** : Improved chip removal in most materials, especially in deep drilling applications.

HSS | NAS 907 | N 30° | 135° | p.A254

▶ Wire gauge sizes

Unit : Inch

EDP No.	Diameter		Flute Length	Overall Length
Steam Oxide	Wire gauge	Decimal	L_1	L_2
* D1633256	1	.2280	2-5/8	6
* D1633255	2	.2210	2-5/8	6
* D1633254	3	.2130	2-1/2	6
* D1633253	4	.2090	2-1/2	6
* D1633252	5	.2055	2-1/2	6
* D1633251	6	.2040	2-1/2	6
* D1633250	7	.2010	2-7/16	6
* D1633249	8	.1990	2-7/16	6
* D1633248	9	.1960	2-7/16	6
* D1633247	10	.1935	2-7/16	6
* D1633246	11	.1910	2-5/16	6
* D1633245	12	.1890	2-5/16	6
* D1633244	13	.1850	2-5/16	6
* D1633243	14	.1820	2-3/16	6
* D1633242	15	.1800	2-3/16	6
* D1633241	16	.1770	2-3/16	6
* D1633240	17	.1730	2-3/16	6
* D1633239	18	.1695	2-1/8	6
* D1633238	19	.1660	2-1/8	6
* D1633237	20	.1610	2-1/8	6
* D1633236	21	.1590	2-1/8	6
* D1633235	22	.1570	2	6
* D1633234	23	.1540	2	6

EDP No.	Diameter		Flute Length	Overall Length
Steam Oxide	Wire gauge	Decimal	L_1	L_2
* D1633233	24	.1520	2	6
* D1633232	25	.1495	1-7/8	6
* D1633231	26	.1470	1-7/8	6
* D1633230	27	.1440	1-7/8	6
* D1633229	28	.1405	1-3/4	6
* D1633228	29	.1360	1-3/4	6
* D1633227	30	.1280	1-5/8	6
* D1633226	31	.1200	1-5/8	6
* D1633225	32	.1160	1-5/8	6
* D1633224	33	.1130	1-1/2	6
* D1633223	34	.1110	1-1/2	6
* D1633222	35	.1100	1-1/2	6
* D1633221	36	.1065	1-7/16	6
* D1633220	37	.1040	1-7/16	6
* D1633219	38	.1015	1-7/16	6
* D1633218	39	.0995	1-3/8	6
* D1633217	40	.0980	1-3/8	6
* D1633216	41	.0960	1-3/8	6
* D1633215	42	.0935	1-1/4	6
* D1633214	43	.0890	1-1/4	6
* D1636256	1	.2280	2-5/8	12
* D1636254	3	.2130	2-1/2	12

* 10pcs per package

Tolerance Diameter (Inch)	
up to 1/8(.1250)	0 ~ -.0005
over 1/8(.1250) up to 1/4(.2500)	0 ~ -.0007
over 1/4(.2500) up to 1/2(.5000)	0 ~ -.0010

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

AIRCRAFT DRILLS

RECOMMENDED CUTTING CONDITIONS

DL601, DL602, DL603, D1631, D1632, D1633 DL604, DL605, DL606, D1634, D1635, D1636 SERIES

AIRCRAFT DRILLS

SFM = ft/min.
RPM = rev./min.
FEED = inch/rev.

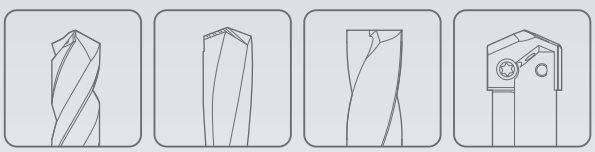
ISO	VDI 3323	Material Description	SFM	Drill Diameter										
				METRIC	2.0	3.0	-	4.0	6.0	-	-	8.0	-	10.0
				FRACTIONAL	-	-	1/8	-	-	1/4	5/16	-	3/8	-
				DECIMAL	.0787	.1181	.1250	.1575	.2362	.2500	.3125	.3150	.3750	.3937
P	1	Non-alloy steel	99	RPM	4770	3180		2390	1590		1190			950
				FEED	.0008 - .0016	.0012 - .0020		.0016 - .0024	.0020 - .0031		.0039 - .0051			.0043 - .0059
	2		82	RPM	3980	2650		1990	1330		990			800
				FEED	.0008 - .0016	.0012 - .0020		.0016 - .0024	.0020 - .0031		.0039 - .0051			.0043 - .0059
	3		66	RPM	3180	2120		1590	1060		800			640
				FEED	.0008 - .0016	.0012 - .0020		.0016 - .0024	.0020 - .0031		.0039 - .0051			.0043 - .0059
	4		66	RPM	3180	2120		1590	1060		800			640
				FEED	.0004 - .0008	.0004 - .0012		.0008 - .0016	.0008 - .0020		.0012 - .0024			.0012 - .0024
	6	Low alloy steel	82	RPM	3980	2650		1990	1330		990			800
				FEED	.0008 - .0016	.0012 - .0020		.0016 - .0024	.0020 - .0031		.0039 - .0051			.0043 - .0059
	7		66	RPM	3180	2120		1590	1060		800			640
				FEED	.0008 - .0016	.0012 - .0020		.0016 - .0024	.0020 - .0031		.0039 - .0051			.0043 - .0059
	8		66	RPM	3180	2120		1590	1060		800			640
				FEED	.0004 - .0008	.0004 - .0012		.0008 - .0016	.0008 - .0020		.0012 - .0024			.0012 - .0024
	10	High alloyed steel, and tool steel	49	RPM	2390	1590		1190	800		600			480
				FEED	.0008 - .0016	.0012 - .0020		.0016 - .0024	.0020 - .0031		.0039 - .0051			.0043 - .0059
M	12	Stainless steel	66	RPM	3180	2120		1590	1060		800			640
				FEED	.0008 - .0016	.0012 - .0020		.0016 - .0024	.0020- .0031		.0039 - .0051			.0043 - .0059
	13		49	RPM	2390	1590		1190	800		600			480
				FEED	.0008 - .0016	.0012 - .0020		.0016 - .0024	.0020 - .0031		.0039 - .0051			.0043 - .0059
	14		33	RPM	1590	1060		800	530		400			320
				FEED	.0004 - .0008	.0004 - .0012		.0008 - .0016	.0008 - .0020		.0012 - .0024			.0012 - .0024
K	15	Grey cast iron	99	RPM	4770	3180		2390	1590		1190			950
				FEED	.0008 - .0016	.0012 - .0020		.0016 - .0024	.0020 - .0031		.0039 - .0051			.0043 - .0059
	16		82	RPM	3980	2650		1990	1330		990			800
				FEED	.0004 - .0008	.0004 - .0012		.0008 - .0016	.0008 - .0020		.0012 - .0024			.0012 - .0024
	17	Nodular cast iron	99	RPM	4770	3180		2390	1590		1190			950
				FEED	.0008 - .0016	.0012 - .0020		.0016 - .0024	.0020 - .0031		.0039 - .0051			.0043 - .0059
	19	Malleable cast iron	82	RPM	3980	2650		1990	1330		990			800
				FEED	.0008 - .0016	.0012 - .0020		.0016 - .0024	.0020 - .0031		.0039 - .0051			.0043 - .0059
N	21	Aluminum-wrought alloy	181	RPM	8750	5840		4380	2920		2190			1750
				FEED	.0012 - .0024	.0020 - .0035		.0028 - .0043	.0047 - .0063		.0047 - .0071			.0055 - .0079
	22		181	RPM	8750	5840		4380	2920		2190			1750
				FEED	.0012 - .0024	.0020 - .0035		.0028 - .0043	.0047 - .0063		.0047 - .0071			.0055 - .0079
	23	Aluminum-cast, alloyed	132	RPM	6370	4240		3180	2120		1590			1270
				FEED	.0012 - .0024	.0020 - .0035		.0028 - .0043	.0047 - .0063		.0047 - .0071			.0055 - .0079
	29	Non Metallic Materials	66	RPM	3180	2120		1590	1060		800			640
				FEED	.0008 - .0016	.0012 - .0020		.0016 - .0024	.0020 - .0031		.0039 - .0051			.0043 - .0059
	36	Titanium Alloys	33	RPM	1590	1060		800	530		400			320
				FEED	.0004 - .0012	.0008 - .0016		.0012 - .0020	.0016 - .0028		.0020 - .0031			.0020 - .0035

AIRCRAFT DRILLS
RECOMMENDED CUTTING CONDITIONS

SFM = ft/min.
RPM = rev./min.
FEED = inch/rev.

VDI 3323	Drill Diameter									
METRIC	-	13.0		16.0	18.0	-	20.0	-	30.0	
FRACTIONAL	1/2			5/8	-	3/4	-	1"		
DECIMAL	.5000	.5118	.6250	.6299	.7086	0.75	.7874	1.0000		
1	RPM	730		600	530	500	480	380	320	
	FEED	.0043 - .0067		.0047 - .0071	.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .0110	.0087 - .0110	
2	RPM	610		500	440	420	400	310	270	
	FEED	.0043 - .0067		.0047 - .0071	.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .0110	.0087 - .0110	
3	RPM	490		400	350	340	320	250	210	
	FEED	.0043 - .0067		.0047 - .0071	.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .0110	.0087 - .0110	
4	RPM	490		400	350	340	320	250	210	
	FEED	.0016 - .0039		.0024 - .0047	.0031 - .0055	.0035 - .0059	.0039 - .0063	.0047 - .0071	.0047 - .0071	
6	RPM	610		500	440	420	400	310	270	
	FEED	.0043 - .0067		.0047 - .0071	.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .0110	.0087 - .0110	
7	RPM	490		400	350	340	320	250	210	
	FEED	.0043 - .0067		.0047 - .0071	.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .0110	.0087 - .0110	
8	RPM	490		400	350	340	320	250	210	
	FEED	.0016 - .0039		.0024 - .0047	.0031 - .0055	.0035 - .0059	.0039 - .0063	.0047 - .0071	.0047 - .0071	
10	RPM	370		300	270	250	240	190	160	
	FEED	.0043 - .0067		.0047 - .0071	.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .0110	.0087 - .0110	
12	RPM	490		400	350	340	320	250	210	
	FEED	.0043 - .0067		.0047 - .0071	.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .0110	.0087 - .0110	
13	RPM	370		300	270	250	240	190	160	
	FEED	.0043 - .0067		.0047 - .0071	.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .0110	.0087 - .0110	
14	RPM	240		200	180	170	160	130	110	
	FEED	.0016 - .0039		.0024 - .0047	.0031 - .0055	.0035 - .0059	.0039 - .0063	.0047 - .0071	.0047 - .0071	
15	RPM	730		600	530	500	480	380	320	
	FEED	.0043 - .0067		.0047 - .0071	.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .0110	.0087 - .0110	
16	RPM	610		500	440	420	400	310	270	
	FEED	.0016 - .0039		.0024 - .0047	.0031 - .0055	.0035 - .0059	.0039 - .0063	.0047 - .0071	.0047 - .0071	
17	RPM	730		600	530	500	480	380	320	
	FEED	.0043 - .0067		.0047 - .0071	.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .0110	.0087 - .0110	
19	RPM	610		500	440	420	400	310	270	
	FEED	.0043 - .0067		.0047 - .0071	.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .0110	.0087 - .0110	
21	RPM	1350		1090	970	920	880	690	580	
	FEED	.0063 - .0087		.0071 - .0094	.0079 - .0110	.0079 - .0118	.0079 - .0118	.0110 - .0150	.0110 - .0150	
22	RPM	1350		1090	970	920	880	690	580	
	FEED	.0063 - .0087		.0071 - .0094	.0079 - .0110	.0079 - .0118	.0079 - .0118	.0110 - .0150	.0110 - .0150	
23	RPM	980		800	710	670	640	500	420	
	FEED	.0063 - .0087		.0071 - .0094	.0079 - .0110	.0079 - .0118	.0079 - .0118	.0110 - .0150	.0110 - .0150	
29	RPM	490		400	350	340	320	250	210	
	FEED	.0043 - .0067		.0047 - .0071	.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .0110	.0087 - .0110	
36	RPM	240		200	180	170	160	130	110	
	FEED	.0024 - .0039		.0020 - .0043	.0024 - .0047	.0030 - .0049	.0035 - .0051	.0047 - .0071	.0047 - .0071	

Global Cutting Tool Leader YG-1



HOLEMAKING

Being the best through innovation

HSS

SILVER & DEMING DRILLS

- 118° Split Point
- 3 Flats Black and Gold

SELECTION GUIDE

HOLEMAKING TOOLS

SERIES	D1191
STANDARD	ANSI
TOOL MATERIAL	HSS(M2)
SIZE MIN	D1/2
SIZE MAX	D1-1/2
PAGE	A259
SURFACE TREATMENT	BLACK & GOLD

HSS SILVER & DEMING DRILLS

- 118° Split Point
- 3 Flats Black and Gold

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

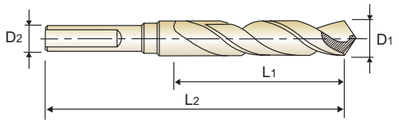
Recommended cutting conditions : p.A260

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	Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.	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		Hardened	550	55	
	39			Hardened	630	60	
	40	Chilled Cast Iron		Cast	400	42	
	41	Hardened Cast Iron		Hardened	550	55	

SILVER & DEMING DRILLS

D1191 SERIES

HSS(M2), 118° SPLIT POINT 3FLAT BLACK & GOLD SILVER & DEMING DRILLS



ANSI HSS 30~35° h8 118° p.A260

Unit : Inch

EDP No.	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
D1191032	1/2	1/2	3	6
D1191033	33/64	1/2	3	6
D1191034	17/32	1/2	3	6
D1191035	35/64	1/2	3	6
D1191036	9/16	1/2	3	6
D1191037	37/64	1/2	3	6
D1191038	19/32	1/2	3	6
D1191039	39/64	1/2	3	6
D1191040	5/8	1/2	3	6
D1191041	41/64	1/2	3	6
D1191042	21/32	1/2	3	6
D1191043	43/64	1/2	3	6
D1191044	11/16	1/2	3	6
D1191045	45/64	1/2	3	6
D1191046	23/32	1/2	3	6
D1191047	47/64	1/2	3	6
D1191048	3/4	1/2	3	6
D1191049	49/64	1/2	3	6
D1191050	25/32	1/2	3	6
D1191051	51/64	1/2	3	6
D1191052	13/16	1/2	3	6
D1191053	53/64	1/2	3	6
D1191054	27/32	1/2	3	6
D1191055	55/64	1/2	3	6
D1191056	7/8	1/2	3	6
D1191057	57/64	1/2	3	6
D1191058	29/32	1/2	3	6
D1191059	59/64	1/2	3	6
D1191060	15/16	1/2	3	6

EDP No.	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
D1191061	61/64	1/2	3	6
D1191062	31/32	1/2	3	6
D1191063	63/64	1/2	3	6
D1191064	1	1/2	3	6
D1191101	1-1/64	1/2	3	6
D1191102	1-1/32	1/2	3	6
D1191103	1-3/64	1/2	3	6
D1191104	1-1/16	1/2	3	6
D1191105	1-5/64	1/2	3	6
D1191106	1-3/32	1/2	3	6
D1191107	1-7/64	1/2	3	6
D1191108	1-1/8	1/2	3	6
D1191109	1-9/64	1/2	3	6
D1191110	1-5/32	1/2	3	6
D1191111	1-11/64	1/2	3	6
D1191112	1-3/16	1/2	3	6
D1191113	1-13/64	1/2	3	6
D1191114	1-7/32	1/2	3	6
D1191115	1-15/64	1/2	3	6
D1191116	1-1/4	1/2	3	6
D1191118	1-9/32	1/2	3	6
D1191120	1-5/16	1/2	3	6
D1191122	1-11/32	1/2	3	6
D1191124	1-3/8	1/2	3	6
D1191126	1-13/32	1/2	3	6
D1191128	1-7/16	1/2	3	6
D1191130	1-15/32	1/2	3	6
D1191132	1-1/2	1/2	3	6

* Individually packaged

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

SILVER & DEMING DRILLS

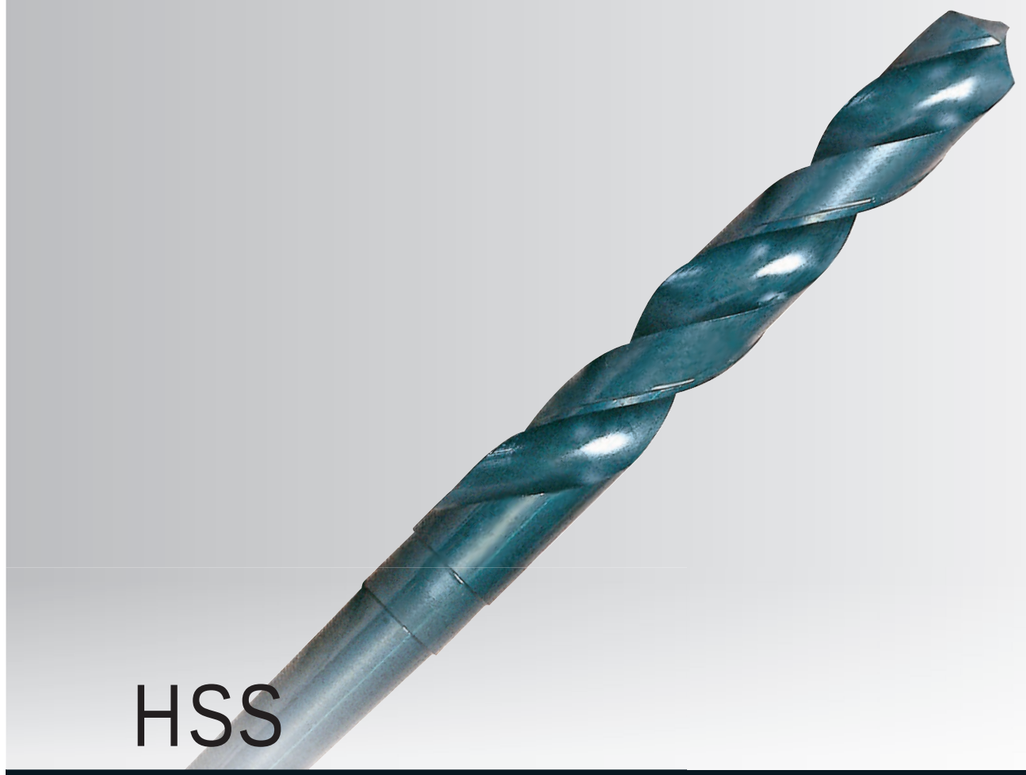
RECOMMENDED CUTTING CONDITIONS

D1191 SERIES — HSS Silver&Deming Drill

SFM = ft/min.
RPM = rev./min.
FEED = inch/rev.

ISO	VDI 3323	Material Description	SFM	Drill Diameter													
				METRIC	-	13.0	-	16.0	18.0		20.0		30.0		40.0	50.0		60.0
				FRACTIONAL	1/2		5/8			3/4		1"		1-1/2			2"	2-3/4
				DECIMAL	.5000	.5118	.6250	.6299	.7086	.7500	.7874	1.0000	1.1811	1.5000	1.5748	1.9685	2.0000	2.3620 2.3750
P	1	Non-alloy steel	99	RPM	730		600		530	500	480	380	320	240		190		160
				FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .011	.0087 - .011	.0094 - .0118		.011 - .0134		.0142 - .0157
	2		82	RPM	610		500		440	420	400	310	270	200		160		130
				FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .011	.0087 - .011	.0094 - .0118		.011 - .0134		.0142 - .0157
	3		66	RPM	490		400		350	340	320	250	210	160		130		110
				FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .011	.0087 - .011	.0094 - .0118		.011 - .0134		.0142 - .0157
	4		49	RPM	370		300		270	250	240	190	160	120		100		80
				FEED	.0016 - .0039		.0024 - .0047		.0031 - .0055	.0066 - .0089	.0039 - .0063	.0047 - .0071	.0047 - .0071	.0055 - .0079		.0063 - .0087		.0071 - .0094
	6	Low alloy steel	82	RPM	610		500		440	420	400	310	270	200		160		130
				FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .011	.0087 - .011	.0094 - .0118		.011 - .0134		.0142 - .0157
	7		66	RPM	490		400		350	340	320	250	210	160		130		110
				FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .011	.0087 - .011	.0094 - .0118		.011 - .0134		.0142 - .0157
	8		49	RPM	370		300		270	250	240	190	160	120		100		80
				FEED	.0016 - .0039		.0024 - .0047		.0031 - .0055	.0035 - .0059	.0039 - .0063	.0047 - .0071	.0047 - .0071	.0055 - .0079		.0063 - .0087		.0071 - .0094
	10	High alloyed steel, and tool steel	49	RPM	370		300		270	250	240	190	160	120		100		80
				FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .011	.0087 - .011	.0094 - .0118		.011 - .0134		.0142 - .0157
M	12	Stainless steel	66	RPM	490		400		350	340	320	250	210	160		130		110
				FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .011	.0087 - .011	.0094 - .0118		.011 - .0134		.0142 - .0157
	13		49	RPM	370		300		270	250	240	190	160	120		100		80
				FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .011	.0087 - .011	.0094 - .0118		.011 - .0134		.0142 - .0157
K	15	Grey cast iron	99	RPM	730		600		530	500	480	380	320	240		190		160
				FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .011	.0087 - .011	.0094 - .0118		.011 - .0134		.0142 - .0157
	16		82	RPM	610		500		440	420	400	310	270	200		160		130
				FEED	.0016 - .0039		.0024 - .0047		.0031 - .0055	.0035 - .0059	.0039 - .0063	.0047 - .0071	.0047 - .0071	.0055 - .0079		.0063 - .0087		.0071 - .0094
	17	Nodular cast iron	99	RPM	730		600		530	500	480	380	320	240		190		160
				FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .011	.0087 - .011	.0094 - .0118		.011 - .0134		.0142 - .0157
	18		66	RPM	490		400		350	340	320	250	210	160		130		110
				FEED	.0016 - .0039		.0024 - .0047		.0031 - .0055	.0035 - .0059	.0039 - .0063	.0047 - .0071	.0047 - .0071	.0055 - .0079		.0063 - .0087		.0071 - .0094
	19	Malleable cast iron	82	RPM	610		500		440	420	400	310	270	200		160		130
				FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .011	.0087 - .011	.0094 - .0118		.011 - .0134		.0142 - .0157
	20		66	RPM	490		400		350	340	320	250	210	160		130		110
				FEED	.0016 - .0039		.0024 - .0047		.0031 - .0055	.0035 - .0059	.0039 - .0063	.0047 - .0071	.0047 - .0071	.0055 - .0079		.0063 - .0087		.0071 - .0094
N	21	Aluminum-wrought alloy	181	RPM	1350		1090		970	920	880	690	580	440		350		290
				FEED	.0063 - .0087		.0071 - .0094		.0079 - .011	.0079 - .0118	.0079 - .0118	.011 - .015	.011 - .015	.0126 - .0165		.0142 - .0181		.0157 - .0197
	22		181	RPM	1350		1090		970	920	880	690	580	440		350		290
				FEED	.0063 - .0087		.0071 - .0094		.0079 - .011	.0079 - .0118	.0079 - .0118	.011 - .015	.011 - .015	.0126 - .0165		.0142 - .0181		.0157 - .0197
	23	Aluminum-cast, alloyed	132	RPM	980		800		710	670	640	500	420	320		250		210
				FEED	.0063 - .0087		.0071 - .0094		.0079 - .011	.0079 - .0118	.0079 - .0118	.011 - .015	.011 - .015	.0126 - .0165		.0142 - .0181		.0157 - .0197
	29	Non Metallic Materials	66	RPM	490		400		350	340	320	250	210	160		130		110
				FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .011	.0087 - .011	.0094 - .0118		.011 - .0134		.0142 - .0157
S	36	Titanium Alloys	33	RPM	240		200		180	170	160	130	110	80		60		50
				FEED	.0024 - .0039		.002 - .0043		.0024 - .0047	.003 - .0049	.0035 - .0051	.0047 - .0071	.0047 - .0071	.0055 - .0079		.0063 - .0087		.0071 - .0094

Being the best through innovation



HSS

MORSE TAPER SHANK DRILLS

- Morse Taper Shank Drills for Wide Applications

SELECTION GUIDE

HOLEMAKING TOOLS

SERIES	D1211
STANDARD	ANSI
LENGTH	JOBBER
SIZE MIN	D1/2
SIZE MAX	D2-1/2
PAGE	A263
SURFACE TREATMENT	Steam Tempered

HSS
MORSE TAPER SHANK DRILLS

- Morse Taper Shank Drills for Wide Applications

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A265

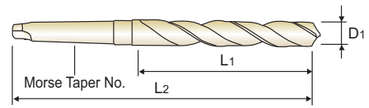
ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎
	2		About 0.45% C	Annealed	190	13	◎
	3		About 0.45% C	Quenched & Tempered	250	25	◎
	4		About 0.75% C	Annealed	270	28	○
	5		About 0.75% C	Quenched & Tempered	300	32	
	6	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, Graphite, CFRP, GFRP, etc.	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		Hardened	550	55	
	39			Hardened	630	60	
	40	Chilled Cast Iron		Cast	400	42	
	41	Hardened Cast Iron		Hardened	550	55	

MORSE TAPER SHANK DRILLS

D1211 SERIES

HSS(M2) MORSE TAPER SHANK TWIST DRILL

▶ **Surface treatment** : Steam Tempered(Black Oxide Finish)
▶ **Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron, graphite.



ANSI | HSS | 30~35° | 2 ~ 5 | h8 | 118° | p.A265~A266

Unit : Inch

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Morse Taper No.
D1211032	1/2	4-3/8	8-1/4	2
D1211033	33/64	4-5/8	8-1/2	2
D1211034	17/32	4-5/8	8-1/2	2
D1211035	35/64	4-7/8	8-3/4	2
D1211036	9/16	4-7/8	8-3/4	2
D1211037	37/64	4-7/8	8-3/4	2
D1211038	19/32	4-7/8	8-3/4	2
D1211039	39/64	4-7/8	8-3/4	2
D1211040	5/8	4-7/8	8-3/4	2
D1211041	41/64	5-1/8	9	2
D1211042	21/32	5-1/8	9	2
D1211043	43/64	5-3/8	9-1/4	2
D1211044	11/16	5-3/8	9-1/4	2
D1211045	45/64	5-5/8	9-1/2	2
D1211046	23/32	5-5/8	9-1/2	2
D1211047	47/64	5-7/8	9-3/4	2
D1211048	3/4	5-7/8	9-3/4	2
D1211049	49/64	6	9-7/8	2
D1211050	25/32	6	9-7/8	2
D1211051	51/64	6-1/8	10-3/4	3
D1211052	13/16	6-1/8	10-3/4	3
D1211053	53/64	6-1/8	10-3/4	3
D1211054	27/32	6-1/8	10-3/4	3
D1211055	55/64	6-1/8	10-3/4	3
D1211056	7/8	6-1/8	10-3/4	3
D1211057	57/64	6-1/8	10-3/4	3

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Morse Taper No.
D1211058	29/32	6-1/8	10-3/4	3
D1211059	59/64	6-1/8	10-3/4	3
D1211060	15/16	6-1/8	10-3/4	3
D1211061	61/64	6-3/8	11	3
D1211062	31/32	6-3/8	11	3
D1211063	63/64	6-3/8	11	3
D1211100	1	6-3/8	11	3
D1211101	1-1/64	6-1/2	11-1/8	3
D1211102	1-1/32	6-1/2	11-1/8	3
D1211103	1-3/64	6-5/8	11-1/4	3
D1211104	1-1/16	6-5/8	11-1/4	3
D1211105	1-5/64	6-7/8	12-1/2	4
D1211106	1-3/32	6-7/8	12-1/2	4
D1211107	1-7/64	7-1/8	12-3/4	4
D1211108	1-1/8	7-1/8	12-3/4	4
D1211109	1-9/64	7-1/4	12-7/8	4
D1211110	1-5/32	7-1/4	12-7/8	4
D1211111	1-11/64	7-3/8	13	4
D1211112	1-3/16	7-3/8	13	4
D1211113	1-13/64	7-1/2	13-1/8	4
D1211114	1-7/32	7-1/2	13-1/8	4
D1211115	1-15/64	7-7/8	13-1/2	4
D1211116	1-1/4	7-7/8	13-1/2	4
D1211117	1-17/64	8-1/2	14-1/8	4
D1211118	1-9/32	8-1/2	14-1/8	4
D1211119	1-19/64	8-5/8	14-1/4	4

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

MORSE TAPER SHANK DRILLS

D1211 SERIES

HSS(M2) MORSE TAPER SHANK TWIST DRILL

▶**Surface treatment** : Steam Tempered(Black Oxide Finish)
▶**Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron, graphite.

ANSI | HSS | 30~35° | 2 ~ 5 | h8 | 118° | p.A265~A266

Unit : Inch

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Morse Taper No.
D1211120	1-5/16	8-5/8	14-1/4	4
D1211121	1-21/64	8-3/4	14-3/8	4
D1211122	1-11/32	8-3/4	14-3/8	4
D1211123	1-23/64	8-7/8	14-1/2	4
D1211124	1-3/8	8-7/8	14-1/2	4
D1211126	1-13/32	9	14-5/8	4
D1211128	1-7/16	9-1/8	14-3/4	4
D1211130	1-15/32	9-1/4	14-7/8	4
D1211132	1-1/2	9-3/8	15	4
D1211133	1-33/64	9-3/8	16-3/8	4
D1211134	1-17/32	9-3/8	16-3/8	5
D1211136	1-9/16	9-5/8	16-5/8	5
D1211138	1-19/32	9-7/8	16-7/8	5
D1211140	1-5/8	10	17	5
D1211142	1-21/32	10-1/8	17-1/8	5
D1211144	1-11/16	10-1/8	17-1/8	5
D1211146	1-23/32	10-1/8	17-1/8	5
D1211148	1-3/4	10-1/8	17-1/8	5

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Morse Taper No.
D1211152	1-13/16	10-1/8	17-1/8	5
D1211154	1-27/32	10-1/8	17-1/8	5
D1211156	1-7/8	10-3/8	17-3/8	5
D1211160	1-15/16	10-3/8	17-3/8	5
D1211162	1-31/32	10-3/8	17-3/8	5
D1211200	2	10-3/8	17-3/8	5
D1211202	2-1/32	10-3/8	17-3/8	5
D1211204	2-1/16	10-1/4	17-3/8	5
D1211206	2-3/32	10-1/4	17-3/8	5
D1211208	2-1/8	10-1/4	17-3/8	5
D1211210	2-5/32	10-1/4	17-3/8	5
D1211212	2-3/16	10-1/4	17-3/8	5
D1211214	2-7/32	10-1/8	17-3/8	5
D1211216	2-1/4	10-1/8	17-3/8	5
D1211220	2-5/16	10-1/8	17-3/8	5
D1211224	2-3/8	10-1/8	17-3/8	5
D1211228	2-7/16	11-1/4	18-3/4	5
D1211232	2-1/2	11-1/4	18-3/4	5

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

MORSE TAPER SHANK DRILLS

RECOMMENDED CUTTING CONDITIONS

D1211 SERIES

HSS TAPER SHANK DRILLS

SFM = ft/min.
RPM = rev./min.
FEED = inch/rev.

ISO	VDI 3323	Material Description	SFM	Drill Diameter								
				METRIC	-	13.0	-	16.0	18.0	-	20.0	-
				FRACTIONAL	1/2		5/8		-	3/4	-	1"
				DECIMAL	.5000	.5118	.6250	.6299	.7086	.7500	.7874	1.0000
P	1	Non-alloy steel	99	RPM	730		600		530	500	480	380
				FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .011
	2		82	RPM	610		500		440	420	400	310
				FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .011
	3		66	RPM	490		400		350	340	320	250
				FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .011
	4		49	RPM	370		300		270	250	240	190
				FEED	.0016 - .0039		.0024 - .0047		.0031 - .0055		.0039 - .0063	.0047 - .0071
	6	Low alloy steel	82	RPM	610		500		440	420	400	310
				FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .011
	7		66	RPM	490		400		350	340	320	250
				FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .011
	8		49	RPM	370		300		270	250	240	190
				FEED	.0016 - .0039		.0024 - .0047		.0031 - .0055	.0035 - .0059	.0039 - .0063	.0047 - .0071
	10	High alloyed steel, and tool steel	49	RPM	370		300		270	250	240	190
				FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .011
M	12	Stainless steel	66	RPM	490		400		350	340	320	250
				FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .011
	13		49	RPM	370		300		270	250	240	190
				FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .011
K	15	Grey cast iron	99	RPM	730		600		530	500	480	380
				FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .011
	16		82	RPM	610		500		440	420	400	310
				FEED	.0016 - .0039		.0024 - .0047		.0031 - .0055	.0035 - .0059	.0039 - .0063	.0047 - .0071
	17	Nodular cast iron	99	RPM	730		600		530	500	480	380
				FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .011
	18		66	RPM	490		400		350	340	320	250
				FEED	.0016 - .0039		.0024 - .0047		.0031 - .0055	.0035 - .0059	.0039 - .0063	.0047 - .0071
	19	Malleable cast iron	82	RPM	610		500		440	420	400	310
				FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .011
	20		66	RPM	490		400		350	340	320	250
				FEED	.0016 - .0039		.0024 - .0047		.0031 - .0055	.0035 - .0059	.0039 - .0063	.0047 - .0071
N	21	Aluminum-wrought alloy	181	RPM	1350		1090		970	920	880	690
				FEED	.0063 - .0087		.0071 - .0094		.0079 - .011	.0079 - .0118	.0079 - .0118	.011 - .015
	22		181	RPM	1350		1090		970	920	880	690
				FEED	.0063 - .0087		.0071 - .0094		.0079 - .011	.0079 - .0118	.0079 - .0118	.011 - .015
	23	Aluminum-cast, alloyed	132	RPM	980		800		710	670	640	500
				FEED	.0063 - .0087		.0071 - .0094		.0079 - .011	.0079 - .0118	.0079 - .0118	.011 - .015
	29	Non Metallic Materials	66	RPM	490		400		350	340	320	250
				FEED	.0043 - .0067		.0047 - .0071		.0055 - .0079	.0066 - .0089	.0075 - .0098	.0087 - .011
S	36	Titanium Alloys	33	RPM	240		200		180	170	160	130
				FEED	.0024 - .0039		.002 - .0043		.0024 - .0047	.003 - .0049	.0035 - .0051	.0047 - .0071

MORSE TAPER SHANK DRILLS

RECOMMENDED CUTTING CONDITIONS

D1211 SERIES HSS TAPER SHANK DRILLS

SFM = ft/min.
RPM = rev./min.
FEED = inch/rev.

ISO	VDI 3323	Material Description	SFM	Drill Diameter						
				METRIC	30.0	-	40.0	50.0	-	60.0	-
				FRACTIONAL	-	1-1/2	-	-	2"	-	2-3/4
				DECIMAL	1.1811	1.5000	1.5748	1.9685	2.0000	2.3620	2.3750
P	1	Non-alloy steel	99	RPM	320	240		190		160	
				FEED	.0087 - .011	.0094 - .0118		.011 - .0134		.0142 - .0157	
	2		82	RPM	270	200		160		130	
				FEED	.0087 - .011	.0094 - .0118		.011 - .0134		.0142 - .0157	
	3		66	RPM	210	160		130		110	
				FEED	.0087 - .011	.0094 - .0118		.011 - .0134		.0142 - .0157	
	4		49	RPM	160	120		100		80	
				FEED	.0047 - .0071	.0055 - .0079		.0063 - .0087		.0071 - .0094	
	6	Low alloy steel	82	RPM	270	200		160		130	
				FEED	.0087 - .011	.0094 - .0118		.011 - .0134		.0142 - .0157	
	7		66	RPM	210	160		130		110	
				FEED	.0087 - .011	.0094 - .0118		.011 - .0134		.0142 - .0157	
	8		49	RPM	160	120		100		80	
				FEED	.0047 - .0071	.0055 - .0079		.0063 - .0087		.0071 - .0094	
	10	High alloyed steel, and tool steel	49	RPM	160	120		100		80	
				FEED	.0087 - .011	.0094 - .0118		.011 - .0134		.0142 - .0157	
M	12	Stainless steel	66	RPM	210	160		130		110	
				FEED	.0087 - .011	.0094 - .0118		.011 - .0134		.0142 - .0157	
	13		49	RPM	160	120		100		80	
				FEED	.0087 - .011	.0094 - .0118		.011 - .0134		.0142 - .0157	
K	15	Grey cast iron	99	RPM	320	240		190		160	
				FEED	.0087 - .011	.0094 - .0118		.011 - .0134		.0142 - .0157	
	16		82	RPM	270	200		160		130	
				FEED	.0047 - .0071	.0055 - .0079		.0063 - .0087		.0071 - .0094	
	17	Nodular cast iron	99	RPM	320	240		190		160	
				FEED	.0087 - .011	.0094 - .0118		.011 - .0134		.0142 - .0157	
	18		66	RPM	210	160		130		110	
				FEED	.0047 - .0071	.0055 - .0079		.0063 - .0087		.0071 - .0094	
	19	Malleable cast iron	82	RPM	270	200		160		130	
				FEED	.0087 - .011	.0094 - .0118		.011 - .0134		.0142 - .0157	
	20		66	RPM	210	160		130		110	
				FEED	.0047 - .0071	.0055 - .0079		.0063 - .0087		.0071 - .0094	
N	21	Aluminum-wrought alloy	181	RPM	580	440		350		290	
				FEED	.011 - .015	.0126 - .0165		.0142 - .0181		.0157 - .0197	
	22		181	RPM	580	440		350		290	
				FEED	.011 - .015	.0126 - .0165		.0142 - .0181		.0157 - .0197	
	23	Aluminum-cast, alloyed	132	RPM	420	320		250		210	
				FEED	.011 - .015	.0126 - .0165		.0142 - .0181		.0157 - .0197	
	29	Non Metallic Materials	66	RPM	210	160		130		110	
				FEED	.0087 - .011	.0094 - .0118		.011 - .0134		.0142 - .0157	
S	36	Titanium Alloys	33	RPM	110	80		60		50	
				FEED	.0047 - .0071	.0055 - .0079		.0063 - .0087		.0071 - .0094	

Being the best through innovation

SOLID CARBIDE & HSSCo8

NC SPOTTING DRILLS

- For Centering and Chamfering of Holes

SELECTION GUIDE

YG HOLEMAKING TOOLS

SERIES	D5321	D5322	D2N90	
TOOL MATERIAL	CARBIDE		HSSCo8	
POINT ANGLE	90°	120°	90°	120°
SIZE MIN	D1/8	D1/8	D1/8	D1/8
SIZE MAX	D3/4	D3/4	D1	D1
PAGE	A269		A270	
SURFACE TREATMENT	Bright			

SOLID CARBIDE & HSSCo8
NC SPOTTING DRILLS

- For Centering and Chamfering of Holes

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A271

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	D5321	D5322	D2N90 90°	D2N90 120°
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, Graphite, CFRP, GFRP, etc.	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		Hardened	550	55				
	39			Hardened	630	60				
	40	Chilled Cast Iron		Cast	400	42				
	41	Hardened Cast Iron		Hardened	550	55				

YG NC SPOTTING DRILLS

D5321 SERIES
D5322 SERIES

CARBIDE, NC SPOTTING DRILLS

CARBIDE | h6 | 90° | 120° | Bright

p.A271

NC Spotting drills 90°

Unit : Inch

EDP No.	Drill Diameter Fractional	Drill Diameter Decimal	Flute Length	Overall Length
	D1		L1	L2
D5321008	1/8	.1250	5/8	2"
D5321012	3/16	.1875	3/4	2"
D5321016	1/4	.2500	3/4	2-1/2
D5321020	5/16	.3125	1"	2-1/2
D5321024	3/8	.3750	1"	3"
D5321032	1/2	.5000	1"	3"
D5321040	5/8	.6250	1-1/4	3"
D5321048	3/4	.7500	1-3/4	4"

NC Spotting drills 120°

EDP No.	Drill Diameter Fractional	Drill Diameter Decimal	Flute Length	Overall Length
	D1		L1	L2
D5322008	1/8	.1250	5/8	2"
D5322012	3/16	.1875	3/4	2"
D5322016	1/4	.2500	3/4	2-1/2
D5322020	5/16	.3125	1"	2-1/2
D5322024	3/8	.3750	1"	3"
D5322032	1/2	.5000	1"	3"
D5322040	5/8	.6250	1-1/4	3"
D5322048	3/4	.7500	1-3/4	4"

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○													○					

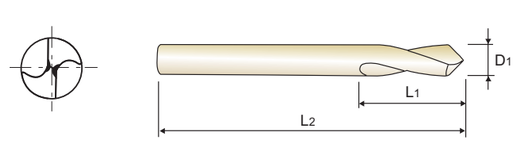
NC SPOTTING DRILLS

D2N90 SERIES

HSSCo8, NC SPOTTING DRILLS

▶**Application** : For more precise centering work on NC/CNC machine. A larger diameter in respect to the subsequent drilling tool permit to obtain the centering and chamfering simultaneously.

90°
120°



NC | HSS Co8 | h6 | h6 | 90° | 120° | Bright

p.A271

NC Spotting drills 90°

Unit : Inch

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
2081L	1/8	.472	1.93
2121L	3/16	.590	2.44
2161L	1/4	.669	2.76
2201L	5/16	.984	3.11
2241L	3/8	.827	3.50
2321L	1/2	.984	4.02
2401L	5/8	1.575	4.53
2481L	3/4	1.968	5.16
2641L	1	1.968	6.14

NC Spotting drills 120°

Unit : Inch

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
2081L	1/8	.472	1.93
2121L	3/16	.590	2.44
2161L	1/4	.669	2.76
2201L	5/16	.984	3.11
2241L	3/8	.827	3.50
2321L	1/2	.984	4.02
2401L	5/8	1.575	4.53
2481L	3/4	1.968	5.16
2641L	1	1.968	6.14

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○																		

NC SPOTTING DRILLS

RECOMMENDED CUTTING CONDITIONS

D5321, D5322 SERIES CARBIDE, NC SPOTTING DRILLS

SFM = ft/min.
RPM = rev./min.
FEED = inch/rev.

ISO	VDI 3323	Material Description	SFM		Drill Diameter							
				METRIC	-	-	-	-	-	-	-	-
				FRACTIONAL	1/8	3/16	1/4	5/16	3/8	1/2	5/8	5/8
				DECIMAL	.1250	.1875	.2500	.3125	.3750	.5000	.6250	.6250
P	1	Non-alloy steel	247	RPM	7960	4790	3980	2980	2390	1890	1490	1490
				FEED	.0016 - .0024	.0024 - .0035	.0028 - .0039	.0031 - .0047	.0035 - .0055	.0043 - .0067	.0051 - .0075	.0051 - .0075
	2		230	RPM	7430	4460	3710	2790	2230	1760	1390	1390
				FEED	.0016 - .0024	.0024 - .0035	.0028 - .0039	.0031 - .0047	.0035 - .0055	.0043 - .0067	.0051 - .0075	.0051 - .0075
	3		214	RPM	6900	4150	3450	2590	2070	1630	1290	1290
				FEED	.0012 - .002	.0018 - .003	.0020 - .0031	.0028 - .0039	.0031 - .0047	.0035 - .0055	.0043 - .0067	.0043 - .0067
	6	Low alloy steel	230	RPM	7430	4460	3710	2790	2230	1760	1390	1390
				FEED	.0016 - .0024	.0024 - .0035	.0028 - .0039	.0031 - .0047	.0035 - .0055	.0043 - .0067	.0051 - .0075	.0051 - .0075
	7		181	RPM	5840	3510	2920	2190	1750	1380	1090	1090
				FEED	.0012 -.0020	.0018 - .0030	.0020 - .0031	.0028 - .0039	.0031 - .0047	.0035 - .0055	.0043 - .0067	.0043 - .0067
M	12	Stainless steel	115	RPM	3710	2230	1860	1390	1110	880	700	700
				FEED	.0016 - .0024	.0024 - .0035	.0028 - .0039	.0031 - .0047	.0035 - .0055	.0043 - .0067	.0051 - .0075	.0051 - .0075
K	15	Grey cast iron	296	RPM	9550	5740	4770	3580	2860	2260	1790	1790
				FEED	.0020 - .0028	.0028 - .0039	.0031 - .0043	.0039 - .0051	.0047 - .0063	.0059 - .0079	.0071 - .0094	.0071 - .0094
	16		230	RPM	7430	4460	3710	2790	2230	1760	1390	1390
				FEED	.0012 -. 0020	.0018 - .0030	.0020 - .0031	.0028 - .0039	.0031 - .0047	.0035 - .0055	.0043 - .0067	.0043 - .0067
	17	Nodular cast iron	296	RPM	9550	5740	4770	3580	2860	2260	1790	1790
				FEED	.0020 - .0028	.0028 - .0039	.0031 - .0043	.0039 - .0051	.0047 - .0063	.0059 - .0079	.0071 - .0094	.0071 - .0094
	19	Malleable cast iron	197	RPM	6370	3820	3180	2390	1910	1510	1190	1190
				FEED	.0020 - .0028	.0028 - .0039	.0031 - .0043	.0039 - .0051	.0047 - .0063	.0059 - .0079	.0071 - .0094	.0071 - .0094
N	21	Aluminum-wrought alloy	543	RPM	17510	10530	8750	6570	5250	4150	3280	3280
				FEED	.0024 - .0035	.0035 - .0047	.0039 - .0051	.0047 - .0059	.0059 - .0075	.0071 - .0091	.0083 - .0106	.0083 - .0106
	22		428	RPM	13790	8300	6900	5170	4140	3270	2590	2590
				FEED	.0024 - .0035	.0035 - .0047	.0039 - .0051	.0047 - .0059	.0059 - .0075	.0071 - .0091	.0083 - .0106	.0083 - .0106
	23	Aluminum-cast, alloyed	362	RPM	11670	7020	5840	4380	3500	2770	2190	2190
				FEED	.0024 - .0035	.0035 - .0047	.0039 - .0051	.0047 - .0059	.0059 - .0075	.0071 - .0091	.0083 - .0106	.0083 - .0106
S	36	Titanium Alloys	115	RPM	3710	2230	1860	1390	1110	880	700	700
				FEED	.0012 -.0020	.0018 - .0030	.0020 - .0031	.0028 - .0039	.0031 - .0047	.0035 - .0055	.0043 - .0067	.0043 - .0067

NC SPOTTING DRILLS

RECOMMENDED CUTTING CONDITIONS

D2N90 SERIES — HSSCo8, NC-SPOTTING DRILLS

SFM = ft/min.
RPM = rev./min.
FEED = inch/rev.

