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TO SEE i-ONE DRILLS AT WORK



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YG

i-ONE DRILLS

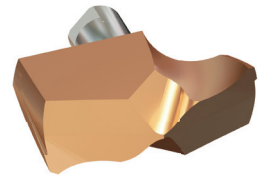
**MICRO GRAIN CARBIDE INSERTS
AND PREMIUM TOOL STEEL HOLDERS**

Cost Efficient High Performance
Exchangeable Drilling Tools

FEATURES OF *i*-ONE DRILLS

Micro Grain Carbide Inserts and Premium Tool Steel Holder with Coolant Holes

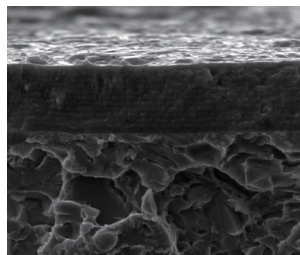
“COST EFFICIENT HIGH PERFORMANCE EXCHANGEABLE DRILLING TOOLS”



• Secure & Quick clamping system

• Multi layered 'H'-coating

reduces the cracking and provides higher shear strength while achieving excellent oxidation resistance and hot hardness



• Optimized point geometry

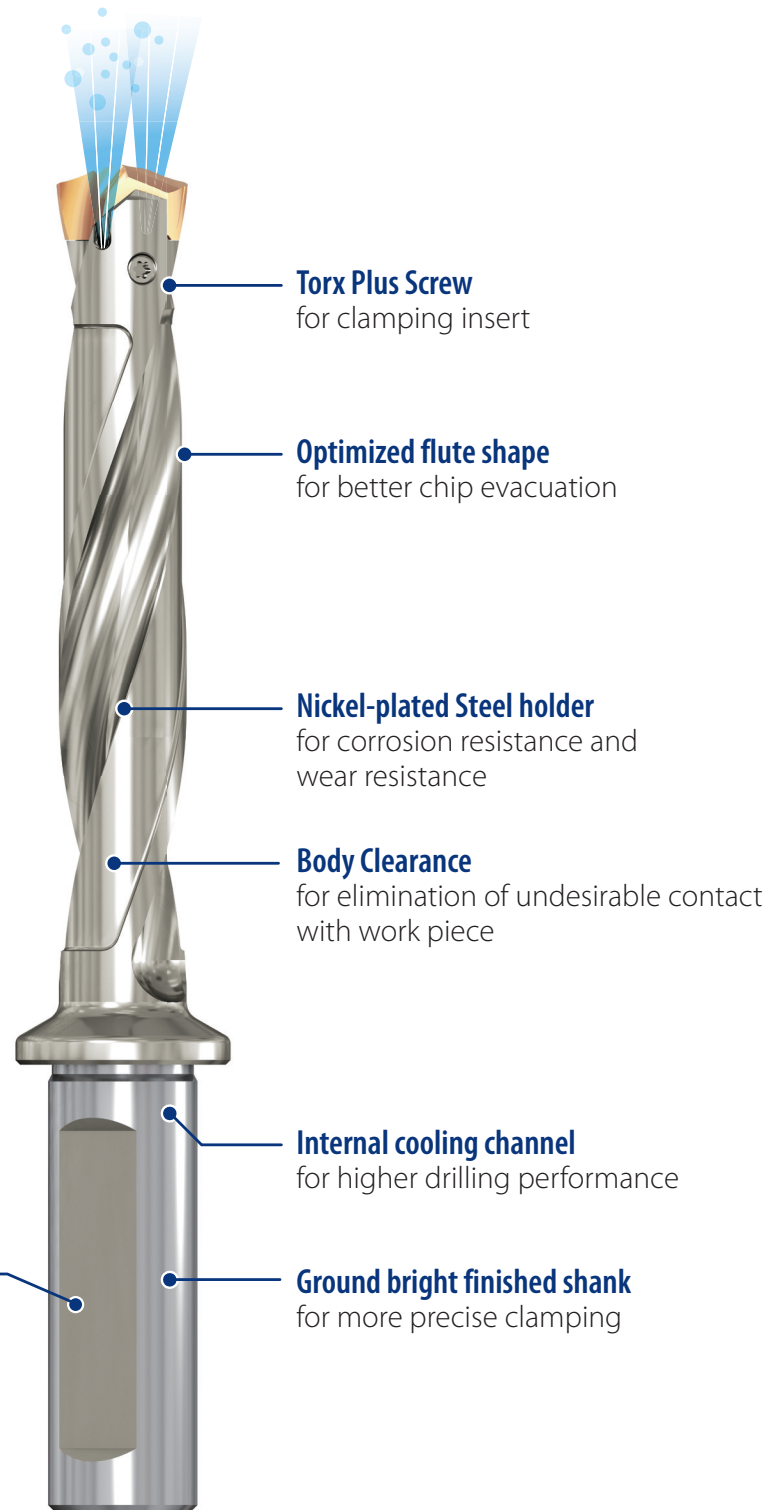
of i-ONE Drills ensures centering ability and smoother cutting

• Self Centering and Chip Breaking

by Radius Thinning

• Ground Negative land

on cutting edge for Reliable Tool Life



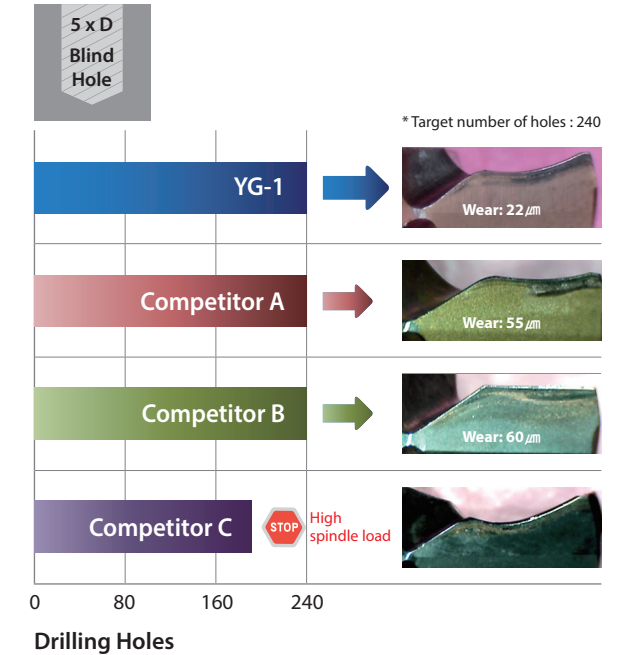
Cylindrical shank with a parallel flat

according to ISO9766 Plain shank and Whistle notch shank are available on request

CASE STUDY

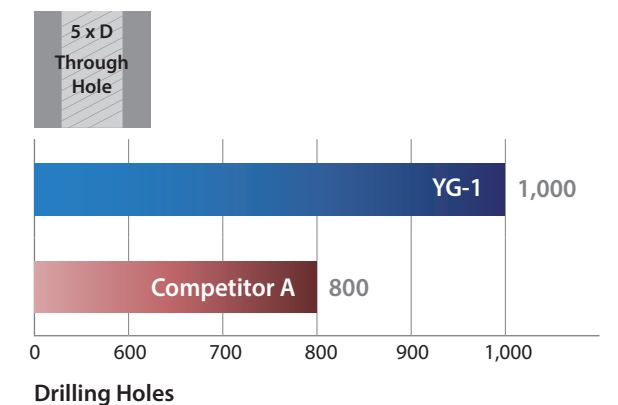
► Ø14.0mm, Alloy Steel

Tool	Y141H1400	Competitors
O.D Size (mm)	Ø14.0 (0.5512 inch)	
Work Material	-DIN: 42CrMo4 -AISI: 4140 -JIS: SCM440(HRc30)	
Cutting Speed	80 m/min. (262.5 ft/min.)	
RPM	1,819 rev./min.	
Feed	0.18 mm/rev. (0.0071 in/rev.)	
Drilling Depth	65.0 mm (5XD / Blind)	
Cooling Method	Internal Cooling (35 bar) Water Soluble (9% Emulsion)	
Machine	Machining Center	



