YE-DD24 EUROPE

YG

SOLID CARBIDE

DREAM DRILLS

PRO with/without Coolant Holes
NEW **X** with/without Coolant Holes
GENERAL with/without Coolant Holes
HIGH FEED with Coolant Holes
FLAT BOTTOM with/without Coolant Holes
INOX with Coolant Holes
ALU with Coolant Holes
MQL TYPE with Coolant Holes(10xD - 40xD)
for HIGH HARDENED STEELS HRc50-70

SELECTION GUIDE METRIC

SOLID CARBIDE DREAM DRILLS

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

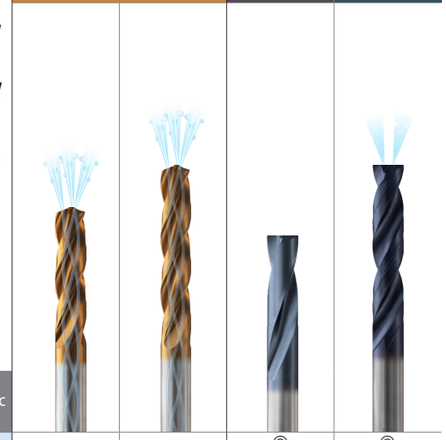
							PRO				X
						SERIES	DGN523	DGN526	DGN506	DGN508	DTX404
						DRILLING DEPTH	3XD	5XD	3XD	5XD	3XD
						TOOL MATERIAL	CARBIDE				CARBIDE
						LENGTH	SHORT	LONG	SHORT	LONG	STUB
						SIZE MIN	D3.0	D1.0	D3.0	D1.0	D3.0
						SIZE MAX	D20.0	D20.0	D20.0	D20.0	D20.0
						PAGE	10	12	15	17	26
						SURFACE TREATMENT	Z-Coating				RCH-Coating
ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc					
P	1	Non-alloy steel	About 0.15% C	Annealed	125						
P	2	Non-alloy steel	About 0.45% C	Annealed	190	13	◎	◎	◎	◎	◎
P	3	Non-alloy steel	About 0.45% C	Quenched & Tempered	250	25	◎	◎	◎	◎	◎
P	4	Non-alloy steel	About 0.75% C	Annealed	270	28	◎	◎	◎	◎	◎
P	5	Non-alloy steel	About 0.75% C	Quenched & Tempered	300	32	○	○	○	○	○
P	6	Low alloy steel		Annealed	180	10	◎	◎	◎	◎	◎
P	7	Low alloy steel		Quenched & Tempered	275	29	◎	◎	◎	◎	◎
P	8	Low alloy steel		Quenched & Tempered	300	32	○	○	○	○	○
P	9	Low alloy steel		Quenched & Tempered	350	38	○	○	○	○	○
P	10	High alloyed steel, and tool steel		Annealed	200	15	◎	◎	◎	◎	◎
P	11	High alloyed steel, and tool steel		Quenched & Tempered	325	35	○	○	○	○	○
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	○	○	○	○	○
M	13	Stainless steel	Martensitic	Quenched & Tempered	240	23	○	○	○	○	○
M	14	Stainless steel	Austenitic		180	10					
K	15	Grey cast iron	Pearlitic / ferritic		180	10	◎	◎	◎	◎	◎
K	16	Grey cast iron	Pearlitic (Martensitic)		260	26	○	○	○	○	○
K	17	Nodular cast iron	Ferritic		160	3	◎	◎	◎	◎	◎
K	18	Nodular cast iron	Pearlitic		250	25	○	○	○	○	○
K	19	Malleable cast iron	Ferritic		130		◎	◎	◎	◎	◎
K	20	Malleable cast iron	Pearlitic		230	21	○	○	○	○	○
N	21	Aluminum-wrought alloy	Not Curable		60						
N	22	Aluminum-wrought alloy	Curable	Hardened	100						
N	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75						
N	24	Aluminum-cast, alloyed	≤ 12% Si, Curable	Hardened	90						
N	25	Aluminum-cast, alloyed	> 12% Si, Not Curable		130						
N	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110						
N	27	Copper and Copper Alloys (Bronze / Brass)	CuZn, CuSnZn (Brass)		90						
N	28	Copper and Copper Alloys (Bronze / Brass)	CuSn, lead-free copper and electrolytic copper		100						
N	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic								
N	30	Non Metallic Materials	Rubber, Wood, etc.								
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15					
S	32	Heat Resistant Super Alloys	Fe Based	Cured	280	30					
S	33	Heat Resistant Super Alloys	Ni or Co Based	Annealed	250	25					
S	34	Heat Resistant Super Alloys	Ni or Co Based	Cured	350	38					
S	35	Heat Resistant Super Alloys	Ni or Co Based	Cast	320	34					
S	36	Titanium Alloys	Pure Titanium		400 Rm						
S	37	Titanium Alloys	Alpha + Beta Alloys	Hardened	1050 Rm						
H	38	Hardened steel		Hardened	550	55	○	○	○	○	○
H	39	Hardened steel		Hardened	630	60					
H	40	Chilled Cast Iron		Cast	400	42					
H	41	Hardened Cast Iron		Hardened	550	55					