ISO	VDI 3323	Material Description	SFM	Drill Diameter								
				METRIC	2.0	3.0	-	4.0	6.0	-	-	8.0
				FRACTIONAL	-	-	1/8	-	-	1/4	5/16	-
				DECIMAL	.0787	.1181	.1250	.1575	.2362	.2500	.3125	.3150
P	1	Non-alloy steel	82	RPM	3980	2650		1990	1330		990	
				FEED	.0008 - .0016	.0016 - .0024		.0020 - .0031	.0028 - .0039		.0031 - .0047	
	2		82	RPM	3980	2650		1990	1330		990	
				FEED	.0008 - .0016	.0016 - .0024		.0020 - .0031	.0028 - .0039		.0031 - .0047	
	3		49	RPM	2390	1590		1190	800		600	
				FEED	.0004 - .0012	.0012 - .0020		.0016 - .0028	.0020 - .0031		.0028 - .0039	
	6	Low alloy steel	66	RPM	3180	2120		1590	1060		800	
				FEED	.0008 - .0016	.0016 - .0024		.0020 - .0031	.0028 - .0039		.0031 - .0047	
	7		49	RPM	2390	1590		1190	800		600	
				FEED	.0004 - .0012	.0012 - .0020		.0016 - .0028	.0020 - .0031		.0028 - .0039	
M	12	Stainless steel	49	RPM	2390	1590		1190	800		600	
				FEED	.0008 - .0016	.0016 - .0024		.0020 - .0031	.0028 - .0039		.0031 - .0047	
K	15	Grey cast iron	99	RPM	4770	3180		2390	1590		1190	
				FEED	.0012 - .0020	.002 0- .0028		.0024 - .0035	.0031 - .0043		.0039 - .0051	
	16		82	RPM	3980	2650		1990	1330		990	
				FEED	.0004 - .0012	.0012 - .0020		.0016 - .0028	.0020 - .0031		.0028 - .0039	
	17	Nodular cast iron	99	RPM	4770	3180		2390	1590		1190	
				FEED	.0012 - .0020	.0020 - .0028		.0024 - .0035	.0031 - .0043		.0039 - .0051	
	19	Malleable cast iron	66	RPM	3180	2120		1590	1060		800	
				FEED	.0012 - .0020	.0020 - .0028		.0024 - .0035	.0031 - .0043		.0039 - .0051	
N	21	Aluminum-wrought alloy	214	RPM	10350	6900		5170	3450		2590	
				FEED	.0016 - .0024	.0024 - .0035		.0031 - .0043	.0039 - .0051		.0047 - .0059	
	22		197	RPM	9550	6370		4770	3180		2390	
				FEED	.0016 - .0024	.0024 - .0035		.0031 - .0043	.0039 - .0051		.0047 - .0059	
	23	Aluminum-cast, alloyed	165	RPM	7960	5310		3980	2650		1990	
				FEED	.0016 - .0024	.0024 - .0035		.0031 - .0043	.0039 - .0051		.0047 - .0059	

ISO	VDI 3323	Material Description	SFM	Drill Diameter							
				METRIC	-	10.0	12.0	-	-	16.0	-	20.0
				FRACTIONAL	3/8	-	-	1/2	5/8	-	3/4	-
				DECIMAL	.3750	.3937	.4724	.5000	.6250	.6299	.7500	.7874
P	1	Non-alloy steel	82	RPM	800		660	630	500		420	400
				FEED	.0035 - .0055		.0043 - .0067	.0043 - .0067	.0051 - .0075		.0051 - .0075	.0059 - .0083
	2		82	RPM	800		660	630	500		420	400
				FEED	.0035 - .0055		.0043 - .0067	.0043 - .0067	.0051 - .0075		.0051 - .0075	.0059 - .0083
	3		49	RPM	480		400	370	300		250	240
				FEED	.0031 - .0047		.0035 - .0055	.0035 - .0055	.0043 - .0067		.0043 - .0067	.0051 - .0075
	6	Low alloy steel	66	RPM	640		530	500	400		340	320
				FEED	.0035 - .0055		.0043 - .0067	.0043 - .0067	.0051 - .0075		.0051 - .0075	.0059 - .0083
	7		49	RPM	480		400	370	300		250	240
				FEED	.0031 - .0047		.0035 - .0055	.0035 - .0055	.0043 - .0067		.0043 - .0067	.0051 - .0075
M	12	Stainless steel	49	RPM	480		400	370	300		250	240
				FEED	.0035 - .0055		.0043 - .0067	.0043 - .0067	.0051 - .0075		.0051 - .0075	.0059 - .0083
K	15	Grey cast iron	99	RPM	950		800	760	600		500	480
				FEED	.0047 - .0063		.0059 -- .0079	.0059 - .0079	.0071 - .0094		.0071 - .0094	.0087 - .0110
	16		82	RPM	800		660	630	500		420	400
				FEED	.0031 - .0047		.0035 - .0055	.0035 - .0055	.0043 - .0067		.0043 - .0067	.0051 - .0075
	17	Nodular cast iron	99	RPM	950		800	760	600		500	480
				FEED	.0047 - .0063		.0059 -- .0079	.0059 - .0079	.0071 - .0094		.0071 - .0094	.0087 - .0110
	19	Malleable cast iron	66	RPM	640		530	500	400		340	320
				FEED	.0047 - .0063		.0059 -- .0079	.0059 - .0079	.0071 - .0094		.0071 - .0094	.0087 - .0110
N	21	Aluminum-wrought alloy	214	RPM	2070		1720	1630	1290		1090	1030
				FEED	.0059 - .0075		.0071 - .0091	.0071 - .0091	.0083 - .0106		.0083 - .0106	.0098 - .0122
	22		197	RPM	1910		1590	1510	1190		1000	950
				FEED	.0059 - .0075		.0071 - .0091	.0071 - .0091	.0083 - .0106		.0083 - .0106	.0098 - .0122
	23	Aluminum-cast, alloyed	165	RPM	1590		1330	1260	990		840	800
				FEED	.0059 - .0075		.0071 - .0091	.0071 - .0091	.0083 - .0106		.0083 - .0106	.0098 - .0122

COMBINATION DRILL & COUNTER SINK / CENTER DRILL

- For General Purpose

SELECTION GUIDE

HOLEMAKING TOOLS

SERIES	D1C90	D5331	D5332
TOOL MATERIAL	HSS(M2)	CARBIDE	
POINT ANGLE	60°	60°	90°
LENGTH	LONG	-	-
SIZE MIN	D3/64	D3/64	D3/64
SIZE MAX	D7/32	D5/16	D5/16
PAGE	A275	A276	
SURFACE TREATMENT	Bright		



SOLID CARBIDE & HSS

COMBINATION DRILL & COUNTER SINK

- For General Purpose

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

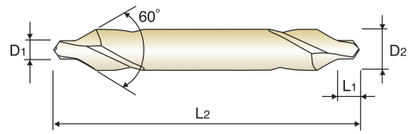
Recommended cutting conditions : p.A277

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	D1C90	D5331	D5332
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, Graphite, CFRP, GFRP, etc.	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		Hardened	550	55			
	39			Hardened	630	60			
	40	Chilled Cast Iron		Cast	400	42			
	41	Hardened Cast Iron		Hardened	550	55			

COMBINATION DRILL & COUNTER SINK

D1C90 SERIES

HSS(M2), COMBINATION DRILL & COUNTER SINK / CENTER DRILL



HSS | h8 | k12 | 120° | Bright

p.A277

60°

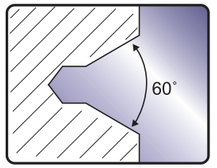
EDP No.	Size	Diameter D1	Shank Diameter D2	Drill Length L1	Overall Length L2
* D1C90079	1	3/64	1/8	1/16	1-1/2
* D1C90080	2	1/16	3/16	5/64	1-3/4
* D1C90081	3	3/32	1/4	1/8	2
* D1C90082	4	1/8	5/16	5/32	2-1/4
* D1C90083	5	3/16	7/16	1/4	2-1/2
★ D1C90084	6	7/32	1/2	7/32	3

* 10pcs per package
★ Individually package

60°

EDP No.	Size	Diameter D1	Shank Diameter D2	Drill Length L1	Overall Length L2
* D1C90141	1	3/64	1/8	3/64	1-1/4
* D1C90142	2	5/64	3/16	5/64	1-7/8
* D1C90143	3	7/64	1/4	7/64	2
* D1C90144	4	1/8	5/16	1/8	2-1/8
* D1C90145	5	3/16	7/16	3/16	2-3/4

* 10pcs per package



LONG LENGTH (60°)

Unit : Inch

EDP No.	Size	Diameter D1	Shank Diameter D2	Drill Length L1	Overall Length L2
D1C90085	1	3/64	1/8	3/64	3
D1C90086	1	3/64	1/8	3/64	4
D1C90087	1	3/64	1/8	3/64	5
D1C90088	1	3/64	1/8	3/64	6
D1C90089	2	5/64	3/16	5/64	3
D1C90090	2	5/64	3/16	5/64	4
D1C90091	2	5/64	3/16	5/64	5
D1C90092	2	5/64	3/16	5/64	6
D1C90093	3	7/64	1/4	7/64	4
D1C90094	3	7/64	1/4	7/64	5
D1C90095	3	7/64	1/4	7/64	6
D1C90096	4	1/8	5/16	1/8	4
D1C90097	4	1/8	5/16	1/8	5
D1C90098	4	1/8	5/16	1/8	6
D1C90099	5	3/16	7/16	3/16	4
D1C90100	5	3/16	7/16	3/16	5
D1C90101	5	3/16	7/16	3/16	6
D1C90102	6	7/32	1/2	7/32	4
D1C90103	6	7/32	1/2	7/32	5
D1C90104	6	7/32	1/2	7/32	6

◎ : Excellent ○ : Good

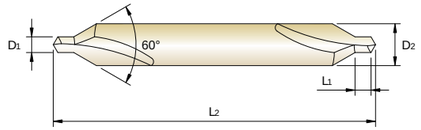
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○					○			◎	○	○		○	

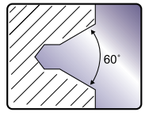
ISO	N										S						H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

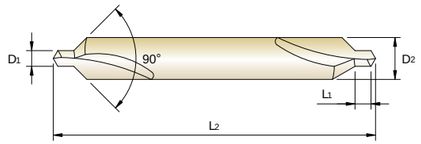
COMBINATION DRILL & COUNTER SINK

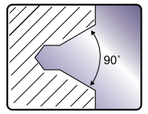
D5331 SERIES
D5332 SERIES

CARBIDE, COMBINATION DRILL & COUNTER SINK / CENTER DRILL









CARBIDE | h8 | k12 | 120° | Bright

p.A278

Unit : Inch

EDP No.		Size	Diameter		Shank Diameter	Drill Length	Overall Length
			Fractional	Decimal			
60°	90°		D1		D2	L1	L2
D5331008	D5332008	#1	3/64	.0468	1/8	3/64	1-1/2
D5331012	D5332012	#2	5/64	.0781	3/16	5/64	1-7/8
D5331016	D5332016	#3	7/64	.1094	1/4	7/64	2"
D5331020	D5332020	#4	1/8	.1250	5/16	1/8	2-1/8
D5331028	D5332028	#5	3/16	.1875	7/16	3/16	2-3/4
D5331032	D5332032	#6	7/32	.2188	1/2	7/32	3"
D5331040	D5332040	#7	1/4	.2500	5/8	1/4	3-3/4
D5331048	D5332048	#8	5/16	.3125	3/4	5/16	4"

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended																					

COMBINATION DRILL & COUNTER SINK

RECOMMENDED CUTTING CONDITIONS

D1C90 SERIES HSS CENTER DRILLS

SFM = ft/min.
RPM = rev./min.
FEED = inch/rev.

ISO	VDI 3323	Material Description	SFM		Drill Diameter									
				METRIC	1.0	2.0	3.0	-	4.0	6.0	-	-	8.0	-	10.0
				FRACTIONAL		-	-	1/8	-	-	1/4	5/16	-	3/8	-
				DECIMAL	0.394	.0787	.1181	.1250	.1575	.2362	.2500	.3125	.3150	.3750	.3937
P	1	Non-alloy steel	132	RPM	12730	6370	4240		3180	2120		1590		1270	
				FEED	.0008 - .0016	.0012 - .0024	.0016 - .0031		.0020 - .0035	.0028 - .0047		.0035 - .0059		.0047 - .0071	
	2		99	RPM	9550	4770	3180		2390	1590		1190		950	
				FEED	.0008 - .0016	.0012 - .0024	.0016 - .0031		.0020 - .0035	.0028 - .0047		.0035 - .0059		.0047 - .0071	
	3		82	RPM	7960	3980	2650		1990	1330		990		800	
				FEED	.0004 - .0012	.0004 - .0014	.0004 - .0020		.0008 - .0024	.0016 - .0031		.0024 - .0047		.0031 - .0055	
	6	Low alloy steel	99	RPM	9550	4770	3180		2390	1590		1190		950	
				FEED	.0008 - .0016	.0012 - .0024	.0016 - .0031		.0020 - .0035	.0028 - .0047		.0035 - .0059		.0047 - .0071	
	7		86	RPM	6370	3180	2120		1590	1060		800		640	
				FEED	.0004 - .0012	.0004 - .0014	.0004 - .0020		.0008 - .0024	.0016 - .0031		.0024 - .0047		.0031 - .0055	
M	12	Stainless steel	33	RPM	3180	1590	1060		800	530		400		320	
				FEED	.0004 - .0012	.0004 - .0014	.0004 - .0020		.0008 - .0024	.0016 - .0031		.0024 - .0047		.0031 - .0055	
K	15	Grey cast iron	132	RPM	12730	6370	4240		3180	2120		1590		1270	
				FEED	.0008 - .0016	.0012 - .0024	.0016 - .0031		.0020 - .0035	.0028 - .0047		.0035 - .0059		.0047 - .0071	
	16		99	RPM	9550	4770	3180		2390	1590		1190		950	
				FEED	.0004 - .0012	.0004 - .0014	.0004 - .0020		.0008 - .0024	.0016 - .0031		.0024 - .0047		.0031 - .0055	
	17	Nodular cast iron	132	RPM	12730	6370	4240		3180	2120		1590		1270	
				FEED	.0008 - .0016	.0012 - .0024	.0016 - .0031		.0020 - .0035	.0028 - .0047		.0035 - .0059		.0047 - .0071	
	19	Malleable cast iron	82	RPM	7960	3980	2650		1990	1330		990		800	
				FEED	.0008 - .0016	.0012 - .0024	.0016 - .0031		.0020 - .0035	.0028 - .0047		.0024 - .0047		.0047 - .0071	

COMBINATION DRILL & COUNTER SINK

RECOMMENDED CUTTING CONDITIONS

D5331, D5332 SERIES — CARBIDE CENTER DRILL

SFM = ft/min.
RPM = rev./min.
FEED = inch/rev.

ISO	VDI 3323	Material Description	SFM	Drill Diameter							
				METRIC	1.0	2.0	3.0	-	4.0	6.0	-
				FRACTIONAL	-	-	-	1/8	-	-	1/4
				DECIMAL	.0394	.0787	.1181	.1250	.1575	.2362	.2500
P	1	Non-alloy steel	165	RPM	15920	7960	5310		3980	2650	
				FEED	.0008 - .0016	.0012 - .0024	.0016 - .0031		.0020 - .0035	.0028 - .0047	
	2		132	RPM	12730	6370	4240		3180	2120	
				FEED	.0008 - .0016	.0012 - .0024	.0016 - .0031		.0020 - .0035	.0028 - .0047	
	3		99	RPM	9550	4770	3180		2390	1590	
				FEED	.0004 - .0012	.0004 - .0014	.0004 - .0020		.0008 - .0024	.0016 - .0031	
	6	Low alloy steel	132	RPM	12730	6370	4240		3180	2120	
				FEED	.0008 - .0016	.0012 - .0024	.0016 - .0031		.0020 - .0035	.0028 - .0047	
	7		99	RPM	9550	4770	3180		2390	1590	
				FEED	.0004 - .0012	.0004 - .0014	.0004 - .0020		.0008 - .0024	.0016 - .0031	
M	12	Stainless steel	66	RPM	6370	3180	2120		1590	1060	
				FEED	.0004 - .0012	.0004 - .0014	.0004 - .0020		.0008 - .0024	.0016 - .0031	
K	15	Grey cast iron	197	RPM	19100	9550	6370		4770	3180	
				FEED	.0008 - .0016	.0012 - .0024	.0016 - .0031		.0020 - .0035	.0028 - .0047	
	16		165	RPM	15920	7960	5310		3980	2650	
				FEED	.0004 - .0012	.0004 - .0014	.0004 - .0020		.0008 - .0024	.0016 - .0031	
	17	Nodular cast iron	197	RPM	19100	9550	6370		4770	3180	
				FEED	.0008 - .0016	.0012 - .0024	.0016 - .0031		.0020 - .0035	.0028 - .0047	
	19	Malleable cast iron	132	RPM	12730	6370	4240		3180	2120	
				FEED	.0008 - .0016	.0012 - .0024	.0016 - .0031		.0020 - .0035	.0028 - .0047	

Leading Through Innovation

INSERTS & HOLDERS

SPADE DRILLS

- **Carbide for Long Tool Life, and HSS-PM for General Machines and Large Diameters Higher Productivity than Other Drilling Tools**

SELECTION GUIDE

YG HOLEMAKING TOOLS

INSERTS & HOLDERS
SPADE DRILLS

- For General Purpose (HRC30A to HRC50)

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A346

SERIES	1~8	Y,Z,0,1~8	Y,Z,0,1,2
STANDARD	STANDARD		
TOOL MATERIAL	HSS(M4)	SUPER COBALT(T15)	PREMIUM COBALT(M48)
SIZE MIN	.3740 (#1)	.3740 (#Y)	.3740 (#Y)
SIZE MAX	4.5000 (#8)	4.5000 (#8)	1.3780 (#2)
PAGE	A282~A285	A286~A292	A293~A295
SURFACE TREATMENT	TiN/TiAlN/Hardslick		

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, Graphite, CFRP, GFRP, etc.	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		Hardened	550	55		○	◎
	39			Hardened	630	60			
	40	Chilled Cast Iron		Cast	400	42			
	41	Hardened Cast Iron		Hardened	550	55			

SERIES	Y,Z,0,1~3	Y,Z,0,1~3	Y,Z,0,1~2	Y,Z,0,1~8	Y,Z,0,1~3	Y,Z,0,1,2	Y,Z,0,1~8	Y,Z,0,1~8	Y,Z,0,1~3
STANDARD	STANDARD			SM-POINT	SM-POINT	FLAT BOTTOM	SV-POINT	SV-POINT	SV-POINT
TOOL MATERIAL	CARBIDE(K20)	CARBIDE(P40)	CARBIDE(K10)	SUPER COBALT(T15)	CARBIDE(P40)	SUPER COBALT(T15)	SUPER COBALT(T15)	PREMIUM COBALT(M48)	CARBIDE(P40)
SIZE MIN	.3740 (#Y)	.3740 (#Y)	.3740 (#Y)	.3740(#Y)	.3740(#Y)	.3740(#Y)	.3740(#Y)	.3740(#Y)	.3740(#Y)
SIZE MAX	1.8750 (#3)	1.3780 (#3)	1.3780 (#2)	4.5000 (#8)	1.8750 (#3)	1.3780 (#2)	4.5000 (#8)	4.5000 (#8)	1.8750 (#3)
PAGE	A296~A300			A302~A307		A308	A310~A320	A321~A331	A332~336
SURFACE TREATMENT	TiN/TiAlN			TiAlN		TiN/TiAlN	Hardslick/H-Coating		

○	◎		◎	◎	◎	◎	◎	◎	1	
○	◎		◎	◎	◎	◎	◎	◎	2	
○	◎		◎	◎	◎	◎	◎	◎	3	
○	◎		◎	◎	◎	◎	◎	◎	4	
									5	
○	◎		◎	◎	◎	◎	◎	◎	6	P
○	◎		◎	◎	◎	◎	◎	◎	7	
○	◎		○	◎	○	○	○	◎	8	
○	◎		○	◎	○	○	○	◎	9	
○	◎		○	◎	○	○	○	◎	10	
○	◎		○	◎	○	○	○	◎	11	
◎	○		○	○	○	○	○	○	12	
◎	○		○	○	○	○	○	○	13	M
◎	○		○	○	○	○	○	○	14	
○	○	◎	○	○	○	○	○	○	15	
○	○	◎	◎	○	◎	◎	◎	○	16	
○	○	◎	○	○	○	○	○	○	17	K
○	○	◎	◎	○	◎	◎	◎	○	18	
○	○	◎	○	○	○	○	○	○	19	
○	○	◎	◎	○	◎	◎	◎	○	20	
◎	○		○	○	○	○	○	○	21	
◎	○		○	○	○	○	○	○	22	
									23	
									24	
									25	
									26	N
◎	○		○	○	○	○	○	○	27	
									28	
									29	
									30	
◎	○		◎	○	◎	◎	◎	○	31	
◎	○		○	○	○	○	◎	○	32	
◎	○		○	○	○	○	◎	○	33	
◎	○		○	○	○	○	◎	○	34	S
◎	○		○	○	○	○	◎	○	35	
									36	
									37	
○	◎		○	◎	○	○	◎	◎	38	
									39	H
									40	
									41	

SPADE DRILLS

SERIES 1, 2

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SPADE DRILL INSERTS - HSS (M4)

- General purpose insert for most materials
- Not recommended for tool steels and high temperature alloys
- High toughness for loose or manual machines

POINT ANGLE - 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. (inch/mm)	Diameter Fractional (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Fractional [Metric]	EDP No. HSS (M4) TiN	TiAlN	Hardslick
1 .690 (17.53) to .960 (24.38)	45/64	17.86	.7031	5/32 (4.0)	S01101	S03101	S04101
		18.00	.7087		S01102	S03102	S04102
	23/32	18.26	.7188		S01103	S03103	S04103
		18.50	.7283		S01104	S03104	S04104
	47/64	18.65	.7344		S01105	S03105	S04105
		19.00	.7480		S01106	S03106	S04106
	3/4	19.05	.7500		S01107	S03107	S04107
	49/64	19.45	.7656		S01108	S03108	S04108
		19.50	.7677		S01109	S03109	S04109
	25/32	19.84	.7813		S01110	S03110	S04110
		20.00	.7874		S01111	S03111	S04111
	51/64	20.24	.7969		S01160	S03160	S04160
		20.50	.8071		S01112	S03112	S04112
	13/16	20.64	.8125		S01113	S03113	S04113
		21.00	.8268		S01114	S03114	S04114
	27/32	21.43	.8438		S01115	S03115	S04115
	55/64	21.83	.8594		S01161	S03161	S04161
		22.00	.8661		S01116	S03116	S04116
	7/8	22.23	.8750		S01117	S03117	S04117
	57/64	22.62	.8906		S01162	S03162	S04162
		23.00	.9055		S01118	S03118	S04118
	29/32	23.02	.9063		S01119	S03119	S04119
	59/64	23.42	.9219		S01120	S03120	S04120
	15/16	23.81	.9375		S01121	S03121	S04121
		24.00	.9449		S01122	S03122	S04122
2 .961 (24.41) to 1.380 (35.05)	31/32	24.61	.9688	3/16 (4.8)	S01201	S03201	S04201
	63/64	25.00	.9843		S01202	S03202	S04202
	1	25.40	1.0000		S01203	S03203	S04203
	1-1/64	25.80	1.0156		S01204	S03204	S04204
		26.00	1.0236		S01205	S03205	S04205
	1-1/32	26.19	1.0313		S01206	S03206	S04206
	1-3/64	26.59	1.0469		S01260	S03260	S04260
	1-1/16	26.99	1.0625		S01207	S03207	S04207
		27.00	1.0630		S01208	S03208	S04208

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎					◎														

SPADE DRILLS

SERIES 2, 3

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SPADE DRILL INSERTS - HSS (M4)

- General purpose insert for most materials
- Not recommended for tool steels and high temperature alloys
- High toughness for loose or manual machines

POINT ANGLE - 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. (inch/mm)	Diameter Fractional (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Fractional [Metric]	EDP No. HSS (M4) TiN	TiAlN	Hardslick
2 .961 (24.41) to 1.380 (35.05)	1-3/32	27.78	1.0938	3/16 (4.8)	S01209	S03209	S04209
		28.00	1.1024		S01210	S03210	S04210
	1-7/64	28.18	1.1094		S01261	S03261	S04261
	1-1/8	28.58	1.1250		S01211	S03211	S04211
		29.00	1.1417		S01212	S03212	S04212
	1-5/32	29.37	1.1563		S01213	S03213	S04213
		30.00	1.1811		S01214	S03214	S04214
	1-3/16	30.16	1.1875		S01215	S03215	S04215
	1-7/32	30.96	1.2188		S01216	S03216	S04216
		31.00	1.2205		S01217	S03217	S04217
	1-1/4	31.75	1.2500		S01218	S03218	S04218
		32.00	1.2598		S01219	S03219	S04219
	1-9/32	32.54	1.2813		S01220	S03220	S04220
		33.00	1.2992		S01221	S03221	S04221
	1-5/16	33.34	1.3125		S01222	S03222	S04222
		34.00	1.3386		S01223	S03223	S04223
	1-11/32	34.13	1.3438		S01224	S03224	S04224
	1-3/8	34.93	1.3750		S01225	S03225	S04225
		35.00	1.3780		S01226	S03226	S04226
3 1.353 (34.37) to 1.882 (47.80)	1-13/32	35.72	1.4063	1/4 (6.4)	S01301	S03301	S04301
		36.00	1.4173		S01302	S03302	S04302
	1-7/16	36.51	1.4375		S01303	S03303	S04303
		37.00	1.4567		S01304	S03304	S04304
	1-15/32	37.31	1.4688		S01305	S03305	S04305
		38.00	1.4961		S01306	S03306	S04306
	1-1/2	38.10	1.5000		S01307	S03307	S04307
	1-17/32	38.89	1.5313		S01308	S03308	S04308
		39.00	1.5354		S01309	S03309	S04309
	1-9/16	39.69	1.5625		S01310	S03310	S04310
		40.00	1.5748		S01311	S03311	S04311
	1-19/32	40.48	1.5938		S01312	S03312	S04312
		41.00	1.6142		S01313	S03313	S04313
	1-5/8	41.28	1.6250		S01314	S03314	S04314
		42.00	1.6535		S01315	S03315	S04315

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎					◎														

SPADE DRILLS

SERIES 3, 4

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SPADE DRILL INSERTS - HSS (M4)

- General purpose insert for most materials
- Not recommended for tool steels and high temperature alloys
- High toughness for loose or manual machines

POINT ANGLE - 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. (inch/mm)	Diameter Fractional (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Fractional [Metric]	EDP No. HSS (M4) TiN	TiAlN	Hardslick
3 **1.353 (34.37) to 1.882 (47.80)**	1-21/32	42.07	1.6563	1/4 (6.4)	S01316	S03316	S04316
	1-11/16	42.86	1.6875		S01317	S03317	S04317
		43.00	1.6929		S01318	S03318	S04318
	1-23/32	43.66	1.7188		S01319	S03319	S04319
		44.00	1.7323		S01320	S03320	S04320
	1-3/4	44.45	1.7500		S01321	S03321	S04321
		45.00	1.7717		S01322	S03322	S04322
	1-25/32	45.24	1.7813		S01323	S03323	S04323
		46.00	1.8110		S01324	S03324	S04324
	1-13/16	46.04	1.8125		S01325	S03325	S04325
	1-27/32	46.83	1.8438		S01326	S03326	S04326
		47.00	1.8504		S01327	S03327	S04327
	1-7/8	47.63	1.8750		S01328	S03328	S04328
4 **1.850 (46.99) to 2.570 (65.28)**	1-29/32	48.42	1.9063	5/16 (7.9)	S01402	S03402	S04402
	1-15/16	49.21	1.9375		S01404	S03404	S04404
	1-31/32	50.01	1.9688		S01406	S03406	S04406
	2	50.80	2.0000		S01407	S03407	S04407
	2-1/32	51.59	2.0313		S01409	S03409	S04409
	2-3/64	52.00	2.0472		S01410	S03410	S04410
	2-1/16	52.39	2.0625		S01411	S03411	S04411
	2-3/32	53.18	2.0938		S01413	S03413	S04413
	2-1/8	53.98	2.1250		S01414	S03414	S04414
	2-5/32	54.77	2.1563		S01416	S03416	S04416
	2-3/16	55.56	2.1875		S01418	S03418	S04418
	2-7/32	56.36	2.2188		S01420	S03420	S04420
	2-1/4	57.15	2.2500		S01422	S03422	S04422
	2-9/32	57.94	2.2813		S01423	S03423	S04423
	2-5/16	58.74	2.3125		S01425	S03425	S04425
	2-11/32	59.53	2.3438		S01427	S03427	S04427
	2-3/8	60.33	2.3750		S01429	S03429	S04429
	2-13/32	61.12	2.4063		S01431	S03431	S04431
	2-7/16	61.91	2.4375		S01432	S03432	S04432
	2-15/32	62.71	2.4688		S01434	S03434	S04434
	2-1/2	63.50	2.5000		S01436	S03436	S04436

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎					◎														

SPADE DRILLS

SERIES 4, 5, 6, 7, 8

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SPADE DRILL INSERTS - HSS (M4)

- General purpose insert for most materials
- Not recommended for tool steels and high temperature alloys
- High toughness for loose or manual machines

POINT ANGLE - 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. (inch/mm)	Diameter Fractional (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Fractional [Metric]	EDP No. HSS (M4) TiN	TiAlN	Hardslick
4	2-17/32	64.29	2.5313	5/16 (7.9)	S01438	S03438	S04438
	2-9/16	65.09	2.5625		S01440	S03440	S04440
5 **2.456 (62.38) to 3.000 (76.20)**	2-1/2	63.50	2.5000	7/16 (11.1)	S01501	S03501	S04501
	2-5/8	66.68	2.6250		S01507	S03507	S04507
	2-3/4	69.85	2.7500		S01512	S03512	S04512
	2-25/32	70.64	2.7813		S01514	S03514	S04514
	2-13/16	71.44	2.8125		S01515	S03515	S04515
	2-27/32	72.23	2.8438		S01517	S03517	S04517
	2-7/8	73.03	2.8750		S01518	S03518	S04518
	2-29/32	73.82	2.9063		S01519	S03519	S04519
	2-15/16	74.61	2.9375		S01521	S03521	S04521
	2-31/32	75.41	2.9688		S01522	S03522	S04522
	3	76.20	3.0000		S01524	S03524	S04524
6 **3.001(76.23) to 3.507(89.08**	3-1/16	77.79	3.0625	7/16 (11.1)	S01602	S03602	S04602
	3-1/8	79.38	3.1250		S01605	S03605	S04605
	3-1/4	82.55	3.2500		S01611	S03611	S04611
	3-3/8	85.73	3.3750		S01616	S03616	S04616
	3-7/16	87.31	3.4375		S01619	S03619	S04619
	3-1/2	88.90	3.5000		S01622	S03622	S04622
7 **3.455(87.76) to 4.000(101.60)**	3-9/16	90.49	3.5625	7/16 (11.1)	S01703	S03703	S04703
	3-5/8	92.08	3.6250		S01706	S03706	S04706
	3-3/4	95.25	3.7500		S01711	S03711	S04711
	3-7/8	98.43	3.8750		S01717	S03717	S04717
	4	101.60	4.0000		S01722	S03722	S04722
8 **4.001(101.63) to 4.507(114.48)**	4-1/8	104.78	4.1250	7/16 (11.1)	S01804	S03804	S04804
	4-1/4	107.95	4.2500		S01807	S03807	S04807
	4-3/8	111.13	4.3750		S01811	S03811	S04811
	4-1/2	114.30	4.5000		S01815	S03815	S04815

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎					◎														

SPADE DRILLS

SERIES Y, Z, 0

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SPADE DRILL INSERTS - SUPER COBALT (T15)

- Increase wear resistance over M4
- For use in medium carbon steel to high temperature alloys
- Performs best in rigid setups

POINT ANGLE - 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. (inch/mm)	Diameter Fractional (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Fractional [Metric]	EDP No. SUPER COBALT (T15) TiN	TiAlN	Hardslick
Y .374 (9.50) to .436 (11.07)		9.50	.3740	3/32 (2.4)	* S06Y01	* S08Y01	* S09Y01
	3/8	9.53	.3750		* S06Y02	* S08Y02	* S09Y02
		9.80	.3860		* S06Y03	* S08Y03	* S09Y03
	25/64	9.92	.3906		* S06Y04	* S08Y04	* S09Y04
		10.00	.3937		* S06Y05	* S08Y05	* S09Y05
		10.20	.4016		* S06Y06	* S08Y06	* S09Y06
	13/32	10.32	.4063		* S06Y07	* S08Y07	* S09Y07
		10.50	.4134		* S06Y08	* S08Y08	* S09Y08
	27/64	10.72	.4219		* S06Y09	* S08Y09	* S09Y09
		10.80	.4252		* S06Y10	* S08Y10	* S09Y10
		11.00	.4331		* S06Y11	* S08Y11	* S09Y11
Z .437 (11.11) to .510 (12.95)	7/16	11.11	.4375	3/32 (2.4)	* S06Z01	* S08Z01	* S09Z01
		11.50	.4528		* S06Z02	* S08Z02	* S09Z02
	29/64	11.51	.4531		* S06Z03	* S08Z03	* S09Z03
	15/32	11.91	.4688		* S06Z04	* S08Z04	* S09Z04
		12.00	.4724		* S06Z05	* S08Z05	* S09Z05
	31/64	12.30	.4844		* S06Z06	* S08Z06	* S09Z06
		12.50	.4921		* S06Z07	* S08Z07	* S09Z07
	1/2	12.70	.5000		* S06Z08	* S08Z08	* S09Z08
0 .511 (12.98) to .695 (17.65)		13.00	.5118	1/8 (3.2)	* S06001	* S08001	* S09001
	33/64	13.10	.5156		* S06002	* S08002	* S09002
	17/32	13.49	.5313		* S06003	* S08003	* S09003
		13.50	.5315		* S06004	* S08004	* S09004
	35/64	13.89	.5469		* S06060	* S08060	* S09060
		14.00	.5512		* S06005	* S08005	* S09005
	9/16	14.29	.5625		* S06006	* S08006	* S09006
		14.50	.5709		* S06007	* S08007	* S09007
	37/64	14.68	.5781		* S06008	* S08008	* S09008
		15.00	.5906		* S06009	* S08009	* S09009
	19/32	15.08	.5938		* S06010	* S08010	* S09010
	39/64	15.48	.6094		* S06061	* S08061	* S09061
		15.50	.6102		* S06011	* S08011	* S09011
	5/8	15.88	.6250		* S06012	* S08012	* S09012

* 2pcs per package

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	○	○	○	○			○			

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

SPADE DRILLS

SERIES 0, 1

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SPADE DRILL INSERTS - SUPER COBALT (T15)

- Increase wear resistance over M4
- For use in medium carbon steel to high temperature alloys
- Performs best in rigid setups

POINT ANGLE - 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. (inch/mm)	Diameter Fractional (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Fractional [Metric]	EDP No. SUPER COBALT (T15) TiN	TiAlN	Hardslick
0 .511 (12.98) to .695 (17.65)		16.00	.6299	1/8 (3.2)	S06013	S08013	S09013
	41/64	16.27	.6406		* S06062	* S08062	* S09062
		16.50	.6496		* S06014	* S08014	* S09014
	21/32	16.67	.6563		* S06015	* S08015	* S09015
		17.00	.6693		* S06016	* S08016	* S09016
	43/64	17.07	.6719		* S06063	* S08063	* S09063
	11/16	17.46	.6875		* S06017	* S08017	* S09017
		17.50	.6890		* S06018	* S08018	* S09018
1 .690 (17.53) to .960 (24.38)	45/64	17.86	.7031	5/32 (4.0)	* S06101	* S08101	* S09101
		18.00	.7087		S06102	S08102	S09102
	23/32	18.26	.7188		S06103	S08103	S09103
		18.50	.7283		S06104	S08104	S09104
	47/64	18.65	.7344		S06105	S08105	S09105
		19.00	.7480		S06106	S08106	S09106
	3/4	19.05	.7500		S06107	S08107	S09107
	49/64	19.45	.7656		S06108	S08108	S09108
		19.50	.7677		S06109	S08109	S09109
	25/32	19.84	.7813		S06110	S08110	S09110
		20.00	.7874		S06111	S08111	S09111
	51/64	20.24	.7969		S06160	S08160	S09160
		20.50	.8071		S06112	S08112	S09112
	13/16	20.64	.8125		S06113	S08113	S09113
		21.00	.8268		S06114	S08114	S09114
	27/32	21.43	.8438		S06115	S08115	S09115
	55/64	21.83	.8594		S06161	S08161	S09161
		22.00	.8661		S06116	S08116	S09116
	7/8	22.23	.8750		S06117	S08117	S09117
	57/64	22.62	.8906		S06162	S08162	S09162
		23.00	.9055		S06118	S08118	S09118
	29/32	23.02	.9063		S06119	S08119	S09119
	59/64	23.42	.9219		S06120	S08120	S09120
	15/16	23.81	.9375		S06121	S08121	S09121
		24.00	.9449		S06122	S08122	S09122

* 2pcs per package

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	○	○	○	○			○			

SPADE DRILLS

SERIES 2, 3

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SPADE DRILL INSERTS - SUPER COBALT (T15)

- Increase wear resistance over M4
- For use in medium carbon steel to high temperature alloys
- Performs best in rigid setups

POINT ANGLE - 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. (inch/mm)	Diameter Fractional (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Fractional [Metric]	EDP No. SUPER COBALT (T15) TiN	TiAlN	Hardslick
2 .961 (24.41) to 1.380 (35.05)	31/32	24.61	.9688	3/16 (4.8)	S06201	S08201	S09201
	63/64	25.00	.9843		S06202	S08202	S09202
	1	25.40	1.0000		S06203	S08203	S09203
	1-1/64	25.80	1.0156		S06204	S08204	S09204
		26.00	1.0236		S06205	S08205	S09205
	1-1/32	26.19	1.0313		S06206	S08206	S09206
	1-3/64	26.59	1.0469		S06260	S08260	S09260
	1-1/16	26.99	1.0625		S06207	S08207	S09207
		27.00	1.0630		S06208	S08208	S09208
	1-3/32	27.78	1.0938		S06209	S08209	S09209
		28.00	1.1024		S06210	S08210	S09210
	1-7/64	28.18	1.1094		S06261	S08261	S09261
	1-1/8	28.58	1.1250		S06211	S08211	S09211
		29.00	1.1417		S06212	S08212	S09212
	1-5/32	29.37	1.1563		S06213	S08213	S09213
		30.00	1.1811		S06214	S08214	S09214
	1-3/16	30.16	1.1875		S06215	S08215	S09215
	1-7/32	30.96	1.2188		S06216	S08216	S09216
		31.00	1.2205		S06217	S08217	S09217
	1-1/4	31.75	1.2500		S06218	S08218	S09218
		32.00	1.2598		S06219	S08219	S09219
	1-9/32	32.54	1.2813		S06220	S08220	S09220
		33.00	1.2992		S06221	S08221	S09221
	1-5/16	33.34	1.3125		S06222	S08222	S09222
		34.00	1.3386		S06223	S08223	S09223
	1-11/32	34.13	1.3438		S06224	S08224	S09224
	1-3/8	34.93	1.3750		S06225	S08225	S09225
		35.00	1.3780		S06226	S08226	S09226
3	1-13/32	35.72	1.4063	1/4 (6.4)	S06301	S08301	S09301
		36.00	1.4173		S06302	S08302	S09302
	1-7/16	36.51	1.4375		S06303	S08303	S09303
		37.00	1.4567		S06304	S08304	S09304
	1-15/32	37.31	1.4688		S06305	S08305	S09305

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	○	○	○	○			○			

SPADE DRILLS

SERIES 3, 4

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SPADE DRILL INSERTS - SUPER COBALT (T15)

- Increase wear resistance over M4
- For use in medium carbon steel to high temperature alloys
- Performs best in rigid setups

POINT ANGLE - 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. (inch/mm)	Diameter Fractional (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Fractional [Metric]	EDP No. SUPER COBALT (T15) TiN	TiAlN	Hardslick
3 1.353 (34.37) to 1.882 (47.80)		38.00	1.4961	1/4 (6.4)	S06306	S08306	S09306
	1-1/2	38.10	1.5000		S06307	S08307	S09307
	1-17/32	38.89	1.5313		S06308	S08308	S09308
		39.00	1.5354		S06309	S08309	S09309
	1-9/16	39.69	1.5625		S06310	S08310	S09310
		40.00	1.5748		S06311	S08311	S09311
	1-19/32	40.48	1.5938		S06312	S08312	S09312
		41.00	1.6142		S06313	S08313	S09313
	1-5/8	41.28	1.6250		S06314	S08314	S09314
		42.00	1.6535		S06315	S08315	S09315
	1-21/32	42.07	1.6563		S06316	S08316	S09316
	1-11/16	42.86	1.6875		S06317	S08317	S09317
		43.00	1.6929		S06318	S08318	S09318
	1-23/32	43.66	1.7188		S06319	S08319	S09319
		44.00	1.7323		S06320	S08320	S09320
	1-3/4	44.45	1.7500		S06321	S08321	S09321
		45.00	1.7717		S06322	S08322	S09322
	1-25/32	45.24	1.7813		S06323	S08323	S09323
		46.00	1.8110		S06324	S08324	S09324
	1-13/16	46.04	1.8125		S06325	S08325	S09325
	1-27/32	46.83	1.8438		S06326	S08326	S09326
		47.00	1.8504		S06327	S08327	S09327
	1-7/8	47.63	1.8750		S06328	S08328	S09328
4 1.850 (46.99) to 2.570 (65.28)	1-29/32	48.42	1.9062	5/16 (7.9)	S06402	S08402	S09402
	1-15/16	49.21	1.9375		S06404	S08404	S09404
	1-31/32	50.01	1.9688		S06406	S08406	S09406
	2	50.80	2.0000		S06407	S08407	S09407
	2-1/32	51.59	2.0312		S06409	S08409	S09409
	2-3/64	52.00	2.0472		S06410	S08410	S09410
	2-1/16	52.39	2.0625		S06411	S08411	S09411
	2-3/32	53.18	2.0938		S06413	S08413	S09413
	2-1/8	53.98	2.1250		S06414	S08414	S09414
	2-5/32	54.77	2.1562		S06416	S08416	S09416

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	○	○	○	○			○			

SPADE DRILLS

SERIES 4, 5

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SPADE DRILL INSERTS - SUPER COBALT (T15)

- Increase wear resistance over M4
- For use in medium carbon steel to high temperature alloys
- Performs best in rigid setups

POINT ANGLE - 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. (inch/mm)	Diameter Fractional (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Fractional [Metric]	EDP No. SUPER COBALT (T15) TiN	TiAlN	Hardslick
4 1.850 (46.99) to 2.570 (65.28)	2-3/16	55.56	2.1875	5/16 (7.9)	S06418	S08418	S09418
	2-7/32	56.36	2.2188		S06420	S08420	S09420
	2-1/4	57.15	2.2500		S06422	S08422	S09422
	2-9/32	57.94	2.2812		S06423	S08423	S09423
	2-5/16	58.74	2.3125		S06425	S08425	S09425
	2-11/32	59.53	2.3438		S06427	S08427	S09427
	2-3/8	60.33	2.3750		S06429	S08429	S09429
	2-13/32	61.12	2.4062		S06431	S08431	S09431
	2-7/16	61.91	2.4375		S06432	S08432	S09432
	2-15/32	62.71	2.4688		S06434	S08434	S09434
	2-1/2	63.50	2.5000		S06436	S08436	S09436
	2-17/32	64.29	2.5312		S06438	S08438	S09438
	2-9/16	65.09	2.5625		S06440	S08440	S09440
5 2.456 (62.38) to 3.000 (76.20)	2-1/2	63.50	2.5000	7/16 (11.1)	—	—	S09501
		64.00	2.5197		—	—	S09502
	2-17/32	64.29	2.5312		—	—	S09503
	2-9/16	65.09	2.5625		—	—	S09504
	2-19/32	65.88	2.5938		—	—	S09505
		66.00	2.5984		—	—	S09506
	2-5/8	66.68	2.6250		—	—	S09507
	2-21/32	67.47	2.6562		—	—	S09508
		68.00	2.6772		—	—	S09509
	2-11/16	68.26	2.6875		—	—	S09510
	2-23/32	69.09	2.7188		—	—	S09511
	2-3/4	69.85	2.7500		—	—	S09512
		70.00	2.7559		—	—	S09513
	2-25/32	70.64	2.7812		—	—	S09514
	2-13/16	71.44	2.8125		—	—	S09515
		72.00	2.8346		—	—	S09516
	2-27/32	72.23	2.8438		—	—	S09517
	2-7/8	73.03	2.8750		—	—	S09518
	2-29/32	73.82	2.9062		—	—	S09519
		74.00	2.9134		—	—	S09520

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	○	○	○	○			○			

SPADE DRILLS

SERIES 5, 6, 7

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SPADE DRILL INSERTS - SUPER COBALT (T15)

- Increase wear resistance over M4
- For use in medium carbon steel to high temperature alloys
- Performs best in rigid setups

POINT ANGLE - 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. (inch/mm)	Diameter Fractional (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Fractional [Metric]	EDP No. SUPER COBALT (T15) TiN	TiAlN	Hardslick
5	2-15/16	74.61	2.9375	7/16 (11.1)	—	—	S09521
	2-31/32	75.41	2.8688		—	—	S09522
		76.00	2.9921		—	—	S09523
	3	76.20	3.0000		—	—	S09524
6 3.001 (76.23) to 3.507 (89.08)	3-1/32	76.99	3.0312		—	—	S09601
	3-1/16	77.79	3.0625		—	—	S09602
		78.00	3.0709		—	—	S09603
	3-3/32	78.58	3.0938		—	—	S09604
	3-1/8	79.38	3.1250		—	—	S09605
		80.00	3.1496		—	—	S09606
	3-5/32	80.17	3.1562		—	—	S09607
	3-3/16	80.96	3.1875		—	—	S09608
	3-7/32	81.76	3.2188		—	—	S09609
		82.00	3.2283		—	—	S09610
	3-1/4	82.55	3.2500	7/16 (11.1)	—	—	S09611
	3-9/32	83.34	3.2812		—	—	S09612
		84.00	3.3071		—	—	S09613
	3-5/16	84.14	3.3125		—	—	S09614
	3-11/32	84.93	3.3438		—	—	S09615
	3-3/8	85.73	3.3750		—	—	S09616
		86.00	3.3858		—	—	S09617
	3-13/32	86.52	3.3062		—	—	S09618
	3-7/16	87.31	3.4375		—	—	S09619
		88.00	3.4646		—	—	S09620
	3-15/32	88.11	3.4688		—	—	S09621
	3-1/2	88.90	3.5000		—	—	S09622
7 3.455(87.76) to 4.000(101.60)	3-17/32	89.69	3.5312	7/16 (11.1)	—	—	S09701
		90.00	3.5433		—	—	S09702
	3-9/16	90.49	3.5625		—	—	S09703
	3-19/32	91.28	3.5938		—	—	S09704
		92.00	3.6221		—	—	S09705
	3-5/8	92.08	3.6250		—	—	S09706
	3-21/32	92.87	3.6563		—	—	S09707

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	○	○	○	○			○			

YG SPADE DRILLS

SERIES 7, 8

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SPADE DRILL INSERTS - SUPER COBALT (T15)

- Increase wear resistance over M4
- For use in medium carbon steel to high temperature alloys
- Performs best in rigid setups