► Ø16.0mm, Pre-Hardened

Tool	YG-1	Competitor A
O.D Size (mm)	Ø16.0 (0.6299 inch)	
Work Material	-DIN: CK45 -AISI: 1045 -JIS: S45C(HRc20)	
Cutting Speed	75 m/min. (246.1 ft/min.)	
RPM	1,493 rev./min.	
Feed	0.3 mm/rev. (0.0118 in/rev.)	
Drilling Depth	35.0 mm (Through)	
Cooling Method	Internal Cooling (10 bar) Water Soluble (9% Emulsion)	
Machine	Machining Center	



SELECTION GUIDE



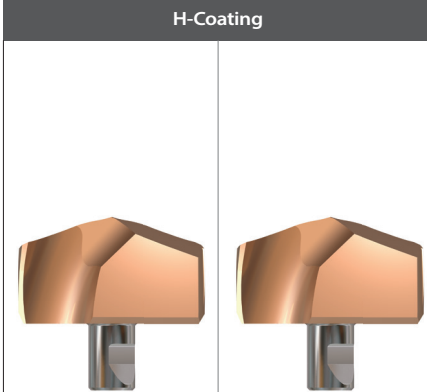
i-ONE DRILLS

High Performance Exchangeable Carbide Inserts
for General Steels and Cast Iron

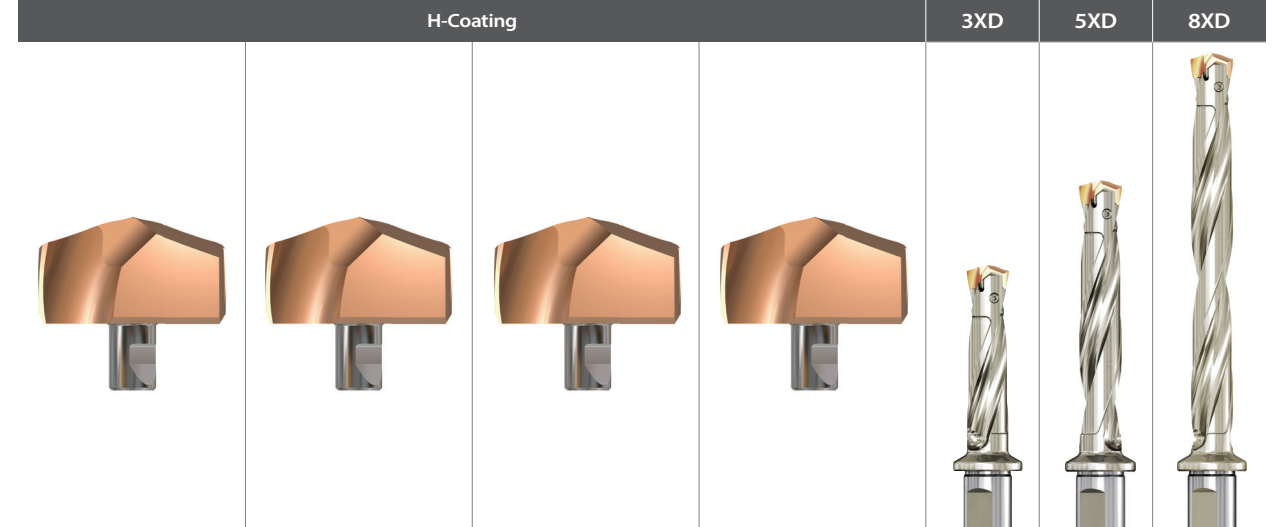
◎ : Excellent ○ : Good

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				

SERIES	Y101H	Y121H	Y141H	Y161H
SIZE MIN	10.00	12.00	14.00	16.00
SIZE MAX	11.91	13.90	15.90	17.90
PAGE	6	7	8	9



Y181H	Y201H	Y221H	Y241H	Y261H	Y281H	Y301H	Y321H	ZD*3	ZD*5	ZD*8
18.00	20.00	22.00	24.00	26.00	28.00	30.00	32.00			
19.90	21.90	23.90	25.90	27.78	29.77	31.75	33.73			
10	11	12	13	14		15		3XD	5XD	8XD



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GUIDE LINE TO ICONS

Tool Raw Material



Point Angle



Cutting Condition Page



Tolerance of Dimension



Tolerance of Outside Diameter



Tolerance of Shank Diameter

MICRO GRAIN CARBIDE INSERTS and PREMIUM TOOL STEEL HOLDERS

i-ONE DRILLS INSERTS & HOLDERS

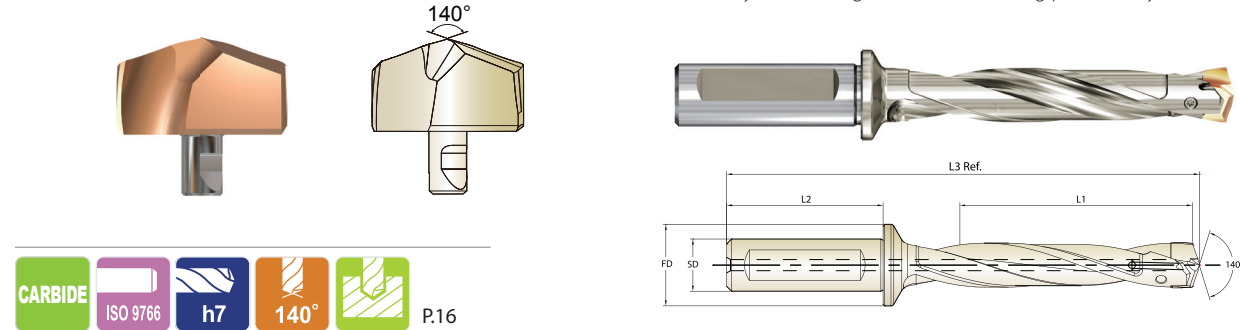
Y101H SERIES

► 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



Unit : mm

Series Range	Insert EDP No.	Insert O.D.			Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth		Overall Length	
(mm)	H-Coating	h7				SD	L2	FD	L1		L3 Ref.	Screw No.
		dec.	frac.	mm								
S10 Ø10.00 to Ø11.99	Y101H1000	0.3937		10.00	ZD10003016 ZD10005016 ZD10008016	16	48	23	3D	31.5	103.0	TX1011P5
	Y101H1010	0.3976		10.10					5D	52.5	123.0	
	Y101H1020	0.4016		10.20					8D	84.0	153.0	
	Y101H1030	0.4055		10.30								
	Y101H1032	0.4063	13/32	10.32								
	Y101H1040	0.4094		10.40	ZD10503016 ZD10505016 ZD10508016	16	48	23	3D	33.0	104.0	
	Y101H1050	0.4134		10.50					5D	55.0	125.0	
	Y101H1060	0.4173		10.60					8D	88.0	156.5	
	Y101H1070	0.4213		10.70								
	Y101H1072	0.4219	27/64	10.72								
	Y101H1080	0.4252		10.80	ZD11003016 ZD11005016 ZD11008016	16	48	23	3D	34.5	105.0	
	Y101H1090	0.4291		10.90					5D	57.5	127.0	
	Y101H1100	0.4331		11.00					8D	92.0	160.0	
	Y101H1110	0.4370		11.10								
	Y101H1111	0.4375	7/16	11.11								
	Y101H1120	0.4409		11.20	ZD11503016 ZD11505016 ZD11508016	16	48	23	3D	36.0	106.0	
	Y101H1130	0.4449		11.30					5D	60.0	129.0	
	Y101H1140	0.4488		11.40					8D	96.0	163.5	
	Y101H1150	0.4528		11.50								
	Y101H1151	0.4531	29/64	11.51								
	Y101H1160	0.4567		11.60	ZD11503016 ZD11505016 ZD11508016	16	48	23	3D	36.0	106.0	
	Y101H1170	0.4606		11.70					5D	60.0	129.0	
	Y101H1180	0.4646		11.80					8D	96.0	163.5	
	Y101H1190	0.4685		11.90								
	Y101H1191	0.4688	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				◎	◎	◎	◎	◎	◎	