	X					GENERAL					
SERIES	DTX423	DTX424	DTX406	DTX408	DTX421	DH404	DH423 DH443	DH424 DH444	DH406 DH446	DH408 DH448	DH421
DRILLING DEPTH	3XD	5XD	3XD	5XD	8XD	3XD	3XD	5XD	3XD	5XD	8XD
TOOL MATERIAL	CARBIDE					CARBIDE					
LENGTH	SHORT	LONG	SHORT	LONG	EXTRA LONG	STUB	SHORT	LONG	SHORT	LONG	EXTRA LONG
SIZE MIN	D3.0	D1.0	D3.0	D1.0	D3.0	D3.0	D3.0	D1.0	D3.0	D1.0	D3.0
SIZE MAX	D20.0	D20.0	D20.0	D20.0	D14.0	D20.0	D20.0	D20.0	D20.0	D20.0	D14.0
PAGE	28	30	33	35	38	46	48	50	53	55	58
SURFACE TREATMENT	RCH-Coating					TiAlN					
1											
2	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
3	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
4	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
5	○	○	○	○	○	○	○	○	○	○	○
6	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
7	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
8	○	○	○	○	○	○	○	○	○	○	○
9	○	○	○	○	○	○	○	○	○	○	○
10	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
11	○	○	○	○	○	○	○	○	○	○	○
12	○	○	○	○	○	○	○	○	○	○	○
13	○	○	○	○	○	○	○	○	○	○	○
14											
15	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
16	○	○	○	○	○	○	○	○	○	○	○
17	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
18	○	○	○	○	○	○	○	○	○	○	○
19	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
20	○	○	○	○	○	○	○	○	○	○	○
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
33											
34											
35											
36											
37											
38	○	○	○	○	○	○	○	○	○	○	○
39											
40											
41											

SELECTION GUIDE METRIC

SOLID CARBIDE DREAM DRILLS

SERIES	HIGH FEED		FLAT BOTTOM	
	DGR493	DGR495	DPP447	DH450
DRILLING DEPTH	3XD	5XD	2XD	5XD
TOOL MATERIAL	CARBIDE		CARBIDE	
LENGTH	SHORT	LONG	SHORT	LONG
SIZE MIN	D5.0	D5.0	D3.0	D3.0
SIZE MAX	D20.0	D20.0	D20.0	D20.0
PAGE	66	68	74	76
SURFACE TREATMENT	H-Coating		X-Coating	TiAlN

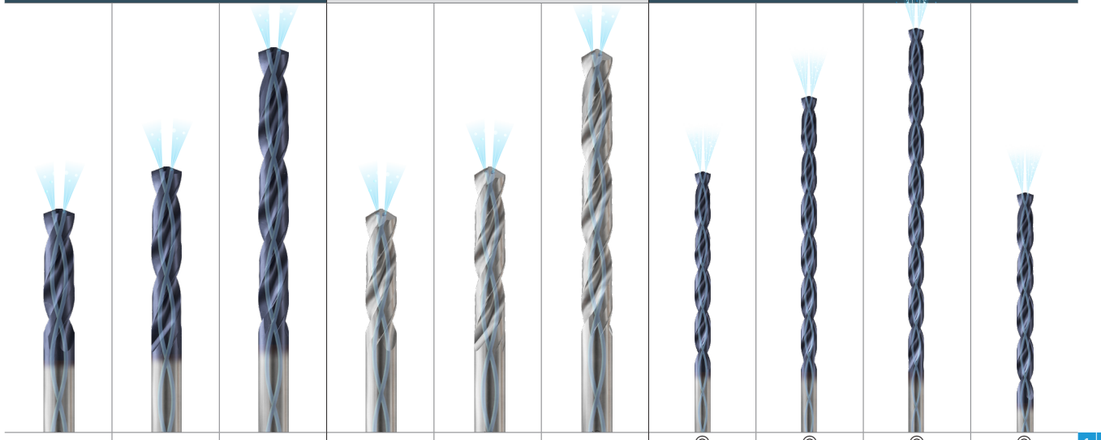


Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

	ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	DGR493	DGR495	DPP447	DH450
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				

SERIES	INOX			ALU			MQL TYPE			
	DH451	DH452	DH453	D5432	D5433	D5434	DH510	DH515	DH520	DHM10
DRILLING DEPTH	3XD	5XD	8XD	3XD	5XD	8XD	10XD	15XD	20XD	10XD
TOOL MATERIAL	CARBIDE			CARBIDE			CARBIDE			
LENGTH	SHORT	LONG	EXTRA LONG	SHORT	LONG	EXTRA LONG	EXTRA LONG			
SIZE MIN	D3.0	D1.0	D3.0	D3.0	D3.0	D3.0	D3.0	D3.0	D3.0	D3.0
SIZE MAX	D20.0	D20.0	D14.0	D20.0	D20.0	D14.0	D14.0	D12.0	D12.0	D14.0
PAGE	84	86	89	96	98	100	106	107	107	108
SURFACE TREATMENT	TiAlN			Bright			TiAlN			



	DH451	DH452	DH453	D5432	D5433	D5434	DH510	DH515	DH520	DHM10		
1							◎	◎	◎	◎	1	P
2	◎	◎	◎				◎	◎	◎	◎	2	
3	○	○	○				○	○	○	○	3	
4											4	
5											5	
6	◎	◎	◎				◎	◎	◎	◎	6	
7	○	○	○				○	○	○	○	7	
8							○	○	○	○	8	
9											9	
10							○	○	○	○	10	
11							○	○	○	○	11	
12	◎	◎	◎								12	M
13	◎	◎	◎								13	
14	◎	◎	◎								14	
15							◎	◎	◎	◎	15	K
16							○	○	○	○	16	
17							◎	◎	◎	◎	17	
18							○	○	○	○	18	
19							◎	◎	◎	◎	19	
20							○	○	○	○	20	
21	◎	◎	◎	◎	◎	◎					21	N
22	◎	◎	◎	◎	◎	◎					22	
23	○	○	○	◎	◎	◎					23	
24	○	○	○	◎	◎	◎					24	
25	○	○	○								25	
26											26	
27											27	
28											28	
29											29	
30											30	
31											31	S
32											32	
33											33	
34											34	
35											35	
36											36	
37	○	○	○								37	
38											38	H
39											39	
40											40	
41											41	