POINT ANGLE - 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. (inch/mm)	Diameter Fractional (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Fractional [Metric]	EDP No. SUPER COBALT (T15) TiN	TiAlN	Hardslick
7 3.455 (87.76) to 4.000 (101.60)	3-11/16	93.66	3.6875	7/16 (11.1)	—	—	S09708
		94.00	3.7008		—	—	S09709
	3-23/32	94.46	3.7188		—	—	S09710
	3-3/4	95.25	3.7500		—	—	S09711
		96.00	3.7795		—	—	S09712
	3-25/32	96.04	3.7812		—	—	S09713
	3-13/16	96.84	3.8125		—	—	S09714
	3-27/32	97.63	3.8438		—	—	S09715
		98.00	3.8583		—	—	S09716
	3-7/8	98.43	3.8750		—	—	S09717
	3-29/32	99.22	3.9062		—	—	S09718
		100.00	3.9370		—	—	S09719
	3-15/16	100.01	3.9375		—	—	S09720
	3-31/32	100.81	3.9688		—	—	S09721
	4	101.60	4.0000		—	—	S09722
8 4.001 (101.63) to 4.507 (114.48)	4-1/64	102.00	4.0156	7/16 (11.1)	—	—	S09801
	4-1/16	103.19	4.0625		—	—	S09802
	4-3/32	104.00	4.0945		—	—	S09803
	4-1/8	104.78	4.1250		—	—	S09804
		106.00	4.1732		—	—	S09805
	4-3/16	106.36	4.1875		—	—	S09806
	4-1/4	107.95	4.2500		—	—	S09807
		108.00	4.2520		—	—	S09808
	4-5/16	109.54	4.3125		—	—	S09809
		110.00	4.3307		—	—	S09810
	4-3/8	111.13	4.3750		—	—	S09811
		112.00	4.4094		—	—	S09812
	4-7/16	112.71	4.4375		—	—	S09813
		114.00	4.4882		—	—	S09814
	4-1/2	114.30	4.5000		—	—	S09815

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	○	○	○	○			○			

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

YG SPADE DRILLS

SERIES Y, Z, 0

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SPADE DRILL INSERTS - PREMIUM COBALT (M48)

- Increased tool life over T15
- For use in high temperature alloys and materials including medium carbon, Alloy and tool steels
- Rigid set up needed

POINT ANGLE : 132 degree

Series Min. to Max. (inch/mm)	Diameter Fractional (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Fractional [Metric]	EDP No. PREMIUM COBALT (M48) TiN	TiAlN	Hardslick
Y .374 (9.50) to .436 (11.07)		9.50	.3740	3/32 (2.4)	* S11Y01	* S13Y01	* S14Y01
	3/8	9.53	.3750		* S11Y02	* S13Y02	* S14Y02
		9.80	.3860		* S11Y03	* S13Y03	* S14Y03
	25/64	9.92	.3906		* S11Y04	* S13Y04	* S14Y04
		10.00	.3937		* S11Y05	* S13Y05	* S14Y05
		10.20	.4016		* S11Y06	* S13Y06	* S14Y06
	13/32	10.32	.4063		* S11Y07	* S13Y07	* S14Y07
		10.50	.4134		* S11Y08	* S13Y08	* S14Y08
	27/64	10.72	.4219		* S11Y09	* S13Y09	* S14Y09
		10.80	.4252		* S11Y10	* S13Y10	* S14Y10
		11.00	.4331		* S11Y11	* S13Y11	* S14Y11
Z .437 (11.11) to .510 (12.95)	7/16	11.11	.4375	3/32 (2.4)	* S11Z01	* S13Z01	* S14Z01
		11.50	.4528		* S11Z02	* S13Z02	* S14Z02
	29/64	11.51	.4531		* S11Z03	* S13Z03	* S14Z03
	15/32	11.91	.4688		* S11Z04	* S13Z04	* S14Z04
		12.00	.4724		* S11Z05	* S13Z05	* S14Z05
	31/64	12.30	.4844		* S11Z06	* S13Z06	* S14Z06
		12.50	.4921		* S11Z07	* S13Z07	* S14Z07
	1/2	12.70	.5000		* S11Z08	* S13Z08	* S14Z08
0 .511 (12.98) to .695 (17.65)		13.00	.5118	1/8 (3.2)	* S11001	* S13001	* S14001
	33/64		.5156		* S11002	* S13002	* S14002
	17/32		.5313		* S11003	* S13003	* S14003
		13.50	.5315		* S11004	* S13004	* S14004
	35/64		.5469		* S11060	* S13060	* S14060
		14.00	.5512		* S11005	* S13005	* S14005
	9/16		.5625		* S11006	* S13006	* S14006
		14.50	.5709		* S11007	* S13007	* S14007
	37/64		.5781		* S11008	* S13008	* S14008
		15.00	.5906		* S11009	* S13009	* S14009
	19/32		.5938		* S11010	* S13010	* S14010
	39/64		.6094		* S11061	* S13061	* S14061
		15.50	.6102		* S11011	* S13011	* S14011
	5/8		.6250		* S11012	* S13012	* S14012

* 2pcs per package

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	◎	◎	◎	◎			◎			

SPADE DRILLS

SERIES 0, 1

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SPADE DRILL INSERTS - PREMIUM COBALT (M48)

- Increased tool life over T15
- For use in high temperature alloys and materials including medium carbon, Alloy and tool steels
- Rigid set up needed

POINT ANGLE : 132 degree

Series Min. to Max. (inch/mm)	Diameter Fractional (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Fractional [Metric]	EDP No. PREMIUM COBALT (M48) TiN	TiAlN	Hardslick
0 .511 (12.98) to .695 (17.65)		16.00	.6299	1/8 (3.2)	* S11013	* S13013	* S14013
	41/64		.6406		* S11062	* S13062	* S14062
		16.50	.6496		* S11014	* S13014	* S14014
	21/32		.6563		* S11015	* S13015	* S14015
		17.00	.6693		* S11016	* S13016	* S14016
	43/64		.6719		* S11063	* S13063	* S14063
	11/16		.6875		* S11017	* S13017	* S14017
		17.50	.6890		* S11018	* S13018	* S14018
1 .690 (17.53) to .960 (24.38)	45/64	17.86	.7031	5/32 (4.0)	S11101	S13101	S14101
		18.00	.7087		S11102	S13102	S14102
	23/32	18.26	.7188		S11103	S13103	S14103
		18.50	.7283		S11104	S13104	S14104
	47/64	18.65	.7344		S11105	S13105	S14105
		19.00	.7480		S11106	S13106	S14106
	3/4	19.05	.7500		S11107	S13107	S14107
	49/64	19.45	.7656		S11108	S13108	S14108
		19.50	.7677		S11109	S13109	S14109
	25/32	19.84	.7812		S11110	S13110	S14110
		20.00	.7874		S11111	S13111	S14111
	51/64	20.24	.7969		S11160	S13160	S14160
		20.50	.8071		S11112	S13112	S14112
	13/16	20.64	.8125		S11113	S13113	S14113
		21.00	.8268		S11114	S13114	S14114
	27/32	21.43	.8438		S11115	S13115	S14115
	55/64	21.83	.8594		S11161	S13161	S14161
		22.00	.8661		S11116	S13116	S14116
	7/8	22.23	.8750		S11117	S13117	S14117
	57/64	22.62	.8906		S11162	S13162	S14162
		23.00	.9055		S11118	S13118	S14118
	29/32	23.02	.9062		S11119	S13119	S14119
	59/64	23.42	.9219		S11120	S13120	S14120
	15/16	23.81	.9375		S11121	S13121	S14121
		24.00	.9449		S11122	S13122	S14122

* 2pcs per package

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	◎	◎	◎	◎			◎			

SPADE DRILLS

SERIES 2

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SPADE DRILL INSERTS - PREMIUM COBALT (M48)

- Increased tool life over T15
- For use in high temperature alloys and materials including medium carbon, Alloy and tool steels
- Rigid set up needed

POINT ANGLE : 132 degree

Series Min. to Max. (inch/mm)	Diameter Fractional (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Fractional [Metric]	EDP No. PREMIUM COBALT (M48) TiN	TiAlN	Hardslick
2 .961 (24.41) to 1.380 (35.05)	31/32	24.61	.9688	3/16 (4.8)	S11201	S13201	S14201
	63/64	25.00	.9843		S11202	S13202	S14202
	1	25.40	1.0000		S11203	S13203	S14203
	1-1/64	25.80	1.0156		S11204	S13204	S14204
		26.00	1.0236		S11205	S13205	S14205
	1-1/32	26.19	1.0312		S11206	S13206	S14206
	1-3/64	26.59	1.0469		S11260	S13260	S14260
	1-1/16	26.99	1.0625		S11207	S13207	S14207
		27.00	1.0630		S11208	S13208	S14208
	1-3/32	27.78	1.0938		S11209	S13209	S14209
		28.00	1.1024		S11210	S13210	S14210
	1-7/64	28.18	1.1094		S11261	S13261	S14261
	1-1/8	28.58	1.1250		S11211	S13211	S14211
		29.00	1.1417		S11212	S13212	S14212
	1-5/32	29.37	1.1562		S11213	S13213	S14213
		30.00	1.1811		S11214	S13214	S14214
	1-3/16	30.16	1.1875		S11215	S13215	S14215
	1-7/32	30.96	1.2188		S11216	S13216	S14216
		31.00	1.2205		S11217	S13217	S14217
	1-1/4	31.75	1.2500		S11218	S13218	S14218
		32.00	1.2598		S11219	S13219	S14219
	1-9/32	32.54	1.2812		S11220	S13220	S14220
		33.00	1.2992		S11221	S13221	S14221
	1-5/16	33.34	1.3125		S11222	S13222	S14222
		34.00	1.3386		S11223	S13223	S14223
	1-11/32	34.13	1.3438		S11224	S13224	S14224
	1-3/8	34.93	1.3750		S11225	S13225	S14225
		35.00	1.3780		S11226	S13226	S14226

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	◎	◎	◎	◎			◎			

SPADE DRILLS

SERIES Y, Z

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
CARBIDE BLADE INSERTS C2 (K20), C5 (P40), C3 (K10)

- High performance on Gray cast iron over 220 Brinell, malleable cast iron with short chips, silicon aluminum and copper alloys. (C3)
- For general use in carbon steels and alloys steels. (C5)
- For use in Gray cast iron, nonferrous metals,copper, brass and aluminum. (C2)

POINT ANGLE : 132 degree

* 2pcs per package

Series Min. to Max. (inch/mm)	Diameter Fractional (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Fractional [Metric]	EDP No. Multi purpose Geometry C2 (K20) TiN	C2 (K20) TiAlN	C5 (P40) TiN	C5 (P40) TiAlN	Cast Iron Geometry C3 (K10) TiN	C3 (K10) TiAlN
Y .374 (9.50) to .436 (11.07)		9.50	.3740	3/32 (2.4)	* S21Y01	* S23Y01	* S26Y01	* S28Y01	* S16Y01	* S18Y01
	3/8	9.53	.3750		* S21Y02	* S23Y02	* S26Y02	* S28Y02	* S16Y02	* S18Y02
		9.80	.3860		* S21Y03	* S23Y03	* S26Y03	* S28Y03	* S16Y03	* S18Y03
	25/64	9.92	.3906		* S21Y04	* S23Y04	* S26Y04	* S28Y04	* S16Y04	* S18Y04
		10.00	.3937		* S21Y05	* S23Y05	* S26Y05	* S28Y05	* S16Y05	* S18Y05
		10.20	.4016		* S21Y06	* S23Y06	* S26Y06	* S28Y06	* S16Y06	* S18Y06
	13/32	10.32	.4063		* S21Y07	* S23Y07	* S26Y07	* S28Y07	* S16Y07	* S18Y07
		10.50	.4134		* S21Y08	* S23Y08	* S26Y08	* S28Y08	* S16Y08	* S18Y08
	27/64	10.72	.4219		* S21Y09	* S23Y09	* S26Y09	* S28Y09	* S16Y09	* S18Y09
		10.80	.4252		* S21Y10	* S23Y10	* S26Y10	* S28Y10	* S16Y10	* S18Y10
		11.00	.4331		* S21Y11	* S23Y11	* S26Y11	* S28Y11	* S16Y11	* S18Y11
Z .437 (11.11) to .510 (12.95)	7/16	11.11	.4375	3/32 (2.4)	* S21Z01	* S23Z01	* S26Z01	* S28Z01	* S16Z01	* S18Z01
		11.50	.4528		* S21Z02	* S23Z02	* S26Z02	* S28Z02	* S16Z02	* S18Z02
	29/64	11.51	.4531		* S21Z03	* S23Z03	* S26Z03	* S28Z03	* S16Z03	* S18Z03
	15/32	11.91	.4688		* S21Z04	* S23Z04	* S26Z04	* S28Z04	* S16Z04	* S18Z04
		12.00	.4724		* S21Z05	* S23Z05	* S26Z05	* S28Z05	* S16Z05	* S18Z05
	31/64	12.30	.4844		* S21Z06	* S23Z06	* S26Z06	* S28Z06	* S16Z06	* S18Z06
		12.50	.4921		* S21Z07	* S23Z07	* S26Z07	* S28Z07	* S16Z07	* S18Z07
	1/2	12.70	.5000		* S21Z08	* S23Z08	* S26Z08	* S28Z08	* S16Z08	* S18Z08

◎ : Excellent ○ : Good

ISO	Material Description	P Non-alloy steel					P Low alloy steel				P High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		K Nodular cast iron		K 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		21
	HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	C2(K20)	○	○	○	○		○	○	○	○	○	○	◎	◎	◎	○	○	○	○	○	○
	C5(P40)	◎	◎	◎	◎		◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○
	C3(K10)															◎	◎	◎	◎	◎	◎

ISO	Material Description	N Aluminum-wrought alloy		N Aluminum-cast, alloyed			N Copper and Copper Alloys (Bronze / Brass)			N Non Metallic Materials		S Heat Resistant Super Alloys					S Titanium Alloys		H Hardened steel		H Chilled Cast Iron	H 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	400 Rm	1050 Rm	550	630	400	550
Recommended	C2(K20)	◎	◎					◎				◎	◎	◎	◎	◎			○			
	C5(P40)	○	○					○				○	○	○	○	○			◎			
	C3(K10)																					

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

SPADE DRILLS

SERIES 0

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
CARBIDE BLADE INSERTS C2 (K20), C5 (P40), C3 (K10)

- High performance on Gray cast iron over 220 Brinell, malleable cast iron with short chips, silicon aluminum and copper alloys. (C3)
- For general use in carbon steels and alloys steels. (C5)
- For use in Gray cast iron, nonferrous metals,copper, brass and aluminum. (C2)

POINT ANGLE : 132 degree

* 2pcs per package

Series Min. to Max. (inch/mm)	Diameter Fractional (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Fractional [Metric]	EDP No. Multi purpose Geometry C2 (K20) TiN	C2 (K20) TiAlN	C5 (P40) TiN	C5 (P40) TiAlN	Cast Iron Geometry C3 (K10) TiN	C3 (K10) TiAlN
0 .511 (12.98) to .695 (17.65)		13.00	.5118	1/8 (3.2)	* S21001	* S23001	* S26001	* S28001	* S16001	* S18001
	33/64	13.10	.5156		* S21002	* S23002	* S26002	* S28002	* S16002	* S18002
	17/32	13.49	.5313		* S21003	* S23003	* S26003	* S28003	* S16003	* S18003
		13.50	.5315		* S21004	* S23004	* S26004	* S28004	* S16004	* S18004
	35/64	13.89	.5469		* S21060	* S23060	* S26060	* S28060	* S16060	* S18060
		14.00	.5512		* S21005	* S23005	* S26005	* S28005	* S16005	* S18005
	9/16	14.29	.5625		* S21006	* S23006	* S26006	* S28006	* S16006	* S18006
		14.50	.5709		* S21007	* S23007	* S26007	* S28007	* S16007	* S18007
	37/64	14.68	.5781		* S21008	* S23008	* S26008	* S28008	* S16008	* S18008
		15.00	.5906		* S21009	* S23009	* S26009	* S28009	* S16009	* S18009
	19/32	15.08	.5938		* S21010	* S23010	* S26010	* S28010	* S16010	* S18010
	39/64	15.48	.6094		* S21061	* S23061	* S26061	* S28061	* S16061	* S18061
		15.50	.6102		* S21011	* S23011	* S26011	* S28011	* S16011	* S18011
		15.70	.6181		* S21064	* S23064	* S26064	* S28064	* S16064	* S18064
	5/8	15.88	.6250		* S21012	* S23012	* S26012	* S28012	* S16012	* S18012
		16.00	.6299		* S21013	* S23013	* S26013	* S28013	* S16013	* S18013
	41/64	16.27	.6406		* S21062	* S23062	* S26062	* S28062	* S16062	* S18062
		16.50	.6496		* S21014	* S23014	* S26014	* S28014	* S16014	* S18014
	21/32	16.67	.6563		* S21015	* S23015	* S26015	* S28015	* S16015	* S18015
		17.00	.6693		* S21016	* S23016	* S26016	* S28016	* S16016	* S18016
	43/64	17.07	.6719		* S21063	* S23063	* S26063	* S28063	* S16063	* S18063
	11/16	17.46	.6875		* S21017	* S23017	* S26017	* S28017	* S16017	* S18017
		17.50	.6890		* S21018	* S23018	* S26018	* S28018	* S16018	* S18018

◎ : Excellent ○ : Good

ISO	Material Description	P Non-alloy steel					P Low alloy steel				P High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		K Nodular cast iron		K 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		21
	HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	C2(K20)	○	○	○	○		○	○	○	○	○	○	◎	◎	◎	○	○	○	○	○	○
	C5(P40)	◎	◎	◎	◎		◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○
	C3(K10)															◎	◎	◎	◎	◎	◎

ISO	Material Description	N Aluminum-wrought alloy		N Aluminum-cast, alloyed			N Copper and Copper Alloys (Bronze / Brass)			N Non Metallic Materials		S Heat Resistant Super Alloys					S Titanium Alloys		H Hardened steel		H Chilled Cast Iron	H 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	400 Rm	1050 Rm	550	630	400	550
Recommended	C2(K20)	◎	◎					◎				◎	◎	◎	◎	◎			○			
	C5(P40)	○	○					○				○	○	○	○	○			◎			
	C3(K10)																					

YG SPADE DRILLS

SERIES 1

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
CARBIDE BLADE INSERTS C2 (K20), C5 (P40), C3 (K10)

- High performance on Gray cast iron over 220 Brinell, malleable cast iron with short chips, silicon aluminum and copper alloys. (C3)
- For general use in carbon steels and alloys steels. (C5)
- For use in Gray cast iron, nonferrous metals,copper, brass and aluminum. (C2)

POINT ANGLE : 132 degree

Series Min. to Max. (inch/mm)	Diameter			Thick	EDP No.					
					Multi purpose Geometry				Cast Iron Geometry	
					C2 (K20)		C5 (P40)		C3 (K10)	
	Fractional (inch)	Metric (mm)	Decimal (inch)	Fractional [Metric]	TiN	TiAlN	TiN	TiAlN	TiN	TiAlN
1 .690 (17.53) to .960 (24.38)	45/64	17.86	.7031	5/32 (4.0)	S21101	S23101	S26101	S28101	S16101	S18101
		18.00	.7087		S21102	S23102	S26102	S28102	S16102	S18102
	23/32	18.26	.7188		S21103	S23103	S26103	S28103	S16103	S18103
		18.50	.7283		S21104	S23104	S26104	S28104	S16104	S18104
	47/64	18.65	.7344		S21105	S23105	S26105	S28105	S16105	S18105
		19.00	.7480		S21106	S23106	S26106	S28106	S16106	S18106
	3/4	19.05	.7500		S21107	S23107	S26107	S28107	S16107	S18107
	49/64	19.45	.7656		S21108	S23108	S26108	S28108	S16108	S18108
		19.50	.7677		S21109	S23109	S26109	S28109	S16109	S18109
	25/32	19.84	.7813		S21110	S23110	S26110	S28110	S16110	S18110
		20.00	.7874		S21111	S23111	S26111	S28111	S16111	S18111
	51/64	20.24	.7969		S21160	S23160	S26160	S28160	S16160	S18160
		20.50	.8071		S21112	S23112	S26112	S28112	S16112	S18112
	13/16	20.64	.8125		S21113	S23113	S26113	S28113	S16113	S18113
		21.00	.8268		S21114	S23114	S26114	S28114	S16114	S18114
	27/32	21.43	.8438		S21115	S23115	S26115	S28115	S16115	S18115
	55/64	21.83	.8594		S21161	S23161	S26161	S28161	S16161	S18161
		22.00	.8661		S21116	S23116	S26116	S28116	S16116	S18116
	7/8	22.23	.8750		S21117	S23117	S26117	S28117	S16117	S18117
	57/64	22.62	.8906		S21162	S23162	S26162	S28162	S16162	S18162
		23.00	.9055		S21118	S23118	S26118	S28118	S16118	S18118
	29/32	23.02	.9063		S21119	S23119	S26119	S28119	S16119	S18119
	59/64	23.42	.9219		S21120	S23120	S26120	S28120	S16120	S18120
	15/16	23.81	.9375		S21121	S23121	S26121	S28121	S16121	S18121
		24.00	.9449		S21122	S23122	S26122	S28122	S16122	S18122

◎ : 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		21
HB		125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	C2(K20)	○	○	○	○		○	○	○	○	○	○	◎	◎	◎	○	○	○	○	○	○
	C5(P40)	◎	◎	◎	◎		◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○
	C3(K10)															◎	◎	◎	◎	◎	◎

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	400 Rm	1050 Rm	550	630	400	550
Recommended	C2(K20)	◎	◎					◎				◎	◎	◎	◎	◎			○			
	C5(P40)	○	○					○				○	○	○	○	○			◎			
	C3(K10)																					

YG SPADE DRILLS

SERIES 2

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
CARBIDE BLADE INSERTS C2 (K20), C5 (P40), C3 (K10)

- High performance on Gray cast iron over 220 Brinell, malleable cast iron with short chips, silicon aluminum and copper alloys. (C3)
- For general use in carbon steels and alloys steels. (C5)
- For use in Gray cast iron, nonferrous metals,copper, brass and aluminum. (C2)

POINT ANGLE : 132 degree

Series Min. to Max. (inch/mm)	Diameter			Thick	EDP No.					
					Multi purpose Geometry				Cast Iron Geometry	
					C2 (K20)		C5 (P40)		C3 (K10)	
	Fractional (inch)	Metric (mm)	Decimal (inch)	Fractional [Metric]	TiN	TiAlN	TiN	TiAlN	TiN	TiAlN
2 .961 (24.41) to 1.380 (35.05)	31/32	24.61	..9688	3/16 (4.8)	S21201	S23201	S26201	S28201	S16201	S18201
	63/64	25.00	.9843		S21202	S23202	S26202	S28202	S16202	S18202
	1	25.40	1.0000		S21203	S23203	S26203	S28203	S16203	S18203
	1-1/64	25.80	1.0156		S21204	S23204	S26204	S28204	S16204	S18204
		26.00	1.0236		S21205	S23205	S26205	S28205	S16205	S18205
	1-1/32	26.19	1.0313		S21206	S23206	S26206	S28206	S16206	S18206
	1-3/64	26.59	1.0469		S21260	S23260	S26260	S28260	S16260	S18260
	1-1/16	26.99	1.0625		S21207	S23207	S26207	S28207	S16207	S18207
		27.00	1.0630		S21208	S23208	S26208	S28208	S16208	S18208
	1-3/32	27.78	1.0938		S21209	S23209	S26209	S28209	S16209	S18209
		28.00	1.1024		S21210	S23210	S26210	S28210	S16210	S18210
	1-7/64	28.18	1.1094		S21261	S23261	S26261	S28261	S16261	S18261
	1-1/8	28.58	1.1250		S21211	S23211	S26211	S28211	S16211	S18211
		29.00	1.1417		S21212	S23212	S26212	S28212	S16212	S18212
	1-5/32	29.37	1.1563		S21213	S23213	S26213	S28213	S16213	S18213
		30.00	1.1811		S21214	S23214	S26214	S28214	S16214	S18214
	1-3/16	30.16	1.1875		S21215	S23215	S26215	S28215	S16215	S18215
	1-7/32	30.96	1.2188		S21216	S23216	S26216	S28216	S16216	S18216
		31.00	1.2205		S21217	S23217	S26217	S28217	S16217	S18217
	1-1/4	31.75	1.2500		S21218	S23218	S26218	S28218	S16218	S18218
		32.00	1.2598		S21219	S23219	S26219	S28219	S16219	S18219
	1-9/32	32.54	1.2813		S21220	S23220	S26220	S28220	S16220	S18220
		33.00	1.2992		S21221	S23221	S26221	S28221	S16221	S18221
	1-5/16	33.34	1.3125		S21222	S23222	S26222	S28222	S16222	S18222
		34.00	1.3386		S21223	S23223	S26223	S28223	S16223	S18223
	1-11/32	34.13	1.3438		S21224	S23224	S26224	S28224	S16224	S18224
	1-3/8	34.93	1.3750		S21225	S23225	S26225	S28225	S16225	S18225
		35.00	1.3780		S21226	S23226	S26226	S28226	S16226	S18226

◎ : 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		21
HB		125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	C2(K20)	○	○	○	○		○	○	○	○	○	○	◎	◎	◎	○	○	○	○	○	○
	C5(P40)	◎	◎	◎	◎		◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○
	C3(K10)															◎	◎	◎	◎	◎	◎

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	400 Rm	1050 Rm	550	630	400	550
Recommended	C2(K20)	◎	◎					◎				◎	◎	◎	◎	◎			○			
	C5(P40)	○	○					○				○	○	○	○	○			◎			
	C3(K10)																					

SPADE DRILLS

SERIES 3

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
CARBIDE BLADE INSERTS C2 (K20), C5 (P40), C3 (K10)

- High performance on Gray cast iron over 220 Brinell, malleable cast iron with short chips, silicon aluminum and copper alloys. (C3)
- For general use in carbon steels and alloys steels. (C5)
- For use in Gray cast iron, nonferrous metals,copper, brass and aluminum. (C2)

POINT ANGLE : 132 degree

Series Min. to Max. (inch/mm)	Diameter			Thick	EDP No.					
					Multi purpose Geometry				Cast Iron Geometry	
					C2 (K20)		C5 (P40)		C3 (K10)	
	Fractional (inch)	Metric (mm)	Decimal (inch)	Fractional [Metric]	TiN	TiAlN	TiN	TiAlN	TiN	TiAlN
3 1.353 (34.37) to 1.882 (47.80)	1-13/32	35.72	1.4063	1/4 (6.4)	S21301	S23301	S26301	S28301		
		36.00	1.4173		S21302	S23302	S26302	S28302		
	1-7/16	36.51	1.4375		S21303	S23303	S26303	S28303		
		37.00	1.4567		S21304	S23304	S26304	S28304		
	1-15/32	37.31	1.4688		S21305	S23305	S26305	S28305		
		38.00	1.4961		S21306	S23306	S26306	S28306		
	1-1/2	38.10	1.5000		S21307	S23307	S26307	S28307		
	1-17/32	38.89	1.5313		S21308	S23308	S26308	S28308		
		39.00	1.5354		S21309	S23309	S26309	S28309		
	1-9/16	39.69	1.5625		S21310	S23310	S26310	S28310		
		40.00	1.5748		S21311	S23311	S26311	S28311		
	1-19/32	40.48	1.5938		S21312	S23312	S26312	S28312		
		41.00	1.6142		S21313	S23313	S26313	S28313		
	1-5/8	41.28	1.6250		S21314	S23314	S26314	S28314		
		42.00	1.6535		S21315	S23315	S26315	S28315		
	1-21/32	42.07	1.6563		S21316	S23316	S26316	S28316		
	1-11/16	42.86	1.6875		S21317	S23317	S26317	S28317		
		43.00	1.6929		S21318	S23318	S26318	S28318		
	1-23/32	43.66	1.7188		S21319	S23319	S26319	S28319		
		44.00	1.7323		S21320	S23320	S26320	S28320		
	1-3/4	44.45	1.7500		S21321	S23321	S26321	S28321		
		45.00	1.7717		S21322	S23322	S26322	S28322		
	1-25/32	45.24	1.7813		S21323	S23323	S26323	S28323		
		46.00	1.8110		S21324	S23324	S26324	S28324		
	1-13/16	46.04	1.8125		S21325	S23325	S26325	S28325		
	1-27/32	46.83	1.8438		S21326	S23326	S26326	S28326		
		47.00	1.8504		S21327	S23327	S26327	S28327		
	1-7/8	47.63	1.8750		S21328	S23328	S26328	S28328		

Special or non-standard inserts available on request

◎ : Excellent ○ : Good

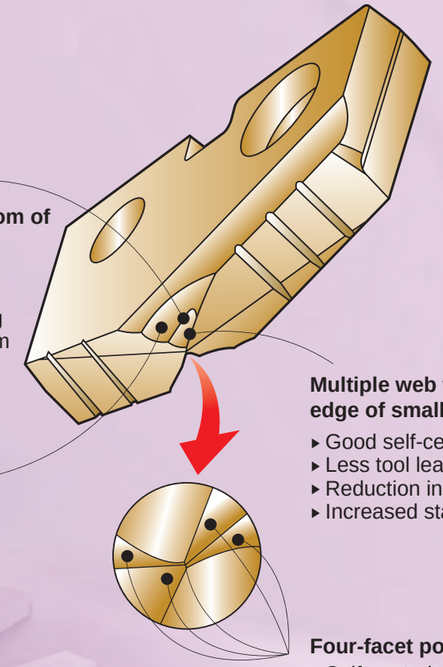
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended C2(K20)	○	○	○	○		○	○	○	○	○	○	◎	◎	◎	○	○	○	○	○	○
Recommended C5(P40)	◎	◎	◎	◎		◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○
Recommended C3(K10)															◎	◎	◎	◎	◎	◎

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	400 Rm	1050 Rm	550	630	400	550
Recommended C2(K20)	◎	◎					◎				◎	◎	◎	◎	◎			○			
Recommended C5(P40)	○	○					○				○	○	○	○	○			◎			
Recommended C3(K10)																					

Special features of SM-Point Spade Drill

This “Hybrid Point” combines the strength of the standard point with additional “Web Thinning”.

This point increases stability, reduces thrust, improves centering and allows increased speeds and feeds.



Multiple thinning form at the bottom of the large thinning.

- The optimum thinning for the difference from the cutting speed, the cutting quantity and the cutting load according to the distance from the drill point to the cutting edge.

Radius back face

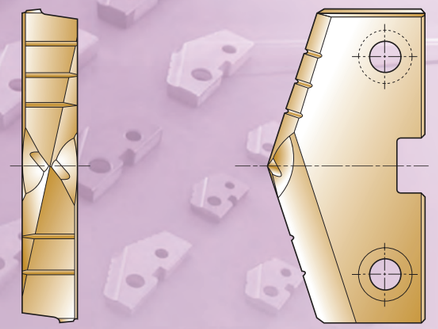
- Wide chip space

Multiple web thinning with the cutting edge of small web thinning.

- Good self-centering
- Less tool lead off
- Reduction in bell mouthing, thrust
- Increased stability

Four-facet point

- Self-centering
- Less thrust force



SPADE DRILLS

SERIES Y, Z, 0, 1

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SM-POINT SPADE DRILL INSERTS - SUPER COBALT (T15)

- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.

POINT ANGLE - 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. (inch/mm)	Diameter Fractional (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Fractional [Metric]	EDP No. TiAlN
Y .374 (9.50) to .436 (11.07)		9.50	.3740	3/32 (2.4)	*SM08Y01
	3/8	9.53	.3750		*SM08Y02
		9.80	.3858		*SM08Y03
	25/64	9.92	.3906		*SM08Y04
		10.00	.3937		*SM08Y05
		10.20	.4016		*SM08Y06
	13/32	10.32	.4062		*SM08Y07
		10.50	.4134		*SM08Y08
	27/64	10.72	.4219		*SM08Y09
		10.80	.4252		*SM08Y10
		11.00	.4331		*SM08Y11
Z .437 (11.11) to .510 (12.95)	7/16	11.11	.4375	3/32 (2.4)	*SM08Z01
		11.50	.4528		*SM08Z02
	29/64	11.51	.4531		*SM08Z03
	15/32	11.91	.4688		*SM08Z04
		12.00	.4724		*SM08Z05
	31/64	12.30	.4844		*SM08Z06
		12.50	.4921		*SM08Z07
	1/2	12.70	.5000		*SM08Z08
0 .511 (12.98) to .695 (17.65)		13.00	.5118	1/8 (3.2)	*SM08001
	33/64	13.10	.5156		*SM08002
	17/32	13.49	.5312		*SM08003
		13.50	.5315		*SM08004
	35/64	13.89	.5469		*SM08060
		14.00	.5512		*SM08005
	9/16	14.29	.5625		*SM08006
		14.50	.5709		*SM08007
	37/64	14.68	.5781		*SM08008
		15.00	.5906		*SM08009
	19/32	15.08	.5938		*SM08010
	39/64	15.48	.6094		*SM08061
		15.50	.6102		*SM08011
	5/8	15.88	.6250		*SM08012

Series Min. to Max. (inch/mm)	Diameter Fractional (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Fractional [Metric]	EDP No. TiAlN
0 .511 (12.98) to .695 (17.65)		16.00	.6299	1/8 (3.2)	*SM08013
	41/64	16.27	.6406		*SM08062
		16.50	.6496		*SM08014
	21/32	16.67	.6562		*SM08015
		17.00	.6693		*SM08016
	43/64	17.07	.6719		*SM08063
	11/16	17.46	.6875		*SM08017
		17.50	.6890		*SM08018
1 .690 (17.53) to .960 (24.38)	45/64	17.86	.7031	5/32 (4.0)	SM08101
		18.00	.7087		SM08102
	23/32	18.26	.7188		SM08103
		18.50	.7283		SM08104
	47/64	18.65	.7344		SM08105
		19.00	.7480		SM08106
	3/4	19.05	.7500		SM08107
	49/64	19.45	.7656		SM08108
		19.50	.7677		SM08109
	25/32	19.84	.7812		SM08110
		20.00	.7874		SM08111
	51/64	20.24	.7969		SM08160
		20.50	.8071		SM08112
	13/16	20.64	.8125		SM08113
		21.00	.8268		SM08114
	27/32	21.43	.8438		SM08115
	55/64	21.83	.8594		SM08161
		22.00	.8661		SM08116
	7/8	22.23	.8750		SM08117
	57/64	22.62	.8906		SM08162
		23.00	.9055		SM08118
	29/32	23.02	.9062		SM08119
	59/64	23.42	.9219		SM08120
	15/16	23.81	.9375		SM08121
		24.00	.9449		SM08122

* 2pcs per package

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	○	○	○	○			○			

SPADE DRILLS

SERIES 2, 3

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SM-POINT SPADE DRILL INSERTS - SUPER COBALT (T15)

- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.

POINT ANGLE - 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. (inch/mm)	Diameter Fractional (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Fractional [Metric]	EDP No. TiAlN
2 .961 (24.41) to 1.380 (35.05)	31/32	24.61	.9688	3/16 (4.8)	SM08201
	63/64	25.00	.9843		SM08202
	1	25.40	1.0000		SM08203
	1-1/64	25.80	1.0156		SM08204
		26.00	1.0236		SM08205
	1-1/32	26.19	1.0312		SM08206
	1-3/64	26.59	1.0469		SM08260
	1-1/16	26.99	1.0625		SM08207
		27.00	1.0630		SM08208
	1-3/32	27.78	1.0938		SM08209
		28.00	1.1024		SM08210
	1-7/64	28.18	1.1094		SM08261
	1-1/8	28.58	1.1250		SM08211
		29.00	1.1417		SM08212
	1-5/32	29.37	1.1562		SM08213
		30.00	1.1811		SM08214
	1-3/16	30.16	1.1875		SM08215
	1-7/32	30.96	1.2188		SM08216
		31.00	1.2205		SM08217
	1-1/4	31.75	1.2500		SM08218
		32.00	1.2598		SM08219
	1-9/32	32.54	1.2812		SM08220
		33.00	1.2992		SM08221
	1-5/16	33.34	1.3125		SM08222
		34.00	1.3386		SM08223
	1-11/32	34.13	1.3438		SM08224
	1-3/8	34.93	1.3750		SM08225
		35.00	1.3780		SM08226

Series Min. to Max. (inch/mm)	Diameter Fractional (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Fractional [Metric]	EDP No. TiAlN
3 1.353 (34.37) to 1.882 (47.80)	1-13/32	35.72	1.4062	1/4 (6.4)	SM08301
		36.00	1.4173		SM08302
	1-7/16	36.51	1.4375		SM08303
		37.00	1.4567		SM08304
	1-15/32	37.31	1.4688		SM08305
		38.00	1.4961		SM08306
	1-1/2	38.10	1.5000		SM08307
	1-17/32	38.89	1.5312		SM08308
		39.00	1.5354		SM08309
	1-9/16	39.69	1.5625		SM08310
		40.00	1.5748		SM08311
	1-19/32	40.48	1.5938		SM08312
		41.00	1.6142		SM08313
	1-5/8	41.28	1.6250		SM08314
		42.00	1.6535		SM08315
	1-21/32	42.07	1.6562		SM08316
	1-11/16	42.86	1.6875		SM08317
		43.00	1.6929		SM08318
	1-23/32	43.66	1.7188		SM08319
		44.00	1.7323		SM08320
	1-3/4	44.45	1.7500		SM08321
		45.00	1.7717		SM08322
	1-25/32	45.24	1.7812		SM08323
		46.00	1.8110		SM08324
	1-13/16	46.04	1.8125		SM08325
	1-27/32	46.83	1.8438		SM08326
		47.00	1.8504		SM08327
	1-7/8	47.63	1.8750		SM08328

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	○	○	○	○			○			

YG SPADE DRILLS

SERIES 4, 5

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SM-POINT SPADE DRILL INSERTS - SUPER COBALT (T15)

- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.

POINT ANGLE - 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. (inch/mm)	Diameter			Thick	EDP No.
	Fractional (inch)	Metric (mm)	Decimal (inch)	Fractional [Metric]	TiAlN
4 1.850 (46.99) to 2.570 (65.28)		48.00	1.8898	5/16 (7.9)	SM08401
	1-29/32	48.42	1.9062		SM08402
		49.00	1.9291		SM08403
	1-15/16	49.21	1.9375		SM08404
		50.00	1.9685		SM08405
	1-31/32	50.01	1.9688		SM08406
	2	50.80	2.0000		SM08407
		51.00	2.0079		SM08408
	2-1/32	51.59	2.0312		SM08409
	2-3/64	52.00	2.0472		SM08410
	2-1/16	52.39	2.0625		SM08411
		53.00	2.0866		SM08412
	2-3/32	53.18	2.0938		SM08413
	2-1/8	53.98	2.1250		SM08414
		54.00	2.1260		SM08415
	2-5/32	54.77	2.1562		SM08416
		55.00	2.1654		SM08417
	2-3/16	55.56	2.1875		SM08418
		56.00	2.2047		SM08419
	2-7/32	56.36	2.2188		SM08420
		57.00	2.2441		SM08421
	2-1/4	57.15	2.2500		SM08422
	2-9/32	57.94	2.2812		SM08423
		58.00	2.2835		SM08424
	2-5/16	58.74	2.3125		SM08425
		59.00	2.3228		SM08426
	2-11/32	59.53	2.3438		SM08427
		60.00	2.3622		SM08428
	2-3/8	60.33	2.3750		SM08429
		61.00	2.4016		SM08430
	2-13/32	61.12	2.4062		SM08431
	2-7/16	61.91	2.4375		SM08432
5 2.456 (62.38) to 3.000 (76.20)		62.00	2.4409	7/16 (11.1)	SM08433
	2-15/32	62.71	2.4688		SM08434
		63.00	2.4803		SM08435
	2-1/2	63.50	2.5000		SM08436
		64.00	2.5197		SM08437
	2-17/32	64.29	2.5312		SM08438
		65.00	2.5591		SM08439
	2-9/16	65.09	2.5625		SM08440
	2-1/2	63.50	2.5000		SM08501
		64.00	2.5197		SM08502
	2-17/32	64.29	2.5312		SM08503
	2-9/16	65.09	2.5625		SM08504
	2-19/32	65.88	2.5938		SM08505
		66.00	2.5984		SM08506
	2-5/8	66.68	2.6250		SM08507
	2-21/32	67.47	2.6562		SM08508
		68.00	2.6772		SM08509
	2-11/16	68.26	2.6875		SM08510
	2-23/32	69.05	2.7188		SM08511
	2-3/4	69.85	2.7500		SM08512
		70.00	2.7559		SM08513
	2-25/32	70.64	2.7812		SM08514
	2-13/16	71.44	2.8125		SM08515
		72.00	2.8346		SM08516
	2-27/32	72.23	2.8438		SM08517
	2-7/8	73.03	2.8750		SM08518
	2-29/32	73.82	2.9062		SM08519
		74.00	2.9134		SM08520
	2-15/16	74.61	2.9375		SM08521
	2-31/32	75.41	2.9688		SM08522
		76.00	2.9921		SM08523
	3	76.20	3.0000		SM08524

◎ : Excellent ○ : Good

ISO	P																			
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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	○	○	○	○			○			

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

YG SPADE DRILLS

SERIES 6, 7, 8

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SM-POINT SPADE DRILL INSERTS - SUPER COBALT (T15)

- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.