ISO	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																									

MICRO GRAIN CARBIDE INSERTS and PREMIUM TOOL STEEL HOLDERS

i-ONE DRILLS INSERTS & HOLDERS

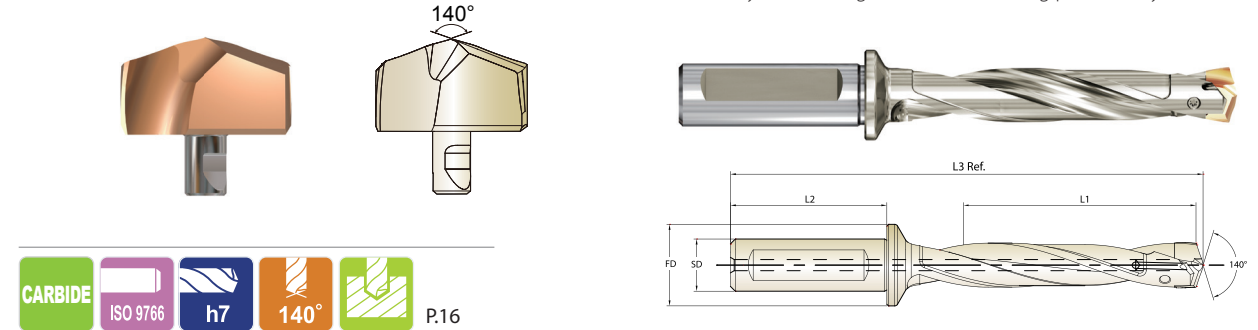
Y121H SERIES

► 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



Unit : mm

Series Range	Insert EDP No.	Insert O.D.			Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth		Overall Length	 Screw No.
		h7				SD	L2	FD	L1		L3 Ref.	
		dec.	frac.	mm								
S12 Ø12.00 to Ø13.99	Y121H1200	0.4724		12.00	ZD12003016 ZD12005016 ZD12008016	16	48	23	3D	37.5	109.8	TX1213P5
	Y121H1210	0.4764		12.10					5D	62.5	133.8	
	Y121H1220	0.4803		12.20					8D	100.0	169.8	
	Y121H1230	0.4844	31/64	12.30								
	Y121H1240	0.4882		12.40								
	Y121H1250	0.4921		12.50	ZD12503016 ZD12505016 ZD12508016	16	48	23	3D	39.0	110.8	
	Y121H1260	0.4961		12.60					5D	65.0	135.8	
	Y121H1270	0.5000	1/2	12.70					8D	104.0	173.3	
	Y121H1280	0.5039		12.80								
	Y121H1290	0.5079		12.90								
	Y121H1300	0.5118		13.00	ZD13003016 ZD13005016 ZD13008016	16	48	23	3D	40.5	112.8	
	Y121H1310	0.5156	33/64	13.10					5D	67.5	138.8	
	Y121H1320	0.5197		13.20					8D	108.0	177.8	
	Y121H1330	0.5236		13.30								
	Y121H1340	0.5276		13.40								
	Y121H1349	0.5313	17/32	13.49								
	Y121H1350	0.5315		13.50	ZD13503016 ZD13505016 ZD13508016	16	48	23	3D	42.0	113.8	
	Y121H1360	0.5354		13.60					5D	70.0	140.8	
	Y121H1370	0.5394		13.70					8D	112.0	181.3	
	Y121H1380	0.5433		13.80								
	Y121H1389	0.5469	35/64	13.89								
	Y121H1390	0.5472		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																							

MICRO GRAIN CARBIDE INSERTS and PREMIUM TOOL STEEL HOLDERS

i-ONE DRILLS INSERTS & HOLDERS

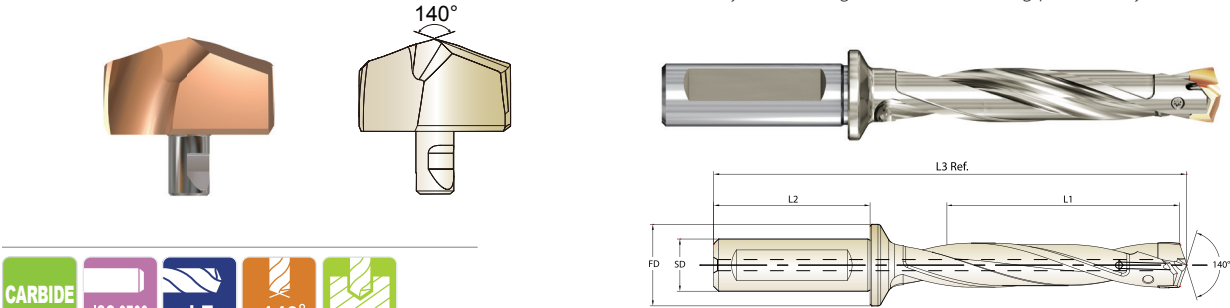
Y141H SERIES

► 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



Unit : mm												
Series Range	Insert EDP No.	Insert O.D.			Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth		Overall Length	
(mm)	H-Coating	h7				SD	L2	FD	L1		L3 Ref.	Screw No.
		dec.	frac.	mm								
S14 Ø14.00 to Ø15.99	Y141H1400	0.5512		14.00	ZD14003016 ZD14005016 ZD14008016	16	48	23				TX1415P7
	Y141H1410	0.5551		14.10								
	Y141H1420	0.5591		14.20								
	Y141H1429	0.5625	9/16	14.29								
	Y141H1430	0.5630		14.30								
	Y141H1440	0.5669		14.40								
	Y141H1450	0.5709		14.50								
	Y141H1460	0.5748		14.60	ZD14503016 ZD14505016 ZD14508016	16	48	23				
	Y141H1468	0.5781	37/64	14.68								
	Y141H1470	0.5787		14.70								
	Y141H1480	0.5827		14.80								
	Y141H1490	0.5866		14.90								
	Y141H1500	0.5906		15.00								
	Y141H1508	0.5938	19/32	15.08	ZD15003016 ZD15005016 ZD15008016	16	48	23				
	Y141H1510	0.5945		15.10								
	Y141H1520	0.5984		15.20								
	Y141H1530	0.6024		15.30								
	Y141H1540	0.6063		15.40								
	Y141H1548	0.6094	39/64	15.48								
	Y141H1550	0.6102		15.50	ZD15503016 ZD15505016 ZD15508016	16	48	23				
	Y141H1560	0.6142		15.60								
	Y141H1570	0.6181		15.70								
	Y141H1580	0.6220		15.80								
	Y141H1588	0.6250	5/8	15.88								
	Y141H1590	0.6260		15.90								