GUIDE LINE TO ICONS

Standard of Tools
DIN 6539
Number of DIN Standard

Coolant Supply Pressure
45 bar
20 bar

Tool Material
CARBIDE

Point Angle
140°

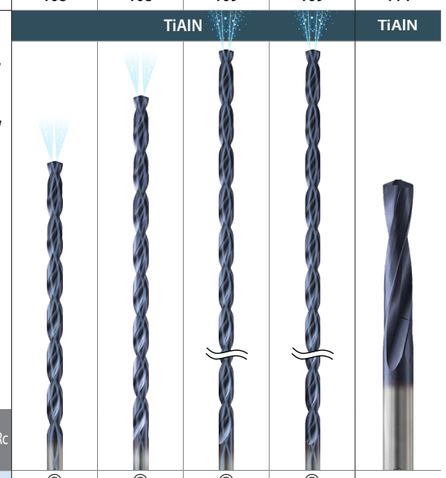
Surface Treatment
TiAIN
Titanium Aluminum Nitride Coating
RCH-Coating
YG-1 RCH-Coating
X-Coating
YG-1 X-Coating
H-Coating
YG-1 H-Coating
Diamond
Diamond Coating
Bright
Bright Finish

Tolerance of Dimension
m7
Tolerance of Outside Diameter
h6
Tolerance of Shank Diameter

Cutting Condition

SELECTION GUIDE METRIC

	MQL TYPE				HARDENED STEEL
SERIES	DHM15	DHM20	DHM25	DHM30	DH500
DRILLING DEPTH	15XD	20XD	25XD	30XD	3XD
TOOL MATERIAL	CARBIDE				CARBIDE
LENGTH	EXTRA LONG				SHORT
SIZE MIN	D3.0	D3.0	D3.0	D3.0	D2.6
SIZE MAX	D12.0	D12.0	D10.0	D8.0	D14.0
PAGE	108	108	109	109	114
SURFACE TREATMENT	TiAlN				TiAlN



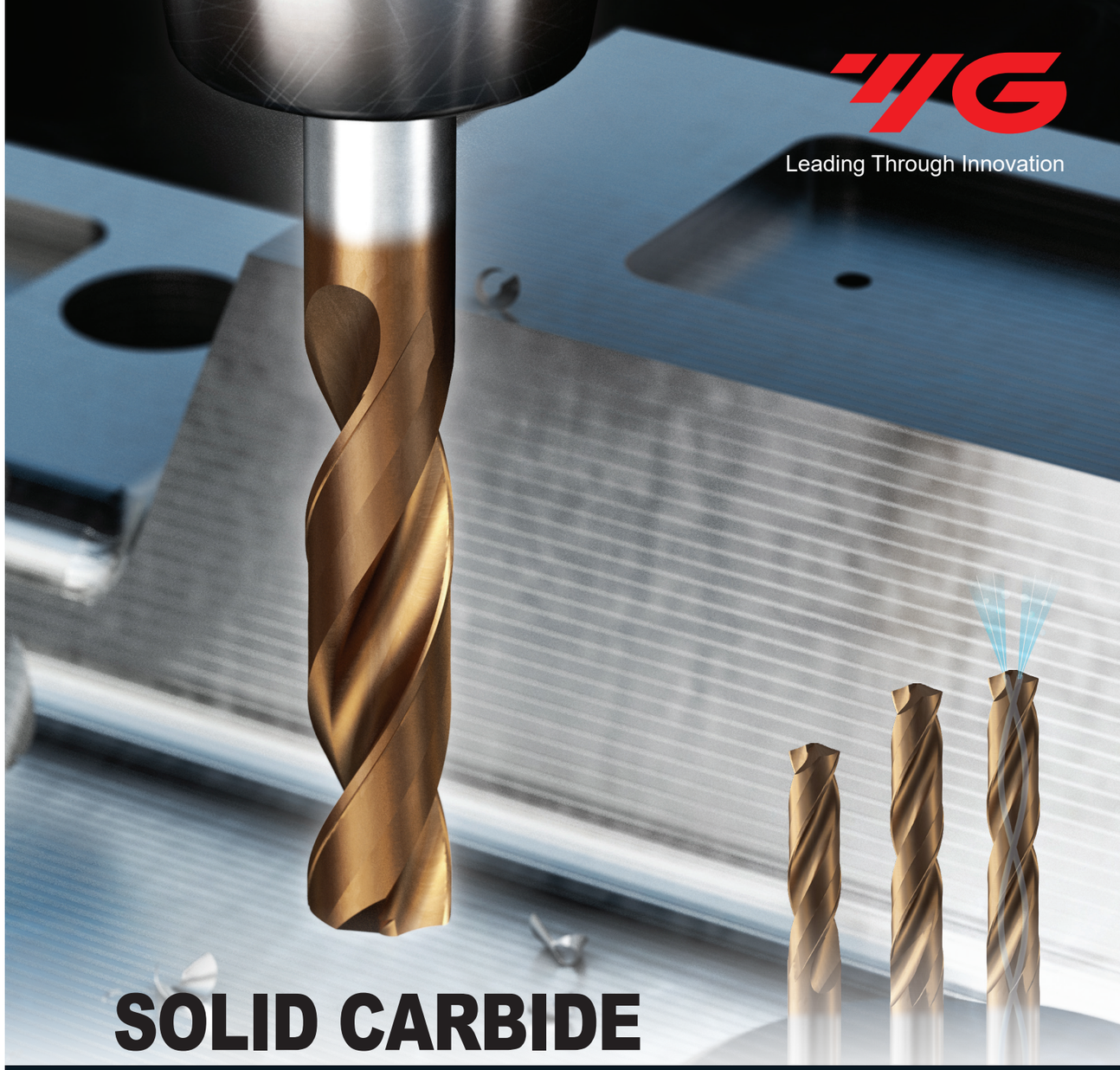
SOLID CARBIDE DREAM DRILLS

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

	ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	DHM15	DHM20	DHM25	DHM30	DH500
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					