POINT ANGLE - 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. (inch/mm)	Diameter			Thick	EDP No.
	Fractional (inch)	Metric (mm)	Decimal (inch)	Fractional [Metric]	TiAlN
6 3.001 (76.23) to 3.507 (89.08)	3-1/32	76.99	3.0312	7/16 (11.1)	SM08601
	3-1/16	77.79	3.0625		SM08602
		78.00	3.0709		SM08603
	3-3/32	78.58	3.0938		SM08604
	3-1/8	79.38	3.1250		SM08605
		80.00	3.1496		SM08606
	3-5/32	80.17	3.1562		SM08607
	3-3/16	80.96	3.1875		SM08608
	3-7/32	81.76	3.2188		SM08609
		82.00	3.2283		SM08610
	3-1/4	82.55	3.2500		SM08611
	3-9/32	83.34	3.2812		SM08612
		84.00	3.3071		SM08613
	3-5/16	84.14	3.3125		SM08614
	3-11/32	84.93	3.3438		SM08615
	3-3/8	85.73	3.3750		SM08616
		86.00	3.3858		SM08617
	3-13/32	86.52	3.4063		SM08618
	3-7/16	87.31	3.4375		SM08619
		88.00	3.4646		SM08620
	3-15/32	88.11	3.4688		SM08621
7 3.455 (87.76) to 4.000 (101.60)	3-1/2	88.90	3.5000	7/16 (11.1)	SM08622
	3-17/32	89.69	3.5312		SM08701
		90.00	3.5433		SM08702
	3-9/16	90.49	3.5625		SM08703
	3-19/32	91.28	3.5938		SM08704
		92.00	3.6221		SM08705
	3-5/8	92.08	3.6250		SM08706
	3-21/32	92.87	3.6562		SM08707
	3-11/16	93.66	3.6875		SM08708
7 3.455 (87.76) to 4.000 (101.60)		94.00	3.7008	7/16 (11.1)	SM08709
	3-23/32	94.46	3.7188		SM08710
	3-3/4	95.25	3.7500		SM08711
		96.00	3.7795		SM08712
	3-25/32	96.04	3.7812		SM08713
	3-13/16	96.84	3.8125		SM08714
	3-27/32	97.63	3.8438		SM08715
		98.00	3.8583		SM08716
	3-7/8	98.43	3.8750		SM08717
	3-29/32	99.22	3.9062		SM08718
		100.00	3.9370		SM08719
	3-15/16	100.01	3.9375		SM08720
	3-31/32	100.81	3.9688		SM08721
	4	101.60	4.0000		SM08722
8 4.001 (101.63) to 4.507 (114.48	4-1/64	102.00	4.0156	7/16 (11.1)	SM08801
	4-1/16	103.19	4.0625		SM08802
	4-3/32	104.00	4.0945		SM08803
	4-1/8	104.78	4.1250		SM08804
		106.00	4.1732		SM08805
	4-3/16	106.36	4.1875		SM08806
	4-1/4	107.95	4.2500		SM08807
		108.00	4.2520		SM08808
	4-5/16	109.54	4.3125		SM08809
		110.00	4.3307		SM08810
	4-3/8	111.13	4.3750		SM08811
		112.00	4.4094		SM08812
	4-7/16	112.71	4.4375		SM08813
		114.00	4.4882		SM08814
	4-1/2	114.30	4.5000		SM08815

◎ : Excellent ○ : Good

ISO	P																			
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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	○	○	○	○			○			

YG SPADE DRILLS

SERIES Y, Z, 0, 1

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SM-POINT SPADE DRILL INSERTS - CARBIDE C5 (P40)

- Improved stability and hole straightness by newly developed chip thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.
- Increased speeds & feeds

POINT ANGLE : 132 degree

Series Min. to Max. (inch/mm)	Diameter Fractional (inch)	Metric (mm)	Decimal (inch)	Thick Fractional [Metric]	EDP No. TiAIN
Y .374 (9.50) to .436 (11.07)		9.50	.3740	3/32 (2.4)	* SM28Y01
	3/8	9.53	.3750		* SM28Y02
		9.80	.3858		* SM28Y03
	25/64	9.92	.3906		* SM28Y04
		10.00	.3937		* SM28Y05
		10.20	.4016		* SM28Y06
	13/32	10.32	.4062		* SM28Y07
		10.50	.4134		* SM28Y08
	27/64	10.72	.4219		* SM28Y09
		10.80	.4252		* SM28Y10
		11.00	.4331		* SM28Y11
Z .437 (11.11) to .510 (12.95)	7/16	11.11	.4375	3/32 (2.4)	* SM28Z01
		11.50	.4528		* SM28Z02
	29/64	11.51	.4531		* SM28Z03
	15/32	11.91	.4688		* SM28Z04
		12.00	.4724		* SM28Z05
	31/64	12.30	.4844		* SM28Z06
		12.50	.4921		* SM28Z07
	1/2	12.70	.5000		* SM28Z08
0 .511 (12.98) to .695 (17.65)		13.00	.5118	1/8 (3.2)	* SM28001
	33/64	13.10	.5156		* SM28002
	17/32	13.49	.5312		* SM28003
		13.50	.5315		* SM28004
	35/64	13.89	.5469		* SM28060
		14.00	.5512		* SM28005
	9/16	14.29	.5625		* SM28006
		14.50	.5709		* SM28007
	37/64	14.68	.5781		* SM28008
		15.00	.5906		* SM28009
	19/32	15.08	.5938		* SM28010
	39/64	15.48	.6094		* SM28061
		15.50	.6102		* SM28011
	5/8	15.88	.6250		* SM28012

Series Min. to Max. (inch/mm)	Diameter Fractional (inch)	Metric (mm)	Decimal (inch)	Thick Fractional [Metric]	EDP No. TiAIN
0 .511 (12.98) to .695 (17.65)		16.00	.6299	1/8 (3.2)	* SM28013
	41/64	16.27	.6406		* SM28062
		16.50	.6496		* SM28014
	21/32	16.67	.6562		* SM28015
		17.00	.6693		* SM28016
	43/64	17.07	.6719		* SM28063
	11/16	17.46	.6875		* SM28017
		17.50	.6890		* SM28018
1 .690 (17.53) to .960 (24.38)	45/64	17.86	.7031	5/32 (4.0)	SM28101
		18.00	.7087		SM28102
	23/32	18.26	.7188		SM28103
		18.50	.7283		SM28104
	47/64	18.65	.7344		SM28105
		19.00	.7480		SM28106
	3/4	19.05	.7500		SM28107
	49/64	19.45	.7656		SM28108
		19.50	.7677		SM28109
	25/32	19.84	.7812		SM28110
		20.00	.7874		SM28111
	51/64	20.24	.7969		SM28160
		20.50	.8071		SM28112
	13/16	20.64	.8125		SM28113
		21.00	.8268		SM28114
	27/32	21.43	.8438		SM28115
	55/64	21.83	.8594		SM28161
		22.00	.8661		SM28116
	7/8	22.23	.8750		SM28117
	57/64	22.62	.8906		SM28162
		23.00	.9055		SM28118
	29/32	23.02	.9062		SM28119
	59/64	23.42	.9219		SM28120
	15/16	23.81	.9375		SM28121
		24.00	.9449		SM28122

* 2pcs per package

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				○	○	○	○	○			◎			

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

YG SPADE DRILLS

SERIES 2, 3

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SM-POINT SPADE DRILL INSERTS - CARBIDE C5 (P40)

- Improved stability and hole straightness by newly developed chip thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.
- Increased speeds & feeds

POINT ANGLE : 132 degree

Series Min. to Max. (inch/mm)	Diameter Fractional (inch)	Metric (mm)	Decimal (inch)	Thick Fractional [Metric]	EDP No. TiAIN
2 .961 (24.41) to 1.380 (35.05)	31/32	24.61	.9688	3/16 (4.8)	SM28201
	63/64	25.00	.9843		SM28202
	1	25.40	1.0000		SM28203
	1-1/64	25.80	1.0156		SM28204
		26.00	1.0236		SM28205
	1-1/32	26.19	1.0312		SM28206
	1-3/64	26.59	1.0469		SM28260
	1-1/16	26.99	1.0625		SM28207
		27.00	1.0630		SM28208
	1-3/32	27.78	1.0938		SM28209
		28.00	1.1024		SM28210
	1-7/64	28.18	1.1094		SM28261
	1-1/8	28.58	1.1250		SM28211
		29.00	1.1417		SM28212
	1-5/32	29.37	1.1562		SM28213
		30.00	1.1811		SM28214
	1-3/16	30.16	1.1875		SM28215
	1-7/32	30.96	1.2188		SM28216
		31.00	1.2205		SM28217
	1-1/4	31.75	1.2500		SM28218
		32.00	1.2598		SM28219
	1-9/32	32.54	1.2812		SM28220
		33.00	1.2992		SM28221
	1-5/16	33.34	1.3125		SM28222
		34.00	1.3386		SM28223
	1-11/32	34.13	1.3438		SM28224
	1-3/8	34.93	1.3750		SM28225
		35.00	1.3780		SM28226
3 1.353 (34.37) to 1.882 (47.80)	1-13/32	35.72	1.4062	1/4 (6.4)	SM28301
		36.00	1.4173		SM28302
	1-7/16	36.51	1.4375		SM28303
		37.00	1.4567		SM28304
	1-15/32	37.31	1.4688		SM28305
		38.00	1.4961		SM28306
	1-1/2	38.10	1.5000		SM28307
	1-17/32	38.89	1.5312		SM28308
		39.00	1.5354		SM28309
	1-9/16	39.69	1.5625		SM28310
		40.00	1.5748		SM28311
	1-19/32	40.48	1.5938		SM28312
		41.00	1.6142		SM28313
	1-5/8	41.28	1.6250		SM28314
		42.00	1.6535		SM28315
	1-21/32	42.07	1.6562		SM28316
	1-11/16	42.86	1.6875		SM28317
		43.00	1.6929		SM28318
	1-23/32	43.66	1.7188		SM28319
		44.00	1.7323		SM28320
	1-3/4	44.45	1.7500		SM28321
		45.00	1.7717		SM28322
	1-25/32	45.24	1.7812		SM28323
		46.00	1.8110		SM28324
	1-13/16	46.04	1.8125		SM28325
	1-27/32	46.83	1.8438		SM28326
		47.00	1.8504		SM28327
	1-7/8	47.63	1.8750		SM28328

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				○	○	○	○	○			◎			

YG SPADE DRILLS

SERIES Y, Z, 0, 1, 2

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SPADE DRILL FLAT BOTTOM INSERTS - SUPER COBALT (T15)

POINT ANGLE : 180 degree

Series Min. to Max. (inch/mm)	Diameter Fractional (inch)	Diameter Decimal (inch)	Thick Fractional [Metric]	EDP No. TiN	EDP No. TiAlN
Y	3/8	.3750	3/32 (2.4)	SF05024	SF15024
	13/32	.4063		SF05026	SF15026
Z	7/16	.4375	3/32 (2.4)	SF05028	SF15028
	15/32	.4688		SF05030	SF15030
	1/2	.5000		SF05032	SF15032
	17/32	.5313		SF05034	SF15034
0	9/16	.5625	1/8 (3.2)	SF05036	SF15036
	19/32	.5938		SF05038	SF15038
	5/8	.6250		SF05040	SF15040
	21/32	.6563		SF05042	SF15042
	11/16	.6875		SF05044	SF15044
	23/32	.7188		SF05046	SF15046
1	3/4	.7500	5/32 (4.0)	SF05048	SF15048
	25/32	.7813		SF05050	SF15050
	13/16	.8125		SF05052	SF15052
	27/32	.8438		SF05054	SF15054
	7/8	.8750		SF05056	SF15056
	29/32	.9063		SF05058	SF15058
	15/16	.9375		SF05060	SF15060
2	31/32	.9688	3/16 (4.8)	SF05062	SF15062
	1	1.0000		SF05100	SF15100
	1-1/32	1.0313		SF05102	SF15102
	1-1/16	1.0625		SF05104	SF15104
	1-3/32	1.0938		SF05106	SF15106
	1-1/8	1.1250		SF05108	SF15108
	1-5/32	1.1563		SF05110	SF15110
	1-3/16	1.1875		SF05112	SF15112
	1-7/32	1.2188		SF05114	SF15114
	1-1/4	1.2500		SF05116	SF15116
	1-9/32	1.2813		SF05118	SF15118
	1-5/16	1.3125		SF05120	SF15120
	1-11/32	1.3438		SF05122	SF15122
	1-3/8	1.3750		SF05124	SF15124

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	○	○	○	○			○			

SPADE DRILLS SV-POINT

Improved stability and hole straightness

H-Coating (Upgraded AlCrN-Based Multi-Layer coating)

- Higher wear resistance and reduced material adhesion
- Higher cutting speeds and feeds
- Improved hole quality over conventional spade drills

- Smooth cutting
- Breaks chips
- Low thrust
- Stable torque
- Self centering
- Long tool life

SPADE DRILLS

SERIES Y, Z

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SV-POINT SPADE DRILL INSERTS - SUPER COBALT (T15)

- Sinusoidal thinning edge for smooth cutting
- Positive rake angle
- Less thrust force and heat generation

POINT ANGLE : 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. inch (mm)	Diameter Fractional (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Fractional [Metric]	EDP. No. SUPER COBALT (T15) Hardslick	EDP. No. SUPER COBALT (T15) H-Coating
Y .374 (9.50) to .436 (11.07)		9.5	.3740	3/32 [2.4]	SV170095	SV175095
	3/8	9.53	.3750		SV120024	SV125024
		9.8	.3860		SV170098	SV175098
	25/64	9.92	.3906		SV120025	SV125025
		10	.3937		SV170100	SV175100
		10.2	.4016		SV170102	SV175102
	13/32	10.32	.4063		SV120026	SV125026
		10.5	.4134		SV170105	SV175105
	27/64	10.72	.4219		SV120027	SV125027
		10.8	.4252		SV170108	SV175108
		11	.4331		SV170110	SV175110
Z .437 (11.11) to .510 (12.95)	7/16	11.11	.4375	3/32 [2.4]	SV120028	SV125028
		11.5	.4528		SV170115	SV175115
	29/64	11.51	.4531		SV120029	SV125029
	15/32	11.91	.4688		SV120030	SV125030
		12	.4724		SV170120	SV175120
	31/64	12.3	.4844		SV120031	SV125031
		12.5	.4921		SV170125	SV175125
	1/2	12.7	.5000		SV120032	SV125032

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	○	○	○	○			○			

SPADE DRILLS

SERIES 0

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SV-POINT SPADE DRILL INSERTS - SUPER COBALT (T15)

- Sinusoidal thinning edge for smooth cutting
- Positive rake angle
- Less thrust force and heat generation

POINT ANGLE : 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. inch (mm)	Diameter Fractional (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Fractional [Metric]	EDP. No. SUPER COBALT (T15) Hardslick	EDP. No. SUPER COBALT (T15) H-Coating
0 .511 (12.98) to .695 (17.65)		13	.5118	1/8 [3.2]	SV170130	SV175130
	33/64	13.1	.5156		SV120033	SV125033
	17/32	13.49	.5313		SV120034	SV125034
		13.5	.5315		SV170135	SV175135
	35/64	13.89	.5469		SV120035	SV125035
		14	.5512		SV170140	SV175140
	9/16	14.29	.5625		SV120036	SV125036
		14.5	.5709		SV170145	SV175145
	37/64	14.68	.5781		SV120037	SV125037
		15	.5906		SV170150	SV175150
	19/32	15.08	.5938		SV120038	SV125038
	39/64	15.48	.6094		SV120039	SV125039
		15.5	.6102		SV170155	SV175155
	5/8	15.88	.6250		SV120040	SV125040
		16	.6299		SV170160	SV175160
	41/64	16.27	.6406		SV120041	SV125041
		16.5	.6496		SV170165	SV175165
	21/32	16.67	.6563		SV120042	SV125042
		17	.6693		SV170170	SV175170
	43/64	17.07	.6719		SV120043	SV125043
	11/16	17.46	.6875		SV120044	SV125044

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	○	○	○	○			○			

SPADE DRILLS

SERIES 1

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SV-POINT SPADE DRILL INSERTS - SUPER COBALT (T15)

- Sinusoidal thinning edge for smooth cutting
- Positive rake angle
- Less thrust force and heat generation

POINT ANGLE : 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. inch (mm)	Diameter Fractional (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Fractional [Metric]	EDP. No. SUPER COBALT (T15) Hardslick	EDP. No. SUPER COBALT (T15) H-Coating
1 .690 (17.53) to .960 (24.38)	45/64	17.86	.7031	5/32 [4.0]	SV120045	SV125045
		18	.7087		SV170180	SV175180
	23/32	18.26	.7188		SV120046	SV125046
		18.5	.7283		SV170185	SV175185
	47/64	18.65	.7344		SV120047	SV125047
		19	.7480		SV170190	SV175190
	3/4	19.05	.7500		SV120048	SV125048
		19.5	.7677		SV170195	SV175195
	25/32	19.84	.7812		SV120050	SV125050
		20	.7874		SV170200	SV175200
	51/64	20.24	.7969		SV120051	SV125051
		20.5	.8071		SV170205	SV175205
	13/16	20.64	.8125		SV120052	SV125052
		21	.8268		SV170210	SV175210
	27/32	21.43	.8438		SV120054	SV125054
	55/64	21.83	.8594		SV120055	SV125055
		22	.8661		SV170220	SV175220
	7/8	22.23	.8750		SV120056	SV125056
	57/64	22.62	.8906		SV120057	SV125057
		23	.9055		SV170230	SV175230
	29/32	23.02	.9062		SV120058	SV125058
	59/64	23.42	.9219		SV120059	SV125059
	15/16	23.81	.9375		SV120060	SV125060
		24	.9449		SV170240	SV175240

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	○	○	○	○			○			

SPADE DRILLS

SERIES 2

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SV-POINT SPADE DRILL INSERTS - SUPER COBALT (T15)

- Sinusoidal thinning edge for smooth cutting
- Positive rake angle
- Less thrust force and heat generation

POINT ANGLE : 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. inch (mm)	Diameter Fractional (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Fractional [Metric]	EDP. No. SUPER COBALT (T15) Hardslick	EDP. No. SUPER COBALT (T15) H-Coating
2 .961 (24.41) to 1.380 (35.05)	31/32	24.61	.9688	3/16 [4.8]	SV120062	SV125062
	63/64	25	.9843		SV120063	SV125063
	1	25.4	1.0000		SV120100	SV125100
	1 1/64	25.8	1.0156		SV120101	SV125101
		26	1.0236		SV170260	SV175260
	1 1/32	26.19	1.0312		SV120102	SV125102
	1 3/64	26.59	1.0469		SV120103	SV125103
	1 1/16	26.99	1.0625		SV120104	SV125104
		27	1.0630		SV170270	SV175270
	1 3/32	27.78	1.0938		SV120106	SV125106
		28	1.1024		SV170280	SV175280
	1 7/64	28.18	1.1094		SV120107	SV125107
	1 1/8	28.58	1.1250		SV120108	SV125108
		29	1.1417		SV170290	SV175290
	1 5/32	29.37	1.1562		SV120110	SV125110
		30	1.1811		SV170300	SV175300
	1 3/16	30.16	1.1875		SV120112	SV125112
	1 7/32	30.96	1.2188		SV120114	SV125114
		31	1.2205		SV170310	SV175310
	1 1/4	31.75	1.2500		SV120116	SV125116
		32	1.2598		SV170320	SV175320
	1 9/32	32.54	1.2812		SV120118	SV125118
		33	1.2992		SV170330	SV175330
	1 5/16	33.34	1.3125		SV120120	SV125120
		34	1.3386		SV170340	SV175340
	1 11/32	34.13	1.3438		SV120122	SV125122
	1 3/8	34.93	1.3750		SV120124	SV125124
		35	1.3780		SV170350	SV175350

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	○	○	○	○			○			

SPADE DRILLS

SERIES 3

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SV-POINT SPADE DRILL INSERTS - SUPER COBALT (T15)

- Sinusoidal thinning edge for smooth cutting
- Positive rake angle
- Less thrust force and heat generation

POINT ANGLE : 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. inch (mm)	Diameter Fractional (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Fractional [Metric]	EDP. No. SUPER COBALT (T15) Hardslick	EDP. No. SUPER COBALT (T15) H-Coating
3 1.353 (34.37) to 1.882 (47.80)	1 13/32	35.72	1.4063	1/4 [6.4]	SV120126	SV125126
		36	1.4173		SV170360	SV175360
	1 7/16	36.51	1.4375		SV120128	SV125128
		37	1.4567		SV170370	SV175370
	1 15/32	37.31	1.4688		SV120130	SV125130
		38	1.4961		SV170380	SV175380
	1 1/2	38.1	1.5000		SV120132	SV125132
	1 17/32	38.89	1.5313		SV120134	SV125134
		39	1.5354		SV170390	SV175390
	1 9/16	39.69	1.5625		SV120136	SV125136
		40	1.5748		SV170400	SV175400
	1 19/32	40.48	1.5938		SV120138	SV125138
		41	1.6142		SV170410	SV175410
	1 5/8	41.28	1.6250		SV120140	SV125140
		42	1.6535		SV170420	SV175420
	1 21/32	42.07	1.6563		SV120142	SV125142
	1 11/16	42.86	1.6875		SV120144	SV125144
		43	1.6929		SV170430	SV175430
	1 23/32	43.66	1.7188		SV120146	SV125146
		44	1.7323		SV170440	SV175440
	1 3/4	44.45	1.7500		SV120148	SV125148
		45	1.7717		SV170450	SV175450
	1 25/32	45.24	1.7813		SV120150	SV125150
		46	1.8110		SV170460	SV175460
	1 13/16	46.04	1.8125		SV120152	SV125152
	1 27/32	46.83	1.8438		SV120154	SV125154
		47	1.8504		SV170470	SV175470
	1 7/8	47.63	1.8750		SV120156	SV125156

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	○	○	○	○			○			

SPADE DRILLS

SERIES 4

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SV-POINT SPADE DRILL INSERTS - SUPER COBALT (T15)

- Sinusoidal thinning edge for smooth cutting
- Positive rake angle
- Less thrust force and heat generation

POINT ANGLE : 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. inch (mm)	Diameter Fractional (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Fractional [Metric]	EDP. No. SUPER COBALT (T15) Hardslick	EDP. No. SUPER COBALT (T15) H-Coating
4 1.850 (46.99) to 2.570 (65.28)		48	1.8898	5/16 [7.9]	SV170480	SV175480
	1 29/32	48.42	1.9062		SV120158	SV125158
		49	1.9291		SV170490	SV175490
	1 15/16	49.21	1.9375		SV120160	SV125160
		50	1.9685		SV170500	SV175500
	1 31/32	50.01	1.9688		SV120162	SV125162
	2	50.8	2.0000		SV120200	SV125200
		51	2.0079		SV170510	SV175510
	2 1/32	51.59	2.0312		SV120202	SV125202
	2 3/64	51.99	2.0472		SV120203	SV125203
	2 1/16	52.39	2.0625		SV120204	SV125204
		53	2.0866		SV170530	SV175530
	2 3/32	53.18	2.0938		SV120206	SV125206
	2 1/8	53.98	2.1250		SV120208	SV125208
		54	2.1260		SV170540	SV175540
	2 5/32	54.77	2.1562		SV120210	SV125210
		55	2.1654		SV170550	SV175550
	2 3/16	55.56	2.1875		SV120212	SV125212
		56	2.2047		SV170560	SV175560
	2 7/32	56.36	2.2188		SV120214	SV125214
		57	2.2441		SV170570	SV175570
	2 1/4	57.15	2.2500		SV120216	SV125216
	2 9/32	57.94	2.2812		SV120218	SV125218
		58	2.2835		SV170580	SV175580
	2 5/16	58.74	2.3125		SV120220	SV125220
		59	2.3228		SV170590	SV175590
	2 11/32	59.53	2.3438		SV120222	SV125222
		60	2.3622		SV170600	SV175600
	2 3/8	60.33	2.3750		SV120224	SV125224

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	○	○	○	○			○			

SPADE DRILLS

SERIES 4

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SV-POINT SPADE DRILL INSERTS - SUPER COBALT (T15)

- Sinusoidal thinning edge for smooth cutting
- Positive rake angle
- Less thrust force and heat generation

POINT ANGLE : 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. inch (mm)	Diameter			Thick	EDP. No.	
	Fractional (inch)	Metric (mm)	Decimal (inch)	Fractional [Metric]	SUPER COBALT (T15) Hardslick	SUPER COBALT (T15) H-Coating
4 **1.850 (46.99) to 2.570 (65.28)**		61	2.4016	5/16 [7.9]	SV170610	SV175610
	2 13/32	61.12	2.4062		SV120226	SV125226
	2 7/16	61.91	2.4375		SV120228	SV125228
		62	2.4409		SV170620	SV175620
	2 15/32	62.71	2.4688		SV120230	SV125230
		63	2.4803		SV170630	SV175630
	2 1/2	63.5	2.5000		SV120232	SV125232
		64	2.5197		SV170640	SV175640
	2 17/32	64.29	2.5312		SV120234	SV125234
		65	2.5591		SV170650	SV175650
	2 9/16	65.09	2.5625		SV120236	SV125236

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	○	○	○	○			○			

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

SPADE DRILLS

SERIES 5

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SV-POINT SPADE DRILL INSERTS - SUPER COBALT (T15)

- Sinusoidal thinning edge for smooth cutting
- Positive rake angle
- Less thrust force and heat generation

POINT ANGLE : 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. inch (mm)	Diameter			Thick	EDP. No.	
	Fractional (inch)	Metric (mm)	Decimal (inch)	Fractional [Metric]	SUPER COBALT (T15) Hardslick	SUPER COBALT (T15) H-Coating
5 **2.456 (62.38) to 3.000 (76.20)**	2 1/2	63.5	2.5000	7/16 [11.1]	SV1202D2	SV1252D2
		64	2.5197		SV17064A	SV17564A
	2 17/32	64.29	2.5312		SV1202D4	SV1252D4
	2 9/16	65.09	2.5625		SV1202D6	SV1252D6
	2 19/32	65.88	2.5938		SV120238	SV125238
		66	2.5984		SV170660	SV175660
	2 5/8	66.68	2.6250		SV120240	SV125240
	2 21/32	67.47	2.6562		SV120242	SV125242
		68	2.6772		SV170680	SV175680
	2 11/16	68.26	2.6875		SV120244	SV125244
	2 23/32	69.06	2.7188		SV120246	SV125246
	2 3/4	69.85	2.7500		SV120248	SV125248
		70	2.7559		SV170700	SV175700
	2 25/32	70.64	2.7812		SV120250	SV125250
	2 13/16	71.44	2.8125		SV120252	SV125252
		72	2.8346		SV170720	SV175720
	2 27/32	72.23	2.8438		SV120254	SV125254
	2 7/8	73.03	2.8750		SV120256	SV125256
	2 29/32	73.82	2.9062		SV120258	SV125258
		74	2.9134		SV170740	SV175740
	2 15/16	74.61	2.9375		SV120260	SV125260
	2 31/32	75.41	2.9688		SV120262	SV125262
		76	2.9921		SV170760	SV175760
	3	76.2	3.0000		SV120300	SV125300

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	○	○	○	○			○			

SPADE DRILLS

SERIES 6

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SV-POINT SPADE DRILL INSERTS - SUPER COBALT (T15)

- Sinusoidal thinning edge for smooth cutting
- Positive rake angle
- Less thrust force and heat generation

POINT ANGLE : 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. inch (mm)	Diameter			Thick	EDP. No.	
	Fractional (inch)	Metric (mm)	Decimal (inch)	Fractional [Metric]	SUPER COBALT (T15) Hardslick	SUPER COBALT (T15) H-Coating
6 3.001 (76.23) to 3.507 (89.08)	3 1/32	76.99	3.0312	7/16 [11.1]	SV120302	SV125302
	3 1/16	77.79	3.0625		SV120304	SV125304
		78	3.0709		SV170780	SV175780
	3 3/32	78.58	3.0938		SV120306	SV125306
	3 1/8	79.38	3.1250		SV120308	SV125308
		80	3.1496		SV170800	SV175800
	3 5/32	80.17	3.1562		SV120310	SV125310
	3 3/16	80.96	3.1875		SV120312	SV125312
	3 7/32	81.76	3.2188		SV120314	SV125314
		82	3.2283		SV170820	SV175820
	3 1/4	82.55	3.2500		SV120316	SV125316
	3 9/32	83.34	3.2812		SV120318	SV125318
		84	3.3071		SV170840	SV175840
	3 5/16	84.14	3.3125		SV120320	SV125320
	3 11/32	84.93	3.3438		SV120322	SV125322
	3 3/8	85.73	3.3750		SV120324	SV125324
		86	3.3858		SV170860	SV175860
	3 13/32	86.52	3.4063		SV120326	SV125326
	3 7/16	87.31	3.4375		SV120328	SV125328
		88	3.4646		SV170880	SV175880
	3 15/32	88.11	3.4688		SV120330	SV125330
	3 1/2	88.9	3.5000		SV120332	SV125332

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	○	○	○	○			○			

SPADE DRILLS

SERIES 7

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SV-POINT SPADE DRILL INSERTS - SUPER COBALT (T15)

- Sinusoidal thinning edge for smooth cutting
- Positive rake angle
- Less thrust force and heat generation

POINT ANGLE : 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. inch (mm)	Diameter			Thick	EDP. No.	
	Fractional (inch)	Metric (mm)	Decimal (inch)	Fractional [Metric]	SUPER COBALT (T15) Hardslick	SUPER COBALT (T15) H-Coating
7 3.455 (87.76) to 4.000 (101.60)	3 17/32	89.69	3.5312	7/16 [11.1]	SV120334	SV125334
		90	3.5433		SV170900	SV175900
	3 9/16	90.49	3.5625		SV120336	SV125336
	3 19/32	91.28	3.5938		SV120338	SV125338
		92	3.6221		SV170920	SV175920
	3 5/8	92.08	3.6250		SV120340	SV125340
	3 21/32	92.87	3.6562		SV120342	SV125342
	3 11/16	93.66	3.6875		SV120344	SV125344
		94	3.7008		SV170940	SV175940
	3 23/32	94.46	3.7188		SV120346	SV125346
	3 3/4	95.25	3.7500		SV120348	SV125348
		96	3.7795		SV170960	SV175960
	3 25/32	96.04	3.7812		SV120350	SV125350
	3 13/16	96.84	3.8125		SV120352	SV125352
	3 27/32	97.63	3.8438		SV120354	SV125354
		98	3.8583		SV170980	SV175980
	3 7/8	98.43	3.8750		SV120356	SV125356
	3 29/32	99.22	3.9062		SV120358	SV125358
		100	3.9370		SV170A00	SV175A00
	3 15/16	100.01	3.9375		SV120360	SV125360
	3 31/32	100.81	3.9688		SV120362	SV125362
	4	101.6	4.0000		SV120400	SV125400

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	○	○	○	○			○			

SPADE DRILLS

SERIES 8

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SV-POINT SPADE DRILL INSERTS - SUPER COBALT (T15)

- Sinusoidal thinning edge for smooth cutting
- Positive rake angle
- Less thrust force and heat generation

POINT ANGLE : 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. inch (mm)	Diameter			Thick	EDP. No.	
	Fractional (inch)	Metric (mm)	Decimal (inch)	Fractional [Metric]	SUPER COBALT (T15) Hardslick	SUPER COBALT (T15) H-Coating
8 **4.001 (101.63) to 4.507 (114.48)**	4 1/64	102	4.0156	7/16 [11.1]	SV120401	SV125401
	4 1/16	103.19	4.0625		SV120404	SV125404
	4 3/32	103.98	4.0945		SV120406	SV125406
	4 1/8	104.78	4.1250		SV120408	SV125408
		106	4.1732		SV170A60	SV175A60
	4 3/16	106.36	4.1875		SV120412	SV125412
	4 1/4	107.95	4.2500		SV120416	SV125416
		108	4.2520		SV170A80	SV175A80
	4 5/16	109.54	4.3125		SV120420	SV125420
		110	4.3307		SV170B00	SV175B00
	4 3/8	111.13	4.3750		SV120424	SV125424
		112	4.4094		SV170B20	SV175B20
	4 7/16	112.71	4.4375		SV120428	SV125428
		114	4.4882		SV170B40	SV175B40
	4 1/2	114.3	4.5000		SV120432	SV125432

◎ : Excellent ○ : Good

ISO	P																				
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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	○	○	○	○			○			

SPADE DRILLS

SERIES Y, Z

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SV-POINT SPADE DRILL INSERTS - PREMIUM COBALT (M48)

- Sinusoidal thinning edge for smooth cutting
- Positive rake angle
- Less thrust force and heat generation

POINT ANGLE : 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. inch (mm)	Diameter			Thick	EDP. No.	
	Fractional (inch)	Metric (mm)	Decimal (inch)	Fractional [Metric]	PREMIUM COBALT (M48) Hardslick	PREMIUM COBALT (M48) H-Coating
Y **.374 (9.50) to .436 (11.07)**		9.5	.3740	3/32 [2.4]	SV570095	SV575095
	3/8	9.53	.3750		SV520024	SV525024
		9.8	.3860		SV570098	SV575098
	25/64	9.92	.3906		SV520025	SV525025
		10	.3937		SV570100	SV575100
		10.2	.4016		SV570102	SV575102
	13/32	10.32	.4063		SV520026	SV525026
		10.5	.4134		SV570105	SV575105
	27/64	10.72	.4219		SV520027	SV525027
		10.8	.4252		SV570108	SV575108
		11	.4331		SV570110	SV575110
Z **.437 (11.11) to .510 (12.95)**	7/16	11.11	.4375	3/32 [2.4]	SV520028	SV525028
		11.5	.4528		SV570115	SV575115
	29/64	11.51	.4531		SV520029	SV525029
	15/32	11.91	.4688		SV520030	SV525030
		12	.4724		SV570120	SV575120
	31/64	12.3	.4844		SV520031	SV525031
		12.5	.4921		SV570125	SV575125
	1/2	12.7	.5000		SV520032	SV525032

◎ : Excellent ○ : Good

ISO	P																				
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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	◎	◎	◎	◎			◎			

SPADE DRILLS

SERIES 0

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SV-POINT SPADE DRILL INSERTS - PREMIUM COBALT (M48)

- Sinusoidal thinning edge for smooth cutting
- Positive rake angle
- Less thrust force and heat generation

POINT ANGLE : 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. inch (mm)	Diameter			Thick	EDP. No.	
	Fractional (inch)	Metric (mm)	Decimal (inch)	Fractional [Metric]	PREMIUM COBALT (M48) Hardslick	PREMIUM COBALT (M48) H-Coating
0 .511 (12.98) to .695 (17.65)		13	.5118	1/8 [3.2]	SV570130	SV575130
	33/64	13.1	.5156		SV520033	SV525033
	17/32	13.49	.5313		SV520034	SV525034
		13.5	.5315		SV570135	SV575135
	35/64	13.89	.5469		SV520035	SV525035
		14	.5512		SV570140	SV575140
	9/16	14.29	.5625		SV520036	SV525036
		14.5	.5709		SV570145	SV575145
	37/64	14.68	.5781		SV520037	SV525037
		15	.5906		SV570150	SV575150
	19/32	15.08	.5938		SV520038	SV525038
	39/64	15.48	.6094		SV520039	SV525039
		15.5	.6102		SV570155	SV575155
	5/8	15.88	.6250		SV520040	SV525040
		16	.6299		SV570160	SV575160
	41/64	16.27	.6406		SV520041	SV525041
		16.5	.6496		SV570165	SV575165
	21/32	16.67	.6563		SV520042	SV525042
		17	.6693		SV570170	SV575170
	43/64	17.07	.6719		SV520043	SV525043
	11/16	17.46	.6875		SV520044	SV525044
		17.5	.6890		SV570175	SV575175

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					◎				◎	◎	◎	◎	◎			◎			

SPADE DRILLS

SERIES 1

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SV-POINT SPADE DRILL INSERTS - PREMIUM COBALT (M48)

- Sinusoidal thinning edge for smooth cutting
- Positive rake angle
- Less thrust force and heat generation

POINT ANGLE : 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. inch (mm)	Diameter			Thick	EDP. No.	
	Fractional (inch)	Metric (mm)	Decimal (inch)	Fractional [Metric]	PREMIUM COBALT (M48) Hardslick	PREMIUM COBALT (M48) H-Coating
1 .690 (17.53) to .960 (24.38)	45/64	17.86	.7031	5/32 [4.0]	SV520045	SV525045
		18	.7087		SV570180	SV575180
	23/32	18.26	.7188		SV520046	SV525046
		18.5	.7283		SV570185	SV575185
	47/64	18.65	.7344		SV520047	SV525047
		19	.7480		SV570190	SV575190
	3/4	19.05	.7500		SV520048	SV525048
	49/64	19.45	.7656		SV520049	SV525049
		19.5	.7677		SV570195	SV575195
	25/32	19.84	.7812		SV520050	SV525050
		20	.7874		SV570200	SV575200
	51/64	20.24	.7969		SV520051	SV525051
		20.5	.8071		SV570205	SV575205
	13/16	20.64	.8125		SV520052	SV525052
		21	.8268		SV570210	SV575210
	27/32	21.43	.8438		SV520054	SV525054
	55/64	21.83	.8594		SV520055	SV525055
		22	.8661		SV570220	SV575220
	7/8	22.23	.8750		SV520056	SV525056
	57/64	22.62	.8906		SV520057	SV525057
		23	.9055		SV570230	SV575230
	29/32	23.02	.9062		SV520058	SV525058
	59/64	23.42	.9219		SV520059	SV525059
	15/16	23.81	.9375		SV520060	SV525060
		24	.9449		SV570240	SV575240

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	◎	◎	◎	◎			◎			

SPADE DRILLS

SERIES 2

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SV-POINT SPADE DRILL INSERTS - PREMIUM COBALT (M48)

- Sinusoidal thinning edge for smooth cutting
- Positive rake angle
- Less thrust force and heat generation

POINT ANGLE : 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. inch (mm)	Diameter			Thick	EDP. No.	
	Fractional (inch)	Metric (mm)	Decimal (inch)	Fractional [Metric]	PREMIUM COBALT (M48) Hardslick	PREMIUM COBALT (M48) H-Coating
2 .961 (24.41) to 1.380 (35.05)	31/32	24.61	.9688	3/16 [4.8]	SV520062	SV525062
	63/64	25	.9843		SV520063	SV525063
	1	25.4	1.0000		SV520100	SV525100
	1 1/64	25.8	1.0156		SV520101	SV525101
		26	1.0236		SV570260	SV575260
	1 1/32	26.19	1.0312		SV520102	SV525102
	1 3/64	26.59	1.0469		SV520103	SV525103
	1 1/16	26.99	1.0625		SV520104	SV525104
		27	1.0630		SV570270	SV575270
	1 3/32	27.78	1.0938		SV520106	SV525106
		28	1.1024		SV570280	SV575280
	1 7/64	28.18	1.1094		SV520107	SV525107
	1 1/8	28.58	1.1250		SV520108	SV525108
		29	1.1417		SV570290	SV575290
	1 5/32	29.37	1.1562		SV520110	SV525110
		30	1.1811		SV570300	SV575300
	1 3/16	30.16	1.1875		SV520112	SV525112
	1 7/32	30.96	1.2188		SV520114	SV525114
		31	1.2205		SV570310	SV575310
	1 1/4	31.75	1.2500		SV520116	SV525116
		32	1.2598		SV570320	SV575320
	1 9/32	32.54	1.2812		SV520118	SV525118
		33	1.2992		SV570330	SV575330
	1 5/16	33.34	1.3125		SV520120	SV525120
		34	1.3386		SV570340	SV575340
	1 11/32	34.13	1.3438		SV520122	SV525122
	1 3/8	34.93	1.3750		SV520124	SV525124
		35	1.3780		SV570350	SV575350

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	◎	◎	◎	◎			◎			

SPADE DRILLS

SERIES 3

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SV-POINT SPADE DRILL INSERTS - PREMIUM COBALT (M48)

- Sinusoidal thinning edge for smooth cutting
- Positive rake angle
- Less thrust force and heat generation

POINT ANGLE : 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. inch (mm)	Diameter			Thick	EDP. No.	
	Fractional (inch)	Metric (mm)	Decimal (inch)	Fractional [Metric]	PREMIUM COBALT (M48) Hardslick	PREMIUM COBALT (M48) H-Coating
3 1.353 (34.37) to 1.882 (47.80)	1 13/32	35.72	1.4063	1/4 [6.4]	SV520126	SV525126
		36	1.4173		SV570360	SV575360
	1 7/16	36.51	1.4375		SV520128	SV525128
		37	1.4567		SV570370	SV575370
	1 15/32	37.31	1.4688		SV520130	SV525130
		38	1.4961		SV570380	SV575380
	1 1/2	38.1	1.5000		SV520132	SV525132
	1 17/32	38.89	1.5313		SV520134	SV525134
		39	1.5354		SV570390	SV575390
	1 9/16	39.69	1.5625		SV520136	SV525136
		40	1.5748		SV570400	SV575400
	1 19/32	40.48	1.5938		SV520138	SV525138
		41	1.6142		SV570410	SV575410
	1 5/8	41.28	1.6250		SV520140	SV525140
		42	1.6535		SV570420	SV575420
	1 21/32	42.07	1.6563		SV520142	SV525142
	1 11/16	42.86	1.6875		SV520144	SV525144
		43	1.6929		SV570430	SV575430
	1 23/32	43.66	1.7188		SV520146	SV525146
		44	1.7323		SV570440	SV575440
	1 3/4	44.45	1.7500		SV520148	SV525148
		45	1.7717		SV570450	SV575450
	1 25/32	45.24	1.7813		SV520150	SV525150
		46	1.8110		SV570460	SV575460
	1 13/16	46.04	1.8125		SV520152	SV525152
	1 27/32	46.83	1.8438		SV520154	SV525154
		47	1.8504		SV570470	SV575470
	1 7/8	47.63	1.8750		SV520156	SV525156

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	◎	◎	◎	◎			◎			

SPADE DRILLS

SERIES 4

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SV-POINT SPADE DRILL INSERTS - PREMIUM COBALT (M48)

- Sinusoidal thinning edge for smooth cutting
- Positive rake angle
- Less thrust force and heat generation

POINT ANGLE : 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. inch (mm)	Diameter			Thick	EDP. No.	
	Fractional (inch)	Metric (mm)	Decimal (inch)	Fractional [Metric]	PREMIUM COBALT (M48)	
					Hardslick	H-Coating
4 1.850 (46.99) to 2.570 (65.28)		48	1.8898	5/16 [7.9]	SV570480	SV575480
	1 29/32	48.42	1.9062		SV520158	SV525158
		49	1.9291		SV570490	SV575490
	1 15/16	49.21	1.9375		SV520160	SV525160
		50	1.9685		SV570500	SV575500
	1 31/32	50.01	1.9688		SV520162	SV525162
	2	50.8	2.0000		SV520200	SV525200
		51	2.0079		SV570510	SV575510
	2 1/32	51.59	2.0312		SV520202	SV525202
	2 3/64	51.99	2.0472		SV520203	SV525203
	2 1/16	52.39	2.0625		SV520204	SV525204
		53	2.0866		SV570530	SV575530
	2 3/32	53.18	2.0938		SV520206	SV525206
	2 1/8	53.98	2.1250		SV520208	SV525208
		54	2.1260		SV570540	SV575540
	2 5/32	54.77	2.1562		SV520210	SV525210
		55	2.1654		SV570550	SV575550
	2 3/16	55.56	2.1875		SV520212	SV525212
		56	2.2047		SV570560	SV575560
	2 7/32	56.36	2.2188		SV520214	SV525214
		57	2.2441		SV570570	SV575570
	2 1/4	57.15	2.2500		SV520216	SV525216
	2 9/32	57.94	2.2812		SV520218	SV525218
		58	2.2835		SV570580	SV575580
	2 5/16	58.74	2.3125		SV520220	SV525220
		59	2.3228		SV570590	SV575590

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	◎	◎	◎	◎			◎			

SPADE DRILLS

SERIES 4

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SV-POINT SPADE DRILL INSERTS - PREMIUM COBALT (M48)

- Sinusoidal thinning edge for smooth cutting
- Positive rake angle
- Less thrust force and heat generation

POINT ANGLE : 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. inch (mm)	Diameter			Thick	EDP. No.	
	Fractional (inch)	Metric (mm)	Decimal (inch)	Fractional [Metric]	PREMIUM COBALT (M48)	
					Hardslick	H-Coating
4 1.850 (46.99) to 2.570 (65.28)	2 11/32	59.53	2.3438	5/16 [7.9]	SV520222	SV525222
		60	2.3622		SV570600	SV575600
	2 3/8	60.33	2.3750		SV520224	SV525224
		61	2.4016		SV570610	SV575610
	2 13/32	61.12	2.4062		SV520226	SV525226
	2 7/16	61.91	2.4375		SV520228	SV525228
		62	2.4409		SV570620	SV575620
	2 15/32	62.71	2.4688		SV520230	SV525230
		63	2.4803		SV570630	SV575630
	2 1/2	63.5	2.5000		SV520232	SV525232
		64	2.5197		SV570640	SV575640
	2 17/32	64.29	2.5312		SV520234	SV525234
		65	2.5591		SV570650	SV575650
	2 9/16	65.09	2.5625		SV520236	SV525236

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	◎	◎	◎	◎			◎			

SPADE DRILLS

SERIES 5

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SV-POINT SPADE DRILL INSERTS - PREMIUM COBALT (M48)

- Sinusoidal thinning edge for smooth cutting
- Positive rake angle
- Less thrust force and heat generation

POINT ANGLE : 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. inch (mm)	Diameter			Thick	EDP. No.	
	Fractional (inch)	Metric (mm)	Decimal (inch)	Fractional [Metric]	PREMIUM COBALT (M48) Hardslick	PREMIUM COBALT (M48) H-Coating
5 **2.456 (62.38) to 3.000 (76.20)**	2 19/32	65.88	2.5938	7/16 [11.1]	SV520238	SV525238
		66	2.5984		SV570660	SV575660
	2 5/8	66.68	2.6250		SV520240	SV525240
	2 21/32	67.47	2.6562		SV520242	SV525242
		68	2.6772		SV570680	SV575680
	2 11/16	68.26	2.6875		SV520244	SV525244
	2 23/32	69.06	2.7188		SV520246	SV525246
	2 3/4	69.85	2.7500		SV520248	SV525248
		70	2.7559		SV570700	SV575700
	2 25/32	70.64	2.7812		SV520250	SV525250
	2 13/16	71.44	2.8125		SV520252	SV525252
		72	2.8346		SV570720	SV575720
	2 27/32	72.23	2.8438		SV520254	SV525254
	2 7/8	73.03	2.8750		SV520256	SV525256
	2 29/32	73.82	2.9062		SV520258	SV525258
		74	2.9134		SV570740	SV575740
	2 15/16	74.61	2.9375		SV520260	SV525260
	2 31/32	75.41	2.9688		SV520262	SV525262
		76	2.9921		SV570760	SV575760
	3	76.2	3.0000		SV520300	SV525300

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	◎	◎	◎	◎			◎			

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

SPADE DRILLS

SERIES 6

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SV-POINT SPADE DRILL INSERTS - PREMIUM COBALT (M48)

- Sinusoidal thinning edge for smooth cutting
- Positive rake angle
- Less thrust force and heat generation

POINT ANGLE : 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. inch (mm)	Diameter			Thick	EDP. No.	
	Fractional (inch)	Metric (mm)	Decimal (inch)	Fractional [Metric]	PREMIUM COBALT (M48) Hardslick	PREMIUM COBALT (M48) H-Coating
6 **3.001 (76.23) to 3.507 (89.08)**	3 1/32	76.99	3.0312	7/16 [11.1]	SV520302	SV525302
	3 1/16	77.79	3.0625		SV520304	SV525304
		78	3.0709		SV570780	SV575780
	3 3/32	78.58	3.0938		SV520306	SV525306
	3 1/8	79.38	3.1250		SV520308	SV525308
		80	3.1496		SV570800	SV575800
	3 5/32	80.17	3.1562		SV520310	SV525310
	3 3/16	80.96	3.1875		SV520312	SV525312
	3 7/32	81.76	3.2188		SV520314	SV525314
		82	3.2283		SV570820	SV575820
	3 1/4	82.55	3.2500		SV520316	SV525316
	3 9/32	83.34	3.2812		SV520318	SV525318
		84	3.3071		SV570840	SV575840
	3 5/16	84.14	3.3125		SV520320	SV525320
	3 11/32	84.93	3.3438		SV520322	SV525322
	3 3/8	85.73	3.3750		SV520324	SV525324
		86	3.3858		SV570860	SV575860
	3 13/32	86.52	3.4063		SV520326	SV525326
	3 7/16	87.31	3.4375		SV520328	SV525328
		88	3.4646		SV570880	SV575880
	3 15/32	88.11	3.4688		SV520330	SV525330
	3 1/2	88.9	3.5000		SV520332	SV525332

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	◎	◎	◎	◎			◎			

SPADE DRILLS

SERIES 7

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SV-POINT SPADE DRILL INSERTS - PREMIUM COBALT (M48)

- Sinusoidal thinning edge for smooth cutting
- Positive rake angle
- Less thrust force and heat generation

POINT ANGLE : 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. inch (mm)	Diameter			Thick	EDP. No.	
	Fractional (inch)	Metric (mm)	Decimal (inch)	Fractional [Metric]	PREMIUM COBALT (M48) Hardslick	PREMIUM COBALT (M48) H-Coating
7 **3.455 (87.76) to 4.000 (101.60)**	3 17/32	89.69	3.5312	7/16 [11.1]	SV520334	SV525334
		90	3.5433		SV570900	SV575900
	3 9/16	90.49	3.5625		SV520336	SV525336
	3 19/32	91.28	3.5938		SV520338	SV525338
		92	3.6221		SV570920	SV575920
	3 5/8	92.08	3.6250		SV520340	SV525340
	3 21/32	92.87	3.6562		SV520342	SV525342
	3 11/16	93.66	3.6875		SV520344	SV525344
		94	3.7008		SV570940	SV575940
	3 23/32	94.46	3.7188		SV520346	SV525346
	3 3/4	95.25	3.7500		SV520348	SV525348
		96	3.7795		SV570960	SV575960
	3 25/32	96.04	3.7812		SV520350	SV525350
	3 13/16	96.84	3.8125		SV520352	SV525352
	3 27/32	97.63	3.8438		SV520354	SV525354
		98	3.8583		SV570980	SV575980
	3 7/8	98.43	3.8750		SV520356	SV525356
	3 29/32	99.22	3.9062		SV520358	SV525358
		100	3.9370		SV570A00	SV575A00
	3 15/16	100.01	3.9375		SV520360	SV525360
	3 31/32	100.81	3.9688		SV520362	SV525362
	4	101.6	4.0000		SV520400	SV525400

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	◎	◎	◎	◎			◎			

SPADE DRILLS

SERIES 8

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SV-POINT SPADE DRILL INSERTS - PREMIUM COBALT (M48)

- Sinusoidal thinning edge for smooth cutting
- Positive rake angle
- Less thrust force and heat generation

POINT ANGLE : 132 degree
(Series 5-8 : 144 degree)

Series Min. to Max. inch (mm)	Diameter			Thick	EDP. No.	
	Fractional (inch)	Metric (mm)	Decimal (inch)	Fractional [Metric]	PREMIUM COBALT (M48) Hardslick	PREMIUM COBALT (M48) H-Coating
8 **4.001 (101.63) to 4.507 (114.48)**	4 1/64	102	4.0156	7/16 [11.1]	SV520401	SV525401
	4 1/16	103.19	4.0625		SV520404	SV525404
	4 3/32	103.98	4.0945		SV520406	SV525406
	4 1/8	104.78	4.1250		SV520408	SV525408
		106	4.1732		SV570A60	SV575A60
	4 3/16	106.36	4.1875		SV520412	SV525412
	4 1/4	107.95	4.2500		SV520416	SV525416
		108	4.2520		SV570A80	SV575A80
	4 5/16	109.54	4.3125		SV520420	SV525420
		110	4.3307		SV570B00	SV575B00
	4 3/8	111.13	4.3750		SV520424	SV525424
		112	4.4094		SV570B20	SV575B20
	4 7/16	112.71	4.4375		SV520428	SV525428
		114	4.4882		SV570B40	SV575B40
	4 1/2	114.3	4.5000		SV520432	SV525432

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	◎	◎	◎	◎			◎			

SPADE DRILLS

SERIES Y, Z

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SV-POINT SPADE DRILL INSERTS - CARBIDE C5 (P40)

- For general use in carbon steels and alloys steels
- Sinusoidal thinning edge for smooth cutting
- Positive rake angle
- Less thrust force and heat generation

POINT ANGLE : 132 degree

Series Min. to Max. inch (mm)	Diameter Fractional (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Fractional [Metric]	EDP. No. C5 (P40) Hardslick	EDP. No. C5 (P40) H-Coating
Y .374 (9.50) to .436 (11.07)		9.5	.3740	3/32 [2.4]	SV870095	SV875095
	3/8	9.53	.3750		SV820024	SV825024
		9.8	.3860		SV870098	SV875098
	25/64	9.92	.3906		SV820025	SV825025
		10	.3937		SV870100	SV875100
		10.2	.4016		SV870102	SV875102
	13/32	10.32	.4063		SV820026	SV825026
		10.5	.4134		SV870105	SV875105
	27/64	10.72	.4219		SV820027	SV825027
		10.8	.4252		SV870108	SV875108
		11	.4331		SV870110	SV875110
Z .437 (11.11) to .510 (12.95)	7/16	11.11	.4375	3/32 [2.4]	SV820028	SV825028
		11.5	.4528		SV870115	SV875115
	29/64	11.51	.4531		SV820029	SV825029
	15/32	11.91	.4688		SV820030	SV825030
		12	.4724		SV870120	SV875120
	31/64	12.3	.4844		SV820031	SV825031
		12.5	.4921		SV870125	SV875125
	1/2	12.7	.5000		SV820032	SV825032

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				○	○	○	○	○			◎			

SPADE DRILLS

SERIES 0

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SV-POINT SPADE DRILL INSERTS - CARBIDE C5 (P40)

- For general use in carbon steels and alloys steels
- Sinusoidal thinning edge for smooth cutting
- Positive rake angle
- Less thrust force and heat generation