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

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

MICRO GRAIN CARBIDE INSERTS and PREMIUM TOOL STEEL HOLDERS

i-ONE DRILLS INSERTS & HOLDERS

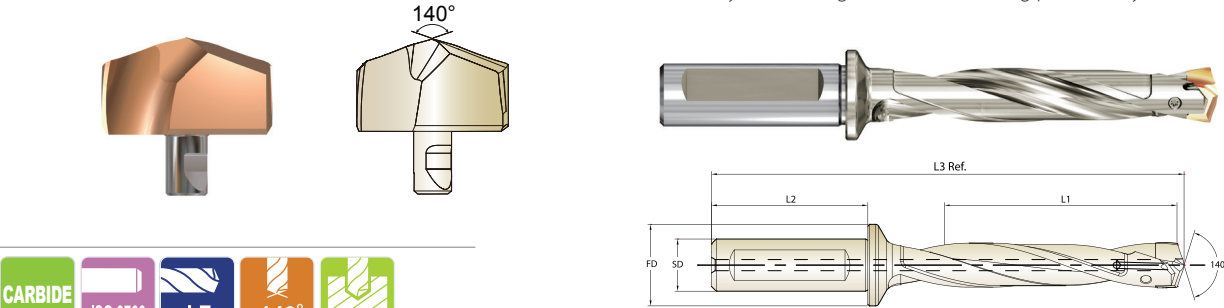
Y161H SERIES

► 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



Unit : mm

Series Range	Insert EDP No.	Insert O.D.			Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth		Overall Length	
(mm)	H-Coating	h7				SD	L2	FD	L1		L3 Ref.	Screw No.
S16 Ø16.00 to Ø17.99	Y161H1600	0.6299		16.00	ZD16003020 ZD16005020 ZD16008020	20	50	25	3D 5D 8D	51.0 85.0 136.0	127.0 160.0 209.5	TX1617P7
	Y161H1609	0.6335		16.09								
	Y161H1610	0.6339		16.10								
	Y161H1620	0.6378		16.20								
	Y161H1627	0.6406	41/64	16.27								
	Y161H1630	0.6417		16.30								
	Y161H1640	0.6457		16.40								
	Y161H1650	0.6496		16.50								
	Y161H1660	0.6535		16.60								
	Y161H1667	0.6563	21/32	16.67								
	Y161H1670	0.6575		16.70	ZD17003020 ZD17005020 ZD17008020	20	50	25	3D 5D 8D	54.0 90.0 144.0	130.0 165.0 217.5	TX1718P7
	Y161H1680	0.6614		16.80								
	Y161H1690	0.6654		16.90								
	Y161H1700	0.6693		17.00								
	Y161H1707	0.6719	43/64	17.07								
	Y161H1710	0.6732		17.10								
	Y161H1720	0.6772		17.20								
	Y161H1730	0.6811		17.30								
	Y161H1740	0.6850		17.40								
	Y161H1746	0.6875	11/16	17.46								
	Y161H1750	0.6890		17.50								
	Y161H1760	0.6929		17.60								
	Y161H1770	0.6969		17.70								
	Y161H1780	0.7008		17.80								
	Y161H1786	0.7031	45/64	17.86								
	Y161H1790	0.7047		17.90								

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

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

MICRO GRAIN CARBIDE INSERTS and PREMIUM TOOL STEEL HOLDERS

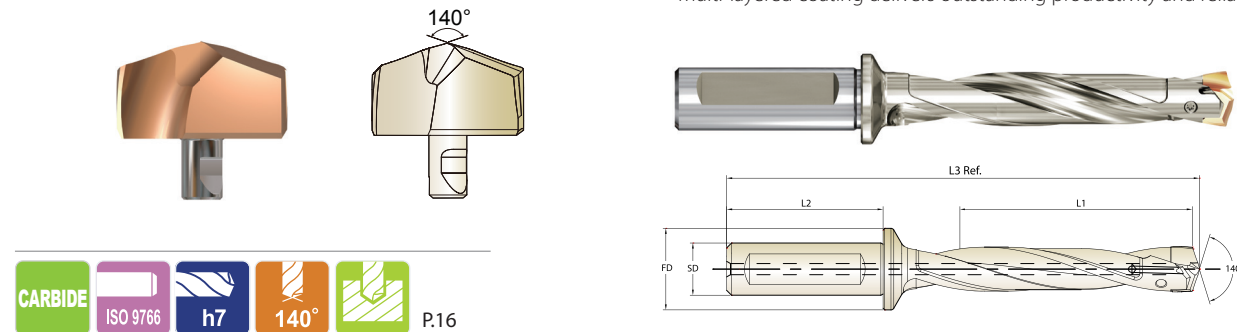
i-ONE DRILLS INSERTS & HOLDERS**Y181H SERIES**

► 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



Unit : mm

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	0.7087		18.00	ZD18003025 ZD18005025 ZD18008025	25	56	32				TX1819P9
	Y181H1810	0.7126		18.10								
	Y181H1820	0.7165		18.20								
	Y181H1826	0.7188	23/32	18.26								
	Y181H1830	0.7205		18.30								
	Y181H1840	0.7244		18.40								
	Y181H1850	0.7283		18.50								
	Y181H1860	0.7323		18.60								
	Y181H1865	0.7344	47/64	18.65								
	Y181H1870	0.7362		18.70								
	Y181H1880	0.7402		18.80								
	Y181H1890	0.7441		18.90								
	Y181H1900	0.7480		19.00	ZD19003025 ZD19005025 ZD19008025	25	56	32				TX1920P9
	Y181H1905	0.7500	3/4	19.05								
	Y181H1910	0.7520		19.10								
	Y181H1920	0.7559		19.20								
	Y181H1927	0.7587		19.27								
	Y181H1930	0.7598		19.30								
	Y181H1940	0.7638		19.40								
	Y181H1945	0.7656	49/64	19.45								
	Y181H1950	0.7677		19.50								
	Y181H1960	0.7717		19.60								
	Y181H1970	0.7756		19.70								
	Y181H1980	0.7795		19.80								
	Y181H1984	0.7813	25/32	19.84								
	Y181H1990	0.7835		19.90								

Unit : mm

► 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																							

MICRO GRAIN CARBIDE INSERTS and PREMIUM TOOL STEEL HOLDERS

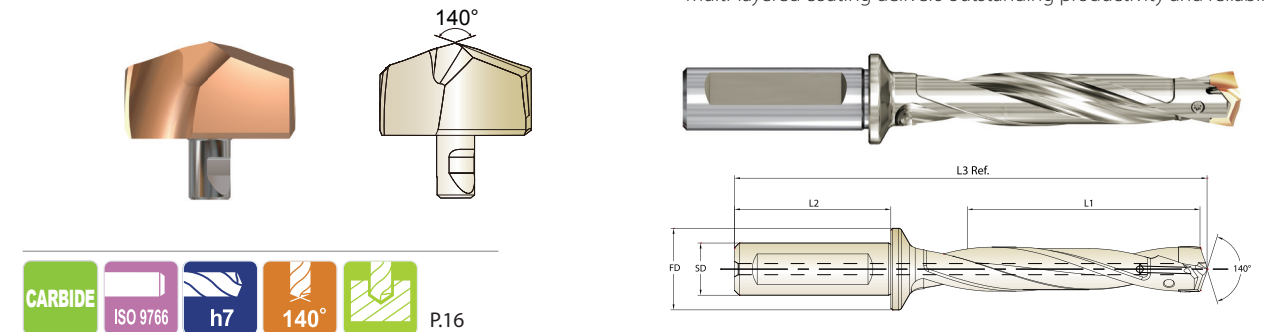
i-ONE DRILLS INSERTS & HOLDERS**Y201H SERIES**