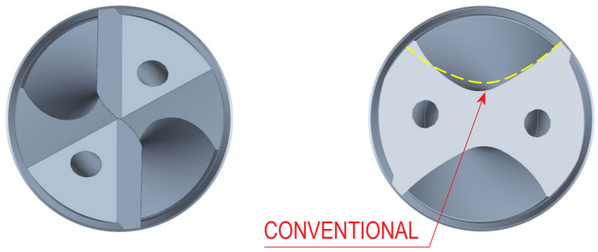
· Phone: +82-32-526-0909, www.yg1.solutions, E-mail: yg1@yg1.solutions



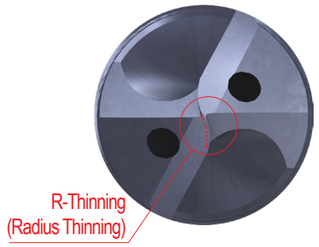
DREAM DRILLS -PRO

- For General Purpose (up to HRc50)
- Extremely High hardness and Heat resistance due to YG-1 special Z-Coating technology

DREAM DRILLS INOX



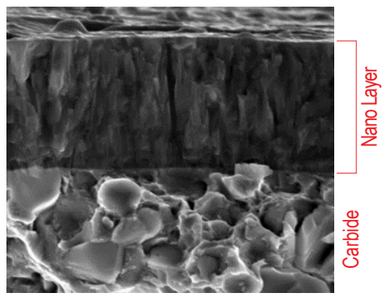
- Special flute geometry and chip pocket to help chip evacuation and proper chip curl.
- Strong rigidity from **Cutting Edge**
- High performance on stainless steel and pre hardend steel



- Positive Axial **Rake Angle** and cutting force, with **R-Thinning** enhance centering and Chip Breaking.

TiAlN Coating
(Upgraded Titanium Aluminum Nitride : nano-Layer coating)
- Higher wear resistance and Lower friction
- Higher Cutting Speed and Feed
- Improved drill Hole Quality

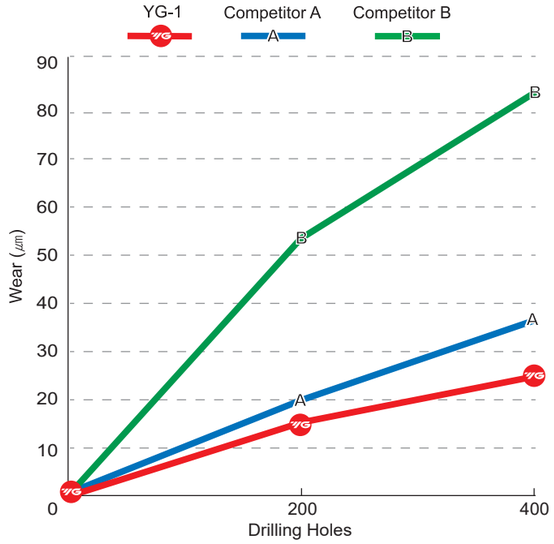
Special surface treatment after coating
to reduce friction and better chip flow.



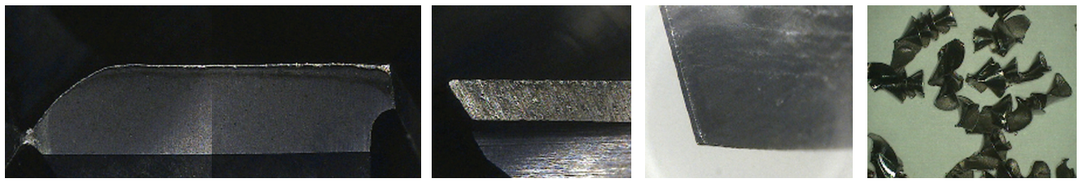
CASE STUDY

▶ SOLID CARBIDE DREAM DRILLS - INOX with Coolant Holes

CUTTING CONDITION	
Tool	DH452060 (DREAM DRILL-INOX)
Size(mm)	Ø6 x Ø6 x 44 x 82
Work Material	• DIN: X5CrNi1810 (X4CrNi18-10) • WR: 1.4301 • JIS: SUS304
RPM	3,700 rev./min.
Feed	0.07 mm/rev.
Drilling Depth	24 mm
Coolant	Wet Cut

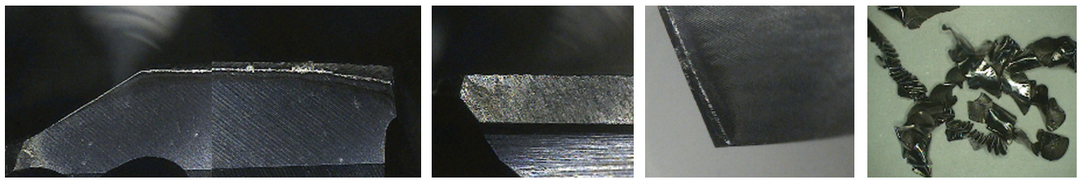


TotaL Dilling 400 Holes



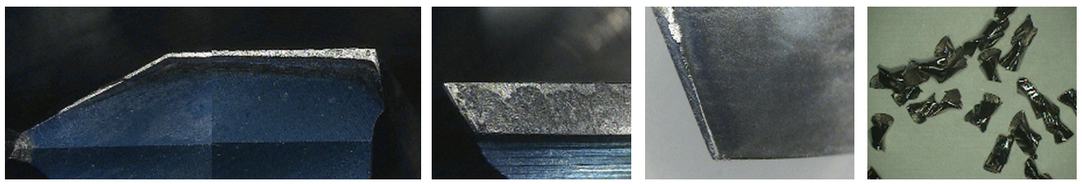
Competitor A

Total Drilling 400 Holes



Competitor B

Total Drilling 400 Holes



TiAlN-COATED SOLID CARBIDE

DREAM DRILLS INOX with COOLANT HOLES (3XD)