POINT ANGLE : 132 degree

Series Min. to Max. inch (mm)	Diameter Fractional (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Fractional [Metric]	EDP. No. C5 (P40) Hardslick	EDP. No. C5 (P40) H-Coating
0 .511 (12.98) to .695 (17.65)		13	.5118	1/8 [3.2]	SV870130	SV875130
	33/64	13.1	.5156		SV820033	SV825033
	17/32	13.49	.5313		SV820034	SV825034
		13.5	.5315		SV870135	SV875135
	35/64	13.89	.5469		SV820035	SV825035
		14	.5512		SV870140	SV875140
	9/16	14.29	.5625		SV820036	SV825036
		14.5	.5709		SV870145	SV875145
	37/64	14.68	.5781		SV820037	SV825037
		15	.5906		SV870150	SV875150
	19/32	15.08	.5938		SV820038	SV825038
	39/64	15.48	.6094		SV820039	SV825039
		15.5	.6102		SV870155	SV875155
	5/8	15.88	.6250		SV820040	SV825040
		16	.6299		SV870160	SV875160
	41/64	16.27	.6406		SV820041	SV825041
		16.5	.6496		SV870165	SV875165
	21/32	16.67	.6563		SV820042	SV825042
		17	.6693		SV870170	SV875170
	43/64	17.07	.6719		SV820043	SV825043
	11/16	17.46	.6875		SV820044	SV825044
		17.5	.6890		SV870175	SV875175

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				○	○	○	○	○			◎			

SPADE DRILLS

SERIES 1

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SV-POINT SPADE DRILL INSERTS - CARBIDE C5 (P40)

- For general use in carbon steels and alloys steels
- Sinusoidal thinning edge for smooth cutting
- Positive rake angle
- Less thrust force and heat generation

POINT ANGLE : 132 degree

Series Min. to Max. inch (mm)	Diameter Fractional (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Fractional [Metric]	EDP. No. C5 (P40) Hardslick	EDP. No. C5 (P40) H-Coating
1 **.690 (17.53) to .960 (24.38)**	45/64	17.86	.7031	5/32 [4.0]	SV820045	SV825045
		18	.7087		SV870180	SV875180
	23/32	18.26	.7188		SV820046	SV825046
		18.5	.7283		SV870185	SV875185
	47/64	18.65	.7344		SV820047	SV825047
		19	.7480		SV870190	SV875190
	3/4	19.05	.7500		SV820048	SV825048
	49/64	19.45	.7656		SV820049	SV825049
		19.5	.7677		SV870195	SV875195
	25/32	19.84	.7812		SV820050	SV825050
		20	.7874		SV870200	SV875200
	51/64	20.24	.7969		SV820051	SV825051
		20.5	.8071		SV870205	SV875205
	13/16	20.64	.8125		SV820052	SV825052
		21	.8268		SV870210	SV875210
	27/32	21.43	.8438		SV820054	SV825054
	55/64	21.83	.8594		SV820055	SV825055
		22	.8661		SV870220	SV875220
	7/8	22.23	.8750		SV820056	SV825056
	57/64	22.62	.8906		SV820057	SV825057
		23	.9055		SV870230	SV875230
	29/32	23.02	.9062		SV820058	SV825058
	59/64	23.42	.9219		SV820059	SV825059
	15/16	23.81	.9375		SV820060	SV825060
		24	.9449		SV870240	SV875240

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				○	○	○	○	○			◎			

SPADE DRILLS

SERIES 2

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SV-POINT SPADE DRILL INSERTS - CARBIDE C5 (P40)

- For general use in carbon steels and alloys steels
- Sinusoidal thinning edge for smooth cutting
- Positive rake angle
- Less thrust force and heat generation

POINT ANGLE : 132 degree

Series Min. to Max. inch (mm)	Diameter Fractional (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Fractional [Metric]	EDP. No. C5 (P40) Hardslick	EDP. No. C5 (P40) H-Coating
2 **.961 (24.41) to 1.380 (35.05)**	31/32	24.61	.9688	3/16 [4.8]	SV820062	SV825062
	63/64	25	.9843		SV820063	SV825063
	1	25.4	1.0000		SV820100	SV825100
	1 1/64	25.8	1.0156		SV820101	SV825101
		26	1.0236		SV870260	SV875260
	1 1/32	26.19	1.0312		SV820102	SV825102
	1 3/64	26.59	1.0469		SV820103	SV825103
	1 1/16	26.99	1.0625		SV820104	SV825104
		27	1.0630		SV870270	SV875270
	1 3/32	27.78	1.0938		SV820106	SV825106
		28	1.1024		SV870280	SV875280
	1 7/64	28.18	1.1094		SV820107	SV825107
	1 1/8	28.58	1.1250		SV820108	SV825108
		29	1.1417		SV870290	SV875290
	1 5/32	29.37	1.1562		SV820110	SV825110
		30	1.1811		SV870300	SV875300
	1 3/16	30.16	1.1875		SV820112	SV825112
	1 7/32	30.96	1.2188		SV820114	SV825114
		31	1.2205		SV870310	SV875310
	1 1/4	31.75	1.2500		SV820116	SV825116
		32	1.2598		SV870320	SV875320
	1 9/32	32.54	1.2812		SV820118	SV825118
		33	1.2992		SV870330	SV875330
	1 5/16	33.34	1.3125		SV820120	SV825120
		34	1.3386		SV870340	SV875340
	1 11/32	34.13	1.3438		SV820122	SV825122
	1 3/8	34.93	1.3750		SV820124	SV825124
		35	1.3780		SV870350	SV875350

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				○	○	○	○	○			◎			

SPADE DRILLS

SERIES 3

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
SV-POINT SPADE DRILL INSERTS - CARBIDE C5 (P40)

- For general use in carbon steels and alloys steels
- Sinusoidal thinning edge for smooth cutting
- Positive rake angle
- Less thrust force and heat generation

POINT ANGLE : 132 degree

Series Min. to Max. inch (mm)	Diameter			Thick	EDP. No. C5 (P40)	
	Fractional (inch)	Metric (mm)	Decimal (inch)	Fractional [Metric]	Hardslick	H-Coating
3 1.353 (34.37) to 1.882 (47.80)	1 13/32	35.72	1.4063	1/4 [6.4]	SV820126	SV825126
		36	1.4173		SV870360	SV875360
	1 7/16	36.51	1.4375		SV820128	SV825128
		37	1.4567		SV870370	SV875370
	1 15/32	37.31	1.4688		SV820130	SV825130
		38	1.4961		SV870380	SV875380
	1 1/2	38.1	1.5000		SV820132	SV825132
	1 17/32	38.89	1.5313		SV820134	SV825134
		39	1.5354		SV870390	SV875390
	1 9/16	39.69	1.5625		SV820136	SV825136
		40	1.5748		SV870400	SV875400
	1 19/32	40.48	1.5938		SV820138	SV825138
		41	1.6142		SV870410	SV875410
	1 5/8	41.28	1.6250		SV820140	SV825140
		42	1.6535		SV870420	SV875420
	1 21/32	42.07	1.6563		SV820142	SV825142
	1 11/16	42.86	1.6875		SV820144	SV825144
		43	1.6929		SV870430	SV875430
	1 23/32	43.66	1.7188		SV820146	SV825146
		44	1.7323		SV870440	SV875440
	1 3/4	44.45	1.7500		SV820148	SV825148
		45	1.7717		SV870450	SV875450
	1 25/32	45.24	1.7813		SV820150	SV825150
		46	1.8110		SV870460	SV875460
	1 13/16	46.04	1.8125		SV820152	SV825152
	1 27/32	46.83	1.8438		SV820154	SV825154
		47	1.8504		SV870470	SV875470
	1 7/8	47.63	1.8750		SV820156	SV825156

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎		◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

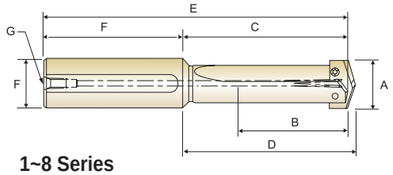
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				○	○	○	○	○			◎			

SPADE DRILLS

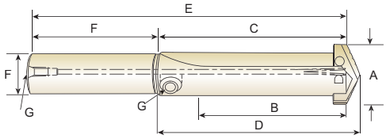
P13 SERIES
P14 SERIES

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
STRAIGHT SHANK HOLDER, STRAIGHT FLUTE

Y~0.5 Series



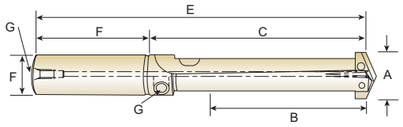
1~8 Series



SHORT LENGTH

Unit : Inch

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Flute Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F		G
Y	P13Y01	3/8 – 27/64	1-1/4	2-1/32	2-1/8	4-13/32	3/4	2-3/8	1/8
Z	P13Z01	7/16 – 1/2	1-1/4	2-1/32	2-1/8	4-13/32	3/4	2-3/8	1/8
0	P13001	33/64 – 11/16	1-3/8	2-3/16	2-19/64	4-9/16	3/4	2-3/8	1/8
0.5	P13051	39/64 – 11/16	1-3/8	2-3/16	2-19/64	4-9/16	3/4	2-3/8	1/8
1	P13101	45/64 – 15/16	2-5/8	3-7/8	4-1/64	6-7/8	3/4	3	1/8
	P13102	45/64 – 15/16	2-5/8	3-7/8	4-1/64	6-7/8	1	3	1/8
1.5	P13151	55/64 – 15/16	2-5/8	3-7/8	4-1/64	6-7/8	3/4	3	1/8
	P13152	55/64 – 15/16	2-5/8	3-7/8	4-1/64	6-7/8	1	3	1/8
2	P13202	31/32 – 1-3/8	3-3/8	4-1/2	4-41/64	8	1	3-1/2	1/8
	P13203	31/32 – 1-3/8	3-3/8	4-1/2	4-41/64	8	1-1/4	3-1/2	1/8
2.5	P13252	1-3/16 – 1-3/8	3-3/8	4-1/2	4-41/64	8	1	3-1/2	1/8
	P13253	1-3/16 – 1-3/8	3-3/8	4-1/2	4-41/64	8	1-1/4	3-1/2	1/8
3	P13303	1-13/32 – 1-7/8	4-3/4	6	6-3/16	10	1-1/4	4	1/4
	P13304	1-13/32 – 1-7/8	4-3/4	6	6-3/16	10	1-1/2	4	1/4
4	P13404	1-29/32 – 2-9/16	5-1/8	6-1/2	6-11/16	10-1/2	1-1/2	4	1/4
	P13405	1-29/32 – 2-9/16	5-1/8	6-1/2	6-11/16	10-1/2	1-3/4	4	1/4
5-6	P13506	2-1/2 – 3-1/2	6-3/4	8-1/2	8-3/4	12-1/2	2	4	1/2
7-8	P13708	3-17/32 – 4-1/2	6-3/4	8-7/8	9-1/8	13-7/8	3	5	1/2



INTERMEDIATE LENGTH

Unit : Inch

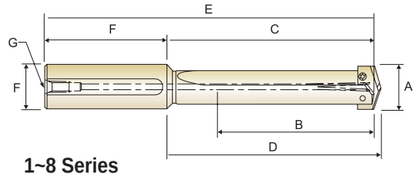
Series	EDP No.	Drill Insert Range	Max. Drill Depth	Flute Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F		G
1	P14102	45/64 – 15/16	4-5/8	5-7/8	6-1/64	8-7/8	1	3	1/8
1.5	P14152	55/64 – 15/16	4-5/8	5-7/8	6-1/64	8-7/8	1	3	1/8
2	P14203	31/32 – 1-3/8	5-3/8	6-1/2	6-41/64	10	1-1/4	3-1/2	1/8
2.5	P14253	1-3/16 – 1-3/8	5-3/8	6-1/2	6-41/64	10	1-1/4	3-1/2	1/8
3	P14304	1-13/32 – 1-7/8	6-1/2	7-3/4	7-15/16	11-3/4	1-1/2	4	1/4

SPADE DRILLS

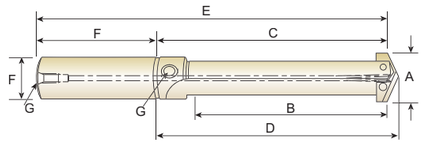
P15 SERIES

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
STRAIGHT SHANK HOLDER, STRAIGHT FLUTE

Y~0.5 Series



1~8 Series



STANDARD LENGTH

Unit : Inch

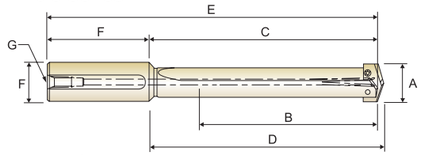
Series	EDP No.	Drill Insert Range	Max. Drill Depth	Flute Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F		G
Y	P15Y01	3/8 – 27/64	2-3/8	3-5/32	3-1/4	5-17/32	3/4	2-3/8	1/8
Z	P15Z01	7/16 – 1/2	2-3/8	3-5/32	3-1/4	5-17/32	3/4	2-3/8	1/8
0	P15001	33/64 – 11/16	2-1/2	3-5/16	3-27/64	5-11/16	3/4	2-3/8	1/8
0.5	P15051	39/64 – 11/16	2-1/2	3-5/16	3-27/64	5-11/16	3/4	2-3/8	1/8
1	P15101	45/64 – 15/16	6-5/8	7-7/8	8-1/64	10-7/8	3/4	3	1/8
	P15102	45/64 – 15/16	6-5/8	7-7/8	8-1/64	10-7/8	1	3	1/8
1.5	P15151	55/64 – 15/16	6-5/8	7-7/8	8-1/64	10-7/8	3/4	3	1/8
	P15152	55/64 – 15/16	6-5/8	7-7/8	8-1/64	10-7/8	1	3	1/8
2	P15202	31/32 – 1-3/8	7-3/8	8-1/2	8-41/64	12	1	3-1/2	1/8
	P15203	31/32 – 1-3/8	7-3/8	8-1/2	8-41/64	12	1-1/4	3-1/2	1/8
2.5	P15252	1-3/16 – 1-3/8	7-3/8	8-1/2	8-41/64	12	1	3-1/2	1/8
	P15253	1-3/16 – 1-3/8	7-3/8	8-1/2	8-41/64	12	1-1/4	3-1/2	1/8
3	P15303	1-13/32 – 1-7/8	8-1/4	9-1/2	9-11/16	13-1/2	1-1/4	4	1/4
	P15304	1-13/32 – 1-7/8	8-1/4	9-1/2	9-11/16	13-1/2	1-1/2	4	1/4
4	P15404	1-29/32 – 2-9/16	9-1/8	10-1/2	10-11/16	14-1/2	1-1/2	4	1/4
	P15405	1-29/32 – 2-9/16	9-1/8	10-1/2	10-11/16	14-1/2	1-3/4	4	1/4
5-6	P15506	2-1/2 – 3-1/2	10-3/4	12-1/2	12-3/4	16-1/2	2	4	1/2
7-8	P15708	3-17/32 – 4-1/2	10-3/4	12-7/8	13-1/8	17-7/8	3	5	1/2

SPADE DRILLS

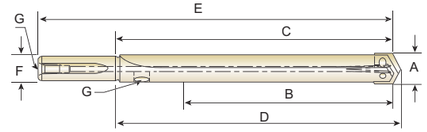
P16 SERIES

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
STRAIGHT SHANK HOLDER, STRAIGHT FLUTE

Y~0.5 Series



1~8 Series



EXTENDED LENGTH

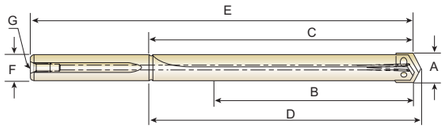
Unit : Inch

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Flute Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F		G
Y	P16Y01	3/8 – 27/64	4-3/8	5-5/32	5-1/4	7-17/32	3/4	2-3/8	1/8
Z	P16Z01	7/16 – 1/2	4-3/8	5-5/32	5-1/4	7-17/32	3/4	2-3/8	1/8
0	P16001	33/64 – 11/16	4-1/2	5-5/16	5-27/64	7-11/16	3/4	2-3/8	1/8
0.5	P16051	39/64 – 11/16	4-1/2	5-5/16	5-27/64	7-11/16	3/4	2-3/8	1/8
1	P16102	45/64 – 15/16	10-5/8	11-7/8	12-1/64	14-7/8	1	3	1/8
1.5	P16152	55/64 – 15/16	10-5/8	11-7/8	12-1/64	14-7/8	1	3	1/8
2	P16203	31/32 – 1-3/8	11-3/8	12-1/2	12-41/64	16	1-1/4	3-1/2	1/8
2.5	P16253	1-3/16 – 1-3/8	11-3/8	12-1/2	12-41/64	16	1-1/4	3-1/2	1/8
3	P16303	1-13/32 – 1-7/8	13-3/4	15	15-3/16	19	1-1/4	4	1/4
4	P16404	1-29/32 – 2-9/16	16-5/8	18	18-3/16	22	1-1/2	4	1/4
5-6	P16506	2-1/2 – 3-1/2	18-1/4	20	20-1/4	24	2	4	1/2
7-8	P16708	3-17/32 – 4-1/2	21-7/8	24	24-1/4	29	3	5	1/2

SPADE DRILLS

P17 SERIES

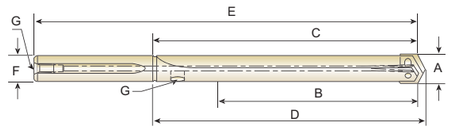
2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
STRAIGHT SHANK HOLDER, STRAIGHT FLUTE



LONG LENGTH

Unit : Inch

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Flute Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F		G
0	P17001	33/64 – 11/16	7	7-13/16	7-59/64	10-3/16	3/4	2-3/8	1/8
0.5	P17051	39/64 – 11/16	7	7-13/16	7-59/64	10-3/16	3/4	2-3/8	1/8



EXTRA LONG LENGTH

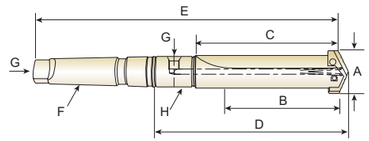
Unit : Inch

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Flute Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F		G
1	P17101	45/64 – 15/16	18	19-1/4	19-25/64	22-1/4	1	3	1/8
2	P17202	31/32 – 1-3/8	20-1/8	21-1/4	21-25/64	24-3/4	1-1/4	3-1/2	1/8
3	P17303	1-13/32 – 1-7/8	22	23-1/4	23-7/16	27-1/4	1-1/2	4	1/4
4	P17404	1-29/32 – 2-9/16	24-5/8	26	26-3/16	30	1-1/2	4	1/4
5	P17506	2-1/2 – 3-1/2	26	27-3/4	28	31-3/4	2	4	1/2
7	P17708	3-17/32 – 4-1/2	27	29-1/8	29-3/8	34-1/8	3	5	1/2

SPADE DRILLS

P01 SERIES
P08 SERIES

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
TAPER SHANK HOLDER, STRAIGHT FLUTE / HELICAL FLUTE

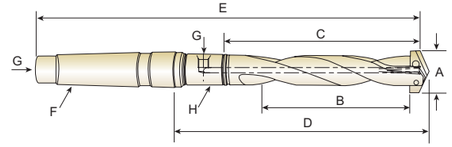


SHORT LENGTH

Unit : Inch

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Flute Length	Ref. Length	Overall Length	MT	Pipe Tap	RCI
		A	B	C	D	E	F	G	H
Y	P01Y02	3/8 – 27/64	1-1/4	2-1/32	3-15/32	6-5/16	#2	1/16	PR1030
Z	P01Z02	7/16 – 1/2	1-1/4	2-1/32	3-15/32	6-5/16	#2	1/16	PR1030
0	P01002	33/64 – 11/16	1-3/8	2-3/16	3-41/64	6-15/32	#2	1/16	PR1030
0.5	P01052	39/64 – 11/16	1-3/8	2-3/16	3-41/64	6-15/32	#2	1/16	PR1030
1	P01103	45/64 – 15/16	2-3/4	3-7/8	5-39/64	9-5/32	#3	1/8	PR1031
	P01104	45/64 – 15/16	2-3/4	3-7/8	5-43/64	10-5/32	#4	1/8	PR1031
1.5	P01153	55/64 – 15/16	2-3/4	3-7/8	5-39/64	9-5/32	#3	1/8	PR1031
	P01154	55/64 – 15/16	2-3/4	3-7/8	5-43/64	10-5/32	#4	1/8	PR1031
2	P01203	31/32 – 1-3/8	3-3/8	4-1/2	6-15/64	9-25/32	#3	1/8	PR1031
	P01204	31/32 – 1-3/8	3-3/8	4-1/2	6-19/64	10-25/32	#4	1/8	PR1031
2.5	P01253	1-3/16 – 1-3/8	3-3/8	4-1/2	6-15/64	9-25/32	#3	1/8	PR1031
	P01254	1-3/16 – 1-3/8	3-3/8	4-1/2	6-37/64	11-1/16	#4	1/4	PR1042
3	P01304	1-13/32 – 1-7/8	4-3/4	6	8-1/8	12-9/16	#4	1/4	PR1042
	P01305	1-13/32 – 1-7/8	4-3/4	6	8-1/8	13-13/16	#5	1/4	PR1043
4	P01404	1-29/32 – 2-9/16	5-1/8	6-1/2	8-5/8	13-1/16	#4	1/4	PR1042
	P01405	1-29/32 – 2-9/16	5-1/8	6-1/2	8-5/8	14-5/16	#5	1/4	PR1043
5-6	P01505	2-1/2 – 3-1/2	6-3/4	8-1/2	11-5/16	16-15/16	#5	1/2	PR1054
7-8	P01705	3-17/32 – 4-1/2	6-3/4	8-7/8	11-11/16	17-5/16	#5	1/2	PR1054

▶ You can also apply **RCI**(**R**otary **C**oolant **I**nducer) for internal cooling. (See page 67)



INTERMEDIATE LENGTH

Unit : Inch

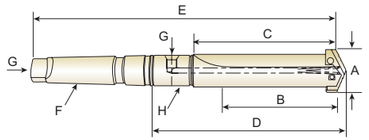
Series	EDP No.	Drill Insert Range	Max. Drill Depth	Flute Length	Ref. Length	Overall Length	MT	Pipe Tap	RCI
		A	B	C	D	E	F	G	H
1	P08103	45/64 – 15/16	4-3/4	5-7/8	7-39/64	11-5/32	#3	1/8	PR1031
1.5	P08153	55/64 – 15/16	4-3/4	5-7/8	7-39/64	11-5/32	#3	1/8	PR1031
2	P08204	31/32 – 1-3/8	5-3/8	6-1/2	8-19/64	12-25/32	#4	1/8	PR1031
2.5	P08254	1-3/16 – 1-3/8	5-3/8	6-1/2	8-37/64	13-1/16	#4	1/4	PR1042

▶ You can also apply **RCI**(**R**otary **C**oolant **I**nducer) for internal cooling. (See page 67)

SPADE DRILLS

P03 SERIES

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
STRAIGHT SHANK HOLDER, STRAIGHT FLUTE



STANDARD LENGTH

Unit : Inch

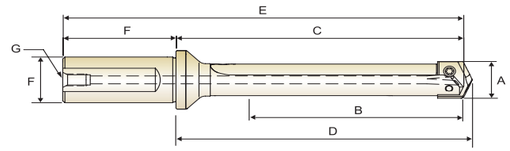
Series	EDP No.	Drill Insert Range	Max. Drill Depth	Flute Length	Ref. Length	Overall Length	MT	Pipe Tap	RCI
		A	B	C	D	E	F	G	H
Y	P03Y02	3/8 – 27/64	2-3/8	3-5/32	4-19/32	7-7/16	#2	1/16	PR1030
Z	P03Z02	7/16 – 1/2	2-3/8	3-5/32	4-19/32	7-7/16	#2	1/16	PR1030
0	P03002	33/64 – 11/16	2-1/2	3-5/16	4-49/64	7-19/32	#2	1/16	PR1030
0.5	P03052	39/64 – 11/16	2-1/2	3-5/16	4-49/64	7-19/32	#2	1/16	PR1030
1	P03103	45/64 – 15/16	6-3/4	7-7/8	9-39/64	13-5/32	#3	1/8	PR1031
	P03104	45/64 – 15/16	6-3/4	7-7/8	9-43/64	14-5/32	#4	1/8	PR1031
1.5	P03153	55/64 – 15/16	6-3/4	7-7/8	9-39/64	13-5/32	#3	1/8	PR1031
	P03154	55/64 – 15/16	6-3/4	7-7/8	9-43/64	14-5/32	#4	1/8	PR1031
2	P03203	31/32 – 1-3/8	7-3/8	8-1/2	10-15/64	13-25/32	#3	1/8	PR1031
	P03204	31/32 – 1-3/8	7-3/8	8-1/2	10-19/64	14-25/32	#4	1/8	PR1031
2.5	P03253	1-3/16 – 1-3/8	7-3/8	8-1/2	10-15/64	13-25/32	#3	1/8	PR1031
	P03254	1-3/16 – 1-3/8	7-3/8	8-1/2	10-37/64	15-1/16	#4	1/4	PR1042
3	P03304	1-13/32 – 1-7/8	8-1/4	9-1/2	11-5/8	16-1/16	#4	1/4	PR1042
	P03305	1-13/32 – 1-7/8	8-1/4	9-1/2	11-5/8	17-5/16	#5	1/4	PR1043
4	P03404	1-29/32 – 2-9/16	9-1/8	10-1/2	12-5/8	17-1/16	#4	1/4	PR1042
	P03405	1-29/32 – 2-9/16	9-1/8	10-1/2	12-5/8	18-5/16	#5	1/4	PR1043
5-6	P03505	2-1/2 – 3-1/2	10-3/4	12-1/2	15-5/16	20-15/16	#5	1/2	PR1054
7-8	P03705	3-17/32 – 4-1/2	10-3/4	12-7/8	15-11/16	21-5/16	#5	1/2	PR1054

▶ You can also apply **RCI**(**R**otary **C**oolant **I**nducer) for internal cooling. (See page 67)

SPADE DRILLS

P25 SERIES
P26 SERIES

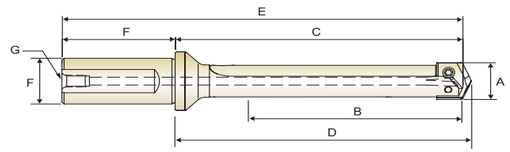
2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
FLANGED STRAIGHT SHANK HOLDER, STRAIGHT FLUTE



SHORT LENGTH

Unit : Inch

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Flute Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F		G
Y	P25Y01	3/8 – 27/64	1-1/4	2-13/32	2-1/2	4-7/16	3/4	2-1/32	1/8
Z	P25Z01	7/16 – 1/2	1-1/4	2-13/32	2-1/2	4-7/16	3/4	2-1/32	1/8
0	P25001	33/64 – 11/16	1-3/8	2-1/2	2-39/64	4-17/32	3/4	2-1/32	1/8
0.5	P25051	39/64 – 11/16	1-3/8	2-1/2	2-39/64	4-17/32	3/4	2-1/32	1/8
1	P25102	45/64 – 15/16	2-5/8	4-7/32	4-23/64	6-1/2	1	2-9/32	1/8
1.5	P25152	55/64 – 15/16	2-5/8	4-7/32	4-23/64	6-1/2	1	2-9/32	1/8
2	P25203	31/32 – 1-3/8	3-3/8	5-1/16	5-13/64	7-11/32	1-1/4	2-9/32	1/4
2.5	P25253	1-3/16 – 1-3/8	3-3/8	5-1/16	5-13/64	7-11/32	1-1/4	2-9/32	1/4
3	P25303	1-13/32 – 1-7/8	4-3/4	6-13/16	7	9-1/2	1-1/2	2-11/16	1/4
4	P25404	1-29/32 – 2-9/16	5-1/8	7-1/16	7-1/4	9-3/4	1-1/2	2-11/16	1/4



INTERMEDIATED LENGTH

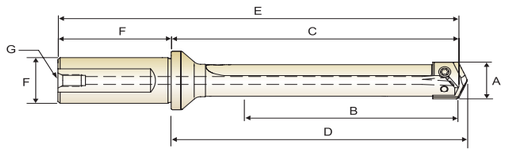
Unit : Inch

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Flute Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F		G
1	P26102	45/64 ~ 15/16	4-5/8	6-3/32	6-15/64	8-3/8	1	2-9/32	1/8
1.5	P26152	55/64 ~ 15/16	4-5/8	6-3/32	6-15/64	8-3/8	1	2-9/32	1/8
2	P26203	31/32 ~ 1-3/8	5-3/8	7-1/16	7-13/64	9-11/32	1-1/4	2-9/32	1/4
2.5	P26253	1-3/16 ~ 1-3/8	5-3/8	7-1/16	7-13/64	9-11/32	1-1/4	2-9/32	1/4
3	P26304	1-13/32 ~ 1-7/8	6-1/2	8-9/16	8-3/4	11-1/4	1-1/2	2-11/32	1/4

SPADE DRILLS

P27 SERIES
P28 SERIES

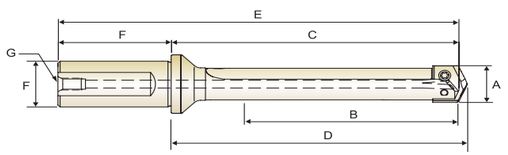
2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
FLANGED STRAIGHT SHANK HOLDER, STRAIGHT FLUTE



STANDARD LENGTH

Unit : Inch

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Flute Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F		G
Y	P27Y01	3/8 ~ 27/64	2-3/8	3-17/32	3-5/8	5-9/16	3/4	2-1/32	1/8
Z	P27Z01	7/16 ~ 1/2	2-3/8	3-17/32	3-5/8	5-9/16	3/4	2-1/32	1/8
0	P27001	33/64 ~ 11/16	2-1/2	3-5/8	3-47/64	5-21/32	3/4	2-1/32	1/8
0.5	P27051	39/64 ~ 11/16	2-1/2	3-5/8	3-47/64	5-21/32	3/4	2-1/32	1/8
1	P27102	45/64 ~ 15/16	6-5/8	8-3/32	8-15/64	10-3/8	1	2-9/32	1/8
1.5	P27152	55/64 ~ 15/16	6-5/8	8-3/32	8-15/64	10-3/8	1	2-9/32	1/8
2	P27203	31/32 ~ 1-3/8	7-3/8	9-1/16	9-13/64	11-11/32	1-1/4	2-9/32	1/4
2.5	P27253	1-3/16 ~ 1-3/8	7-3/8	9-1/16	9-13/64	11-11/32	1-1/4	2-9/32	1/4
3	P27303	1-13/32 ~ 1-7/8	8-1/4	10-5/16	10-1/2	13	1-1/2	2-11/16	1/4
4	P27404	1-29/32 ~ 2-9/16	9-1/8	11-1/16	11-1/4	13-3/4	1-1/2	2-11/16	1/4



EXTENDED LENGTH

Unit : Inch

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Flute Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F		G
Y	P28Y01	3/8 ~ 27/64	4-3/8	5-17/32	5-5/8	7-9/16	3/4	2-1/32	1/8
Z	P28Z01	7/16 ~ 1/2	4-3/8	5-17/32	5-5/8	7-9/16	3/4	2-1/32	1/8
O	P28001	33/64 ~ 11/16	4-1/2	5-5/8	5-47/64	7-21/32	3/4	2-1/32	1/8
0.5	P28051	39/64 ~ 11/16	4-1/2	5-5/8	5-47/64	7-21/32	3/4	2-1/32	1/8
1	P28102	45/64 ~ 15/16	10-5/8	12-3/32	12-15/64	14-3/8	1	2-9/32	1/8
1.5	P28152	55/64 ~ 15/16	10-5/8	12-3/32	12-15/64	14-3/8	1	2-9/32	1/8
2	P28203	31/32 ~ 1-3/8	11-3/8	13-1/16	13-13/64	15-11/32	1-1/4	2-9/32	1/4
2.5	P28253	1-3/32 ~ 1-3/8	11-3/8	13-1/16	13-13/64	15-11/32	1-1/4	2-9/32	1/4

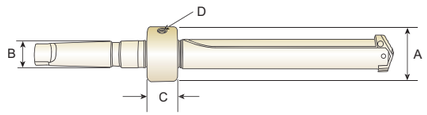
SPADE DRILLS

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT
HOLDER ACCESSORIES

TORX SCREWS AND PREMIUM TORX HAND DRIVERS

Series	Torx Screws		Torx Screws (Nylon Locking)		Premium Torx Drivers	Drill Range		Torque in Lbs. 5.5
	Item	PKG EDP No. (10 Screws)	Item	PKG EDP No. (10 Screws)	EDP No.	Inch	Metric	
						inch	mm	
Y	2XT7	J7Y001	2XT7N	J7Y006	J5Y007	3/8 – 27/64	9.5 – 11.0	5.5
Z	2LXT7	J7Z011	2LXT7N	J7Z016	J5Y007	7/16 – 1/2	11.5 – 12.5	5.5
0	2.5XT8	J80021	2.5XT8N	J80026	J50008	33/64 – 11/16	13.0 – 17.5	11.0
0.5	2.5LXT8	J80531	2.5LXT8N	J80536	J50008	39/64 – 11/16	15.5 – 17.5	11.0
1	3XT9	J91041	3XT9N	J91046	J51009	45/64 – 15/16	18.0 – 24.0	20.0
1.5	3LXT9	J91551	3LXT9N	J91556	J51009	55/64 – 15/16	22.0 – 24.0	20.0
2	4XT15	JB2061	4XT15N	JB2066	J52015	31/32 – 1-3/8	25.0 – 35.0	45.0
2.5	4XT15	JB2061	4XT15N	JB2066	J52015	31/32 – 1-3/8	30.0 – 35.0	45.0
3-4	5XT20	JC3081	5XT20N	JC3086	J53020	1-13/32 – 2-9/16	36.0 – 65.0	90.0
5-8	6XT25	JD5091	6XT25N	JD5096	J55025	2-1/2 – 4-1/2	64.0 – 114.0	155.0

NOTE : Replacement screws sold in packages (10 screws per package)



ROTARY COOLANT INDUCER (RCI) AND ACCESSORIES

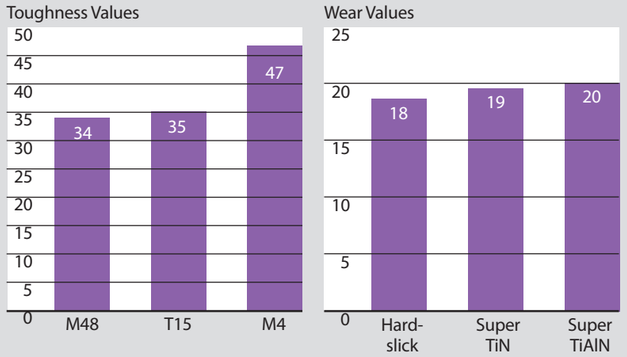
Complete with O'Rings, Flat Washers and Locking Clips.

EDP No.	I.D.	Pipe O.D.	Length	Tap	Thread for Driving Rod
	A	B	C	D	
PR1030	1-3/4	3/4	7/8	1/8	5/16 – NC
PR1031	2-1/8	1	1-1/8	1/8	5/16 – NC
PR1042	2-1/2	1-1/4	1-3/8	1/4	3/8 – NC
PR1043	3	1-3/4	1-3/8	1/4	3/8 – NC
PR1054	3-3/4	2-1/4	1-3/4	1/2	1/2 – NC

SPADE DRILLS RECOMMENDED CUTTING CONDITIONS

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT

SPADE BLADE INSERTS SELECTION & APPLICATIONS HSS



- **WHEN TO USE M4**
  - Loose or Manual Machines
  - If T15 Breaks
- **WHEN TO USE T15**
  - When M4 Life needs to be Extended
  - If M48 Breaks
- **WHEN TO USE M48**
  - Extend Life T15
- **WHEN TO USE SM POINT**
  - Reduce Thrust
  - Smoother Entry
  - Improve Hole Quality
  - Higher Speeds and Feeds

SPEEDS – FEED RECOMMENDATIONS (STD POINT-SM POINT, SV POINT)

STANDARD GEOMETRY
SM POINT, SV POINT

Material	Material Hardness (BHN)	SFM Surface Footage	Feed (IPR) 3/8 ~ 1/2		33/64 ~ 11/16		45/64 ~ 15/16		31/32~ 1-3/8		1-13/32 ~ 1-7/8		1-29/32 ~ 2-9/16		2-19/32 ~ 4-1/2	
Free Machining Steel 1118, 1215, 12L14	100 - 150	280	330	.007	.008	.010	.012	.013	.016	.016	.019	.020	.020	.023	.023	.028	.028
	150 - 200	260	305	.007	.007	.010	.011	.013	.015	.016	.017	.020	.020	.023	.023	.028	.028
	200 - 250	240	285	.007	.006	.010	.010	.013	.014	.016	.016	.020	.020	.023	.023	.028	.028
Low & Medium Carbon Steel 1018, 1040, 1140		240	280	.006	.007	.009	.010	.012	.014	.015	.017	.019	.019	.023	.023	.027	.027
		225	265	.005	.006	.008	.009	.010	.013	.014	.016	.018	.018	.021	.021	.024	.024
		210	245	.005	.006	.008	.009	.010	.013	.014	.016	.018	.018	.021	.021	.024	.024
		195	230	.004	.005	.007	.008	.009	.012	.012	.015	.016	.016	.019	.019	.022	.022
Alloy Steel 4140, 5140, 8640	125 - 175	210	245	.006	.007	.008	.010	.010	.014	.014	.017	.017	.017	.019	.019	.022	.022
	175 - 225	195	230	.005	.006	.008	.009	.010	.013	.014	.016	.017	.017	.019	.019	.022	.022
	225 - 275	180	215	.005	.006	.007	.009	.010	.013	.014	.016	.017	.017	.019	.019	.022	.022
	275 - 325	170	200	.004	.005	.006	.008	.009	.012	.012	.015	.015	.015	.017	.017	.020	.020
	325 - 375	155	185	.003	.004	.006	.007	.009	.011	.012	.014	.015	.015	.017	.017	.020	.020
High Strength Alloy Stee 4340, 4330V, 300M		110	130	.005	.006	.007	.009	.009	.011	.010	.013	.014	.014	.017	.017	.020	.020
		85	105	.004	.005	.007	.008	.009	.010	.010	.012	.014	.014	.017	.017	.020	.020
		70	85	.003	.004	.006	.007	.008	.009	.009	.011	.012	.012	.015	.015	.018	.018
Structural Steel A36, A285, A516	100 - 150	200	240	.006	.008	.010	.011	.012	.015	.014	.017	.018	.018	.021	.021	.026	.026
	150 - 250	170	195	.005	.006	.009	.010	.010	.013	.012	.015	.016	.016	.019	.019	.024	.024
	250 - 350	140	165	.004	.005	.008	.009	.009	.012	.010	.013	.014	.014	.017	.017	.020	.020
High Temp, Alloy Hastelloy B, Inconel 600		40	50	.003	.004	.006	.007	.007	.009	.008	.011	.010	.012	.012	.015	.015	.017
		35	45	.003	.004	.006	.006	.007	.008	.008	.010	.010	.010	.012	.012	.015	.014
Stainless Steel 303, 416, 420, 17-4 PH	135 - 185	105	125	.006	.007	.008	.009	.009	.012	.011	.014	.014	.014	.016	.016	.020	.020
	185 - 275	90	110	.005	.006	.007	.008	.008	.011	.010	.012	.012	.012	.014	.014	.018	.018
Tool Steel H-13, H021, A04, 0-2, S-3		110	130	.004	.004	.006	.007	.008	.010	.010	.012	.012	.012	.015	.015	.017	.017
		90	110	.004	.004	.006	.007	.008	.010	.010	.012	.012	.012	.015	.015	.017	.017
Aluminum	30	850	-	.008	-	.013	-	.016	-	.020	-	.022	.022	.025	.025	.025	.025
	180	450	-	.008	-	.013	-	.016	-	.018	-	.022	.022	.025	.025	.025	.025
Cast Iron Gray, Ductile, Nodular		250	295	.007	.008	.012	.012	.016	.016	.020	.020	.024	.024	.027	.027	.030	.030
		225	265	.006	.007	.011	.011	.014	.015	.018	.019	.022	.022	.025	.025	.028	.028
		195	230	.006	.006	.009	.009	.012	.013	.016	.017	.018	.018	.021	.021	.024	.024
		165	195	.005	.005	.007	.008	.009	.011	.012	.014	.014	.014	.017	.017	.020	.020
		135	160	.004	.005	.006	.007	.007	.010	.009	.011	.012	.012	.014	.014	.016	.016

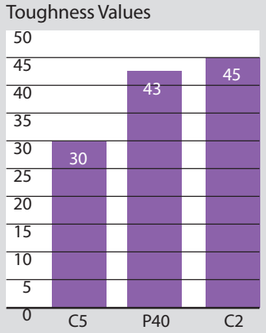
The recommendations for speed, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points. Speed and feed reduction (20% reduction in speed and 10% reduction in feed) are recommended.

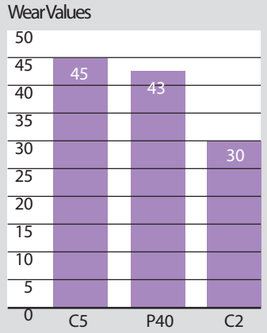
CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

SPADE DRILLS RECOMMENDED CUTTING CONDITIONS

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT

SPADE BLADE INSERTS SELECTION & APPLICATIONS CARBIDE





If C5 chips try C2 at 10% – 20% lower S.F.M. than C5 rating

Grade	Geometry and Application	Stocked Coatings
P40 & C5	Steel Cutting	Super TiN TiAlN
C3	Cast Iron	Super TiN TiAlN
P40 & C2	Ductile Iron Stainless Steel Aluminum Exotic Alloys	Super TiN TiAlNE

Note : Carbide has a lower transverse rupture strength than HSS and is prone to chipping and breakage.

Recutting of chips or lack of rigidity can cause breakage.

Check Coolant Recommendations Chart on Page 461 for flow rates.

SPEEDS – FEED RECOMMENDATIONS (STD POINT-SM POINT, SV POINT)

STANDARD GEOMETRY
SM POINT, SV POINT

Material	Material Hardness (BHN)	SFM Surface Footage	Feed (IPR) 3/8 ~ 1/2		33/64 ~ 11/16		45/64 ~ 15/16		31/32 ~ 1-3/8		1-13/32 ~ 1-7/8		
Free Machining Steel 1118, 1215, 12L14	100 - 150	420	485	.006	.008	.009	.012	.012	.016	.015	.019	.019	-
	150 - 200	360	420	.006	.007	.008	.011	.011	.015	.013	.017	.017	-
	200 - 250	340	395	.005	.006	.008	.010	.010	.014	.012	.016	.015	-
Low & Medium Carbon Steel 1018, 1040, 1140	125 - 175	340	395	.005	.007	.008	.010	.010	.014	.014	.017	.017	-
	175 - 225	310	360	.005	.006	.007	.009	.008	.013	.012	.016	.016	-
	225 - 275	270	315	.004	.006	.007	.009	.008	.013	.012	.016	.015	-
	275 - 325	230	270	.004	.005	.006	.008	.006	.012	.010	.015	.014	-
Alloy Steel 4140, 5140, 8640	125 - 175	325	380	.005	.007	.008	.010	.010	.014	.013	.017	.016	-
	175 - 225	300	350	.005	.006	.007	.009	.009	.013	.012	.016	.015	-
	225 - 275	270	315	.004	.006	.007	.009	.009	.013	.012	.016	.015	-
	275 - 325	250	290	.004	.005	.006	.008	.008	.012	.011	.015	.014	-
	325 - 375	220	260	.003	.004	.005	.007	.008	.011	.010	.014	.013	-
High Strength Alloy Stee 4340, 4330V, 300M	225 - 300	200	235	.005	.006	.007	.009	.008	.011	.010	.013	.014	-
	300 - 350	180	210	.004	.005	.006	.008	.007	.010	.009	.012	.012	-
	350 - 400	160	190	.003	.004	.005	.007	.006	.009	.008	.011	.010	-
Structural Steel A36, A285, A516	100 - 150	310	360	.006	.008	.010	.011	.011	.015	.012	.017	.016	-
	150 - 250	250	290	.005	.006	.008	.010	.009	.013	.011	.015	.015	-
	250 - 350	230	270	.004	.005	.007	.009	.008	.012	.009	.013	.013	-
High Temp, Alloy Hastelloy B, Inconel 600	140 - 220	80	125	.003	.004	.006	.007	.007	.009	.009	.011	.011	-
	220 - 310	60	100	.003	.004	.005	.006	.006	.008	.008	.010	.010	-
Stainless Steel 303, 416, 420, 17-4 PH	135 - 185	210	245	.006	.007	.008	.009	.009	.012	.011	.014	.013	-
	185 - 275	160	190	.005	.006	.007	.008	.008	.011	.010	.012	.011	-
Tool Steel H-13, H021, A04, 0-2, S-3	150 - 200	220	260	.003	.004	.005	.007	.007	.010	.009	.012	.011	-
	200 - 250	170	200	.003	.004	.005	.007	.007	.010	.009	.012	.011	-
Aluminum	30	1500	-	.008	-	.013	-	.016	-	.020	-	.022	-
	180	1000	-	.007	-	.011	-	.014	-	.018	-	.020	-
Cast Iron Gray, Ductile, Nodular	120 - 150	460	505	.006	.008	.009	.012	.011	.015	.015	.019	.020	-
	150 - 200	400	485	.005	.007	.008	.011	.010	.013	.014	.017	.018	-
	200 - 220	360	435	.005	.006	.007	.009	.008	.012	.012	.015	.015	-
	220 - 260	310	375	.004	.005	.006	.008	.007	.011	.010	.013	.013	-
	260 - 320	270	340	.004	.005	.005	.007	.006	.010	.008	.011	.011	-

The recommendations for speed, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points. Speed and feed reduction (20% reduction in speed and 10% reduction in feed) are recommended.

SPADE DRILLS

RECOMMENDED CUTTING CONDITIONS

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT

SUPER COBALT (T15) FLAT BOTTOM

Material	Material Hardness (BHN)	TiN	TiAlN	3/8 ~ 1/2	33/64 ~ 11/16	45/64 ~ 15/16	31/32 ~ 1-3/8
Free machining Steel 1213, 12L13, 1215 12L14, 1118	100 - 150	165	220	0.005	0.007	0.010	0.013
	150 - 200	150	215	0.005	0.007	0.010	0.013
	200 - 250	135	190	0.004	0.007	0.010	0.012
Low Carbon Steel 1015, 1020, 1140, 1025	85 - 125	140	195	0.005	0.007	0.009	0.012
	125 - 175	135	190	0.005	0.007	0.009	0.012
	175 - 225	125	180	0.004	0.006	0.008	0.011
	225 - 275	115	175	0.004	0.006	0.008	0.011
Medium Carbon Steel 1035, 1050, 1045 1055, 1140	125 - 175	135	195	0.004	0.007	0.009	0.011
	175 - 225	125	180	0.004	0.006	0.007	0.011
	225 - 275	115	165	0.004	0.006	0.007	0.011
	275 - 325	105	150	0.003	0.005	0.007	0.009
Structural Steel A36, A516, A182	100 - 150	115	165	0.004	0.007	0.009	0.011
	150 - 250	100	140	0.004	0.007	0.008	0.009
	250 - 350	80	115	0.003	0.006	0.007	0.008
Cast Iron / S,G Iron A48-76 GR30/GR45 A536-72 60-40-18 A220-76 GR40010	120 - 150	145	215	0.005	0.010	0.014	0.016
	150 - 200	130	190	0.005	0.008	0.011	0.016
	200 - 220	110	165	0.005	0.008	0.010	0.014
	220 - 260	95	150	0.004	0.006	0.008	0.010
	260 - 320	80	120	0.004	0.005	0.006	0.008
Alloy Steel 8620, 4130, 4137 4140, 6150	125 - 175	125	165	0.005	0.006	0.008	0.011
	175 - 225	115	150	0.004	0.006	0.008	0.011
	225 - 275	105	145	0.004	0.005	0.007	0.011
	275 - 325	100	140	0.003	0.005	0.007	0.009
	325 - 375	90	120	0.003	0.005	0.007	0.009
Tool Steel H13, H21, A2, S1	150 - 200	65	90	0.003	0.005	0.006	0.008
	200 - 250	45	75	0.003	0.005	0.006	0.008
High Temp. Alloy Hastelloy B,Inconel	140 - 220	20	30	0.003	0.005	0.006	0.008
	220 - 310	15	25	0.003	0.004	0.006	0.006
	225 - 300	65	90	0.004	0.006	0.007	0.008
High Strength Alloy 9840, 4340, 4330V	300 - 350	45	70	0.003	0.006	0.007	0.008
	350 - 400	40	60	0.003	0.005	0.006	0.007
Aluminium 2014, 6061, 7075	30	520	700	0.007	0.011	0.014	0.017
	180	255	390	0.007	0.011	0.014	0.016
Stainless Steel 310, 316, 410, 330	135 - 185	60	90	0.005	0.007	0.008	0.009
	185 - 275	50	80	0.004	0.006	0.007	0.009

RPM = revolution per minute (rev/min)
SFM = surface feet per minute (ft/min)
DIA = diameter of drill (inch)
IPR = feed rate (in/rev)
IPM = inch per minute penetration rate

* Formulas :

$SFM = (RPM)\cdot(.262)\cdot(DIA.)$

$IPM = (RPM)\cdot(IPR)$

$RPM = \frac{(SFM)\cdot(3.82)}{(DIA.)}$

The recommendations for speeds, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points. Speed and feed reductions (20% reduction in speed and 10% reduction in feed) are recommended.