► 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



Unit : mm

Series Range	Insert EDP No.	Insert O.D.			Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth		Overall Length	 Screw No.
		h7				SD	L2	FD	L1		L3 Ref.	
		dec.	frac.	mm								
S20 Ø20.00 to Ø21.99	Y201H2000	0.7874		20.00	ZD20003025 ZD20005025 ZD20008025	25	56	32	3D 5D 8D	63.0 105.0 168.0	147.5 188.5 250.0	TX2021P9
	Y201H2010	0.7913		20.10								
	Y201H2020	0.7953		20.20								
	Y201H2024	0.7969	51/64	20.24								
	Y201H2030	0.7992		20.30								
	Y201H2040	0.8031		20.40								
	Y201H2050	0.8071		20.50								
	Y201H2060	0.8110		20.60								
	Y201H2064	0.8125	13/16	20.64								
	Y201H2070	0.8150		20.70								
	Y201H2080	0.8189		20.80								
	Y201H2090	0.8228		20.90	ZD21003025 ZD21005025 ZD21008025	25	56	32	3D 5D 8D	66.0 110.0 176.0	150.5 193.5 258.0	TX2122P9
	Y201H2100	0.8268		21.00								
	Y201H2103	0.8281	53/64	21.03								
	Y201H2110	0.8307		21.10								
	Y201H2120	0.8346		21.20								
	Y201H2130	0.8386		21.30								
	Y201H2140	0.8425		21.40								
	Y201H2143	0.8438	27/32	21.43								
	Y201H2150	0.8465		21.50								
	Y201H2160	0.8504		21.60								
	Y201H2170	0.8543		21.70								
	Y201H2180	0.8583		21.80								
	Y201H2183	0.8594	55/64	21.83								
	Y201H2190	0.8622		21.90								

Unit : mm

► 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																					

MICRO GRAIN CARBIDE INSERTS and PREMIUM TOOL STEEL HOLDERS

i-ONE DRILLS INSERTS & HOLDERS

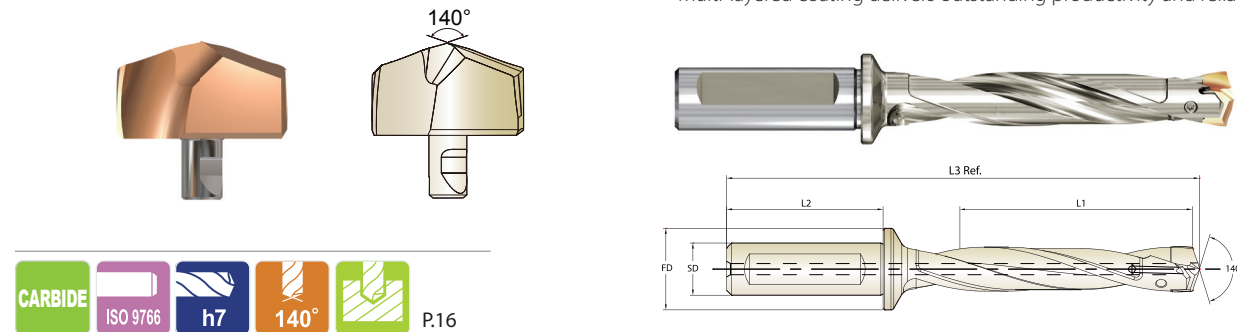
Y221H SERIES

► 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



Unit : mm

Series Range	Insert EDP No.	Insert O.D.			Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth		Overall Length	
		h7				SD	L2	FD	L1		L3 Ref.	Screw No.
		dec.	frac.	mm								
S22 Ø22.00 to Ø23.99	Y221H2200	0.8661		22.00	ZD22003025 ZD22005025 ZD22008025	25	56	32				TX2223P9
	Y221H2210	0.8701		22.10								
	Y221H2220	0.8740		22.20								
	Y221H2223	0.8750	7/8	22.23								
	Y221H2230	0.8780		22.30								
	Y221H2240	0.8819		22.40					3D	69.0	153.4	
	Y221H2250	0.8858		22.50					5D	115.0	198.4	
	Y221H2260	0.8898		22.60					8D	184.0	265.9	
	Y221H2262	0.8906	57/64	22.62								
	Y221H2270	0.8937		22.70								
	Y221H2280	0.8976		22.80								
	Y221H2290	0.9016		22.90								
	Y221H2300	0.9055		23.00	ZD23003025 ZD23005025 ZD23008025	25	56	32				TX2324P9
	Y221H2302	0.9063	29/32	23.02								
	Y221H2310	0.9094		23.10								
	Y221H2320	0.9134		23.20								
	Y221H2330	0.9173		23.30								
	Y221H2340	0.9213		23.40					3D	72.0	157.4	
	Y221H2342	0.9219	59/64	23.42					5D	120.0	204.4	
	Y221H2350	0.9252		23.50					8D	192.0	274.9	
	Y221H2360	0.9291		23.60								
	Y221H2370	0.9331		23.70								
	Y221H2380	0.9370		23.80								
	Y221H2381	0.9375	15/16	23.81								
	Y221H2390	0.9409		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					Stainless steel				Grey cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
HRc	13	25	28	32	30	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
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
ISO	N										S				H			
Material Description	Aluminum-wrought alloy					Aluminum-cast, alloyed					Heat Resistant Super Alloys				Titanium Alloys			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42
HB											200	280	250	350	320	400 Rm	1050 Rm	550
Recommended																		

MICRO GRAIN CARBIDE INSERTS and PREMIUM TOOL STEEL HOLDERS

i-ONE DRILLS INSERTS & HOLDERS

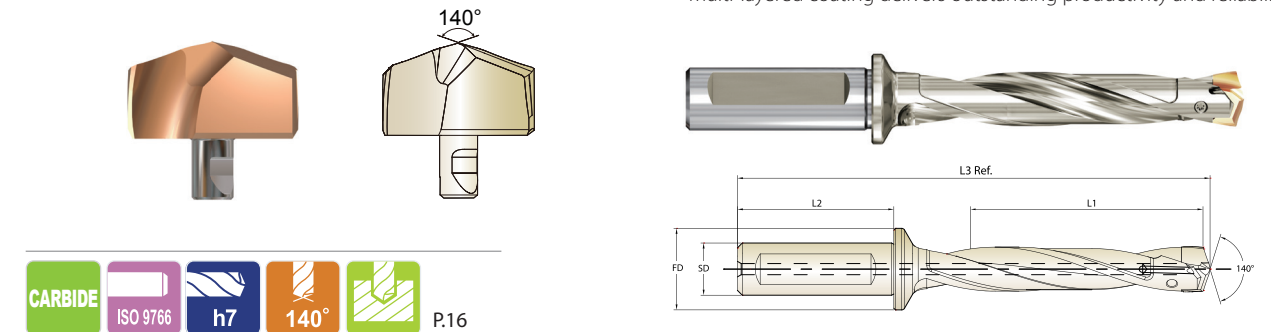
Y241H SERIES

► 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



Unit : mm

Series Range	Insert EDP No.	Insert O.D.			Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth		Overall Length			
		(mm)	H-Coating	h7			SD	L2	FD	L1		L3 Ref.	Screw No.	
				dec.		frac.				mm				
S24 Ø24.00 to Ø25.99	Y241H2400	0.9449		24.00	ZD24003032 ZD24005032 ZD24008032	32	60	37				TX2425P10		
	Y241H2410	0.9488		24.10										
	Y241H2420	0.9528		24.20										
	Y241H2421	0.9531	61/64	24.21										
	Y241H2430	0.9567		24.30										
	Y241H2440	0.9606		24.40										
	Y241H2450	0.9646		24.50										
	Y241H2460	0.9685		24.60										
	Y241H2461	0.9688	31/32	24.61										
	Y241H2470	0.9724		24.70										
	Y241H2480	0.9764		24.80										
	Y241H2490	0.9803		24.90	ZD25003032 ZD25005032 ZD25008032	32	60	37				TX2526P10		
	Y241H2500	0.9844	63/64	25.00										
	Y241H2510	0.9882		25.10										
	Y241H2520	0.9921		25.20										
	Y241H2530	0.9961		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					Stainless steel				Grey cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
HRc	13	25	28	32	30	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
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
ISO	N										S				H			
Material Description	Aluminum-wrought alloy					Aluminum-cast, alloyed					Heat Resistant Super Alloys				Titanium Alloys			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	55	60	42
HB											200	280	250	350	320	400 Rm	1050 Rm	550
Recommended																		

