

YE-1026

EUROPE



i-ONE DRILLS

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

High-Performance Exchangeable
for General Steels, Cast Iron and Stainless Steels

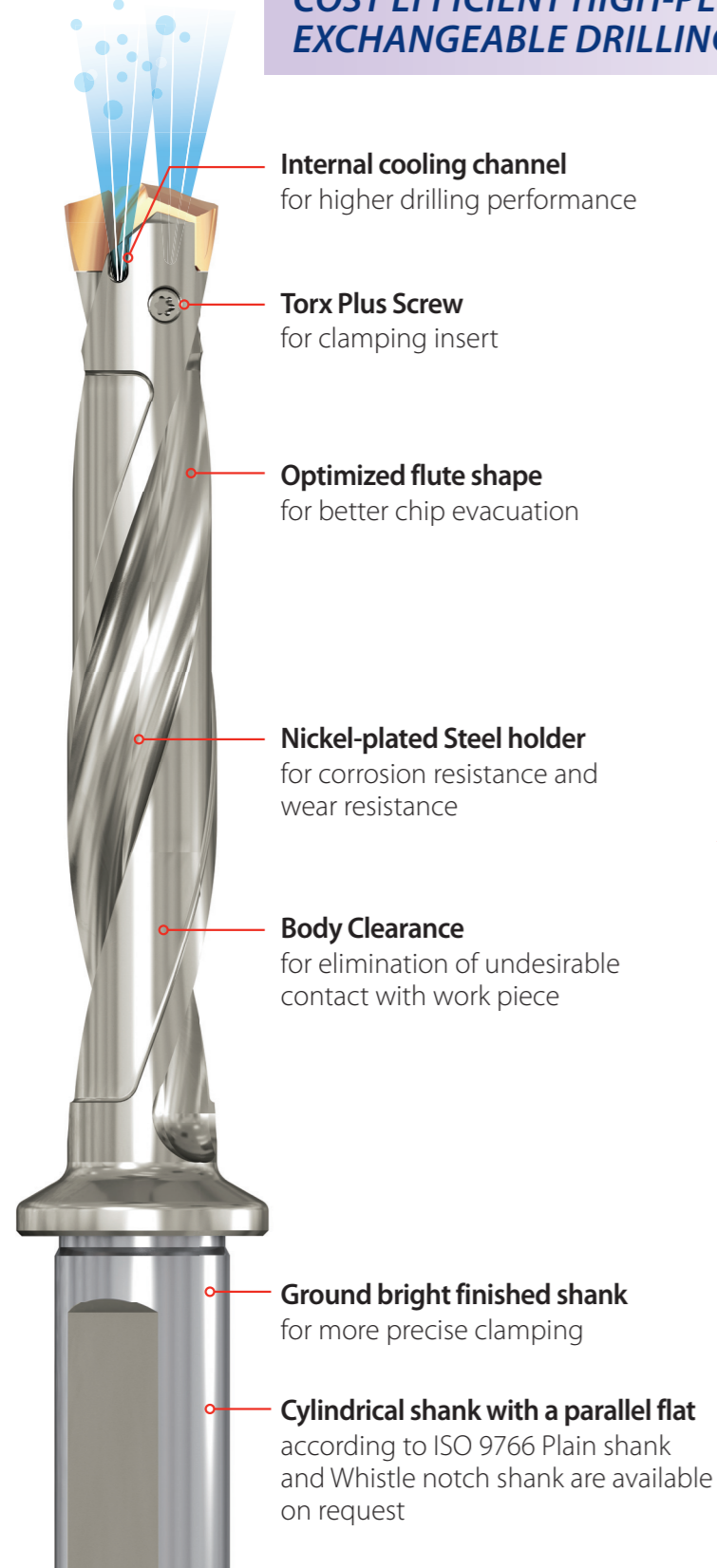
NEW Inserts for Stainless Steel



FEATURES

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

COST EFFICIENT HIGH-PERFORMANCE EXCHANGEABLE DRILLING TOOLS



Internal cooling channel for higher drilling performance

Torx Plus Screw for clamping insert

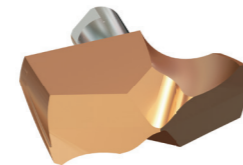
Optimized flute shape for better chip evacuation

Nickel-plated Steel holder for corrosion resistance and wear resistance

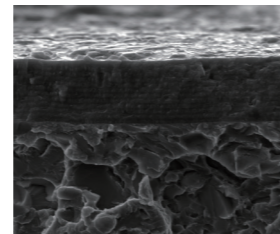
Body Clearance for elimination of undesirable contact with work piece

Ground bright finished shank for more precise clamping

Cylindrical shank with a parallel flat according to ISO 9766 Plain shank and Whistle notch shank are available on request



• **Secure & Quick clamping system**



• **Multi-layered Coating**

H-Coating
Reduces cracking and provides high shear strength with excellent oxidation resistance and hot hardness

NEW Z-Coating
Provides outstanding heat resistance for high-temperature machining

• **Optimized point geometry** of i-ONE Drills ensures centering ability and smoother cutting