SPADE DRILLS

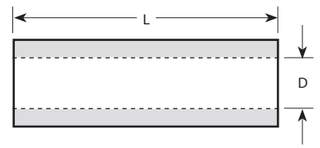
RECOMMENDED CUTTING CONDITIONS

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT

SPADE BLADE INSERTS HORSEPOWER CONSUMPTION RATE

Metal Removal Rates (MRR)
Example : 1.50 Dia. Drill @ 6.412 I.P.M.

Volume of Cylinder Method : D^2x.785xL
D = Hole Diameter
L = Length in I.P.M.
.785 is Constant



Material Drilled 4140 250 BHN :
Cutting Data : 180 S.F.M. (458 R.P.M.) x .014 Feed per Rev.

458 R.P.M. x .014 = 6.412 I.P.M. (L)

D^2 $(1.5)^2$ x .785 x L (6.412) = 11.3 C.U.In./ Min (MRR)

MRR of 11.3 x 1.4 Energy Value = 15.8HP.

metal removal rates (mrR)

- Cubic inches of metal removal per unit of horsepower.
- Unit horsepower (HP_u) is the amount of power to remove a volume of metal in a period of time.
  - HP_u = power to cut 1 cubic inch per minute – found in tables

Average Unit Horsepower Values of Energy Per Unit Volume

Material	BHN	HP_u (HP/(in³/min.))
Carbon Steels	150-200	1.0
	200-250	1.4
	250-350	1.6
Leaded Steels	150-175	0.7
Cast Irons	125-190	0.5
	190-250	1.6
Stainless Steels	135-275	1.5
Aluminum Alloys	50-100	0.3
Magnesium Alloys	40-90	0.2
Copper	125-140	0.7
Copper Alloys	100-150	0.7

SPADE DRILLS

RECOMMENDED CUTTING CONDITIONS

2-FLUTE EXCHANGEABLE DRILLS WITH INTERNAL COOLANT

COOLANT RECOMMENDATIONS (SPADE BLADE)

Material	Material Hardness (BHN)	Coolant Pressure (PSi) / Coolant Volumetric Flowrate (GPM)						
		3/8 ~ 1/2	33/64 ~ 11/16	23/32 ~ 1	1 ~ 1-1/4	1-1/4 ~ 2	2 ~ 3	3 ~ 4
Free Machining Steel 1118, 1215, 12L14, etc.	100 – 250	175-185 2.5-2.6	100-120 2.8-3.0	105-140 4.4-5.2	80-115 7-8	75-100 12-14	40-50 30-33	65-90 38-44
Low Carbon Steel 1010, 1020, 1025, 1522, etc.	85 – 275	165-170 2.4-2.5	75-90 2.4-2.6	75-95 3.7-4.2	60-80 6-7	55-75 11-12	30-40 26-30	50-65 33-38
Medium Carbon Steel 1030,1040,1050,1527,1140,1151,etc.	125 – 325	160-165 2.3-2.4	70-85 2.3-2.6	70-90 3.6-4.1	55-75 5-6	50-70 10-12	30-40 26-30	50-65 33-38
Alloy Steel 4140, 5140, 8640, etc.	125 – 375	160-165 2.3-2.4	66-75 2.2-2.4	65-80 3.5-3.9	50-70 5-6	45-60 10-11	30-35 26-28	40-50 30-33
High Strength Alloy 4340, 4330V, 300M, etc.	225 – 400	150-155 2.3-2.4	55-60 2.1-2.2	45-50 2.9-3.1	25-30 4-5	25-30 7-8	20-25 21-23	25-30 23-26
Structural Steel A36, A285, A516, etc.	100 – 350	160-165 2.3-2.4	75-85 2.4-2.6	65-80 3.5-3.9	40-55 5-6	40-50 9-10	25-30 23-26	40-50 30-33
High Temp. Alloy Hastelloy B, Inconel 600, etc.	140 – 310	150-155 2.3-2.4	60-65 2.2-2.3	50-55 3.1-3.2	30-35 4-5	25-30 7-8	25-30 23-26	- -
Stainless Steel 301, 316, 330, 17-4PH, etc.	135 – 275	165-170 2.4-2.5	70-85 2.3-2.6	65-75 3.5-3.7	40-55 5-6	40-50 9-10	25-30 23-26	35-45 28-31
Tool Steel H-13, H-21, A-4, 0-2, S-3, etc.	150 – 250	150-155 2.3-2.4	55-60 2.1-2.2	45-50 2.9-3.1	25-30 4-5	25-30 7-8	20-25 21-23	25-30 23-26
Aluminum	30 – 180	190-210 2.6-2.7	140-180 3.3-3.7	150-200 5.3-6.1	115-160 8-9	90-125 14-16	40-50 30-33	60-80 36-42
Cast Iron	120 – 320	155-160 2.3-2.4	60-65 2.2-2.3	50-60 3.1-3.3	30-40 4-5	30-35 8-9	25-30 23-26	30-35 26-28

Being the best through innovation

SOLID CARBIDE & HSS

REAMERS

- STRAIGHT SHANK CHUCKING REAMERS
- STRAIGHT FLUTE

SELECTION GUIDE

YG HOLEMAKING TOOLS

CARBIDE, HSS
REAMERS

STRAIGHT SHANK CHUCKING REAMERS -STRAIGHT FLUTE

SERIES	K6106	K6101/K6105
FLUTE TYPE	Straight Flute	
TOOL MATERIAL	HSS	
CUTTING DIRECTION	Right Hand Cut	
SIZE MIN	.0135	
SIZE MAX	.7500	
PAGE	A354~A362	
SURFACE TREATMENT	Bright	

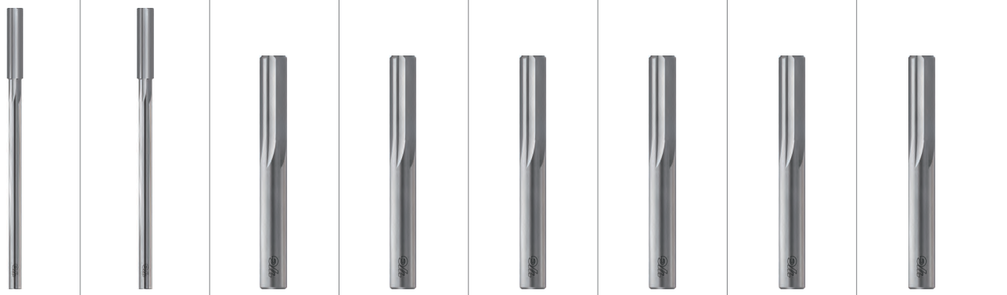
Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A390

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	K6106	K6101/K6105
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		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		Hardened	550	55		
	39			Hardened	630	60		
	40	Chilled Cast Iron		Cast	400	42		
	41	Hardened Cast Iron		Hardened	550	55		

K6103	K6102	K9106	K9101	K9103	K9102	K9104	K9107
Straight Flute		Straight Flute					
HSS		Carbide					
Right Hand Cut		Right Hand Cut					
.0135		.0280					.0355
.7500		.6299					.5020
A354~A362		A363~A368					A369~A389
Bright							



K6103	K6102	K9106	K9101	K9103	K9102	K9104	K9107		
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		○	○	○	○	○	○	5	
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○	○	○	○	○	○	○	○	28	
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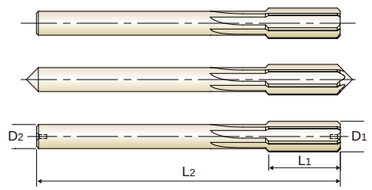
YG REAMER

Metric **K6106** SERIES
Fractional **K6101/K6105** SERIES
Letter **K6103** SERIES
Wire Gauge **K6102** SERIES

HSS, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

▶Precision reamers for a variety of materials, applications and sizes that ensure close hole tolerance and excellent surface finish
▶Straight Flute, Right Hand Cut
▶Type of Center
Up to .0393" : Non-Center
Over .0393" to .1799" : External
Over .1799" : Internal



HSS 45°

p.A402

Hole type

Unit : inch

EDP No.	Nominal Size					Shank Diameter	Flute Length	Overall Length	No. of Flute
	Metric	Fractional	Letter	Wire Gauge	Decimal	D2	L1	L2	
	D1								
K610200135				#80	.0135	**.0135**	3/8	3/4	2
K610200145				#79	.0145	**.0145**	3/8	3/4	2
K610100156		1/64			.0156	**.0156**	3/8	3/4	2
K610200160				#78	.0160	**.0160**	3/8	7/8	2
K610200180				#77	.0180	**.0180**	3/8	7/8	2
K610200200				#76	.0200	**.0200**	3/8	7/8	2
K610200210				#75	.0210	**.0210**	1/2	1	3
K610200225				#74	.0225	**.0225**	1/2	1	3
K610200240				#73	.0240	**.0240**	1/2	1-1/8	3
K610200250				#72	.0250	**.0250**	1/2	1-1/8	3
K610200260				#71	.0260	**.0260**	1/2	1-1/4	3
K610200280				#70	.0280	**.0280**	1/2	1-1/4	3
K610200292				#69	.0292	**.0292**	1/2	1-3/8	3
K610200310				#68	.0310	**.0310**	1/2	1-3/8	3
K610100312		1/32			.0312	**.0312**	1/2	1-3/8	3
K610200320				#67	.0320	**.0320**	1/2	1-3/8	3
K610200330				#66	.0330	**.0330**	1/2	1-3/8	3
K610200350				#65	.0350	**.0350**	1/2	1-1/2	3
K610200360				#64	.0360	**.0360**	1/2	1-1/2	3
K610200370				#63	.0370	**.0370**	1/2	1-1/2	3
K610200380				#62	.0380	**.0380**	1/2	1-1/2	3
K610200390				#61	.0390	**.0390**	1/2	1-1/2	3
K610600394	1.00				.0394	**.0394**	1/2	2-1/2	4
K610200400				#60	.0400	**.0390**	1/2	2-1/2	4

▶ NEXT PAGE

O.D. Tolerance	Shank Dia. Tolerance
Up to 1/2 Inch : +.0002"/-.0000" Over 1/2 to 5/8 Inch : +.0003"/-.0000" Over 5/8 to 1 Inch : +.0004"/+.0001"	Up to .4355" : +.0000"/-.0010" Over .4355" : +.0000"/-.0015"

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

YG REAMER

Metric **K6106** SERIES
Fractional **K6101/K6105** SERIES
Letter **K6103** SERIES
Wire Gauge **K6102** SERIES

HSS, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

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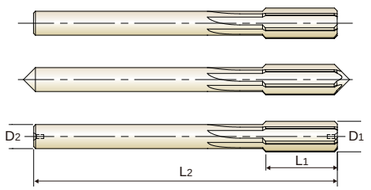

HSS 45°

p.A402

Hole type

Unit : inch

EDP No.	Nominal Size					Shank Diameter	Flute Length	Overall Length	No. of Flute
	Metric	Fractional	Letter	Wire Gauge	Decimal	D2	L1	L2	
	D1								
K610200410				#59	.0410	**.0390**	1/2	2-1/2	4
K610200420				#58	.0420	**.0390**	1/2	2-1/2	4
K610200430				#57	.0430	**.0390**	1/2	2-1/2	4
K610200465				#56	.0465	**.0455**	1/2	2-1/2	4
K610100469		3/64			.0469	**.0455**	1/2	2-1/2	4
K610200520				#55	.0520	**.0510**	1/2	2-1/2	4
K610200550				#54	.0550	**.0510**	1/2	2-1/2	4
K610600591	1.50				.0591	**.0510**	1/2	2-1/2	4
K610200595				#53	.0595	**.0585**	1/2	2-1/2	4
K610100625		1/16			.0625	**.0585**	1/2	2-1/2	4
K610200635				#52	.0635	**.0585**	1/2	2-1/2	4
K610200670				#51	.0670	**.0660**	3/4	3	4
K610200700				#50	.0700	**.0660**	3/4	3	4
K610200730				#49	.0730	**.0660**	3/4	3	4
K610200760				#48	.0760	**.0720**	3/4	3	4
K610100781		5/64			.0781	**.0720**	3/4	3	4
K610200785				#47	.0785	**.0720**	3/4	3	4
K610600787	2.00				.0787	**.0720**	3/4	3	4
K610200810				#46	.0810	**.0771**	3/4	3	4
K610200820				#45	.0820	**.0771**	3/4	3	4
K610200860				#44	.0860	**.0810**	3/4	3	4
K610200890				#43	.0890	**.0810**	3/4	3	4
K610200935				#42	.0935	**.0880**	3/4	3	4
K610100938		3/32			.0938	**.0880**	3/4	3	4

▶ NEXT PAGE

O.D. Tolerance	Shank Dia. Tolerance
Up to 1/2 Inch : +.0002"/-.0000" Over 1/2 to 5/8 Inch : +.0003"/-.0000" Over 5/8 to 1 Inch : +.0004"/+.0001"	Up to .4355" : +.0000"/-.0010" Over .4355" : +.0000"/-.0015"

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

YG REAMER

Metric **K6106** SERIES
Fractional **K6101/K6105** SERIES
Letter **K6103** SERIES
Wire Gauge **K6102** SERIES

HSS, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

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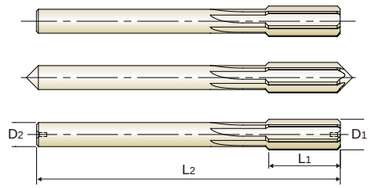

HSS 45° p.A402

Hole type 

Unit : inch

EDP No.	Nominal Size					Shank Diameter	Flute Length	Overall Length	No. of Flute
	Metric	Fractional	Letter	Wire Gauge	Decimal	D2	L1	L2	
	D1								
K610200960				#41	.0960	**.0928**	7/8	3-1/2	4
K610200980				#40	.0980	**.0928**	7/8	3-1/2	4
K610600984	2.50				.0984	**.0928**	7/8	3-1/2	4
K610200995				#39	.0995	**.0928**	7/8	3-1/2	4
K610201015				#38	.1015	**.0950**	7/8	3-1/2	4
K610201040				#37	.1040	**.0950**	7/8	3-1/2	4
K610201065				#36	.1065	**.1030**	7/8	3-1/2	4
K610101094		7/64			.1094	**.1030**	7/8	3-1/2	4
K610201100				#35	.1100	**.1030**	7/8	3-1/2	4
K610201110				#34	.1110	**.1055**	7/8	3-1/2	4
K610201130				#33	.1130	**.1055**	7/8	3-1/2	4
K610201160				#32	.1160	**.1120**	7/8	3-1/2	4
K610601181	3.00				.1181	**.1120**	7/8	3-1/2	4
K610201200				#31	.1200	**.1120**	7/8	3-1/2	4
K610501240		0.1240 U/S			.1240	**.1190**	7/8	3-1/2	4
K610101250		1/8			.1250	**.1190**	7/8	3-1/2	4
K610501260		0.1260 O/S			.1260	**.1190**	7/8	3-1/2	4
K610201285				#30	.1285	**.1190**	7/8	3-1/2	4
K610201360				#29	.1360	**.1275**	1	4	4
K610601378	3.50				.1378	**.1350**	1	4	4
K610201405				#28	.1405	**.1350**	1	4	4
K610101406		9/64			.1406	**.1350**	1	4	4
K610201440				#27	.1440	**.1350**	1	4	4
K610201470				#26	.1470	**.1430**	1	4	4

▶ NEXT PAGE

O.D. Tolerance	Shank Dia. Tolerance
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◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

YG REAMER

Metric **K6106** SERIES
Fractional **K6101/K6105** SERIES
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Wire Gauge **K6102** SERIES

HSS, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

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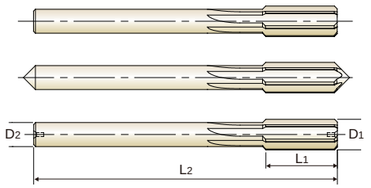

HSS 45° p.A402

Hole type 

Unit : inch

EDP No.	Nominal Size					Shank Diameter	Flute Length	Overall Length	No. of Flute
	Metric	Fractional	Letter	Wire Gauge	Decimal	D2	L1	L2	
	D1								
K610201495				#25	.1495	**.1430**	1	4	4
K610201520				#24	.1520	**.1460**	1	4	4
K610201540				#23	.1540	**.1460**	1	4	4
K610101562		5/32			.1562	**.1510**	1	4	4
K610201570				#22	.1570	**.1510**	1	4	6
K610601575	4.00				.1575	**.1530**	1	4	6
K610201590				#21	.1590	**.1530**	1-1/8	4-1/2	6
K610201610				#20	.1610	**.1530**	1-1/8	4-1/2	6
K610201660				#19	.1660	**.1595**	1-1/8	4-1/2	6
K610201695				#18	.1695	**.1595**	1-1/8	4-1/2	6
K610101719		11/64			.1719	**.1645**	1-1/8	4-1/2	6
K610201730				#17	.1730	**.1645**	1-1/8	4-1/2	6
K610201770				#16	.1770	**.1704**	1-1/8	4-1/2	6
K610601772	4.50				.1772	**.1704**	1-1/8	4-1/2	6
K610201800				#15	.1800	**.1755**	1-1/8	4-1/2	6
K610201820				#14	.1820	**.1755**	1-1/8	4-1/2	6
K610201850				#13	.1850	**.1805**	1-1/8	4-1/2	6
K610501865		0.1865 U/S			.1865	**.1805**	1-1/8	4-1/2	6
K610101875		3/16			.1875	**.1805**	1-1/8	4-1/2	6
K610501885		0.1885 O/S			.1885	**.1805**	1-1/8	4-1/2	6
K610201890				#12	.1890	**.1805**	1-1/8	4-1/2	6
K610201910				#11	.1910	**.1860**	1-1/4	5	6
K610201935				#10	.1935	**.1860**	1-1/4	5	6
K610201960				#9	.1960	**.1895**	1-1/4	5	6

▶ NEXT PAGE

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◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

YG REAMER

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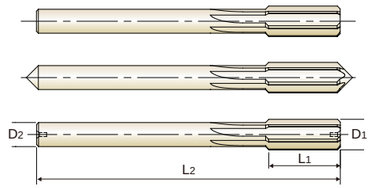


HSS 45° p.A402

Hole type 

Unit : inch

EDP No.	Nominal Size					Shank Diameter	Flute Length	Overall Length	No. of Flute
	Metric	Fractional	Letter	Wire Gauge	Decimal	D2	L1	L2	
	D1								
K610601969	5.00				.1969	**.1895**	1-1/4	5	6
K610201990				#8	.1990	**.1895**	1-1/4	5	6
K610202010				#7	.2010	**.1945**	1-1/4	5	6
K610102031		13/64			.2031	**.1945**	1-1/4	5	6
K610202040				#6	.2040	**.1945**	1-1/4	5	6
K610202055				#5	.2055	**.2016**	1-1/4	5	6
K610202090				#4	.2090	**.2016**	1-1/4	5	6
K610202130				#3	.2130	**.2075**	1-1/4	5	6
K610602165	5.50				.2165	**.2075**	1-1/4	5	6
K610102188		7/32			.2188	**.2075**	1-1/4	5	6
K610202210				#2	.2210	**.2173**	1-1/2	6	6
K610202280				#1	.2280	**.2173**	1-1/2	6	6
K610302340			A		.2340	**.2265**	1-1/2	6	6
K610102344		15/64			.2344	**.2265**	1-1/2	6	6
K610602362	6.00				.2362	**.2265**	1-1/2	6	6
K610302380			B		.2380	**.2329**	1-1/2	6	6
K610302420			C		.2420	**.2329**	1-1/2	6	6
K610302460			D		.2460	**.2329**	1-1/2	6	6
K610502490		0.2490 U/S			.2490	**.2405**	1-1/2	6	6
K610102500		1/4			.2500	**.2405**	1-1/2	6	6
K610502510		0.2510 O/S			.2510	**.2405**	1-1/2	6	6
K610602559	6.50				.2559	**.2405**	1-1/2	6	6
K610302570			F		.2570	**.2485**	1-1/2	6	6
K610302610			G		.2610	**.2485**	1-1/2	6	6

▶ NEXT PAGE

O.D. Tolerance	Shank Dia. Tolerance
Up to 1/2 Inch : +.0002"/-.0000" Over 1/2 to 5/8 Inch : +.0003"/-.0000" Over 5/8 to 1 Inch : +.0004"/+.0001"	Up to .4355" : +.0000"/-.0010" Over .4355" : +.0000"/-.0015"

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○		◎	○			○		○	○	○	○	○	○	○	○	○

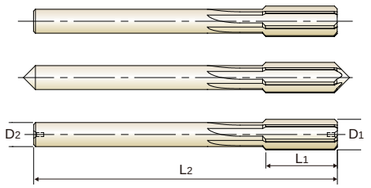
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

YG REAMER

Metric **K6106** SERIES
Fractional **K6101/K6105** SERIES
Letter **K6103** SERIES
Wire Gauge **K6102** SERIES

HSS, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

▶Precision reamers for a variety of materials, applications and sizes that ensure close hole tolerance and excellent surface finish
▶Straight Flute, Right Hand Cut
▶Type of Center
Up to .0393" : Non-Center
Over .0393" to .1799" : External
Over .1799" : Internal



HSS 45° p.A402

Hole type 

Unit : inch

EDP No.	Nominal Size					Shank Diameter	Flute Length	Overall Length	No. of Flute
	Metric	Fractional	Letter	Wire Gauge	Decimal	D2	L1	L2	
	D1								
K610102656		17/64			.2656	**.2485**	1-1/2	6	6
K610302660			H		.2660	**.2485**	1-1/2	6	6
K610302720			I		.2720	**.2485**	1-1/2	6	6
K610602756	7.00				.2756	**.2485**	1-1/2	6	6
K610302770			J		.2770	**.2485**	1-1/2	6	6
K610302810			K		.2810	**.2485**	1-1/2	6	6
K610102812		9/32			.2812	**.2485**	1-1/2	6	6
K610302900			L		.2900	**.2792**	1-1/2	6	6
K610302950			M		.2950	**.2792**	1-1/2	6	6
K610602953	7.50				.2953	**.2792**	1-1/2	6	6
K610102969		19/64			.2969	**.2792**	1-1/2	6	6
K610303020			N		.3020	**.2792**	1-1/2	6	6
K610503115		0.3115 U/S			.3115	**.2792**	1-1/2	6	6
K610103125		5/16			.3125	**.2792**	1-1/2	6	6
K610503135		0.3135 O/S			.3135	**.2792**	1-1/2	6	6
K610603150	8.00				.3150	**.2792**	1-1/2	6	6
K610303160			O		.3160	**.2792**	1-1/2	6	6
K610303230			P		.3230	**.2792**	1-1/2	6	6
K610103281		21/64			.3281	**.2792**	1-1/2	6	6
K610303320			Q		.3320	**.2792**	1-1/2	6	6
K610603346	8.50				.3346	**.2792**	1-1/2	6	6
K610303390			R		.3390	**.2792**	1-1/2	6	6
K610103438		11/32			.3438	**.2792**	1-1/2	6	6
K610303480			S		.3480	**.3105**	1-3/4	7	6

▶ NEXT PAGE

O.D. Tolerance	Shank Dia. Tolerance
Up to 1/2 Inch : +.0002"/-.0000" Over 1/2 to 5/8 Inch : +.0003"/-.0000" Over 5/8 to 1 Inch : +.0004"/+.0001"	Up to .4355" : +.0000"/-.0010" Over .4355" : +.0000"/-.0015"

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○		◎	○			○		○	○	○	○	○	○	○	○	○

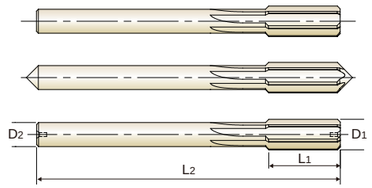
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

YG REAMER

Metric **K6106** SERIES
Fractional **K6101/K6105** SERIES
Letter **K6103** SERIES
Wire Gauge **K6102** SERIES

HSS, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

- ▶Precision reamers for a variety of materials, applications and sizes that ensure close hole tolerance and excellent surface finish
- ▶Straight Flute, Right Hand Cut
- ▶Type of Center
  Up to .0393" : Non-Center
  Over .0393" to .1799" : External
  Over .1799" : Internal



HSS 45° p.A402

Hole type 

Unit : inch

EDP No.	Nominal Size					Shank Diameter	Flute Length	Overall Length	No. of Flute
	Metric	Fractional	Letter	Wire Gauge	Decimal	D2	L1	L2	
			D1						
K610603543	9.00				.3543	**.3105**	1-3/4	7	6
K610303580			T		.3580	**.3105**	1-3/4	7	6
K610103594		23/64			.3594	**.3105**	1-3/4	7	6
K610303680			U		.3680	**.3105**	1-3/4	7	6
K610503740		0.3740 U/S			.3740	**.3105**	1-3/4	7	6
K610103750		3/8			.3750	**.3105**	1-3/4	7	6
K610503760		0.3760 O/S			.3760	**.3105**	1-3/4	7	6
K610303770			V		.3770	**.3105**	1-3/4	7	6
K610303860			W		.3860	**.3105**	1-3/4	7	6
K610103906		25/64			.3906	**.3105**	1-3/4	7	6
K610603937	10.00				.3937	**.3105**	1-3/4	7	6
K610303970			X		.3970	**.3105**	1-3/4	7	6
K610304040			Y		.4040	**.3105**	1-3/4	7	6
K610104062		13/32			.4062	**.3105**	1-3/4	7	6
K610304130			Z		.4130	**.3730**	1-3/4	7	6
K610604134	10.50				.4134	**.3730**	1-3/4	7	6
K610104219		27/64			.4219	**.3730**	1-3/4	7	6
K610604331	11.00				.4331	**.3730**	1-3/4	7	6
K610504365		0.4365 U/S			.4365	**.3730**	1-3/4	7	6
K610104375		7/16			.4375	**.3730**	1-3/4	7	6
K610504385		0.4385 O/S			.4385	**.3730**	1-3/4	7	6
K610604528	11.50				.4528	**.3730**	1-3/4	7	6
K610104531		29/64			.4531	**.3730**	1-3/4	7	6
K610104688		15/32			.4688	**.3730**	1-3/4	7	6

▶ NEXT PAGE

O.D. Tolerance	Shank Dia. Tolerance
Up to 1/2 Inch : +.0002"/-.0000" Over 1/2 to 5/8 Inch : +.0003"/-.0000" Over 5/8 to 1 Inch : +.0004"/+.0001"	Up to .4355" : +.0000"/-.0010" Over .4355" : +.0000"/-.0015"

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○		◎	○			○		○	○	○	○	○	○	○	○	○

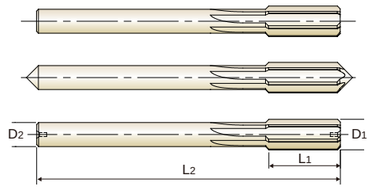
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

YG REAMER

Metric **K6106** SERIES
Fractional **K6101/K6105** SERIES
Letter **K6103** SERIES
Wire Gauge **K6102** SERIES

HSS, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

- ▶Precision reamers for a variety of materials, applications and sizes that ensure close hole tolerance and excellent surface finish
- ▶Straight Flute, Right Hand Cut
- ▶Type of Center
  Up to .0393" : Non-Center
  Over .0393" to .1799" : External
  Over .1799" : Internal



HSS 45° p.A402

Hole type 

Unit : inch

EDP No.	Nominal Size					Shank Diameter	Flute Length	Overall Length	No. of Flute
	Metric	Fractional	Letter	Wire Gauge	Decimal	D2	L1	L2	
			D1						
K610604724	12.00				.4724	**.4355**	2	8	6
K610104844		31/64			.4844	**.4355**	2	8	6
K610604921	12.50				.4921	**.4355**	2	8	6
K610504990		0.4990 U/S			.4990	**.4355**	2	8	6
K610105000		1/2			.5000	**.4355**	2	8	6
K610505010		0.5010 O/S			.5010	**.4355**	2	8	6
K610605118	13.00				.5118	**.4355**	2	8	6
K610105156		33/64			.5156	**.4355**	2	8	6
K610105313		17/32			.5312	**.4355**	2	8	6
K610605315	13.50				.5315	**.4355**	2	8	6
K610105469		35/64			.5469	**.4355**	2	8	8
K610605512	14.00				.5512	**.4355**	2	8	8
K610105625		9/16			.5625	**.4355**	2	8	8
K610605709	14.50				.5709	**.4355**	2	8	8
K610105781		37/64			.5781	**.4355**	2	8	8
K610605906	15.00				.5906	**.4355**	2	8	8
K610105938		19/32			.5938	**.4355**	2	8	8
K610106094		39/64			.6094	**.5620**	2-1/4	9	8
K610606102	15.50				.6102	**.5620**	2-1/4	9	8
K610506240		0.6240 U/S			.6240	**.5615**	2-1/4	9	8
K610106250		5/8			.6250	**.5620**	2-1/4	9	8
K610506260		0.6260 O/S			.6260	**.5615**	2-1/4	9	8
K610606299	16.00				.6299	**.5620**	2-1/4	9	8
K610106406		41/64			.6406	**.5620**	2-1/4	9	8

▶ NEXT PAGE

O.D. Tolerance	Shank Dia. Tolerance
Up to 1/2 Inch : +.0002"/-.0000" Over 1/2 to 5/8 Inch : +.0003"/-.0000" Over 5/8 to 1 Inch : +.0004"/+.0001"	Up to .4355" : +.0000"/-.0010" Over .4355" : +.0000"/-.0015"

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

YG REAMER

Metric **K6106** SERIES
Fractional **K6101/K6105** SERIES
Letter **K6103** SERIES
Wire Gauge **K6102** SERIES

HSS, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

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▶Type of Center
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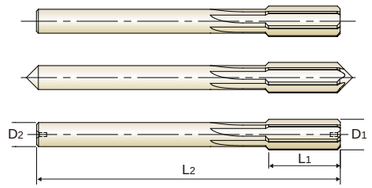


HSS 45° p.A402

Hole type 

Unit : inch

EDP No.	Nominal Size					Shank Diameter	Flute Length	Overall Length	No. of Flute
	Metric	Fractional	Letter	Wire Gauge	Decimal	D2	L1	L2	
	D1								
K610606496	16.50				.6496	**.5620**	2-1/4	9	8
K610106562		21/32			.6562	**.5620**	2-1/4	9	8
K610606693	17.00				.6693	**.5620**	2-1/4	9	8
K610106719		43/64			.6719	**.5620**	2-1/4	9	8
K610506865		0.6865 U/S			.6865	**.5615**	2-1/4	9	8
K610106875		11/16			.6875	**.5620**	2-1/4	9	8
K610506885		0.6885 O/S			.6885	**.5615**	2-1/4	9	8
K610606890	17.50				.6890	**.5620**	2-1/4	9	8
K610107031		45/64			.7031	**.5620**	2-1/4	9	8
K610607087	18.00				.7087	**.5620**	2-1/4	9	8
K610107188		23/32			.7188	**.5620**	2-1/4	9	8
K610607283	18.50				.7283	**.6245**	2-1/4	9	8
K610107344		47/64			.7344	**.6245**	2-1/2	9-1/2	8
K610607480	19.00				.7480	**.6245**	2-1/4	9	8
K610507490		0.7490 U/S			.7490	**.6240**	2-1/2	9	8
K610107500		3/4			.7500	**.6245**	2-1/2	9-1/2	8

O.D. Tolerance	Shank Dia. Tolerance
Up to 1/2 Inch : +.0002"/-.0000" Over 1/2 to 5/8 Inch : +.0003"/-.0000" Over 5/8 to 1 Inch : +.0004"/+.0001"	Up to .4355" : +.0000"/-.0010" Over .4355" : +.0000"/-.0015"

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○		◎	○			○		○	○	○	○	○	○	○	○	○

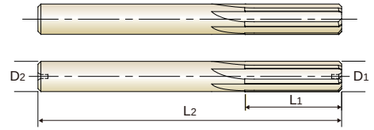
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

YG REAMER

Metric **K9106** SERIES
Fractional **K9101** SERIES
Letter **K9103** SERIES
Wire Gauge **K9102** SERIES
Dowel Pin **K9104** SERIES

CARBIDE, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

▶Precision reamers for a variety of materials, applications and sizes that ensure close hole tolerance and excellent surface finish
▶Straight Flute, Right Hand Cut
▶Shank Diameter ≒ Nominal Reamer Diameter
▶Type of Center
Up to .1177" : Non-Center
Over .1177" : Internal



CARBIDE 45° p.A404

Hole type 

Unit : inch

EDP No.	Nominal Size					Shank Diameter	Flute Length	Overall Length	No. of Flute
	Metric	Fractional	Letter	Wire Gauge	Decimal	D2	L1	L2	
	D1								
K910200280				#70	.0280	**.0280**	1/4	1-1/2	4
K910200292				#69	.0292	**.0292**	1/4	1-1/2	4
K910200310				#68	.0310	**.0310**	1/4	1-1/2	4
K910200320				#67	.0320	**.0320**	1/4	1-1/2	4
K910200330				#66	.0330	**.0330**	1/4	1-1/2	4
K910200350				#65	.0350	**.0350**	1/4	1-1/2	4
K910200360				#64	.0360	**.0360**	1/4	1-1/2	4
K910200370				#63	.0370	**.0370**	1/4	1-1/2	4
K910200380				#62	.0380	**.0380**	1/4	1-1/2	4
K910200390				#61	.0390	**.0390**	1/4	1-1/2	4
K910200400				#60	.0400	**.0400**	1/4	1-1/2	4
K910200410				#59	.0410	**.0410**	3/8	1-1/2	4
K910200420				#58	.0420	**.0420**	3/8	1-1/2	4
K910200430				#57	.0430	**.0430**	3/8	1-1/2	4
K910200465				#56	.0465	**.0465**	3/8	1-1/2	4
K910200520				#55	.0520	**.0520**	3/8	1-1/2	4
K910200550				#54	.0550	**.0550**	3/8	1-1/2	4
K910600591	1.50				.0591	**.0591**	3/8	1-1/2	4
K910200595				#53	.0595	**.0595**	3/8	1-1/2	4
K910200635				#52	.0635	**.0635**	3/8	1-1/2	4
K910200670				#51	.0670	**.0670**	1/2	1-3/4	4
K910200700				#50	.0700	**.0700**	1/2	1-3/4	4
K910200730				#49	.0730	**.0730**	1/2	1-3/4	4
K910200760				#48	.0760	**.0760**	1/2	1-3/4	4

▶ NEXT PAGE

O.D. Tolerance	Shank Dia. Tolerance
Up to 1/4 Inch : +.0000"/-.0002" Over 1/4 Inch : +.0000"/-.0003"	+.0000"/-.0010"

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	◎	○		○		○	○	○	◎	○	◎	○	◎	○

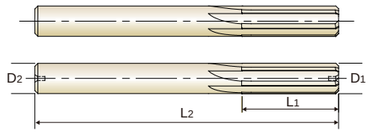
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

YG REAMER

Metric **K9106** SERIES
Fractional **K9101** SERIES
Letter **K9103** SERIES
Wire Gauge **K9102** SERIES
Dowel Pin **K9104** SERIES

CARBIDE, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

- ▶Precision reamers for a variety of materials, applications and sizes that ensure close hole tolerance and excellent surface finish
- ▶Straight Flute, Right Hand Cut
- ▶Shank Diameter ≒ Nominal Reamer Diameter
- ▶Type of Center
  Up to .1177" : Non-Center
  Over .1177" : Internal



CARBIDE 45°

p.A404

Hole type

Unit : inch

EDP No.	Nominal Size					Shank Diameter	Flute Length	Overall Length	No. of Flute
	Metric	Fractional	Letter	Wire Gauge	Decimal				
	D1					D2	L1	L2	
K910200785				#47	.0785	**.0785**	1/2	1-3/4	4
K910600787	2.00				.0787	**.0787**	1/2	1-3/4	4
K910200810				#46	.0810	**.0810**	1/2	2	4
K910200820				#45	.0820	**.0820**	1/2	2	4
K910200860				#44	.0860	**.0860**	1/2	2	4
K910200890				#43	.0890	**.0890**	1/2	2	4
K910200935				#42	.0935	**.0935**	1/2	2	4
K910200960				#41	.0960	**.0960**	5/8	2	4
K910600965	2.45				.0965	**.0965**	1/2	2	4
K910200980				#40	.0980	**.0980**	5/8	2	4
K910600984	2.50				.0984	**.0984**	5/8	2	4
K910200995				#39	.0995	**.0995**	5/8	2-1/4	4
K910201015				#38	.1015	**.1015**	5/8	2-1/4	4
K910201040				#37	.1040	**.1040**	5/8	2-1/4	4
K910201065				#36	.1065	**.1065**	5/8	2-1/4	4
K910201100				#35	.1100	**.1100**	5/8	2-1/4	4
K910201110				#34	.1110	**.1110**	5/8	2-1/4	4
K910201130				#33	.1130	**.1130**	5/8	2-1/4	4
K910201160				#32	.1160	**.1160**	5/8	2-1/4	4
K910601181	3.00				.1181	**.1181**	5/8	2-1/4	4
K910201200				#31	.1200	**.1200**	5/8	2-1/4	4
K910601280	3.25				.1280	**.1280**	5/8	2-1/4	4
K910201285				#30	.1285	**.1285**	5/8	2-1/4	4
K910201360				#29	.1360	**.1360**	3/4	2-1/2	4

▶ NEXT PAGE

O.D. Tolerance	Shank Dia. Tolerance
Up to 1/4 Inch : +.0000"/-.0002" Over 1/4 Inch : +.0000"/-.0003"	+.0000"/-.0010"

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

YG REAMER

Metric **K9106** SERIES
Fractional **K9101** SERIES
Letter **K9103** SERIES
Wire Gauge **K9102** SERIES
Dowel Pin **K9104** SERIES

CARBIDE, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

▶Precision reamers for a variety of materials, applications and sizes that ensure close hole tolerance and excellent surface finish
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▶Type of Center
Up to .1177" : Non-Center
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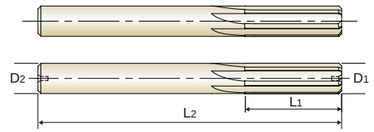

CARBIDE 45°

p.A404

Hole type

Unit : inch

EDP No.	Nominal Size					Shank Diameter	Flute Length	Overall Length	No. of Flute
	Metric	Fractional	Letter	Wire Gauge	Decimal				
	D1					D2	L1	L2	
K910601378	3.50				.1378	**.1378**	3/4	2-1/2	4
K910201405				#28	.1405	**.1405**	3/4	2-1/2	4
K910201440				#27	.1440	**.1440**	3/4	2-1/2	4
K910201470				#26	.1470	**.1470**	3/4	2-1/2	4
K910201495				#25	.1495	**.1495**	3/4	2-1/2	4
K910201520				#24	.1520	**.1520**	3/4	2-1/2	4
K910201540				#23	.1540	**.1540**	3/4	2-1/2	4
K910201570				#22	.1570	**.1570**	3/4	2-1/2	4
K910601575	4.00				.1575	**.1575**	3/4	2-1/2	4
K910201590				#21	.1590	**.1590**	3/4	2-1/2	4
K910201610				#20	.1610	**.1610**	7/8	2-1/2	4
K910201660				#19	.1660	**.1660**	7/8	2-3/4	4
K910201695				#18	.1695	**.1695**	7/8	2-3/4	4
K910201730				#17	.1730	**.1730**	7/8	2-3/4	4
K910201770				#16	.1770	**.1770**	7/8	2-3/4	4
K910601772	4.50				.1772	**.1772**	7/8	2-3/4	4
K910201800				#15	.1800	**.1800**	7/8	2-3/4	4
K910201820				#14	.1820	**.1820**	7/8	2-3/4	4
K910201850				#13	.1850	**.1850**	7/8	2-3/4	4
K910201890				#12	.1890	**.1890**	7/8	2-3/4	4
K910201910				#11	.1910	**.1910**	7/8	2-3/4	4
K910201935				#10	.1935	**.1935**	7/8	2-3/4	4
K910201960				#9	.1960	**.1960**	1	3	4
K910601969	5.00				.1969	**.1969**	1	3	4

▶ NEXT PAGE

O.D. Tolerance	Shank Dia. Tolerance
Up to 1/4 Inch : +.0000"/-.0002" Over 1/4 Inch : +.0000"/-.0003"	+.0000"/-.0010"

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

YG REAMER

Metric K9106 SERIES
Fractional K9101 SERIES
Letter K9103 SERIES
Wire Gauge K9102 SERIES
Dowel Pin K9104 SERIES

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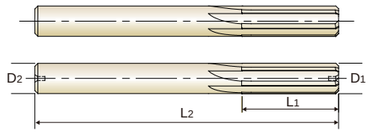

CARBIDE 45°

p.A404

Hole type

Unit : inch

EDP No.	Nominal Size					Shank Diameter	Flute Length	Overall Length	No. of Flute
	Metric	Fractional	Letter	Wire Gauge	Decimal	D2	L1	L2	
			D1						
K910201990				#8	.1990	**.1990**	1	3	4
K910202010				#7	.2010	**.2010**	1	3	4
K910102031		13/64			.2031	**.2031**	1	3	4
K910202040				#6	.2040	**.2040**	1	3	4
K910202055				#5	.2055	**.2055**	1	3	4
K910202090				#4	.2090	**.2090**	1	3	4
K910202130				#3	.2130	**.2130**	1	3	4
K910602165	5.50				.2165	**.2165**	1	3	4
K910202210				#2	.2210	**.2210**	1	3	4
K910202280				#1	.2280	**.2280**	1	3	4
K910302340			A		.2340	**.2340**	1	3	4
K910102344		15/64			.2344	**.2344**	1	3	4
K910602362	6.00				.2362	**.2362**	1	3	4
K910302380			B		.2380	**.2380**	1	3	4
K910302420			C		.2420	**.2420**	1	3	4
K910302460			D		.2460	**.2460**	1	3	4
K910402498					.2498	**.2498**	1	3	4
K910602559	6.50				.2559	**.2559**	1-1/8	3-1/4	6
K910302570			F		.2570	**.2570**	1-1/8	3-1/4	6
K910302610			G		.2610	**.2610**	1-1/8	3-1/4	6
K910102656		17/64			.2656	**.2656**	1-1/8	3-1/4	6
K910302660			H		.2660	**.2660**	1-1/8	3-1/4	6
K910302720			I		.2720	**.2720**	1-1/8	3-1/4	6
K910602756	7.00				.2756	**.2756**	1-1/8	3-1/4	6

▶ NEXT PAGE

O.D. Tolerance	Shank Dia. Tolerance
Up to 1/4 Inch : +.0000"/-.0002" Over 1/4 Inch : +.0000"/-.0003"	+.0000"/-.0010"

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

YG REAMER

Metric K9106 SERIES
Fractional K9101 SERIES
Letter K9103 SERIES
Wire Gauge K9102 SERIES
Dowel Pin K9104 SERIES

CARBIDE, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

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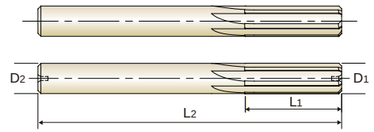

CARBIDE 45°

p.A404

Hole type

Unit : inch

EDP No.	Nominal Size					Shank Diameter	Flute Length	Overall Length	No. of Flute
	Metric	Fractional	Letter	Wire Gauge	Decimal	D2	L1	L2	
			D1						
K910302770			J		.2770	**.2770**	1-1/8	3-1/4	6
K910302810			K		.2810	**.2810**	1-1/8	3-1/4	6
K910302900			L		.2900	**.2900**	1-1/8	3-1/4	6
K910302950			M		.2950	**.2950**	1-1/8	3-1/4	6
K910602953	7.50				.2953	**.2953**	1-1/8	3-1/4	6
K910102969		19/64			.2969	**.2969**	1-1/8	3-1/4	6
K910303020			N		.3020	**.3020**	1-1/8	3-1/4	6
K910603150	8.00				.3150	**.3150**	1-1/8	3-1/4	6
K910303160			O		.3160	**.3160**	1-1/8	3-1/4	6
K910303230			P		.3230	**.3230**	1-1/4	3-1/2	6
K910103281		21/64			.3281	**.3281**	1-1/4	3-1/2	6
K910303320			Q		.3320	**.3320**	1-1/4	3-1/2	6
K910603346	8.50				.3346	**.3346**	1-1/4	3-1/2	6
K910303390			R		.3390	**.3390**	1-1/4	3-1/2	6
K910303480			S		.3480	**.3480**	1-1/4	3-1/2	6
K910603543	9.00				.3543	**.3543**	1-1/4	3-1/2	6
K910303580			T		.3580	**.3580**	1-1/4	3-1/2	6
K910103594		23/64			.3594	**.3594**	1-1/4	3-1/2	6
K910303680			U		.3680	**.3680**	1-1/4	3-1/2	6
K910603740	9.50				.3740	**.3740**	1-1/4	3-1/2	6
K910303770			V		.3770	**.3770**	1-1/4	3-1/2	6
K910303860			W		.3860	**.3860**	1-1/4	3-1/2	6
K910103906		25/64			.3906	**.3906**	1-1/4	3-1/2	6
K910603937	10.00				.3937	**.3937**	1-1/4	3-1/2	6

▶ NEXT PAGE

O.D. Tolerance	Shank Dia. Tolerance
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◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

YG REAMER

Letter **K9103** SERIES
Metric **K9106** SERIES
Wire Gauge **K9102** SERIES
Fractional **K9101** SERIES
Dowel Pin **K9104** SERIES

CARBIDE, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

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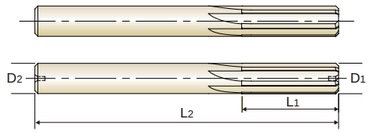