SERIES **DH451**

- 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 | 30° | h6 | m7 | 140° | 20 bar | TiAlN p.91

SHORT 3 × D

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH451030	3.0	6	20	62
DH451031	3.1	6	20	62
DH451032	3.2	6	20	62
DH451033	3.3	6	20	62
DH451034	3.4	6	20	62
DH451035	3.5	6	20	62
DH451036	3.6	6	20	62
DH451037	3.7	6	20	62
DH451038	3.8	6	24	66
DH451039	3.9	6	24	66
DH451040	4.0	6	24	66
DH451041	4.1	6	24	66
DH451042	4.2	6	24	66
DH451043	4.3	6	24	66
DH451044	4.4	6	24	66
DH451045	4.5	6	24	66
DH451046	4.6	6	24	66
DH451047	4.7	6	24	66
DH451048	4.8	6	28	66
DH451049	4.9	6	28	66
DH451050	5.0	6	28	66
DH451051	5.1	6	28	66
DH451052	5.2	6	28	66
DH451053	5.3	6	28	66
DH451054	5.4	6	28	66
DH451055	5.5	6	28	66
DH451056	5.6	6	28	66
DH451057	5.7	6	28	66

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH451058	5.8	6	28	66
DH451059	5.9	6	28	66
DH451060	6.0	6	28	66
DH451061	6.1	8	34	79
DH451062	6.2	8	34	79
DH451063	6.3	8	34	79
DH451064	6.4	8	34	79
DH451065	6.5	8	34	79
DH451066	6.6	8	34	79
DH451067	6.7	8	34	79
DH451068	6.8	8	34	79
DH451069	6.9	8	34	79
DH451070	7.0	8	34	79
DH451071	7.1	8	41	79
DH451072	7.2	8	41	79
DH451073	7.3	8	41	79
DH451074	7.4	8	41	79
DH451075	7.5	8	41	79
DH451076	7.6	8	41	79
DH451077	7.7	8	41	79
DH451078	7.8	8	41	79
DH451079	7.9	8	41	79
DH451080	8.0	8	41	79
DH451081	8.1	10	47	89
DH451082	8.2	10	47	89
DH451083	8.3	10	47	89
DH451084	8.4	10	47	89
DH451085	8.5	10	47	89

▶ 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	◎	◎	○	○	○												○				

· Phone: +82-32-526-0909, www.yg1.solutions, E-mail: yg1@yg1.solutions

TiAlN-COATED SOLID CARBIDE

DREAM DRILLS INOX with COOLANT HOLES (3XD)

SERIES DH451

- 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 | 30° | h6 | m7 | 140° | 20 bar | TiAlN p.91

SHORT 3 × D

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH451086	8.6	10	47	89
DH451087	8.7	10	47	89
DH451088	8.8	10	47	89
DH451089	8.9	10	47	89
DH451090	9.0	10	47	89
DH451091	9.1	10	47	89
DH451092	9.2	10	47	89
DH451093	9.3	10	47	89
DH451094	9.4	10	47	89
DH451095	9.5	10	47	89
DH451096	9.6	10	47	89
DH451097	9.7	10	47	89
DH451098	9.8	10	47	89
DH451099	9.9	10	47	89
DH451100	10.0	10	47	89
DH451101	10.1	12	55	102
DH451102	10.2	12	55	102
DH451103	10.3	12	55	102
DH451104	10.4	12	55	102
DH451105	10.5	12	55	102
DH451106	10.6	12	55	102
DH451107	10.7	12	55	102
DH451108	10.8	12	55	102
DH451109	10.9	12	55	102
DH451110	11.0	12	55	102
DH451111	11.1	12	55	102
DH451112	11.2	12	55	102
DH451113	11.3	12	55	102

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH451114	11.4	12	55	102
DH451115	11.5	12	55	102
DH451116	11.6	12	55	102
DH451117	11.7	12	55	102
DH451118	11.8	12	55	102
DH451119	11.9	12	55	102
DH451120	12.0	12	55	102
DH451125	12.5	14	60	107
DH451130	13.0	14	60	107
DH451135	13.5	14	60	107
DH451140	14.0	14	60	107
DH451145	14.5	16	65	115
DH451150	15.0	16	65	115
DH451155	15.5	16	65	115
DH451160	16.0	16	65	115
DH451165	16.5	18	73	123
DH451170	17.0	18	73	123
DH451175	17.5	18	73	123
DH451180	18.0	18	73	123
DH451185	18.5	20	79	131
DH451190	19.0	20	79	131
DH451195	19.5	20	79	131
DH451200	20.0	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	◎	◎	○	○	○												○				

· Phone: +82-32-526-0909, www.yg1.solutions, E-mail: yg1@yg1.solutions

TiAlN-COATED SOLID CARBIDE

DREAM DRILLS INOX with COOLANT HOLES (5XD)