MICRO GRAIN CARBIDE INSERTS and PREMIUM TOOL STEEL HOLDERS i-ONE DRILLS INSERTS & HOLDERS

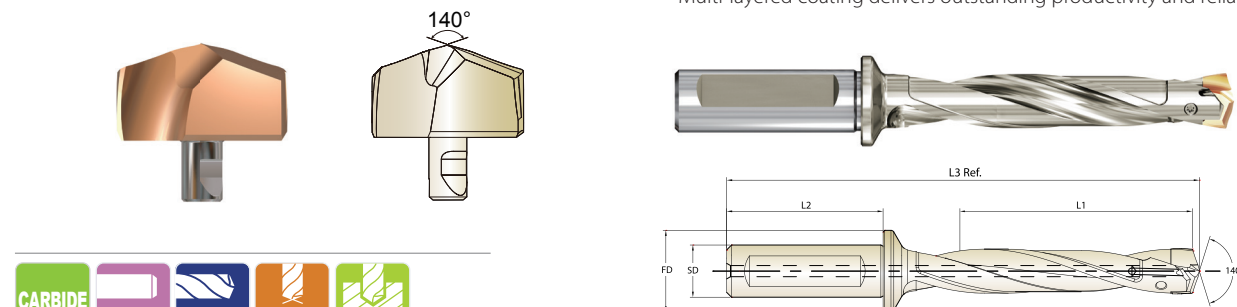
Y261H SERIES
Y281H SERIES

► 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



Unit : mm

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	ZD26003032 ZD26005032 ZD26008032	32	60	37	3D	81.0	172.2	TX2627P10
	Y261H2619	1.0313	1-1/32	26.19					5D	135.0	225.2	
	Y261H2650	1.0433		26.50					8D	216.0	304.7	
	Y261H2659	1.0469	1-3/64	26.59								
	Y261H2699	1.0625	1-1/16	26.99	ZD27003032 ZD27005032 ZD27008032	32	60	37	3D	84.0	175.2	TX2728P10
	Y261H2700	1.0630		27.00					5D	140.0	230.2	
	Y261H2738	1.0781	1-5/64	27.38					8D	224.0	312.7	
	Y261H2750	1.0827		27.50								
	Y261H2778	1.0938	1-3/32	27.78								
S28 Ø28.00 to Ø29.99	Y281H2800	1.1024		28.00	ZD28003032 ZD28005032 ZD28008032	32	60	37	3D	87.0	179.2	TX2830P10
	Y281H2818	1.1094	1-7/64	28.18					5D	145.0	236.2	
	Y281H2850	1.1220		28.50					8D	232.0	321.7	
	Y281H2858	1.1250	1-1/8	28.58								
	Y281H2897	1.1406	1-9/64	28.97	ZD29003032 ZD29005032 ZD29008032	32	60	37	3D	90.0	183.2	TX2930P10
	Y281H2900	1.1417		29.00					5D	150.0	242.2	
	Y281H2937	1.1563	1-5/32	29.37					8D	240.0	330.7	
	Y281H2950	1.1614		29.50								
	Y281H2977	1.1719	1-11/64	29.77								

► 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				
VDI 3323	1	2	3	4	5	6	7	8	9	10	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
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc																					
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55
Recommended																					

MICRO GRAIN CARBIDE INSERTS and PREMIUM TOOL STEEL HOLDERS i-ONE DRILLS INSERTS & HOLDERS

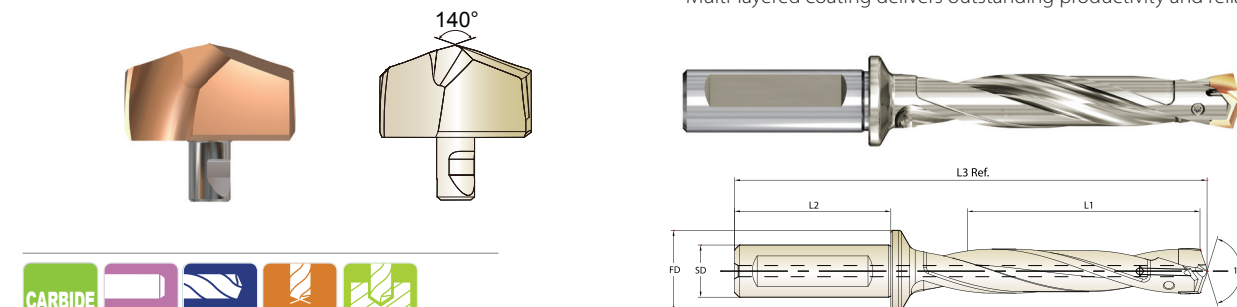
Y301H SERIES
Y321H SERIES

► 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



Unit : mm

Series Range	Insert EDP No.	Insert O.D.			Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth		Overall Length	
(mm)	H-Coating	h7				SD	L2	FD	L1		L3 Ref.	Screw No.
		dec.	frac.	mm								
S30 Ø30.00 to Ø31.99	Y301H3000	1.1811		30.00	ZD30003032 ZD30005032 ZD30008032	32	60	37				TX3031P15
	Y301H3016	1.1875	1-3/16	30.16					3D	93.0	187.0	
	Y301H3050	1.2008		30.50					5D	155.0	248.0	
	Y301H3056	1.2031	1-13/64	30.56					8D	248.0	339.5	
	Y301H3096	1.2188	1-7/32	30.96	ZD31003032 ZD31005032 ZD31008032	32	60	37				TX3132P15
	Y301H3100	1.2205		31.00					3D	96.0	191.0	
	Y301H3135	1.2344	1-15/64	31.35					5D	160.0	254.0	
	Y301H3150	1.2402		31.50					8D	256.0	348.5	
Y301H3175	1.2500	1-1/4	31.75									
S32 Ø32.00 to Ø33.99	Y321H3200	1.2598		32.00	ZD32003032 ZD32005032 ZD32008032	32	60	37				TX3233P15
	Y321H3215	1.2656	1-17/64	32.15					3D	99.0	197.2	
	Y321H3250	1.2795		32.50					5D	165.0	262.2	
	Y321H3254	1.2813	1-9/32	32.54					8D	264.0	359.7	
	Y321H3294	1.2969	1-19/64	32.94	ZD33003032 ZD33005032 ZD33008032	32	60	37				TX3334P15
	Y321H3300	1.2992		33.00					3D	102.0	201.2	
	Y321H3334	1.3125	1-5/16	33.34					5D	170.0	268.2	
	Y321H3350	1.3189		33.50					8D	272.0	368.7	
	Y321H3373	1.3281	1-21/64	33.73								