Hole type 

CARBIDE 45° p.A404

Unit : inch

EDP No.	Nominal Size					Shank Diameter	Flute Length	Overall Length	No. of Flute
	Metric	Fractional	Letter	Wire Gauge	Decimal				
	D1					D2	L1	L2	
K910303970			X		.3970	**.3970**	1-1/4	3-1/2	6
K910304040			Y		.4040	**.4040**	1-1/4	3-1/2	6
K910104062		13/32			.4062	**.4062**	1-1/4	3-1/2	6
K910304130			Z		.4130	**.4130**	1-1/4	3-1/2	6
K910604134	10.50				.4134	**.4134**	1-1/4	3-1/2	6
K910104219		27/64			.4219	**.4219**	1-3/8	4	6
K910604331	11.00				.4331	**.4331**	1-3/8	4	6
K910604528	11.50				.4528	**.4528**	1-3/8	4	6
K910104531		29/64			.4531	**.4531**	1-3/8	4	6
K910104688		15/32			.4688	**.4688**	1-3/8	4	6
K910604724	12.00				.4724	**.4724**	1-3/8	4	6
K910104844		31/64			.4844	**.4844**	1-1/2	4	6
K910604921	12.50				.4921	**.4921**	1-1/2	4	6
K910605118	13.00				.5118	**.5118**	1-1/2	4	6
K910605512	14.00				.5512	**.5512**	1-1/2	4	6
K910105625		9/16			.5625	**.5625**	1-1/2	4	6
K910106250		5/8			.6250	**.6250**	1-3/4	4	6
K910606299	16.00				.6299	**.6299**	1-3/4	4	6

O.D. Tolerance	Shank Dia. Tolerance
Up to 1/4 Inch : +.0000"/-.0002" Over 1/4 Inch : +.0000"/-.0003"	+.0000"/-.0010"

◎ : Excellent ○ : Good

ISO	P																			
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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	◎	○		○		○	○	○	◎	○	◎	○	◎	○

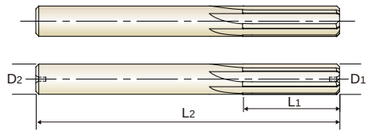
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

YG REAMER

Decimal **K9107** SERIES

CARBIDE, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

▶Precision reamers for a variety of materials, applications and sizes that ensure close hole tolerance and excellent surface finish
▶Straight Flute, Right Hand Cut
▶Shank Diameter ≒ Nominal Reamer Diameter
▶Type of Center
Up to .1175" : Non-Center
Over .1175" : Internal



Hole type 

CARBIDE 45° p.A404

Unit : inch

EDP No.	Nominal Size	Shank Diameter	Flute Length	Overall Length	No. of Flute
	Decimal				
	D1	D2	L1	L2	
K910700355	.0355	**.0355**	1/4	1-1/2	4
K910700365	.0365	**.0365**	1/4	1-1/2	4
K910700375	.0375	**.0375**	1/4	1-1/2	4
K910700385	.0385	**.0385**	1/4	1-1/2	4
K910700395	.0395	**.0395**	1/4	1-1/2	4
K910700405	.0405	**.0405**	3/8	1-1/2	4
K910700425	.0425	**.0425**	3/8	1-1/2	4
K910700435	.0435	**.0435**	3/8	1-1/2	4
K910700440	.0440	**.0440**	3/8	1-1/2	4
K910700450	.0450	**.0450**	3/8	1-1/2	4
K910700460	.0460	**.0460**	3/8	1-1/2	4
K910700469	.0469	**.0469**	3/8	1-1/2	4
K910700470	.0470	**.0470**	3/8	1-1/2	4
K910700475	.0475	**.0475**	3/8	1-1/2	4
K910700480	.0480	**.0480**	3/8	1-1/2	4
K910700485	.0485	**.0485**	3/8	1-1/2	4
K910700490	.0490	**.0490**	3/8	1-1/2	4
K910700500	.0500	**.0500**	3/8	1-1/2	4
K910700505	.0505	**.0505**	3/8	1-1/2	4
K910700510	.0510	**.0510**	3/8	1-1/2	4
K910700515	.0515	**.0515**	3/8	1-1/2	4
K910700525	.0525	**.0525**	3/8	1-1/2	4
K910700530	.0530	**.0530**	3/8	1-1/2	4
K910700540	.0540	**.0540**	3/8	1-1/2	4

▶ NEXT PAGE

O.D. Tolerance	Shank Dia. Tolerance
Up to .2504" : +.0002"/-.0000" Over .2504" : +.0003"/-.0000"	+.0000"/-.0010"

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	◎	○		○		○	○	○	◎	○	◎	○	◎	○

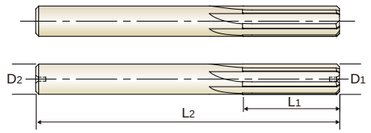
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

YG REAMER

Decimal **K9107** SERIES

CARBIDE, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

- ▶Precision reamers for a variety of materials, applications and sizes that ensure close hole tolerance and excellent surface finish
- ▶Straight Flute, Right Hand Cut
- ▶Shank Diameter ≒ Nominal Reamer Diameter
- ▶Type of Center
  Up to .1175" : Non-Center
  Over .1175" : Internal



CARBIDE 45° p.A404

Hole type 

Unit : inch

EDP No.	Nominal Size Decimal	Shank Diameter	Flute Length	Overall Length	No. of Flute
	D1	D2	L1	L2	
K910700560	.0560	**.0560**	3/8	1-1/2	4
K910700570	.0570	**.0570**	3/8	1-1/2	4
K910700580	.0580	**.0580**	3/8	1-1/2	4
K910700590	.0590	**.0590**	3/8	1-1/2	4
K910700600	.0600	**.0600**	3/8	1-1/2	4
K910700605	.0605	**.0605**	3/8	1-1/2	4
K910700610	.0610	**.0610**	3/8	1-1/2	4
K910700615	.0615	**.0615**	3/8	1-1/2	4
K910700620	.0620	**.0620**	3/8	1-1/2	4
K910700625	.0625	**.0625**	3/8	1-1/2	4
K910700630	.0630	**.0630**	3/8	1-1/2	4
K910700640	.0640	**.0640**	3/8	1-1/2	4
K910700645	.0645	**.0645**	3/8	1-1/2	4
K910700650	.0650	**.0650**	3/8	1-1/2	4
K910700655	.0655	**.0655**	3/8	1-1/2	4
K910700660	.0660	**.0660**	1/2	1-3/4	4
K910700675	.0675	**.0675**	1/2	1-3/4	4
K910700680	.0680	**.0680**	1/2	1-3/4	4
K910700690	.0690	**.0690**	1/2	1-3/4	4
K910700705	.0705	**.0705**	1/2	1-3/4	4
K910700710	.0710	**.0710**	1/2	1-3/4	4
K910700720	.0720	**.0720**	1/2	1-3/4	4
K910700740	.0740	**.0740**	1/2	1-3/4	4
K910700750	.0750	**.0750**	1/2	1-3/4	4

▶ NEXT PAGE

O.D. Tolerance	Shank Dia. Tolerance
Up to .2504" : +.0002"/-.0000" Over .2504" : +.0003"/-.0000"	+.0000"/-.0010"

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	◎	○		○		○	○	○	◎	○	◎	○	◎	○

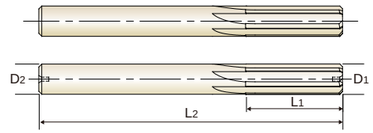
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

YG REAMER

Decimal K9107 SERIES

CARBIDE, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

▶Precision reamers for a variety of materials, applications and sizes that ensure close hole tolerance and excellent surface finish
▶Straight Flute, Right Hand Cut
▶Shank Diameter ≒ Nominal Reamer Diameter
▶Type of Center
Up to .1175" : Non-Center
Over .1175" : Internal



CARBIDE 45° p.A404

Hole type 

Unit : inch

EDP No.	Nominal Size Decimal	Shank Diameter	Flute Length	Overall Length	No. of Flute
	D1	D2	L1	L2	
K910700765	.0765	**.0765**	1/2	1-3/4	4
K910700770	.0770	**.0770**	1/2	1-3/4	4
K910700775	.0775	**.0775**	1/2	1-3/4	4
K910700780	.0780	**.0780**	1/2	1-3/4	4
K910700781	.0781	**.0781**	1/2	1-3/4	4
K910700790	.0790	**.0790**	1/2	1-3/4	4
K910700795	.0795	**.0795**	1/2	1-3/4	4
K910700800	.0800	**.0800**	1/2	1-3/4	4
K910700830	.0830	**.0830**	1/2	2	4
K910700840	.0840	**.0840**	1/2	2	4
K910700850	.0850	**.0850**	1/2	2	4
K910700865	.0865	**.0865**	1/2	2	4
K910700870	.0870	**.0870**	1/2	2	4
K910700880	.0880	**.0880**	1/2	2	4
K910700900	.0900	**.0900**	1/2	2	4
K910700905	.0905	**.0905**	1/2	2	4
K910700910	.0910	**.0910**	1/2	2	4
K910700915	.0915	**.0915**	1/2	2	4
K910700920	.0920	**.0920**	1/2	2	4
K910700925	.0925	**.0925**	1/2	2	4
K910700930	.0930	**.0930**	1/2	2	4
K910700938	.0938	**.0938**	1/2	2	4
K910700940	.0940	**.0940**	1/2	2	4
K910700945	.0945	**.0945**	1/2	2	4

▶ NEXT PAGE

O.D. Tolerance	Shank Dia. Tolerance
Up to .2504" : +.0002"/-.0000" Over .2504" : +.0003"/-.0000"	+.0000"/-.0010"

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	◎	○		○		○	○	○	◎	○	◎	○	◎	○

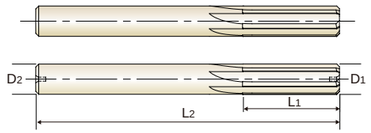
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

YG REAMER

Decimal **K9107** SERIES

CARBIDE, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

- ▶Precision reamers for a variety of materials, applications and sizes that ensure close hole tolerance and excellent surface finish
- ▶Straight Flute, Right Hand Cut
- ▶Shank Diameter ≒ Nominal Reamer Diameter
- ▶Type of Center
  Up to .1175" : Non-Center
  Over .1175" : Internal



CARBIDE 45° p.A404

Hole type 

Unit : inch

EDP No.	Nominal Size Decimal	Shank Diameter	Flute Length	Overall Length	No. of Flute
	D1	D2	L1	L2	
K910700950	.0950	**.0950**	1/2	2	4
K910700955	.0955	**.0955**	1/2	2	4
K910700970	.0970	**.0970**	5/8	2	4
K910700975	.0975	**.0975**	5/8	2-1/4	4
K910700985	.0985	**.0985**	5/8	2-1/4	4
K910700990	.0990	**.0990**	5/8	2-1/4	4
K910701000	.1000	**.1000**	5/8	2-1/4	4
K910701010	.1010	**.1010**	5/8	2-1/4	4
K910701020	.1020	**.1020**	5/8	2-1/4	4
K910701030	.1030	**.1030**	5/8	2-1/4	4
K910701050	.1050	**.1050**	5/8	2-1/4	4
K910701060	.1060	**.1060**	5/8	2-1/4	4
K910701070	.1070	**.1070**	5/8	2-1/4	4
K910701080	.1080	**.1080**	5/8	2-1/4	4
K910701090	.1090	**.1090**	5/8	2-1/4	4
K910701094	.1094	**.1094**	5/8	2-1/4	4
K910701120	.1120	**.1120**	5/8	2-1/4	4
K910701140	.1140	**.1140**	5/8	2-1/4	4
K910701150	.1150	**.1150**	5/8	2-1/4	4
K910701170	.1170	**.1170**	5/8	2-1/4	4
K910701175	.1175	**.1175**	5/8	2-1/4	4
K910701180	.1180	**.1180**	5/8	2-1/4	4
K910701185	.1185	**.1185**	5/8	2-1/4	4
K910701190	.1190	**.1190**	5/8	2-1/4	4

▶ NEXT PAGE

O.D. Tolerance	Shank Dia. Tolerance
Up to .2504" : +.0002"/-.0000" Over .2504" : +.0003"/-.0000"	+.0000"/-.0010"

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

YG REAMER

Decimal K9107 SERIES

CARBIDE, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

▶Precision reamers for a variety of materials, applications and sizes that ensure close hole tolerance and excellent surface finish
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▶Shank Diameter ≒ Nominal Reamer Diameter
▶Type of Center
Up to .1175" : Non-Center
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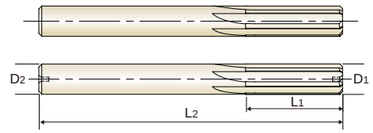


CARBIDE 45° p.A404

Hole type 

Unit : inch

EDP No.	Nominal Size Decimal	Shank Diameter	Flute Length	Overall Length	No. of Flute
	D1	D2	L1	L2	
K910701195	.1195	**.1195**	5/8	2-1/4	4
K910701205	.1205	**.1205**	5/8	2-1/4	4
K910701210	.1210	**.1210**	5/8	2-1/4	4
K910701215	.1215	**.1215**	5/8	2-1/4	4
K910701220	.1220	**.1220**	5/8	2-1/4	4
K910701225	.1225	**.1225**	5/8	2-1/4	4
K910701230	.1230	**.1230**	5/8	2-1/4	4
K910701235	.1235	**.1235**	5/8	2-1/4	4
K910701240	.1240	**.1240**	5/8	2-1/4	4
K910701245	.1245	**.1245**	5/8	2-1/4	4
K910701247	.1247	**.1247**	5/8	2-1/4	4
K910701250	.1250	**.1250**	5/8	2-1/4	4
K910701255	.1255	**.1255**	5/8	2-1/4	4
K910701260	.1260	**.1260**	5/8	2-1/4	4
K910701265	.1265	**.1265**	5/8	2-1/4	4
K910701270	.1270	**.1270**	5/8	2-1/4	4
K910701275	.1275	**.1275**	5/8	2-1/4	4
K910701290	.1290	**.1290**	5/8	2-1/4	4
K910701295	.1295	**.1295**	3/4	2-1/2	4
K910701300	.1300	**.1300**	5/8	2-1/2	4
K910701305	.1305	**.1305**	3/4	2-1/2	4
K910701310	.1310	**.1310**	3/4	2-1/2	4
K910701315	.1315	**.1315**	3/4	2-1/2	4
K910701320	.1320	**.1320**	3/4	2-1/2	4

▶ NEXT PAGE

O.D. Tolerance	Shank Dia. Tolerance
Up to .2504" : +.0002"/-.0000" Over .2504" : +.0003"/-.0000"	+.0000"/-.0010"

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	◎	○		○		○	○	○	◎	○	◎	○	◎	○

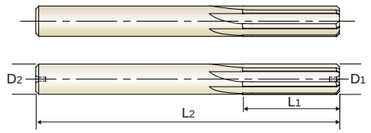
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

YG REAMER

Decimal **K9107** SERIES

CARBIDE, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

- ▶Precision reamers for a variety of materials, applications and sizes that ensure close hole tolerance and excellent surface finish
- ▶Straight Flute, Right Hand Cut
- ▶Shank Diameter ≒ Nominal Reamer Diameter
- ▶Type of Center
  Up to .1175" : Non-Center
  Over .1175" : Internal



CARBIDE 45° p.A404

Hole type 

Unit : inch

EDP No.	Nominal Size Decimal	Shank Diameter	Flute Length	Overall Length	No. of Flute
	D1	D2	L1	L2	
K910701330	.1330	**.1330**	3/4	2-1/2	4
K910701340	.1340	**.1340**	3/4	2-1/2	4
K910701350	.1350	**.1350**	3/4	2-1/2	4
K910701365	.1365	**.1365**	3/4	2-1/2	4
K910701370	.1370	**.1370**	3/4	2-1/2	4
K910701380	.1380	**.1380**	3/4	2-1/2	4
K910701390	.1390	**.1390**	3/4	2-1/2	4
K910701400	.1400	**.1400**	3/4	2-1/2	4
K910701406	.1406	**.1406**	3/4	2-1/2	4
K910701410	.1410	**.1410**	3/4	2-1/2	4
K910701415	.1415	**.1415**	3/4	2-1/2	4
K910701420	.1420	**.1420**	3/4	2-1/2	4
K910701430	.1430	**.1430**	3/4	2-1/2	4
K910701435	.1435	**.1435**	3/4	2-1/2	4
K910701450	.1450	**.1450**	3/4	2-1/2	4
K910701460	.1460	**.1460**	3/4	2-1/2	4
K910701480	.1480	**.1480**	3/4	2-1/2	4
K910701490	.1490	**.1490**	3/4	2-1/2	4
K910701500	.1500	**.1500**	3/4	2-1/2	4
K910701510	.1510	**.1510**	3/4	2-1/2	4
K910701530	.1530	**.1530**	3/4	2-1/2	4
K910701545	.1545	**.1545**	3/4	2-1/2	4
K910701550	.1550	**.1550**	3/4	2-1/2	4
K910701555	.1555	**.1555**	3/4	2-1/2	4

▶ NEXT PAGE

O.D. Tolerance	Shank Dia. Tolerance
Up to .2504" : +.0002"/-.0000" Over .2504" : +.0003"/-.0000"	+.0000"/-.0010"

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	◎	○		○		○	○	○	◎	○	◎	○	◎	○

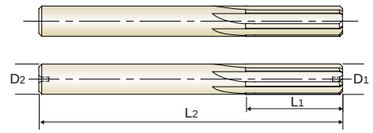
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

YG REAMER

Decimal K9107 SERIES

CARBIDE, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

▶Precision reamers for a variety of materials, applications and sizes that ensure close hole tolerance and excellent surface finish
▶Straight Flute, Right Hand Cut
▶Shank Diameter ≒ Nominal Reamer Diameter
▶Type of Center
Up to .1175" : Non-Center
Over .1175" : Internal



CARBIDE 45° p.A404

Hole type 

Unit : inch

EDP No.	Nominal Size Decimal	Shank Diameter	Flute Length	Overall Length	No. of Flute
	D1	D2	L1	L2	
K910701560	.1560	**.1560**	3/4	2-1/2	4
K910701562	.1562	**.1562**	3/4	2-1/2	4
K910701565	.1565	**.1565**	3/4	2-1/2	4
K910701580	.1580	**.1580**	3/4	2-1/2	4
K910701585	.1585	**.1585**	3/4	2-1/2	4
K910701600	.1600	**.1600**	3/4	2-1/2	4
K910701605	.1605	**.1605**	7/8	2-3/4	4
K910701615	.1615	**.1615**	7/8	2-3/4	4
K910701620	.1620	**.1620**	7/8	2-3/4	4
K910701630	.1630	**.1630**	7/8	2-3/4	4
K910701640	.1640	**.1640**	7/8	2-3/4	4
K910701650	.1650	**.1650**	7/8	2-3/4	4
K910701670	.1670	**.1670**	7/8	2-3/4	4
K910701680	.1680	**.1680**	7/8	2-3/4	4
K910701690	.1690	**.1690**	7/8	2-3/4	4
K910701700	.1700	**.1700**	7/8	2-3/4	4
K910701710	.1710	**.1710**	7/8	2-3/4	4
K910701719	.1719	**.1719**	7/8	2-3/4	4
K910701720	.1720	**.1720**	7/8	2-3/4	4
K910701740	.1740	**.1740**	7/8	2-3/4	4
K910701750	.1750	**.1750**	7/8	2-3/4	4
K910701760	.1760	**.1760**	7/8	2-3/4	4
K910701780	.1780	**.1780**	7/8	2-3/4	4
K910701790	.1790	**.1790**	7/8	2-3/4	4

▶ NEXT PAGE

O.D. Tolerance	Shank Dia. Tolerance
Up to .2504" : +.0002"/-.0000" Over .2504" : +.0003"/-.0000"	+.0000"/-.0010"

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	◎	○		○		○	○	○	◎	○	◎	○	◎	○

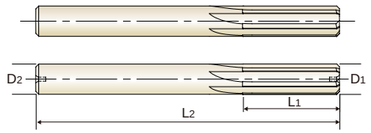
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

YG REAMER

Decimal **K9107** SERIES

CARBIDE, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

- ▶Precision reamers for a variety of materials, applications and sizes that ensure close hole tolerance and excellent surface finish
- ▶Straight Flute, Right Hand Cut
- ▶Shank Diameter ≒ Nominal Reamer Diameter
- ▶Type of Center
  Up to .1175" : Non-Center
  Over .1175" : Internal



CARBIDE 45° p.A404

Hole type 

Unit : inch

EDP No.	Nominal Size Decimal D1	Shank Diameter D2	Flute Length L1	Overall Length L2	No. of Flute
K910701810	.1810	**.1810**	7/8	2-3/4	4
K910701830	.1830	**.1830**	7/8	2-3/4	4
K910701840	.1840	**.1840**	7/8	2-3/4	4
K910701855	.1855	**.1855**	7/8	2-3/4	4
K910701860	.1860	**.1860**	7/8	2-3/4	4
K910701865	.1865	**.1865**	7/8	2-3/4	4
K910701870	.1870	**.1870**	7/8	2-3/4	4
K910701875	.1875	**.1875**	7/8	2-3/4	4
K910701880	.1880	**.1880**	7/8	2-3/4	4
K910701885	.1885	**.1885**	7/8	2-3/4	4
K910701895	.1895	**.1895**	7/8	2-3/4	4
K910701900	.1900	**.1900**	7/8	2-3/4	4
K910701905	.1905	**.1905**	7/8	2-3/4	4
K910701915	.1915	**.1915**	1	3	4
K910701920	.1920	**.1920**	7/8	2-3/4	4
K910701925	.1925	**.1925**	1	3	4
K910701930	.1930	**.1930**	7/8	2-3/4	4
K910701940	.1940	**.1940**	7/8	2-3/4	4
K910701950	.1950	**.1950**	7/8	2-3/4	4
K910701955	.1955	**.1955**	1	3	4
K910701965	.1965	**.1965**	1	3	4
K910701970	.1970	**.1970**	1	3	4
K910701980	.1980	**.1980**	1	3	4
K910702000	.2000	**.2000**	1	3	4

▶ NEXT PAGE

O.D. Tolerance	Shank Dia. Tolerance
Up to .2504" : +.0002"/-.0000" Over .2504" : +.0003"/-.0000"	+.0000"/-.0010"

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	◎	○		○		○	○	○	◎	○	◎	○	◎	○

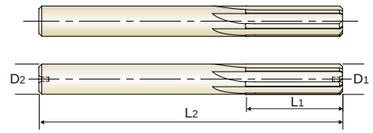
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

YG REAMER

Decimal K9107 SERIES

CARBIDE, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

▶Precision reamers for a variety of materials, applications and sizes that ensure close hole tolerance and excellent surface finish
▶Straight Flute, Right Hand Cut
▶Shank Diameter ≒ Nominal Reamer Diameter
▶Type of Center
Up to .1175" : Non-Center
Over .1175" : Internal



CARBIDE 45° p.A404

Hole type 

Unit : inch

EDP No.	Nominal Size Decimal D1	Shank Diameter D2	Flute Length L1	Overall Length L2	No. of Flute
K910702005	.2005	**.2005**	1	3	4
K910702015	.2015	**.2015**	1	3	4
K910702020	.2020	**.2020**	1	3	4
K910702025	.2025	**.2025**	1	3	4
K910702030	.2030	**.2030**	1	3	4
K910702050	.2050	**.2050**	1	3	4
K910702060	.2060	**.2060**	1	3	4
K910702070	.2070	**.2070**	1	3	4
K910702080	.2080	**.2080**	1	3	4
K910702100	.2100	**.2100**	1	3	4
K910702110	.2110	**.2110**	1	3	4
K910702120	.2120	**.2120**	1	3	4
K910702140	.2140	**.2140**	1	3	4
K910702150	.2150	**.2150**	1	3	4
K910702160	.2160	**.2160**	1	3	4
K910702170	.2170	**.2170**	1	3	4
K910702180	.2180	**.2180**	1	3	4
K910702188	.2188	**.2188**	1	3	4
K910702190	.2190	**.2190**	1	3	4
K910702200	.2200	**.2200**	1	3	4
K910702220	.2220	**.2220**	1	3	4
K910702230	.2230	**.2230**	1	3	4
K910702240	.2240	**.2240**	1	3	4
K910702250	.2250	**.2250**	1	3	4

▶ NEXT PAGE

O.D. Tolerance	Shank Dia. Tolerance
Up to .2504" : +.0002"/-.0000" Over .2504" : +.0003"/-.0000"	+.0000"/-.0010"

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

YG REAMER

Decimal **K9107** SERIES

CARBIDE, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

- ▶Precision reamers for a variety of materials, applications and sizes that ensure close hole tolerance and excellent surface finish
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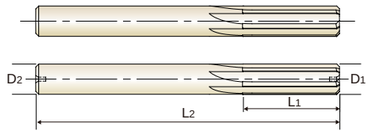
- ▶Type of Center
  Up to .1175" : Non-Center
  Over .1175" : Internal



CARBIDE 45°

p.A404

Hole type

Unit : inch

EDP No.	Nominal Size Decimal D1	Shank Diameter D2	Flute Length L1	Overall Length L2	No. of Flute
K910702260	.2260	**.2260**	1	3	4
K910702270	.2270	**.2270**	1	3	4
K910702290	.2290	**.2290**	1	3	4
K910702300	.2300	**.2300**	1	3	4
K910702310	.2310	**.2310**	1	3	4
K910702320	.2320	**.2320**	1	3	4
K910702330	.2330	**.2330**	1	3	4
K910702350	.2350	**.2350**	1	3	4
K910702355	.2355	**.2355**	1	3	4
K910702360	.2360	**.2360**	1	3	4
K910702365	.2365	**.2365**	1	3	4
K910702370	.2370	**.2370**	1	3	4
K910702375	.2375	**.2375**	1	3	4
K910702390	.2390	**.2390**	1	3	4
K910702400	.2400	**.2400**	1	3	4
K910702410	.2410	**.2410**	1	3	4
K910702430	.2430	**.2430**	1	3	4
K910702440	.2440	**.2440**	1	3	4
K910702450	.2450	**.2450**	1	3	4
K910702470	.2470	**.2470**	1	3	4
K910702480	.2480	**.2480**	1	3	4
K910702485	.2485	**.2485**	1	3	4
K910702490	.2490	**.2490**	1	3	4
K910702495	.2495	**.2495**	1	3	4

▶ NEXT PAGE

O.D. Tolerance	Shank Dia. Tolerance
Up to .2504" : +.0002"/-.0000" Over .2504" : +.0003"/-.0000"	+.0000"/-.0010"

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

YG REAMER

Decimal **K9107** SERIES

CARBIDE, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

- ▶Precision reamers for a variety of materials, applications and sizes that ensure close hole tolerance and excellent surface finish
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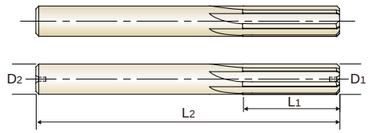
- ▶Type of Center
  Up to .1175" : Non-Center
  Over .1175" : Internal



CARBIDE 45°

p.A404

Hole type

Unit : inch

EDP No.	Nominal Size Decimal D1	Shank Diameter D2	Flute Length L1	Overall Length L2	No. of Flute
K910702500	.2500	**.2500**	1	3	4
K910702505	.2505	**.2505**	1	3	4
K910702510	.2510	**.2510**	1	3	4
K910702515	.2515	**.2515**	1	3	4
K910702520	.2520	**.2520**	1	3	4
K910702530	.2530	**.2530**	1	3	4
K910702540	.2540	**.2540**	1	3	4
K910702550	.2550	**.2550**	1	3	6
K910702560	.2560	**.2560**	1-1/8	3-1/4	6
K910702580	.2580	**.2580**	1-1/8	3-1/4	6
K910702590	.2590	**.2590**	1-1/8	3-1/4	6
K910702600	.2600	**.2600**	1-1/8	3-1/4	6
K910702620	.2620	**.2620**	1-1/8	3-1/4	6
K910702630	.2630	**.2630**	1-1/8	3-1/4	6
K910702640	.2640	**.2640**	1-1/8	3-1/4	6
K910702650	.2650	**.2650**	1-1/8	3-1/4	6
K910702670	.2670	**.2670**	1-1/8	3-1/4	6
K910702680	.2680	**.2680**	1-1/8	3-1/4	6
K910702690	.2690	**.2690**	1-1/8	3-1/4	6
K910702700	.2700	**.2700**	1-1/8	3-1/4	6
K910702710	.2710	**.2710**	1-1/8	3-1/4	6
K910702730	.2730	**.2730**	1-1/8	3-1/4	6
K910702740	.2740	**.2740**	1-1/8	3-1/4	6
K910702750	.2750	**.2750**	1-1/8	3-1/4	6

▶ NEXT PAGE

O.D. Tolerance	Shank Dia. Tolerance
Up to .2504" : +.0002"/-.0000" Over .2504" : +.0003"/-.0000"	+.0000"/-.0010"

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	◎	○		○		○	○	○	◎	○	◎	○	◎	○

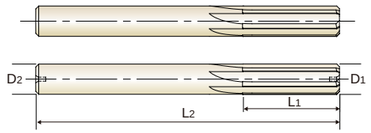
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

YG REAMER

Decimal **K9107** SERIES

CARBIDE, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

- ▶Precision reamers for a variety of materials, applications and sizes that ensure close hole tolerance and excellent surface finish
- ▶Straight Flute, Right Hand Cut
- ▶Shank Diameter ≒ Nominal Reamer Diameter
- ▶Type of Center
  Up to .1175" : Non-Center
  Over .1175" : Internal



CARBIDE 45° p.A404

Hole type 

Unit : inch

EDP No.	Nominal Size Decimal	Shank Diameter	Flute Length	Overall Length	No. of Flute
	D1	D2	L1	L2	
K910702760	.2760	**.2760**	1-1/8	3-1/4	6
K910702780	.2780	**.2780**	1-1/8	3-1/4	6
K910702790	.2790	**.2790**	1-1/8	3-1/4	6
K910702800	.2800	**.2800**	1-1/8	3-1/4	6
K910702812	.2812	**.2812**	1-1/8	3-1/4	6
K910702820	.2820	**.2820**	1-1/8	3-1/4	6
K910702830	.2830	**.2830**	1-1/8	3-1/4	6
K910702840	.2840	**.2840**	1-1/8	3-1/4	6
K910702850	.2850	**.2850**	1-1/8	3-1/4	6
K910702860	.2860	**.2860**	1-1/8	3-1/4	6
K910702870	.2870	**.2870**	1-1/8	3-1/4	6
K910702880	.2880	**.2880**	1-1/8	3-1/4	6
K910702890	.2890	**.2890**	1-1/8	3-1/4	6
K910702910	.2910	**.2910**	1-1/8	3-1/4	6
K910702920	.2920	**.2920**	1-1/8	3-1/4	6
K910702930	.2930	**.2930**	1-1/8	3-1/4	6
K910702940	.2940	**.2940**	1-1/8	3-1/4	6
K910702960	.2960	**.2960**	1-1/8	3-1/4	6
K910702970	.2970	**.2970**	1-1/8	3-1/4	6
K910702980	.2980	**.2980**	1-1/8	3-1/4	6
K910702990	.2990	**.2990**	1-1/8	3-1/4	6
K910703000	.3000	**.3000**	1-1/8	3-1/4	6
K910703010	.3010	**.3010**	1-1/8	3-1/4	6
K910703030	.3030	**.3030**	1-1/8	3-1/4	6

▶ NEXT PAGE

O.D. Tolerance	Shank Dia. Tolerance
Up to .2504" : +.0002"/-.0000" Over .2504" : +.0003"/-.0000"	+.0000"/-.0010"

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

YG REAMER

Decimal K9107 SERIES

CARBIDE, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

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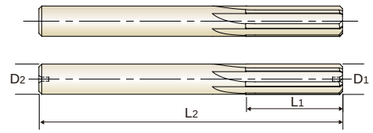
▶Straight Flute, Right Hand Cut
▶Shank Diameter ≒ Nominal Reamer Diameter
▶Type of Center
Up to .1175" : Non-Center
Over .1175" : Internal



CARBIDE 45° p.A404

Hole type 

Unit : inch

EDP No.	Nominal Size Decimal	Shank Diameter	Flute Length	Overall Length	No. of Flute
	D1	D2	L1	L2	
K910703040	.3040	**.3040**	1-1/8	3-1/4	6
K910703050	.3050	**.3050**	1-1/8	3-1/4	6
K910703060	.3060	**.3060**	1-1/8	3-1/4	6
K910703070	.3070	**.3070**	1-1/8	3-1/4	6
K910703080	.3080	**.3080**	1-1/8	3-1/4	6
K910703090	.3090	**.3090**	1-1/8	3-1/4	6
K910703100	.3100	**.3100**	1-1/8	3-1/4	6
K910703105	.3105	**.3105**	1-1/8	3-1/4	6
K910703110	.3110	**.3110**	1-1/8	3-1/4	6
K910703115	.3115	**.3115**	1-1/8	3-1/4	6
K910703120	.3120	**.3120**	1-1/8	3-1/4	6
K910703125	.3125	**.3125**	1-1/8	3-1/4	6
K910703130	.3130	**.3130**	1-1/8	3-1/4	6
K910703135	.3135	**.3135**	1-1/8	3-1/4	6
K910703140	.3140	**.3140**	1-1/8	3-1/4	6
K910703170	.3170	**.3170**	1-1/8	3-1/4	6
K910703180	.3180	**.3180**	1-1/8	3-1/4	6
K910703190	.3190	**.3190**	1-1/8	3-1/4	6
K910703200	.3200	**.3200**	1-1/8	3-1/4	6
K910703210	.3210	**.3210**	1-1/4	3-1/2	6
K910703220	.3220	**.3220**	1-1/4	3-1/2	6
K910703240	.3240	**.3240**	1-1/4	3-1/2	6
K910703250	.3250	**.3250**	1-1/4	3-1/2	6
K910703260	.3260	**.3260**	1-1/4	3-1/2	6

▶ NEXT PAGE

O.D. Tolerance	Shank Dia. Tolerance
Up to .2504" : +.0002"/-.0000" Over .2504" : +.0003"/-.0000"	+.0000"/-.0010"

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

YG REAMER

Decimal **K9107** SERIES

CARBIDE, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

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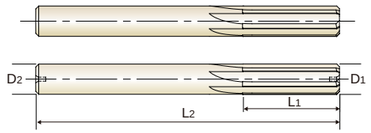
- ▶Type of Center
  Up to .1175" : Non-Center
  Over .1175" : Internal



CARBIDE 45° p.A404

Hole type 

Unit : inch

EDP No.	Nominal Size Decimal D1	Shank Diameter D2	Flute Length L1	Overall Length L2	No. of Flute
K910703270	.3270	**.3270**	1-1/4	3-1/2	6
K910703280	.3280	**.3280**	1-1/4	3-1/2	6
K910703290	.3290	**.3290**	1-1/4	3-1/2	6
K910703300	.3300	**.3300**	1-1/4	3-1/2	6
K910703310	.3310	**.3310**	1-1/4	3-1/2	6
K910703330	.3330	**.3330**	1-1/4	3-1/2	6
K910703340	.3340	**.3340**	1-1/4	3-1/2	6
K910703350	.3350	**.3350**	1-1/4	3-1/2	6
K910703360	.3360	**.3360**	1-1/4	3-1/2	6
K910703370	.3370	**.3370**	1-1/4	3-1/2	6
K910703380	.3380	**.3380**	1-1/4	3-1/2	6
K910703400	.3400	**.3400**	1-1/4	3-1/2	6
K910703410	.3410	**.3410**	1-1/4	3-1/2	6
K910703420	.3420	**.3420**	1-1/4	3-1/2	6
K910703430	.3430	**.3430**	1-1/4	3-1/2	6
K910703438	.3438	**.3438**	1-1/4	3-1/2	6
K910703440	.3440	**.3440**	1-1/4	3-1/2	6
K910703450	.3450	**.3450**	1-1/4	3-1/2	6
K910703460	.3460	**.3460**	1-1/4	3-1/2	6
K910703470	.3470	**.3470**	1-1/4	3-1/2	6
K910703490	.3490	**.3490**	1-1/4	3-1/2	6
K910703500	.3500	**.3500**	1-1/4	3-1/2	6
K910703510	.3510	**.3510**	1-1/4	3-1/2	6
K910703520	.3520	**.3520**	1-1/4	3-1/2	6

▶ NEXT PAGE

O.D. Tolerance	Shank Dia. Tolerance
Up to .2504" : +.0002"/-.0000" Over .2504" : +.0003"/-.0000"	+.0000"/-.0010"

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

YG REAMER

Decimal K9107 SERIES

CARBIDE, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

▶Precision reamers for a variety of materials, applications and sizes that ensure close hole tolerance and excellent surface finish
▶Straight Flute, Right Hand Cut
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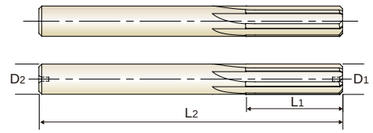
▶Type of Center
Up to .1175" : Non-Center
Over .1175" : Internal



CARBIDE 45° p.A404

Hole type 

Unit : inch

EDP No.	Nominal Size Decimal D1	Shank Diameter D2	Flute Length L1	Overall Length L2	No. of Flute
K910703530	.3530	**.3530**	1-1/4	3-1/2	6
K910703540	.3540	**.3540**	1-1/4	3-1/2	6
K910703550	.3550	**.3550**	1-1/4	3-1/2	6
K910703560	.3560	**.3560**	1-1/4	3-1/2	6
K910703570	.3570	**.3570**	1-1/4	3-1/2	6
K910703590	.3590	**.3590**	1-1/4	3-1/2	6
K910703600	.3600	**.3600**	1-1/4	3-1/2	6
K910703610	.3610	**.3610**	1-1/4	3-1/2	6
K910703620	.3620	**.3620**	1-1/4	3-1/2	6
K910703630	.3630	**.3630**	1-1/4	3-1/2	6
K910703640	.3640	**.3640**	1-1/4	3-1/2	6
K910703650	.3650	**.3650**	1-1/4	3-1/2	6
K910703660	.3660	**.3660**	1-1/4	3-1/2	6
K910703670	.3670	**.3670**	1-1/4	3-1/2	6
K910703690	.3690	**.3690**	1-1/4	3-1/2	6
K910703700	.3700	**.3700**	1-1/4	3-1/2	6
K910703710	.3710	**.3710**	1-1/4	3-1/2	6
K910703720	.3720	**.3720**	1-1/4	3-1/2	6
K910703730	.3730	**.3730**	1-1/4	3-1/2	6
K910703745	.3745	**.3745**	1-1/4	3-1/2	6
K910703750	.3750	**.3750**	1-1/4	3-1/2	6
K910703755	.3755	**.3755**	1-1/4	3-1/2	6
K910703760	.3760	**.3760**	1-1/4	3-1/2	6
K910703765	.3765	**.3765**	1-1/4	3-1/2	6

▶ NEXT PAGE

O.D. Tolerance	Shank Dia. Tolerance
Up to .2504" : +.0002"/-.0000" Over .2504" : +.0003"/-.0000"	+.0000"/-.0010"

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

YG REAMER

Decimal **K9107** SERIES

CARBIDE, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

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  Up to .1175" : Non-Center
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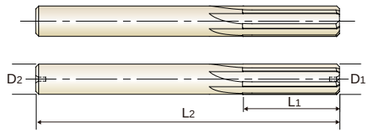


CARBIDE 45° p.A404

Hole type 

Unit : inch

EDP No.	Nominal Size Decimal D1	Shank Diameter D2	Flute Length L1	Overall Length L2	No. of Flute
K910703780	.3780	**.3780**	1-1/4	3-1/2	6
K910703790	.3790	**.3790**	1-1/4	3-1/2	6
K910703800	.3800	**.3800**	1-1/4	3-1/2	6
K910703810	.3810	**.3810**	1-1/4	3-1/2	6
K910703820	.3820	**.3820**	1-1/4	3-1/2	6
K910703830	.3830	**.3830**	1-1/4	3-1/2	6
K910703840	.3840	**.3840**	1-1/4	3-1/2	6
K910703850	.3850	**.3850**	1-1/4	3-1/2	6
K910703870	.3870	**.3870**	1-1/4	3-1/2	6
K910703880	.3880	**.3880**	1-1/4	3-1/2	6
K910703890	.3890	**.3890**	1-1/4	3-1/2	6
K910703900	.3900	**.3900**	1-1/4	3-1/2	6
K910703910	.3910	**.3910**	1-1/4	3-1/2	6
K910703920	.3920	**.3920**	1-1/4	3-1/2	6
K910703930	.3930	**.3930**	1-1/4	3-1/2	6
K910703940	.3940	**.3940**	1-1/4	3-1/2	6
K910703950	.3950	**.3950**	1-1/4	3-1/2	6
K910703960	.3960	**.3960**	1-1/4	3-1/2	6
K910703980	.3980	**.3980**	1-1/4	3-1/2	6
K910703990	.3990	**.3990**	1-1/4	3-1/2	6
K910704000	.4000	**.4000**	1-1/4	3-1/2	6
K910704010	.4010	**.4010**	1-1/4	3-1/2	6
K910704020	.4020	**.4020**	1-1/4	3-1/2	6
K910704030	.4030	**.4030**	1-1/4	3-1/2	6

▶ NEXT PAGE

O.D. Tolerance	Shank Dia. Tolerance
Up to .2504" : +.0002"/-.0000" Over .2504" : +.0003"/-.0000"	+.0000"/-.0010"

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	◎	○		○		○	○	○	◎	○	◎	○	◎	○

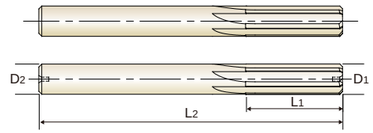
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

YG REAMER

Decimal K9107 SERIES

CARBIDE, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

▶Precision reamers for a variety of materials, applications and sizes that ensure close hole tolerance and excellent surface finish
▶Straight Flute, Right Hand Cut
▶Shank Diameter ≒ Nominal Reamer Diameter
▶Type of Center
Up to .1175" : Non-Center
Over .1175" : Internal



CARBIDE 45° p.A404

Hole type 

Unit : inch

EDP No.	Nominal Size Decimal D1	Shank Diameter D2	Flute Length L1	Overall Length L2	No. of Flute
K910704050	.4050	**.4050**	1-1/4	3-1/2	6
K910704060	.4060	**.4060**	1-1/4	3-1/2	6
K910704070	.4070	**.4070**	1-1/4	3-1/2	6
K910704080	.4080	**.4080**	1-1/4	3-1/2	6
K910704090	.4090	**.4090**	1-1/4	3-1/2	6
K910704100	.4100	**.4100**	1-1/4	3-1/2	6
K910704110	.4110	**.4110**	1-1/4	3-1/2	6
K910704120	.4120	**.4120**	1-1/4	3-1/2	6
K910704140	.4140	**.4140**	1-1/4	3-1/2	6
K910704150	.4150	**.4150**	1-1/4	3-1/2	6
K910704160	.4160	**.4160**	1-3/8	4	6
K910704170	.4170	**.4170**	1-3/8	4	6
K910704180	.4180	**.4180**	1-3/8	4	6
K910704190	.4190	**.4190**	1-3/8	4	6
K910704200	.4200	**.4200**	1-3/8	4	6
K910704210	.4210	**.4210**	1-3/8	4	6
K910704220	.4220	**.4220**	1-3/8	4	6
K910704230	.4230	**.4230**	1-3/8	4	6
K910704240	.4240	**.4240**	1-3/8	4	6
K910704250	.4250	**.4250**	1-3/8	4	6
K910704260	.4260	**.4260**	1-3/8	4	6
K910704270	.4270	**.4270**	1-3/8	4	6
K910704280	.4280	**.4280**	1-3/8	4	6
K910704290	.4290	**.4290**	1-3/8	4	6

▶ NEXT PAGE

O.D. Tolerance	Shank Dia. Tolerance
Up to .2504" : +.0002"/-.0000" Over .2504" : +.0003"/-.0000"	+.0000"/-.0010"

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	◎	○		○		○	○	○	◎	○	◎	○	◎	○

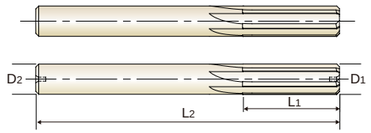
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

YG REAMER

Decimal **K9107** SERIES

CARBIDE, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

- ▶Precision reamers for a variety of materials, applications and sizes that ensure close hole tolerance and excellent surface finish
- ▶Straight Flute, Right Hand Cut
- ▶Shank Diameter ≒ Nominal Reamer Diameter
- ▶Type of Center
  Up to .1175" : Non-Center
  Over .1175" : Internal



CARBIDE 45° p.A404

Hole type

Unit : inch

EDP No.	Nominal Size Decimal D1	Shank Diameter D2	Flute Length L1	Overall Length L2	No. of Flute
K910704300	.4300	**.4300**	1-3/8	4	6
K910704310	.4310	**.4310**	1-3/8	4	6
K910704320	.4320	**.4320**	1-3/8	4	6
K910704330	.4330	**.4330**	1-3/8	4	6
K910704340	.4340	**.4340**	1-3/8	4	6
K910704350	.4350	**.4350**	1-3/8	4	6
K910704360	.4360	**.4360**	1-3/8	4	6
K910704365	.4365	**.4365**	1-3/8	4	6
K910704370	.4370	**.4370**	1-3/8	4	6
K910704375	.4375	**.4375**	1-3/8	4	6
K910704380	.4380	**.4380**	1-3/8	4	6
K910704385	.4385	**.4385**	1-3/8	4	6
K910704390	.4390	**.4390**	1-3/8	4	6
K910704400	.4400	**.4400**	1-3/8	4	6
K910704410	.4410	**.4410**	1-3/8	4	6
K910704420	.4420	**.4420**	1-3/8	4	6
K910704430	.4430	**.4430**	1-3/8	4	6
K910704440	.4440	**.4440**	1-3/8	4	6
K910704450	.4450	**.4450**	1-3/8	4	6
K910704460	.4460	**.4460**	1-3/8	4	6
K910704470	.4470	**.4470**	1-3/8	4	6
K910704480	.4480	**.4480**	1-3/8	4	6
K910704490	.4490	**.4490**	1-3/8	4	6
K910704500	.4500	**.4500**	1-3/8	4	6

▶ NEXT PAGE

O.D. Tolerance	Shank Dia. Tolerance
Up to .2504" : +.0002"/-.0000" Over .2504" : +.0003"/-.0000"	+.0000"/-.0010"

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	◎	○		○		○	○	○	◎	○	◎	○	◎	○

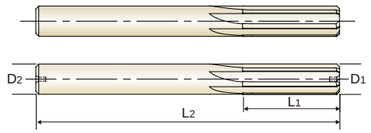
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

YG REAMER

Decimal K9107 SERIES

CARBIDE, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

▶Precision reamers for a variety of materials, applications and sizes that ensure close hole tolerance and excellent surface finish
▶Straight Flute, Right Hand Cut
▶Shank Diameter ≒ Nominal Reamer Diameter
▶Type of Center
Up to .1175" : Non-Center
Over .1175" : Internal



CARBIDE 45° p.A404

Hole type

Unit : inch

EDP No.	Nominal Size Decimal D1	Shank Diameter D2	Flute Length L1	Overall Length L2	No. of Flute
K910704510	.4510	**.4510**	1-3/8	4	6
K910704520	.4520	**.4520**	1-3/8	4	6
K910704530	.4530	**.4530**	1-3/8	4	6
K910704540	.4540	**.4540**	1-3/8	4	6
K910704550	.4550	**.4550**	1-3/8	4	6
K910704560	.4560	**.4560**	1-3/8	4	6
K910704570	.4570	**.4570**	1-3/8	4	6
K910704580	.4580	**.4580**	1-3/8	4	6
K910704590	.4590	**.4590**	1-3/8	4	6
K910704600	.4600	**.4600**	1-3/8	4	6
K910704610	.4610	**.4610**	1-3/8	4	6
K910704620	.4620	**.4620**	1-3/8	4	6
K910704630	.4630	**.4630**	1-3/8	4	6
K910704640	.4640	**.4640**	1-3/8	4	6
K910704650	.4650	**.4650**	1-3/8	4	6
K910704660	.4660	**.4660**	1-3/8	4	6
K910704670	.4670	**.4670**	1-3/8	4	6
K910704680	.4680	**.4680**	1-3/8	4	6
K910704690	.4690	**.4690**	1-3/8	4	6
K910704700	.4700	**.4700**	1-3/8	4	6
K910704710	.4710	**.4710**	1-3/8	4	6
K910704720	.4720	**.4720**	1-3/8	4	6
K910704730	.4730	**.4730**	1-3/8	4	6
K910704740	.4740	**.4740**	1-3/8	4	6

▶ NEXT PAGE

O.D. Tolerance	Shank Dia. Tolerance
Up to .2504" : +.0002"/-.0000" Over .2504" : +.0003"/-.0000"	+.0000"/-.0010"

◎ : 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		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	◎	○		○		○	○	○	◎	○	◎	○	◎	○

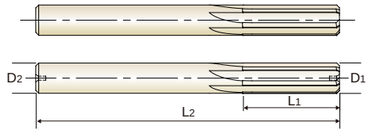
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

REAMER

Decimal **K9107** SERIES

CARBIDE, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

- ▶Precision reamers for a variety of materials, applications and sizes that ensure close hole tolerance and excellent surface finish
- ▶Straight Flute, Right Hand Cut
- ▶Shank Diameter ≒ Nominal Reamer Diameter
- ▶Type of Center
  Up to .1175" : Non-Center
  Over .1175" : Internal



CARBIDE 45° p.A404

Hole type 

Unit : inch

EDP No.	Nominal Size Decimal	Shank Diameter	Flute Length	Overall Length	No. of Flute
	D1	D2	L1	L2	
K910704750	.4750	**.4750**	1-3/8	4	6
K910704760	.4760	**.4760**	1-1/2	4	6
K910704770	.4770	**.4770**	1-1/2	4	6
K910704780	.4780	**.4780**	1-1/2	4	6
K910704790	.4790	**.4790**	1-1/2	4	6
K910704800	.4800	**.4800**	1-1/2	4	6
K910704810	.4810	**.4810**	1-1/2	4	6
K910704820	.4820	**.4820**	1-1/2	4	6
K910704830	.4830	**.4830**	1-1/2	4	6
K910704840	.4840	**.4840**	1-1/2	4	6
K910704850	.4850	**.4850**	1-1/2	4	6
K910704860	.4860	**.4860**	1-1/2	4	6
K910704870	.4870	**.4870**	1-1/2	4	6
K910704880	.4880	**.4880**	1-1/2	4	6
K910704890	.4890	**.4890**	1-1/2	4	6
K910704900	.4900	**.4900**	1-1/2	4	6
K910704910	.4910	**.4910**	1-1/2	4	6
K910704920	.4920	**.4920**	1-1/2	4	6
K910704930	.4930	**.4930**	1-1/2	4	6
K910704940	.4940	**.4940**	1-1/2	4	6
K910704950	.4950	**.4950**	1-1/2	4	6
K910704960	.4960	**.4960**	1-1/2	4	6
K910704970	.4970	**.4970**	1-1/2	4	6
K910704980	.4980	**.4980**	1-1/2	4	6

▶ NEXT PAGE

O.D. Tolerance	Shank Dia. Tolerance
Up to .2504" : +.0002"/-.0000" Over .2504" : +.0003"/-.0000"	+.0000"/-.0010"

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

REAMER

Decimal K9107 SERIES

CARBIDE, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

▶Precision reamers for a variety of materials, applications and sizes that ensure close hole tolerance and excellent surface finish
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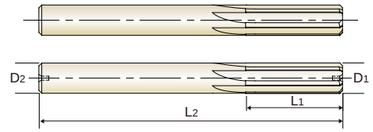
▶Type of Center
Up to .1175" : Non-Center
Over .1175" : Internal



CARBIDE 45° p.A404

Hole type 

Unit : inch

EDP No.	Nominal Size Decimal	Shank Diameter	Flute Length	Overall Length	No. of Flute
	D1	D2	L1	L2	
K910704990	.4990	**.4990**	1-1/2	4	6
K910704995	.4995	**.4995**	1-1/2	4	6
K910705000	.5000	**.5000**	1-1/2	4	6
K910705005	.5005	**.5005**	1-1/2	4	6
K910705010	.5010	**.5010**	1-1/2	4	6
K910705020	.5020	**.5020**	1-1/2	4	6

O.D. Tolerance	Shank Dia. Tolerance
Up to .2504" : +.0002"/-.0000" Over .2504" : +.0003"/-.0000"	+.0000"/-.0010"

◎ : 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		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	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

YG REAMER RECOMMENDED CUTTING CONDITIONS

HSS, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

SFM = ft/min.
IPR = inch/rev.