SERIES **DH452**

- 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 | 30° | h6 | m7 | 140° | 20 bar | TiAlN

p.91

LONG 5× D

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH452010	1.0	3	8	55
DH452011	1.1	3	12	55
DH452012	1.2	3	12	55
DH452013	1.3	3	12	55
DH452014	1.4	3	12	55
DH452015	1.5	3	16	55
DH452016	1.6	3	16	55
DH452017	1.7	3	16	55
DH452018	1.8	3	16	55
DH452019	1.9	3	16	55
DH452020	2.0	4	21	57
DH452021	2.1	4	21	57
DH452022	2.2	4	21	57
DH452023	2.3	4	21	57
DH452024	2.4	4	21	57
DH452025	2.5	4	21	57
DH452026	2.6	4	21	57
DH452027	2.7	4	21	57
DH452028	2.8	4	21	57
DH452029	2.9	4	21	57
DH452030	3.0	6	28	66
DH452031	3.1	6	28	66
DH452032	3.2	6	28	66
DH452033	3.3	6	28	66
DH452034	3.4	6	28	66
DH452035	3.5	6	28	66
DH452036	3.6	6	28	66
DH452037	3.7	6	28	66

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH452038	3.8	6	36	74
DH452039	3.9	6	36	74
DH452040	4.0	6	36	74
DH452041	4.1	6	36	74
DH452042	4.2	6	36	74
DH452043	4.3	6	36	74
DH452044	4.4	6	36	74
DH452045	4.5	6	36	74
DH452046	4.6	6	36	74
DH452047	4.7	6	36	74
DH452048	4.8	6	44	82
DH452049	4.9	6	44	82
DH452050	5.0	6	44	82
DH452051	5.1	6	44	82
DH452052	5.2	6	44	82
DH452053	5.3	6	44	82
DH452054	5.4	6	44	82
DH452055	5.5	6	44	82
DH452056	5.6	6	44	82
DH452057	5.7	6	44	82
DH452058	5.8	6	44	82
DH452059	5.9	6	44	82
DH452060	6.0	6	44	82
DH452061	6.1	8	53	91
DH452062	6.2	8	53	91
DH452063	6.3	8	53	91
DH452064	6.4	8	53	91
DH452065	6.5	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	◎	◎	○	○	○												○				

TiAlN-COATED SOLID CARBIDE

DREAM DRILLS INOX with COOLANT HOLES (5XD)

SERIES DH452

- 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 | 30° | h6 | m7 | 140° | 20 bar | TiAlN

p.91

LONG 5 × D

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH452066	6.6	8	53	91
DH452067	6.7	8	53	91
DH452068	6.8	8	53	91
DH452069	6.9	8	53	91
DH452070	7.0	8	53	91
DH452071	7.1	8	53	91
DH452072	7.2	8	53	91
DH452073	7.3	8	53	91
DH452074	7.4	8	53	91
DH452075	7.5	8	53	91
DH452076	7.6	8	53	91
DH452077	7.7	8	53	91
DH452078	7.8	8	53	91
DH452079	7.9	8	53	91
DH452080	8.0	8	53	91
DH452081	8.1	10	61	103
DH452082	8.2	10	61	103
DH452083	8.3	10	61	103
DH452084	8.4	10	61	103
DH452085	8.5	10	61	103
DH452086	8.6	10	61	103
DH452087	8.7	10	61	103
DH452088	8.8	10	61	103
DH452089	8.9	10	61	103
DH452090	9.0	10	61	103
DH452091	9.1	10	61	103
DH452092	9.2	10	61	103
DH452093	9.3	10	61	103

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH452094	9.4	10	61	103
DH452095	9.5	10	61	103
DH452096	9.6	10	61	103
DH452097	9.7	10	61	103
DH452098	9.8	10	61	103
DH452099	9.9	10	61	103
DH452100	10.0	10	61	103
DH452101	10.1	12	71	118
DH452102	10.2	12	71	118
DH452103	10.3	12	71	118
DH452104	10.4	12	71	118
DH452105	10.5	12	71	118
DH452106	10.6	12	71	118
DH452107	10.7	12	71	118
DH452108	10.8	12	71	118
DH452109	10.9	12	71	118
DH452110	11.0	12	71	118
DH452111	11.1	12	71	118
DH452112	11.2	12	71	118
DH452113	11.3	12	71	118
DH452114	11.4	12	71	118
DH452115	11.5	12	71	118
DH452116	11.6	12	71	118
DH452117	11.7	12	71	118
DH452118	11.8	12	71	118
DH452119	11.9	12	71	118
DH452120	12.0	12	71	118
DH452125	12.5	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	◎	◎	○	○	○												○				

TiAlN-COATED SOLID CARBIDE

DREAM DRILLS INOX with COOLANT HOLES (5XD)

SERIES **DH452**

- 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 | 30° | h6 | m7 | 140° | 20 bar | TiAlN

p.91

LONG 5 × D

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH452130	13.0	14	77	124
DH452135	13.5	14	77	124
DH452140	14.0	14	77	124
DH452145	14.5	16	83	133
DH452150	15.0	16	83	133
DH452155	15.5	16	83	133
DH452160	16.0	16	83	133
DH452165	16.5	18	93	143

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH452170	17.0	18	93	143
DH452175	17.5	18	93	143
DH452180	18.0	18	93	143
DH452185	18.5	20	101	153
DH452190	19.0	20	101	153
DH452195	19.5	20	101	153
DH452200	20.0	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		◎	○			◎	○					◎	◎	◎						

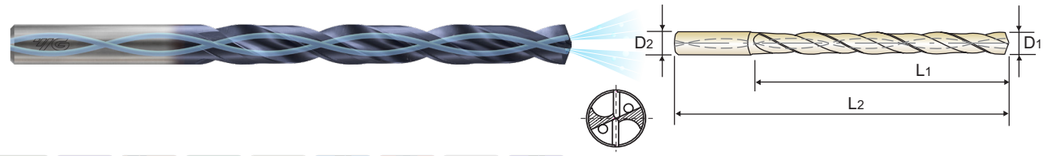
ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze /Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29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