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

◎ : Excellent ○ : Good

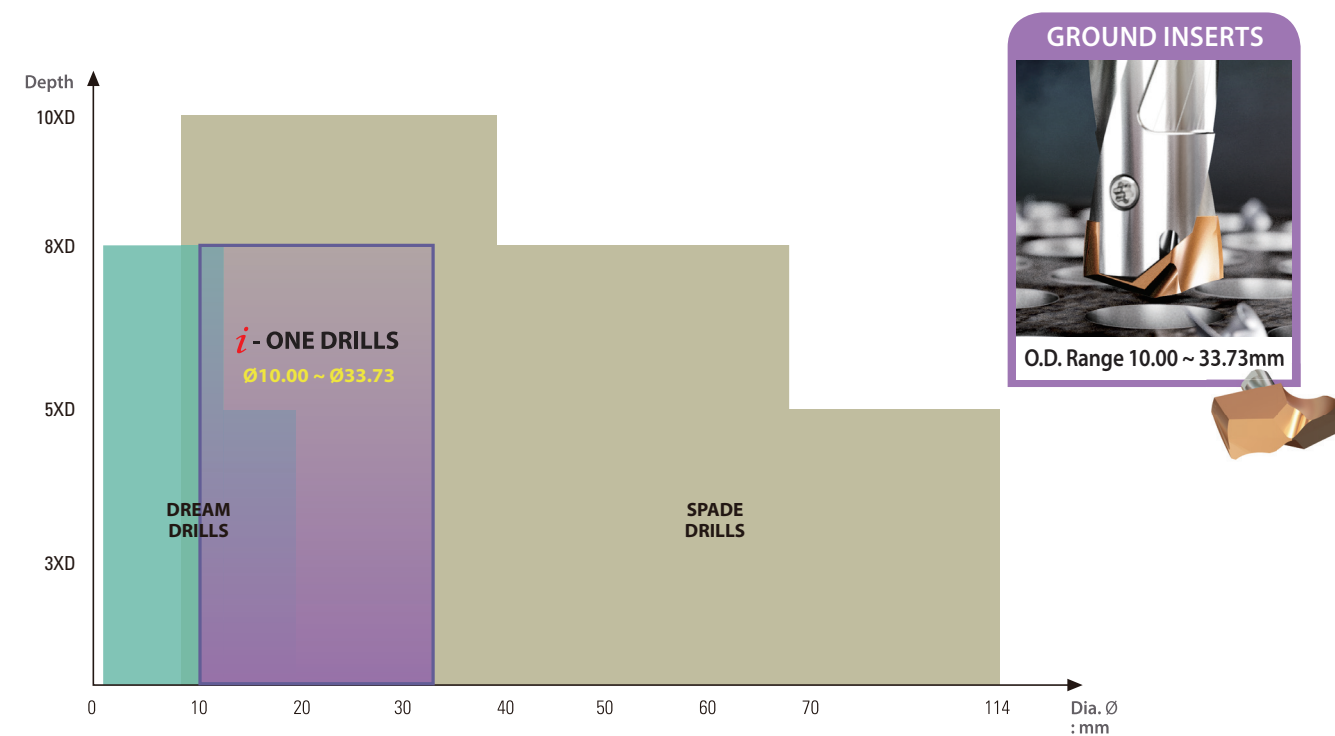
ISO	P										M	K									
Material Description	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel	Stainless steel					Grey cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21	
HB	125	190	250	270	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
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc																					
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	55	60	42	55
Recommended																					

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

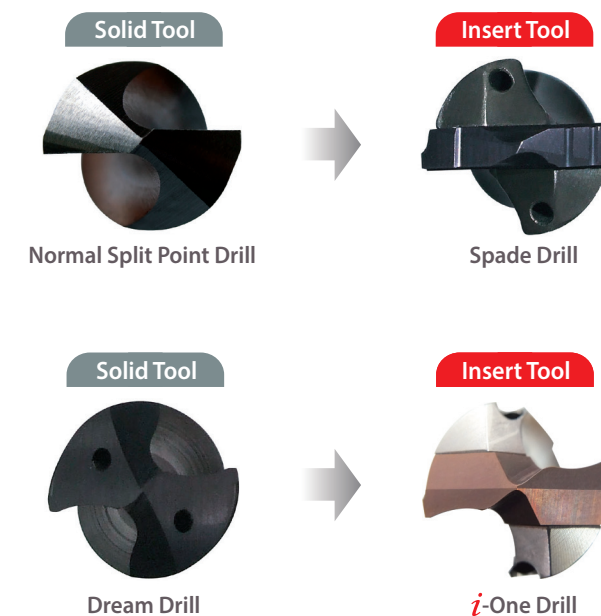
ISO	VDI 3323	Material Description	Vc (m/min.)	Feed(mm/rev.)					
				Ø10.0-11.99	Ø12.09-14.99	Ø15.00-17.99	Ø18.00-21.99	Ø22.0-26.9	Ø27.0-33.99
P	1	Non-alloy steel	100-126	0.14-0.24	0.18-0.31	0.23-0.39	0.30-0.44	0.37-0.57	0.41-0.61
	2		84-110	0.12-0.21	0.15-0.26	0.23-0.39	0.30-0.44	0.37-0.57	0.41-0.61
	3		63-84	0.11-0.18	0.13-0.22	0.19-0.31	0.24-0.35	0.33-0.51	0.36-0.54
	4		58-74	0.09-0.14	0.11-0.18	0.17-0.28	0.23-0.33	0.28-0.42	0.32-0.47
	5		58-74	0.09-0.14	0.11-0.18	0.17-0.28	0.23-0.33	0.28-0.42	0.32-0.47
	6	Low alloy steel	74-95	0.11-0.18	0.13-0.22	0.19-0.31	0.24-0.35	0.33-0.51	0.37-0.55
	7		63-84	0.11-0.18	0.13-0.22	0.17-0.28	0.24-0.35	0.33-0.51	0.37-0.55
	8		58-74	0.09-0.14	0.11-0.18	0.14-0.23	0.23-0.33	0.28-0.42	0.32-0.47
	9		47-63	0.07-0.11	0.09-0.13	0.14-0.23	0.23-0.33	0.28-0.42	0.32-0.47
	10	High alloyed steel, and tool steel	53-68	0.09-0.14	0.11-0.18	0.14-0.23	0.20-0.29	0.22-0.34	0.26-0.39
	11		42-58	0.09-0.14	0.11-0.18	0.12-0.20	0.23-0.33	0.22-0.34	0.26-0.39
K	15	Grey cast iron	105-131	0.13-0.23	0.17-0.29	0.22-0.41	0.30-0.46	0.40-0.56	0.44-0.61
	16		79-100	0.10-0.18	0.12-0.22	0.18-0.32	0.22-0.33	0.28-0.39	0.32-0.44
	17	Nodular cast iron	100-126	0.11-0.20	0.14-0.24	0.19-0.34	0.23-0.35	0.31-0.44	0.35-0.48
	18		79-100	0.10-0.18	0.12-0.22	0.15-0.29	0.21-0.32	0.28-0.39	0.32-0.44
	19	Malleable cast iron	105-131	0.11-0.20	0.14-0.24	0.19-0.34	0.23-0.35	0.31-0.44	0.35-0.48
	20		79-100	0.10-0.15	0.12-0.20	0.15-0.29	0.21-0.32	0.28-0.39	0.32-0.44

- 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.