ISO	VDI 3323	Material Description	SFM (ft/min.)	IPR(inch/rev.)						
				<Ø.0394	Ø.0394	Ø.0787	Ø.1575	Ø.2362	Ø.315	Ø.3937
P	1	Non-alloy steel	46	.0004~.0012	.0012~.002	.002~.0028	.0028~.0035	.0035~.0043	.0043~.0055	.0055~.0067
	2		46	.0004~.0012	.0012~.002	.002~.0028	.0028~.0035	.0035~.0043	.0043~.0055	.0055~.0067
	3		33	.0004~.0012	.0012~.002	.002~.0028	.0028~.0035	.0035~.0043	.0043~.0051	.0051~.0059
	4		26	.0004~.0012	.0012~.002	.002~.0028	.0028~.0035	.0035~.0043	.0043~.0051	.0051~.0059
	5									
	6	Low alloy steel	39	.0004~.0012	.0012~.002	.002~.0028	.0028~.0035	.0035~.0043	.0043~.0051	.0051~.0059
	7		26	.0004~.0012	.0012~.002	.002~.0028	.0028~.0035	.0035~.0043	.0043~.0051	.0051~.0059
	8									
	9									
	10	High alloyed steel, and tool steel	20	.0004~.0008	.0008~.0012	.0012~.0016	.0016~.002	.002~.0024	.0024~.0028	.0028~.0031
	11									
M	12	Stainless steel	20	.0004~.0008	.0008~.0012	.0012~.0016	.0016~.002	.002~.0024	.0024~.0028	.0028~.0031
	13		16	.0004~.0008	.0008~.0012	.0012~.0016	.0016~.002	.002~.0024	.0024~.0028	.0028~.0031
	14		13	.0004~.0008	.0008~.0012	.0012~.0016	.0016~.002	.002~.0024	.0024~.0028	.0028~.0031
K	15	Grey cast iron	46	.0004~.0012	.0012~.002	.002~.0028	.0028~.0035	.0035~.0043	.0043~.0055	.0055~.0067
	16		36	.0004~.0012	.0012~.002	.002~.0028	.0028~.0035	.0035~.0043	.0043~.0051	.0051~.0059
	17	Nodular cast iron	39	.0004~.0012	.0012~.002	.002~.0028	.0028~.0035	.0035~.0043	.0043~.0055	.0055~.0067
	18		33	.0004~.0012	.0012~.002	.002~.0028	.0028~.0035	.0035~.0043	.0043~.0051	.0051~.0059
	19	Malleable cast iron	39	.0004~.0012	.0012~.002	.002~.0028	.0028~.0035	.0035~.0043	.0043~.0055	.0055~.0067
	20		33	.0004~.0012	.0012~.002	.002~.0028	.0028~.0035	.0035~.0043	.0043~.0051	.0051~.0059
N	21	Aluminum-wrought alloy	59	.0008~.0024	.0024~.0039	.0039~.0051	.0051~.0063	.0063~.0075	.0075~.0087	.0087~.0098
	22		59	.0008~.0024	.0024~.0039	.0039~.0051	.0051~.0063	.0063~.0075	.0075~.0087	.0087~.0098
	23	Aluminum-cast, alloyed	59	.0008~.0024	.0024~.0039	.0039~.0051	.0051~.0063	.0063~.0075	.0075~.0087	.0087~.0098
	24		56	.0008~.0024	.0024~.0039	.0039~.0051	.0051~.0063	.0063~.0075	.0075~.0087	.0087~.0098
	25									
	26	Copper and Copper Alloys (Bronze / Brass)	59	.0008~.0024	.0024~.0039	.0039~.0051	.0051~.0063	.0063~.0075	.0075~.0087	.0087~.0098
	27		52	.0008~.0024	.0024~.0039	.0039~.0051	.0051~.0063	.0063~.0075	.0075~.0087	.0087~.0098
	28		66	.0008~.0024	.0024~.0039	.0039~.0051	.0051~.0063	.0063~.0075	.0075~.0087	.0087~.0098
	29	Non Metallic Materials								
	30									

IPR(inch/rev.)						
Ø.4724	Ø.5512	Ø.6299	Ø.7874
---	---	---	---
.0067~.0079	.0079~.0091	.0091~.0102	.0102~.0114
.0067~.0079	.0079~.0091	.0091~.0102	.0102~.0114
.0059~.0067	.0067~.0075	.0075~.0083	.0083~.0091
.0059~.0067	.0067~.0075	.0075~.0083	.0083~.0091
.0059~.0067	.0067~.0075	.0075~.0083	.0083~.0091
.0059~.0067	.0067~.0075	.0075~.0083	.0083~.0091
.0031~.0039	.0039~.0047	.0047~.0055	.0055~.0063
.0031~.0039	.0039~.0047	.0047~.0055	.0055~.0063
.0031~.0039	.0039~.0047	.0047~.0055	.0055~.0063
.0031~.0039	.0039~.0047	.0047~.0055	.0055~.0063
.0067~.0079	.0079~.0091	.0091~.0102	.0102~.0114
.0059~.0067	.0067~.0075	.0075~.0083	.0083~.0091
.0067~.0079	.0079~.0091	.0091~.0102	.0102~.0114
.0059~.0067	.0067~.0075	.0075~.0083	.0083~.0091
.0067~.0079	.0079~.0091	.0091~.0102	.0102~.0114
.0059~.0067	.0067~.0075	.0075~.0083	.0083~.0091
.0098~.011	.011~.0122	.0122~.0134	.0134~.0146
.0098~.011	.011~.0122	.0122~.0134	.0134~.0146
.0098~.011	.011~.0122	.0122~.0134	.0134~.0146
.0098~.011	.011~.0122	.0122~.0134	.0134~.0146
.0098~.011	.011~.0122	.0122~.0134	.0134~.0146
.0098~.011	.011~.0122	.0122~.0134	.0134~.0146
.0098~.011	.011~.0122	.0122~.0134	.0134~.0146

YG REAMER RECOMMENDED CUTTING CONDITIONS

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

YG REAMER RECOMMENDED CUTTING CONDITIONS

CARBIDE, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

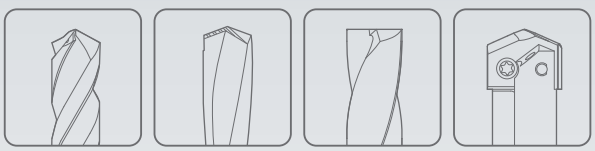
SFM = ft/min.
IPR = inch/rev.

ISO	VDI 3323	Material Description	SFM (ft/min.)	IPR(inch/rev.)					
				<Ø.0394	Ø.0394	Ø.0787	Ø.1575	Ø.2362	Ø.315	Ø.3937	Ø.4724	Ø.5512	Ø.6299
P	1	Non-alloy steel	59	.0008~.002	.002~.0031	.0031~.0039	.0039~.0047	.0047~.0063	.0063~.0079	.0079~.0094	.0094~.011	.011~.0126	.0126~.0142
	2		56	.0008~.002	.002~.0031	.0031~.0039	.0039~.0047	.0047~.0063	.0063~.0079	.0079~.0094	.0094~.011	.011~.0126	.0126~.0142
	3		49	.0008~.002	.002~.0031	.0031~.0039	.0039~.0047	.0047~.0063	.0063~.0079	.0079~.0094	.0094~.011	.011~.0126	.0126~.0142
	4		49	.0008~.002	.002~.0031	.0031~.0039	.0039~.0047	.0047~.0063	.0063~.0079	.0079~.0094	.0094~.011	.011~.0126	.0126~.0142
	5		49	.0008~.002	.002~.0031	.0031~.0039	.0039~.0047	.0047~.0063	.0063~.0079	.0079~.0094	.0094~.011	.011~.0126	.0126~.0142
	6	Low alloy steel	56	.0008~.0016	.0016~.0024	.0024~.0031	.0031~.0039	.0039~.0047	.0047~.0059	.0059~.0071	.0071~.0083	.0083~.0094	.0094~.0106
	7		46	.0008~.0016	.0016~.0024	.0024~.0031	.0031~.0039	.0039~.0047	.0047~.0059	.0059~.0071	.0071~.0083	.0083~.0094	.0094~.0106
	8		46	.0008~.0016	.0016~.0024	.0024~.0031	.0031~.0039	.0039~.0047	.0047~.0059	.0059~.0071	.0071~.0083	.0083~.0094	.0094~.0106
	9												
	10	High alloyed steel, and tool steel	43	.0008~.0016	.0016~.0024	.0024~.0031	.0031~.0039	.0039~.0047	.0047~.0059	.0059~.0071	.0071~.0083	.0083~.0094	.0094~.0106
	11												
M	12	Stainless steel	26	.0008~.0016	.0016~.0024	.0024~.0031	.0031~.0039	.0039~.0047	.0047~.0059	.0059~.0071	.0071~.0083	.0083~.0094	.0094~.0106
	13		23	.0008~.0016	.0016~.0024	.0024~.0031	.0031~.0039	.0039~.0047	.0047~.0059	.0059~.0071	.0071~.0083	.0083~.0094	.0094~.0106
	14		20	.0008~.0016	.0016~.0024	.0024~.0031	.0031~.0039	.0039~.0047	.0047~.0059	.0059~.0071	.0071~.0083	.0083~.0094	.0094~.0106
K	15	Grey cast iron	66	.0008~.002	.002~.0031	.0031~.0039	.0039~.0047	.0047~.0063	.0063~.0079	.0079~.0094	.0094~.011	.011~.0126	.0126~.0142
	16		49	.0008~.002	.002~.0031	.0031~.0039	.0039~.0047	.0047~.0063	.0063~.0079	.0079~.0094	.0094~.011	.011~.0126	.0126~.0142
	17	Nodular cast iron	59	.0008~.002	.002~.0031	.0031~.0039	.0039~.0047	.0047~.0063	.0063~.0079	.0079~.0094	.0094~.011	.011~.0126	.0126~.0142
	18		43	.0008~.002	.002~.0031	.0031~.0039	.0039~.0047	.0047~.0063	.0063~.0079	.0079~.0094	.0094~.011	.011~.0126	.0126~.0142
	19	Malleable cast iron	59	.0008~.002	.002~.0031	.0031~.0039	.0039~.0047	.0047~.0063	.0063~.0079	.0079~.0094	.0094~.011	.011~.0126	.0126~.0142
	20		43	.0008~.002	.002~.0031	.0031~.0039	.0039~.0047	.0047~.0063	.0063~.0079	.0079~.0094	.0094~.011	.011~.0126	.0126~.0142
N	21	Aluminum-wrought alloy	98	.0008~.0024	.0024~.0039	.0039~.0051	.0051~.0063	.0063~.0079	.0079~.0098	.0098~.0118	.0118~.0138	.0138~.0157	.0157~.0177
	22		98	.0008~.0024	.0024~.0039	.0039~.0051	.0051~.0063	.0063~.0079	.0079~.0098	.0098~.0118	.0118~.0138	.0138~.0157	.0157~.0177
	23	Aluminum-cast, alloyed	98	.0008~.0024	.0024~.0039	.0039~.0051	.0051~.0063	.0063~.0079	.0079~.0098	.0098~.0118	.0118~.0138	.0138~.0157	.0157~.0177
	24		82	.0008~.0024	.0024~.0039	.0039~.0051	.0051~.0063	.0063~.0079	.0079~.0098	.0098~.0118	.0118~.0138	.0138~.0157	.0157~.0177
	25												
	26	Copper and Copper Alloys (Bronze / Brass)	82	.0008~.0024	.0024~.0039	.0039~.0051	.0051~.0063	.0063~.0079	.0079~.0098	.0098~.0118	.0118~.0138	.0138~.0157	.0157~.0177
	27		72	.0008~.0024	.0024~.0039	.0039~.0051	.0051~.0063	.0063~.0079	.0079~.0098	.0098~.0118	.0118~.0138	.0138~.0157	.0157~.0177
	28		75	.0008~.0024	.0024~.0039	.0039~.0051	.0051~.0063	.0063~.0079	.0079~.0098	.0098~.0118	.0118~.0138	.0138~.0157	.0157~.0177
	29	Non Metallic Materials											
	30												

YG REAMER RECOMMENDED CUTTING CONDITIONS

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HIGH HARDENED STEELS
STANDARD CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
STRAIGHT SHANK DRILLS
AIRCRAFT DRILLS
SILVER & DEMING DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
COMBINATION DRILLS & COUNTERSINK
SPADE DRILLS
REAMERS
TECHNICAL DATA

Global Cutting Tool Leader YG-1



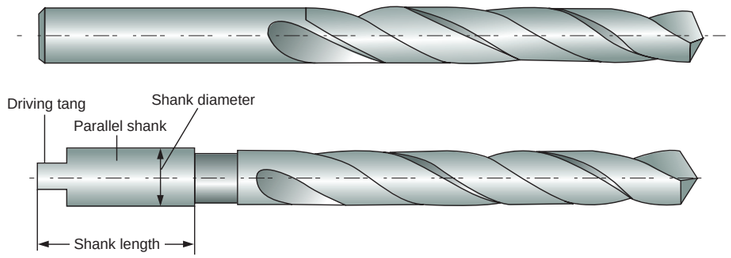
HOLEMAKING

Being the best through innovation

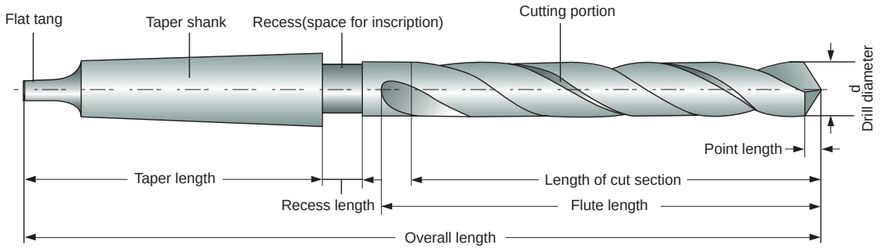
DRILLS

TECHNICAL DATA

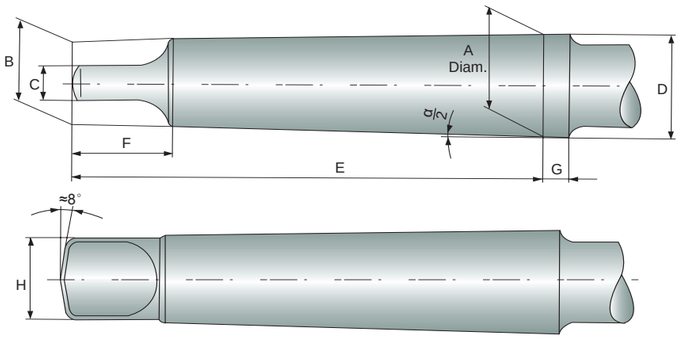
1 Twist Drill with parallel shank



2 Twist Drill with taper shank

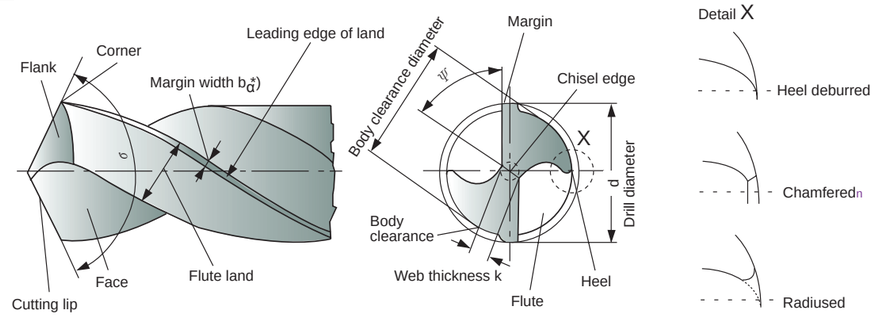


3 General dimensions of morse taper shanks



Morse Taper Shank	A mm	B mm	C(h13) mm	D mm	E mm	F(max.) mm	G mm	H(max.) mm	α/2
No.1	12.065	9	5.2	12.2	62	13.5	3.5	8.7	1° 25′ 43″
No.2	17.780	14	6.3	18.0	75	16	5	13.5	1° 25′ 50″
No.3	23.825	19.1	7.9	24.1	94	20	5	18.5	1° 26′ 16″
No.4	31.267	25.2	11.9	31.6	117.5	24	6.5	24.5	1° 29′ 15″
No.5	44.399	36.5	15.9	44.7	149.5	29	6.5	35.7	1° 30′ 26″
No.6	63.348	52.4	19	63.8	210	40	8	51	1° 29′ 36″

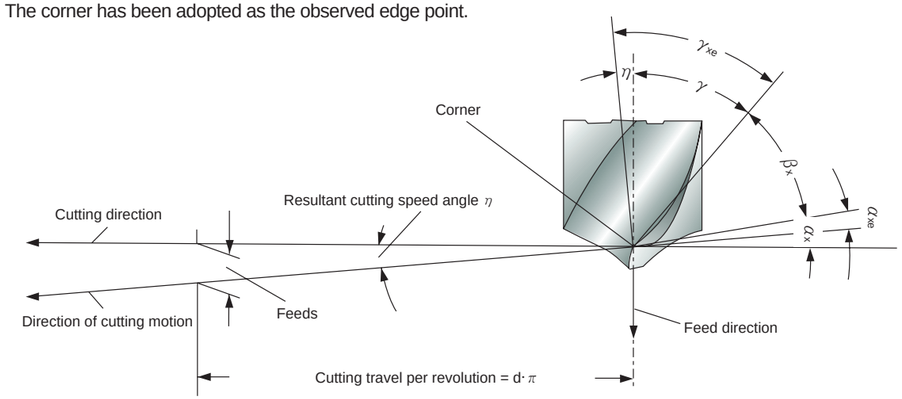
4 Cutting portion



σ = Point angle (sigma)
ψ = Chisel edge angle (psi)
* In the context of cutting technology, land width b_{α} is the body clearance land width which is to be by b_{fan}, see DIN 6581.

5 Angle at the cutting edges

The corner has been adopted as the observed edge point.



α_x = Side clearance angle (alpha)
α_{xe} = Effective side clearance angle
β_x = Side wedge angle (beta)
γ_x = Front rake angle (gamma)
γ_{xe} = Working front rake angle
η = Resultant cutting speed angle (eta)

Clearance angle α, wedge angle β and rake angle γ are measured in the tool orthogonal plane. For details, see DIN 6581, definitions of metal-cutting technology; geometry at the tool edge.

Web thickness k

Test values : The web thickness according to Fig. 1 shall not be less than the minimum value k_{min} indicated in Fig. 2.
Test point : At the point of the drill.
Testing equipment : Slide gauge with measuring points.

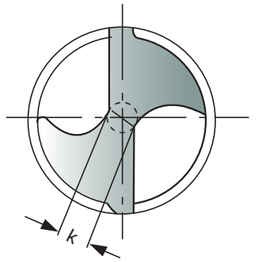


Figure 1. Web thickness k

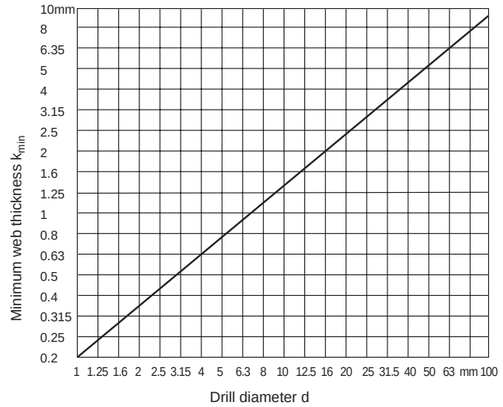


Figure 2. Web thickness k_{min}

Margin width bα

Test values : The land width as in Fig. 3 shall lie within the limited values indicated in Fig. 4.
Test point : 5mm behind the corner
Testing equipment : Slide gauge

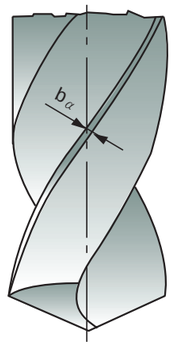


Figure 3. Margin width b_α

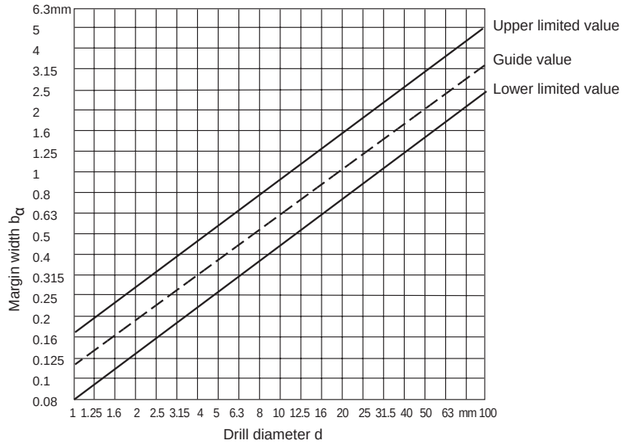


Figure 4. Margin width b_α

Angle on Twist Drills

(1) Side rake angle γ_f (Helix angle)
Recommended test value : Recommended ranges depending on the tool types N,H and W according to DIN 1836 and the diameter of the drill included in Fig. 5.
Test point : At the corner, see Fig. 6.
Testing equipment : According to VDI Guideline 3331 Part 1, Section Margin width b_α
Note : The side rake angle γ_f is measured in place of the orthogonal rake angle γ_o found in the wedge measuring plane (see DIN 6581), as this changes along the cutting edge (becoming smaller towards the point of the drill).

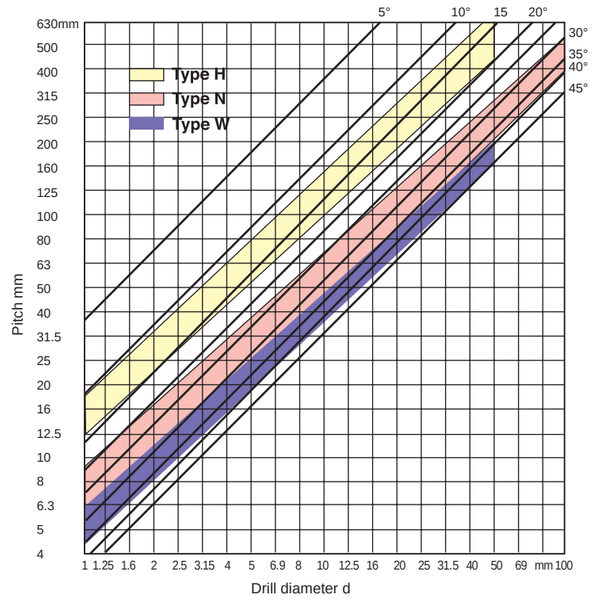


Figure 6. Side rake angle γ_f

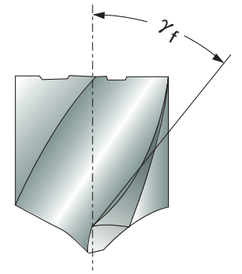


Figure 5. Side rake angle γ_f

(2) Point angle σ
Test value : Usual executin for tool types N and H : σ =118°, for tool type W : σ =130°
Test point : At the cutting, see Fig. 7.
Testing equipment : According to VDI Guideline 3331 Part 1, Section Margin width b_α

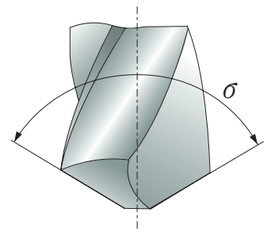


Figure 7. Point angle σ

9 Resharpening Twist Drills

(1) Drills are worn off irregularly. It should be sharpened prior to developing into excessive wear.

(2) Resharpening

① Grind the correct point angle to suit your application. (figure 8)
② Check that both cutting lips have the same angle. On a 130° point, each lip should be 65° toward the axis. The point must be on center, i.e., the chisel edge must produce cutting lips of equal length. (figure 8)
③ Grind Primary relief and Secondary clearance. (figure 9)
④ Grind web thinning. (figure 10)

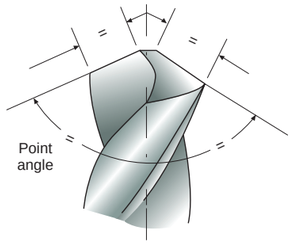


Figure 8

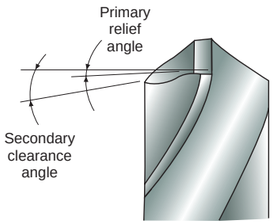


Figure 9

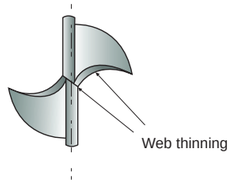
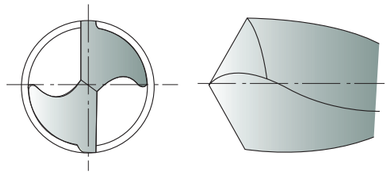


Figure 10

10 Web thinning

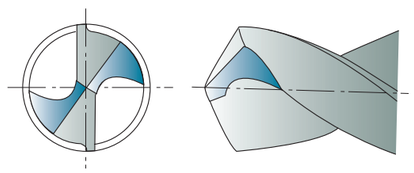
(1) Without thinning

Suitable for drill of general purpose.
Thanks to thin web thickness, web thinning is not needed.
This without web thinning type is applied to design of drills for mild steels, alloy steels, cast iron, stainless steels, titanium, inconel, etc. and conventional cutting conditons.



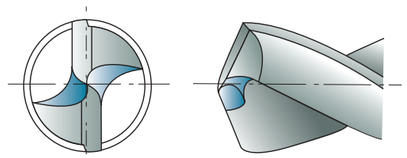
(2) Type C thinning (DIN1412 FORM C, SPLIT POINT)

Because Split point enables good centering when drilling and breaks the chips, chip removals are easy.
Suitable for drill design in high hardened tough materials, i.e, heat treated steels, titanium alloys, stainless steels, incoroy inconel, nimonic, etc.



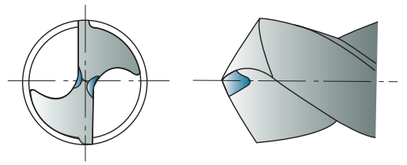
(3) Type R thinning (HELICAL THINNING)

Helical thinning ensures to frequent chip breaking and removal. The different direction force of cutting edges and helical thinning parts enable that chips curl, break and remove through the flutes. In addition, helical thinning makes the chip room up to center, remove the chisel and enables good centering



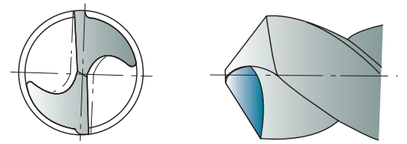
(4) Type A thinning (DIN1412 FORM A)

A type thinnings makes thin chisel, good chip removal and favorable centering.
This type is the easiest type to grind the thinning. In narrow web and wide fluted drills, keeping of the rigidity and smooth chip removal are possible.



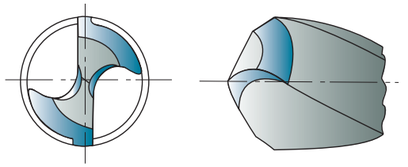
(5) Type B thinning (DIN1412 FORM B)

In case of work materials with low cutting resistance and good chip removal, i.e., cast iron, aluminum, plastic etc., B type thinning is suitable.
Especially when drills for high hardened steels are designed, this type is applied to decrease rake angle and avoid chipping of cutting lips.



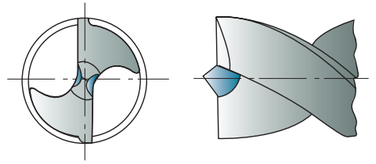
(6) Type D thinning (DIN1412 FORM D)

Grey cast iron thinning; bevelling of external edges strengthens the cutting edge.
Used for medium to high grey cast iron hardness and for abrasives.



(7) Type E thinning (DIN1412 FORM E)

Center drill bit thinning; ensures optimal center drilling and does not leave burs in through holes.
As the bit and cutting edges are delicate, this bit should be used for drilling thin sheet metal.



11 Surface Finishes for high speed steels Twist Drills

(1) Bright Finish

Drills with a bright finish are without surface treatment and ground condition.
Especially bright finished drills are used in machining of non ferrous materials.

(2) Coloring (Gold color)

The coloring is a thin oxide layer formed on the tool surfaces.
This is often applied to cobalt high speed steels twist drills.

(3) Steam Tempered (black oxide finish)

This is a black oxide layer 1-2㎛ formed on the tool surfaces.
Steam Tempered treated drill is the result of a steam tempering operation. Because the oxide layer retains some coolant on the tool surface, and aids chip flow, helps to dissipate heat, steam homo treated drills are recommended for ferrous applications.

12 Coating

The use of coated cutting tools reduce production costs.
For example
- Avoidance of machine downtime due to premature tool wear.
- Higher cutting capabilities to reduce actual machining times.
- Reproducible tool life.
- Improvement of component surface quality.

(1) TiN (Titanium Nitride) coating

Titanium Nitride gives the tool a higher performance in comparison to traditional non-coated drills.
TiN coating, with good all-around properties, is recommended for the general application, i.e., attack by abrasive, adhesive and chemical wear in equal proportions.

(2) TiCN (Titanium Carbon Nitride) coating

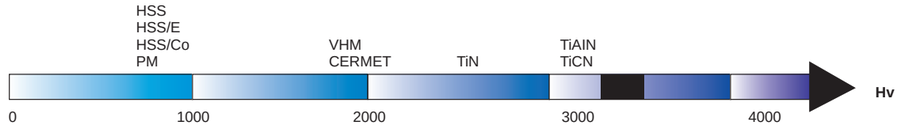
TiCN coating should be employed when severe thermodynamic stress is expected, for example when drilling in high hardened steels or in mild steels with high speed and feed.

(3) TiAlN (Titanium Alumium Nitride) coating

The addition of Aluminum to the Titanium Nitride produces an increase in hardness and an exceptional increase in resistance to oxidation at high temperature.
TiAlN coating is applied to drilling with severe thermal stress on cutting edges when continuous non-step feed, dry cutting or high speed cutting.

(4) Properties of coating

Properties	TiN	TiCN	TiAlN
Coating color	gold - yellow	blue - grey	violet - grey
Hardness (Hv 0.05)	2300	3000	3000
Coating thickness (㎛)	1~ 4	1~ 4	1~ 5
Max. working temperature (°C)	600	400	800
Coefficient of friction against steels (dry)	0.4	0.4	0.4



(5) Selection of coating

Work-material	Hss Twist Drills	Carbide Drills
Unalloyed steels	TiCN, TiAlN	TiCN, TiAlN
Steels < 1000 N/mm²	TiCN, TiAlN	TiCN, TiAlN
Steels > 1000 N/mm²	TiCN, TiAlN	TiCN, TiAlN
Stainless steels	TiCN, TiAlN	TiCN, TiAlN
Cast iron	TiCN, TiAlN	TiAlN
Al-wrought alloys	TiN	TiN
Al-cast alloys	TiCN	TiCN
Copper (pure)	CrN	CrN
Brass	TiCN	TiCN
Bronze	TiCN	TiCN

13 Drill sizes before Tapping

(1) Metric - ISO threads coarse pitch

Nominal diameter	Drill diameter	Nominal diameter	Drill diameter	Nominal diameter	Drill diameter	Nominal diameter	Drill diameter
		M3	2.5	M11	9.5	M30	26.5
M1	0.75	M3.5	2.9	M12	10.2	M33	29.5
M1.2	0.95	M4	3.3	M14	12.0	M36	32.0
M1.4	1.1	M5	4.2	M16	14.0	M39	35.0
M1.6	1.25	M6	5.0	M18	15.5	M42	37.5
M1.8	1.45	M7	6.0	M20	17.5	M45	40.5
M2	1.6	M8	6.8	M22	19.5	M48	43.0
M2.2	1.75	M9	7.8	M24	21.0	M52	47.0
M2.5	2.05	M10	8.5	M27	24.0	M56	50.5

(2) Metric ISO threads fine pitch

Nominal diameter	Tap Pitch	Drill diameter	Nominal diameter	Tap Pitch	Drill diameter	Nominal diameter	Tap Pitch	Drill diameter
2.5	0.35	2.15	17	1.5	15.5	33	1.5	31.5
3	0.35	2.65	18	1	17	33	2	31
3.5	0.35	3.15	18	1.5	16.5	33	3	30
4	0.5	3.5	18	2	16	35	1.5	33.5
4.5	0.5	4	20	1	19	36	1.5	34.5
5	0.5	4.5	20	1.5	18.5	36	2	34
5.5	0.5	5	20	2	18	36	3	33
6	0.75	5.2	22	1	21	38	1.5	36.5
7	0.75	6.2	22	1.5	20.5	39	1.5	37.5
8	0.75	7.2	22	2	20	39	2	37
8	1	7	24	1	23	39	3	36
9	0.75	8.2	24	1.5	22.5	40	1.5	38.5
9	1	8	24	2	22	40	2	38
10	0.75	9.2	25	1	24	40	3	37
10	1	9	25	1.5	23.5	42	1.5	40.5
10	1.25	8.8	25	2	23	42	2	40
11	0.75	10.2	26	1.5	24.5	42	3	39
11	1	10	27	1	26	45	1.5	43.5
12	1	11	27	1.5	25.5	45	2	43
12	1.25	10.8	27	2	25	45	3	42
12	1.5	10.5	28	1	27	48	1.5	46.5
14	1	13	28	1.5	26.5	48	2	46
14	1.25	12.8	28	2	26	48	3	45
14	1.5	12.5	30	1	29	50	1.5	48.5
15	1	14	30	1.5	28.5	50	2	48
15	1.5	13.5	30	2	28	50	3	47
16	1	15	30	3	27	52	1.5	50.5
16	1.5	14.5	32	1.5	30.5	52	2	50
17	1	16	32	2	30	52	3	49

(3) WITHWORTH pipe threads (BSP)

Nominal size	Drill diameter	Nominal size	Drill diameter
inches	mm	inches	mm
G1/8	8.8	G1∗1/4	39.5
G1/4	11.8	G1∗3/8	42.0
G3/8	15.25	G1∗1/2	45.0
G1/2	19.0	G1∗3/4	51.0
G5/8	21.0	G2	57.0
G3/4	24.5	G2∗1/4	63.0
G7/8	28.25	G2∗1/2	73.0
G1	30.75	G2∗3/4	79.0
G11/8	35.5	G3	85.0

(4) American unified coarse threads

UNC	Drill diameter		UNC	Drill diameter	
	inches	mm		inches	mm
No. 1	53	1.51	**7/16**	U	9.35
No. 2	50	1.78	**1/2**	27/64	10.71
No. 3	47	1.99	**9/16**	31/64	12.30
No. 4	43	2.26	**5/8**	17/32	13.49
No. 5	38	2.58	**3/4**	21/32	16.67
No. 6	36	2.71	**7/8**	49/64	19.44
No. 8	29	3.45	**1**	7/8	22.22
No. 10	25	3.8	**1∗1/8**	63/64	25.00
No. 12	16	4.5	**1∗1/4**	1∗7/64	28.18
1/4	7	5.11	**1∗3/8**	1∗7/32	30.95
5/16	F	6.53	**1∗1/2**	1∗11/32	34.13
3/8	5/16	7.94			

(5) American unified fine threads

NF	Drill diameter		NF	Drill diameter	
	inches	mm		inches	mm
No. 0	3/64	1.19	**3/8**	Q	8.43
No. 1	53	1.51	**7/16**	25/64	9.92
No. 2	50	1.78	**1/2**	29/64	11.51
No. 3	45	2.08	**9/16**	33/64	13.10
No. 4	42	2.37	**5/8**	37/64	14.86
No. 5	37	2.64	**3/4**	11/16	17.46
No. 6	33	2.87	**7/8**	13/16	20.64
No. 8	29	3.45	**1**	59/64	23.42
No. 10	21	4.04	**1∗1/8**	1∗ 3/64	26.59
No. 12	14	4.62	**1∗1/4**	1∗11/32	29.76
1/4	3	5.41	**1∗3/8**	1∗19/32	32.94
5/16	1	6.91	**1∗1/2**	1∗27/64	36.11

TECHNICAL DATA

ISO Tolerance

Drill Diameter Tolerance Inch

up to .118	over .118 up to .236	over .236 up to .394	over .394 up to .709
+0 -.00055	+0 -.00071	+0 -.00087	+0 -.00106

Drill Diameter Tolerance Metric

Diameter (mm)	1 - 3 from to	3 - 6 over to	6 - 10 over to	10 - 18 over to	18 - 30 over to
h6	0 –.00024	0 –.00032	0 –.00036	0 –.00044	0 –.00052
h7	0 –.0004	0 –.00048	0 –.00059	0 –.00071	0 –.00083
h8	0 –.00056	0 –.00071	0 –.00087	0 –.00107	0 –.00130
m7	+.00048 +.00007	+.00063 +.00015	+.00083 +.00023	+.00099 +.00027	+.00114 +.00031

Trouble Shooting in Drilling

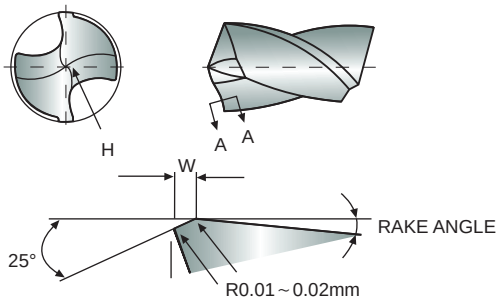
Occurrence of trouble	Cause of trouble	Countermeasures
Drill will not enter work	1. Drill is dull. 2. Lip relief too small. 3. Too thick a web.	1. Grind lip relief sufficiently. 2. Grind web thinning. 3. Choose a drill with narrow web.
Margin chipping	1.Oversized jig bushing.	1. Choose the suitable jig bushing for drill diameter
Cutting lip breaks	1. Lip relief too much. 2. Feed too heavy.	1. Grind lip relief sufficiently. 2. Decrease feed rate.
Tang breaks Bruch der	1. Imperfect fit between taper shank and socket. 2. Burred or Badly worn sockets.	1. Clean the dirt or chips in sockets. 2. Change the worn sockets to new ones.
Drill breaks in brass	1. Unsuitable drill 2. Flutes clogged with chips	1. Choose the suitable drill for work material.
Chipping of drill center	1. Lip relief too much. 2. Feed too heavy.	1. Grind lip relief sufficiently. 2. Decrease feed rate.
Hole oversize	1. Unequal angle or length of cutting edges. 2. Loosen spindle.	1. Resharpening point, choose correct drills. 2. Tighten spindle sufficiently.
Outer corners broken down	1. Cutting speed too high. 2. Hard spots in work material. 3. Flutes clogged with chips. 4. Too wear of drills.	1. Grind point to suit work material. 2. Decrease the feed rates. 3. Resharpening early beforce too wear.
Large chip of one flute and small chip of other flute	1. Improperly ground point. 2. Only one lip doing all the cutting	1. Properly grind point. 2. Grind point with same point angle and length of lip 3. Grind with small lip height.
Hole rough	1. Improperly ground point. 2. Unenough coolant supply 3. Too much feed. 4. Fixture not rigid.	1. Properly grind point. 2. Supply coolant enough. 3. Decrease the feed rate. 4. Tighten the fixture or replace.

Characteristic of DREAM DRILLS

- YG-1's Dream Drill Series are suitable for high speed and accurate drilling operations by special design and high quality.
- Good performance for Steels, Cast Irons, Tool steels, Alloy steels and Stainless steels.
- Rapid chip evacuation and excellent chip breaking can be achieved by special designed cutting edges on point and chip breakers on leading edges.
- High accuracy and stability.
- Longer tool life with TiAlN coating.
- Self-centering

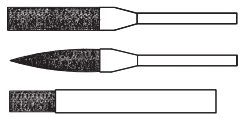
17 Honing Guide of DREAM DRILLS

■ **Dimension of Honing**



▶ Section A-A

■ **Scraper**



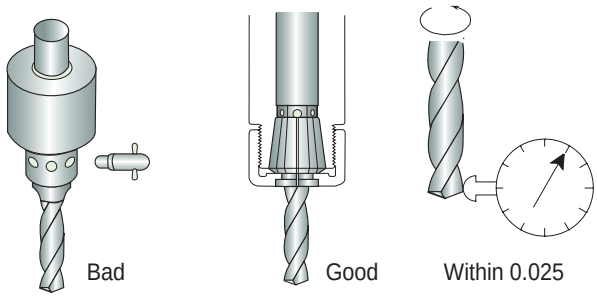
for Roughing (#140)

for Finishing (#230 ~ #400)

Work Material	Alloy Steels	Mild Steels	Cast Iron
W(mm)	0.15 ~ 0.2	0.1 ~ 0.15	0.03

▶ The dimension W of stocked products is 0.1 ~ 0.15.

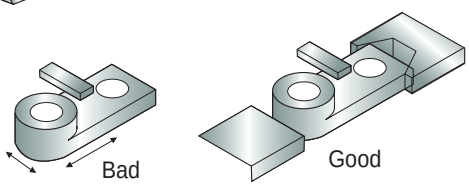
18 Use of DREAM DRILLS

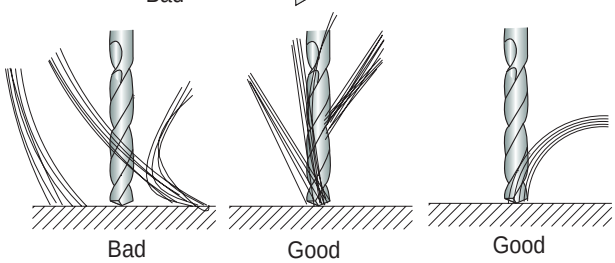


▶ Chucking with spring collet correctly.

▶ Radial run out at cutting lip must not exceed 0.025 mm.

▶ Tighten clamp of work piece.

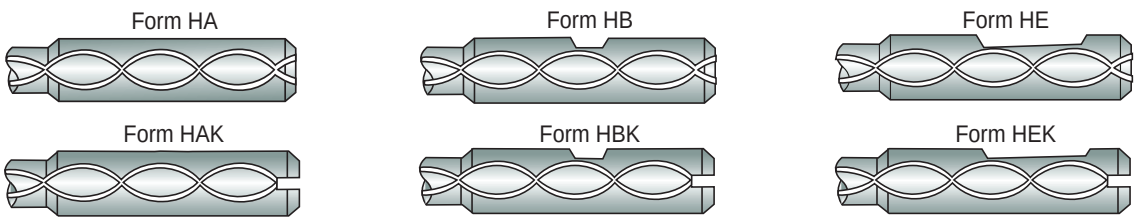




▶ Supply coolant enough to the entrance of hole.

▶ When using Dream Drills with Coolant holes, Supply high pressure coolant.

19 Shank Type DREAM DRILLS with Coolant Holes



▶ Shank Type of stocked products is Form HA.

▶ If you need other Shank Type, we can supply them.