TiAlN-COATED SOLID CARBIDE

DREAM DRILLS INOX with COOLANT HOLES (8XD)

SERIES **DH453**

- 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 | 30° | h6 | m7 | 140° | 20 bar | TiAlN

p.91

EXTRA LONG 8 × D

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH453030	3.0	6	34	72
DH453031	3.1	6	34	72
DH453032	3.2	6	34	72
DH453033	3.3	6	34	72
DH453034	3.4	6	34	72
DH453035	3.5	6	34	72
DH453036	3.6	6	34	72
DH453037	3.7	6	34	72
DH453038	3.8	6	43	81
DH453039	3.9	6	43	81
DH453040	4.0	6	43	81
DH453041	4.1	6	43	81
DH453042	4.2	6	43	81
DH453043	4.3	6	43	81
DH453044	4.4	6	43	81
DH453045	4.5	6	43	81
DH453046	4.6	6	43	81
DH453047	4.7	6	43	81
DH453048	4.8	6	57	95
DH453049	4.9	6	57	95
DH453050	5.0	6	57	95
DH453051	5.1	6	57	95
DH453052	5.2	6	57	95
DH453053	5.3	6	57	95
DH453054	5.4	6	57	95
DH453055	5.5	6	57	95
DH453056	5.6	6	57	95
DH453057	5.7	6	57	95

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH453058	5.8	6	57	95
DH453059	5.9	6	57	95
DH453060	6.0	6	57	95
DH453061	6.1	8	76	114
DH453062	6.2	8	76	114
DH453063	6.3	8	76	114
DH453064	6.4	8	76	114
DH453065	6.5	8	76	114
DH453066	6.6	8	76	114
DH453067	6.7	8	76	114
DH453068	6.8	8	76	114
DH453069	6.9	8	76	114
DH453070	7.0	8	76	114
DH453071	7.1	8	76	114
DH453072	7.2	8	76	114
DH453073	7.3	8	76	114
DH453074	7.4	8	76	114
DH453075	7.5	8	76	114
DH453076	7.6	8	76	114
DH453077	7.7	8	76	114
DH453078	7.8	8	76	114
DH453079	7.9	8	76	114
DH453080	8.0	8	76	114
DH453081	8.1	10	95	142
DH453082	8.2	10	95	142
DH453083	8.3	10	95	142
DH453084	8.4	10	95	142
DH453085	8.5	10	95	142

▶ 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		◎	○			◎	○					◎	◎	◎						

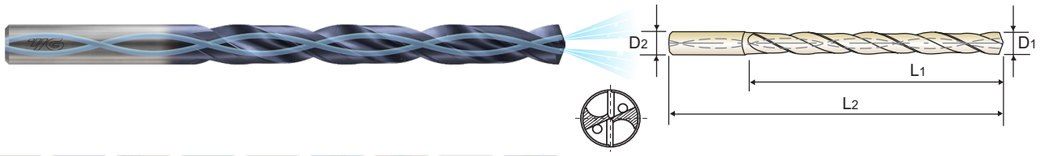
ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze /Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29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

TiAlN-COATED SOLID CARBIDE

DREAM DRILLS INOX with COOLANT HOLES (8XD)

SERIES **DH453**

- 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 | 30° | h6 | m7 | 140° | 20 bar | TiAlN

p.91

EXTRA LONG 8 × D

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH453086	8.6	10	95	142
DH453087	8.7	10	95	142
DH453088	8.8	10	95	142
DH453089	8.9	10	95	142
DH453090	9.0	10	95	142
DH453091	9.1	10	95	142
DH453092	9.2	10	95	142
DH453093	9.3	10	95	142
DH453094	9.4	10	95	142
DH453095	9.5	10	95	142
DH453096	9.6	10	95	142
DH453097	9.7	10	95	142
DH453098	9.8	10	95	142
DH453099	9.9	10	95	142
DH453100	10.0	10	95	142
DH453101	10.1	12	114	162
DH453102	10.2	12	114	162
DH453103	10.3	12	114	162
DH453104	10.4	12	114	162
DH453105	10.5	12	114	162
DH453106	10.6	12	114	162
DH453107	10.7	12	114	162
DH453108	10.8	12	114	162
DH453109	10.9	12	114	162
DH453110	11.0	12	114	162
DH453111	11.1	12	114	162
DH453112	11.2	12	114	162
DH453113	11.3	12	114	162
DH453114	11.4	12	114	162
DH453115	11.5	12	114	162
DH453116	11.6	12	114	162
DH453117	11.7	12	114	162
DH453118	11.8	12	114	162
DH453119	11.9	12	114	162
DH453120	12.0	12	114	162
DH453125	12.5	14	133	178
DH453130	13.0	14	133	178
DH453135	13.5	14	133	178
DH453140	14.0	14	133	178