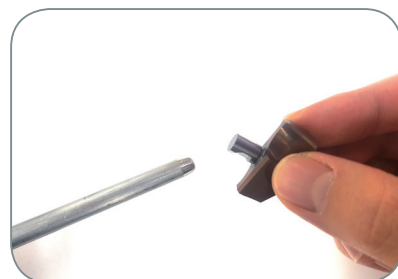
YG-1 EXCHANGEABLE RANGE OF DRILLS - POSITIONING MAP



COMPARISON WITH SPLIT POINT DRILL - SPADE DRILL & DREAM DRILL



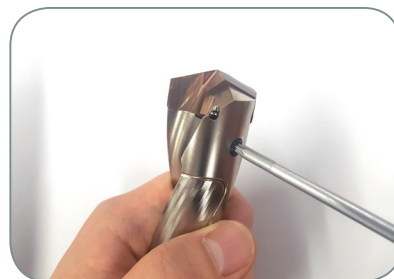
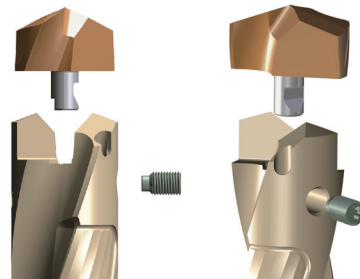
ASSEMBLY OF *i*-ONE DRILLS



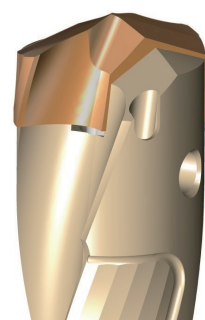
Make sure to clean the insert and insert seat.



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.



Torx Plus® Screw

Torx Plus® Wrench

Wrench Type	Product No.	Series (Insert Size)	Torx Plus®	Torque (N·m)
	TWFP05	S10~S12 (Ø10.00 ~ Ø13.90)	5 IP	0.6
	TWDP07	S14~S16 (Ø14.00 ~ Ø17.90)	7 IP	1.0
	TWDP09	S18~S22 (Ø18.00 ~ Ø23.90)	9 IP	1.5
	TWDP10	S24~S28 (Ø24.00 ~ Ø29.77)	10 IP	2.2
	TWDP15	S30~S32 (Ø30.00 ~ Ø33.73)	15 IP	3.2

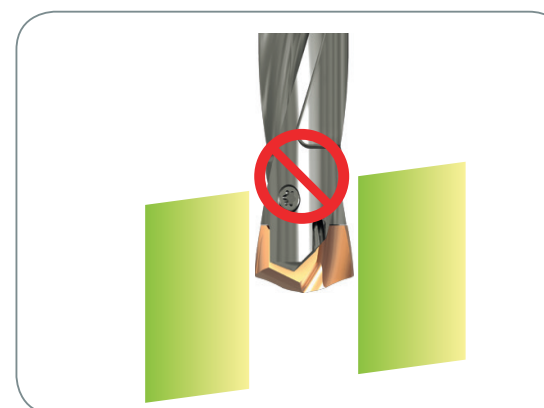
Use the Torx Plus wrench

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

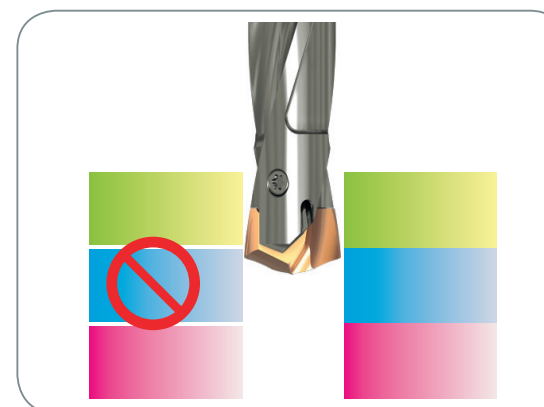
CAUTION-NOT RECOMMENDABLE APPLICATION



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

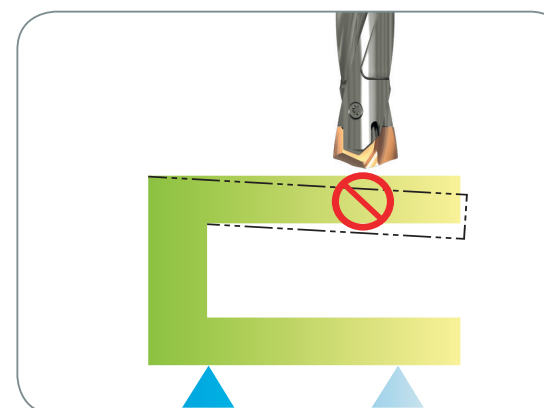


Material with slanting entrance and exit over 7 degrees.
(If drilling 7 degrees or under slanting surface, reduce the feed about 30-50%)



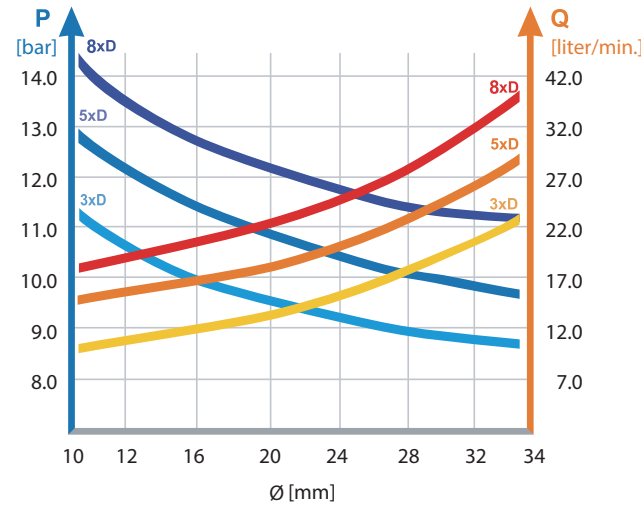
For drilling stacked plates, minimize the space between the plates.

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



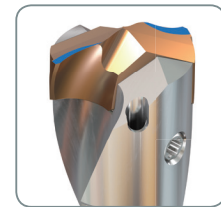
The material needs to be fixtured securely before drilling.

RECOMMENDED COOLANT PRESSURE AND FLOW RATE ON VERTICAL DRILLING

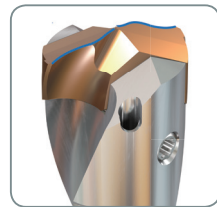


- Recommended emulsion mix is 6 - 8%.
- For Drilling into Stainless and High Strength steels, a mix of 10% is recommended.
- For horizontal drilling, 30% reduction on the coolant pressure and flow rate is possible.
- Dry drilling is possible for 1 - 2xD drilling. But not recommended.

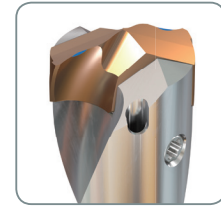
TROUBLE SHOOTING



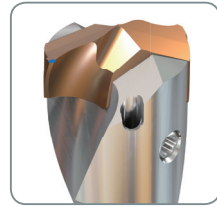
- 1) Heavy flank wear / Fast flank wear
- Reduce cutting speed
 - Increase feed



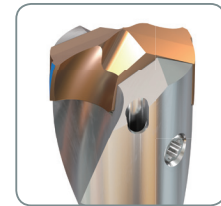
- 2) Chipping on cutting edge
- Reduce feed
 - Check the rigidity of spindle and chuck
 - Rigid clamping of workpiece



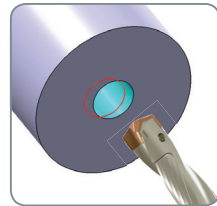
- 3) Build up on cutting edge
- Increase cutting speed
 - Use a coated insert



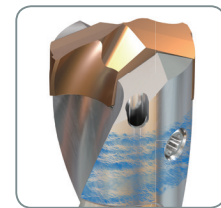
- 4) Chipping or break down on outer corner
- Reduce feed
 - Rigid clamping of workpiece



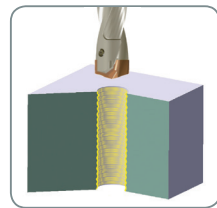
- 5) Wear of land margin
- Rigid clamping of workpiece
 - Reduce cutting speed
 - Increase coolant flow



- 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

MEMO



MEMO



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ON TIME DELIVERY for WORLD-WIDE CUSTOMERS**

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