▶ 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	◎	◎	○	○	○												○				

RECOMMENDED CUTTING CONDITIONS

DH451, DH452, DH453 SERIES with COOLANT HOLES

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

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 1.0	2.0	Vc	Parameter	Drill Diameter (mm) 3.0	4.0	5.0	6.0
P	2	Non-alloy steel	70	RPM	22280	11140	100	RPM	10610	7960	6370	5310
				FEED	0.02-0.04	0.04-0.06		FEED	0.04-0.10	0.06-0.12	0.12-0.18	0.14-0.20
	3		70	RPM	22280	11140	100	RPM	10610	7960	6370	5310
				FEED	0.02-0.04	0.04-0.06		FEED	0.04-0.10	0.06-0.12	0.12-0.18	0.14-0.20
	6	Low alloy steel	70	RPM	22280	11140	100	RPM	10610	7960	6370	5310
				FEED	0.02-0.04	0.04-0.06		FEED	0.04-0.10	0.06-0.12	0.12-0.18	0.14-0.20
	7		50	RPM	15920	7960	70	RPM	7430	5570	4460	3710
				FEED	0.02-0.04	0.04-0.06		FEED	0.04-0.10	0.06-0.12	0.12-0.18	0.14-0.20
M	12	Stainless steel	40	RPM	12730	6370	50	RPM	5310	3980	3180	2650
				FEED	0.02-0.04	0.02-0.04		FEED	0.03-0.05	0.05-0.09	0.07-0.11	0.08-0.12
	13		25	RPM	7960	3980	40	RPM	4240	3180	2550	2120
				FEED	0.02-0.04	0.02-0.04		FEED	0.03-0.05	0.05-0.09	0.07-0.11	0.08-0.12
	14		45	RPM	14320	7160	60	RPM	6370	4770	3820	3180
				FEED	0.02-0.04	0.02-0.04		FEED	0.04-0.06	0.06-0.10	0.08-0.12	0.09-0.13
N	21	Aluminum-wrought alloy	130	RPM	41380	20690	200	RPM	21220	15920	12730	10,610
				FEED	0.04-0.10	0.08-0.14		FEED	0.14-0.20	0.19-0.25	0.20-0.26	0.22-0.28
	22		130	RPM	41380	20690	200	RPM	21220	15920	12730	10610
				FEED	0.04-0.10	0.08-0.14		FEED	0.14-0.20	0.19-0.25	0.20-0.26	0.22-0.28
	23	Aluminum-cast, alloyed	110	RPM	35010	17510	180	RPM	19100	14,320	11460	9550
				FEED	0.04-0.10	0.08-0.14		FEED	0.14-0.20	0.19-0.25	0.20-0.26	0.22-0.28
	24		110	RPM	35010	17510	180	RPM	19100	14320	11460	9550
				FEED	0.04-0.10	0.08-0.14		FEED	0.14-0.20	0.19-0.25	0.20-0.26	0.22-0.28
	25		90	RPM	28650	14320	150	RPM	15920	11940	9550	7960
				FEED	0.04-0.08	0.06-0.10		FEED	0.12-0.18	0.16-0.22	0.17-0.23	0.19-0.25
S	37	Titanium Alloys	25	RPM	7960	3980	40	RPM	4240	3180	2550	2120
				FEED	0.01-0.03	0.01-0.03		FEED	0.02-0.04	0.04-0.08	0.06-0.10	0.07-0.11

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 8.0	10.0	12.0	14.0	16.0	18.0	20.0
P	2	Non-alloy steel	100	RPM	3980	3180	2650	2270	1990	1770	1590
				FEED	0.16-0.22	0.18-0.24	0.19-0.27	0.21-0.39	0.23-0.31	0.26-0.36	0.28-0.38
	3		100	RPM	3980	3180	2650	2270	1990	1770	1590
				FEED	0.16-0.22	0.18-0.24	0.19-0.27	0.21-0.39	0.23-0.31	0.26-0.36	0.28-0.38
	6	Low alloy steel	100	RPM	3980	3180	2650	2270	1990	1770	1590
				FEED	0.16-0.22	0.18-0.24	0.19-0.27	0.21-0.39	0.23-0.31	0.26-0.36	0.28-0.38
	7		70	RPM	2790	2230	1860	1590	1390	1240	1110
				FEED	0.16-0.22	0.18-0.24	0.19-0.27	0.21-0.39	0.23-0.31	0.26-0.36	0.28-0.38
M	12	Stainless steel	50	RPM	1990	1590	1330	1140	990	880	800
				FEED	0.09-0.13	0.10-0.15	0.11-0.16	0.12-0.17	0.13-0.18	0.14-0.19	0.15-0.20
	13		40	RPM	1590	1270	1060	910	800	710	640
				FEED	0.09-0.13	0.10-0.15	0.11-0.16	0.12-0.17	0.13-0.18	0.14-0.19	0.15-0.20
	14		60	RPM	2390	1910	1590	1360	1190	1060	950
				FEED	0.10-0.14	0.11-0.16	0.12-0.17	0.13-0.18	0.14-0.19	0.15-0.20	0.16-0.21
N	21	Aluminum-wrought alloy	200	RPM	7960	6370	5310	4550	3980	3540	3180
				FEED	0.24-0.30	0.26-0.32	0.28-0.34	0.30-0.36	0.32-0.38	0.33-0.43	0.35-0.45
	22		200	RPM	7960	6370	5310	4550	3980	3540	3180
				FEED	0.24-0.30	0.26-0.32	0.28-0.34	0.30-0.36	0.32-0.38	0.33-0.43	0.35-0.45
	23	Aluminum-cast, alloyed	180	RPM	7160	5730	4770	4090	3580	3180	2860
				FEED	0.24-0.30	0.26-0.32	0.28-0.34	0.30-0.36	0.32-0.38	0.33-0.43	0.35-0.45
	24		180	RPM	7160	5730	4770	4090	3580	3180	2860
				FEED	0.24-0.30	0.26-0.32	0.28-0.34	0.30-0.36	0.32-0.38	0.33-0.43	0.35-0.45
	25		150	RPM	5970	4770	3980	3410	2980	2650	2390
				FEED	0.21-0.27	0.23-0.29	0.25-0.31	0.27-0.33	0.28-0.34	0.28-0.38	0.30-0.40
S	37	Titanium Alloys	40	RPM	1590	1270	1060	910	800	710	640
				FEED	0.08-0.12	0.09-0.14	0.10-0.15	0.11-0.16	0.12-0.17	0.13-0.18	0.14-0.19

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