• **Optimized Edge Honing (for Stainless Steel)**
Provides superior chipping resistance and consistent performance under high-load conditions

• **Ground Negative land (for General Steel)** on cutting edge for reliable tool life

• **Self-Centering and Chip Breaking** by radius thinning

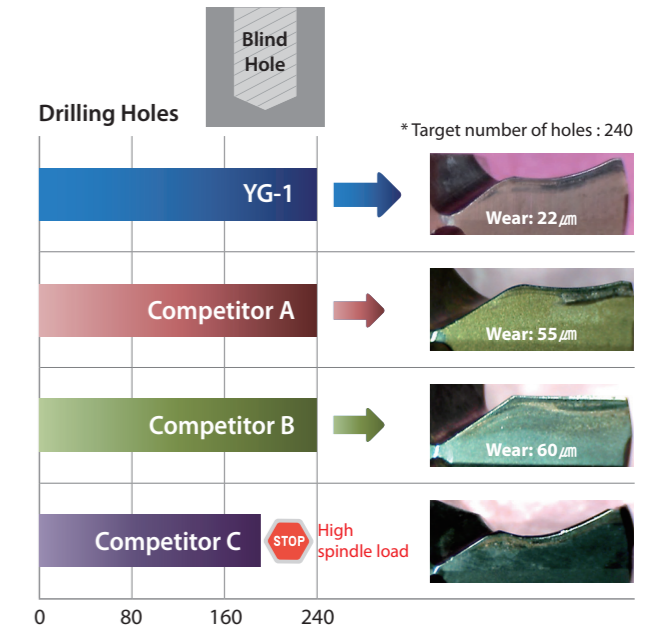
CASE STUDY

i-ONE DRILLS GENERAL

▶ **Ø14.0mm, Alloy Steel**

Cutting Condition

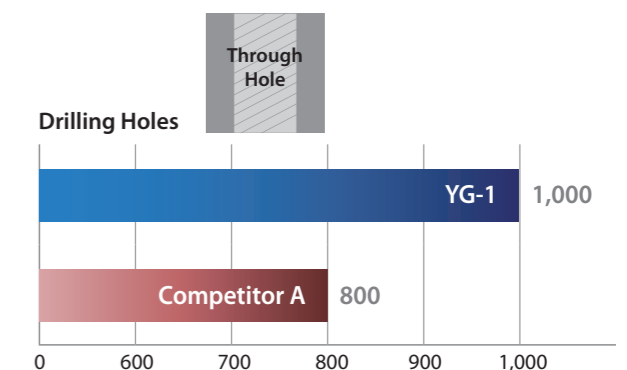
O.D Size	Ø14.0
Work Material	- DIN: 42CrMo4 - AISI: 4140 - JIS: SCM440 (HRC30)
Cutting Speed	80 m/min.
RPM	1,819 rev./min.
Feed	0.18 mm/rev.
Drilling Depth	65.0 mm (Blind)
Cooling Method	Internal Cooling (35 bar) Water Soluble (9% Emulsion)
Machine	Machining Center



▶ **Ø16.0mm, Pre-Hardened**

Cutting Condition

O.D Size	Ø16.0
Work Material	- DIN: CK45 - AISI: 1045 - JIS: S45C (HRC20)
Cutting Speed	75 m/min.
RPM	1,493 rev./min.
Feed	0.3 mm/rev.
Drilling Depth	35.0 mm (Through)
Cooling Method	Internal Cooling (10 bar) Water Soluble (9% Emulsion)
Machine	Machining Center



GUIDE TO ICONS

Tool Raw Material	Point Angle	Cutting Condition	Tolerance of Dimension	Surface Treatment
			Tolerance of Outside Diameter	
			Tolerance of Shank Diameter	

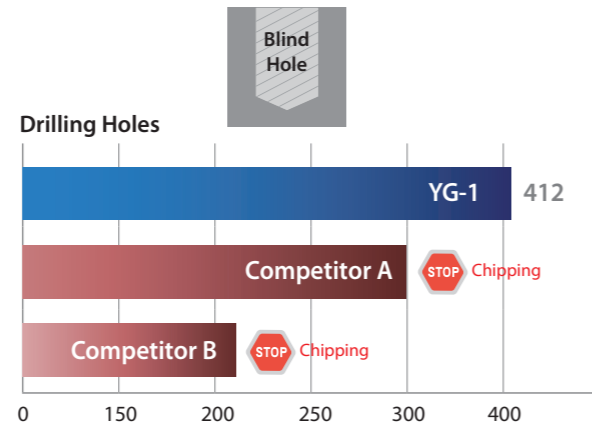
CASE STUDY

i-ONE DRILLS INOX

► Ø14.0mm, SUS304

Cutting Condition

O.D Size	Ø14.0
Work Material	- DIN: X5CrNi18-9 - AISI: 304 - JIS: SUS304
Cutting Speed	50 m/min.
RPM	1,137 rev./min.
Feed	0.15 mm/rev.
Drilling Depth	66.0 mm (Blind)
Cooling Method	Internal Cooling (15 bar) Water Soluble (9% Emulsion)
Machine	Vertical Machining Center



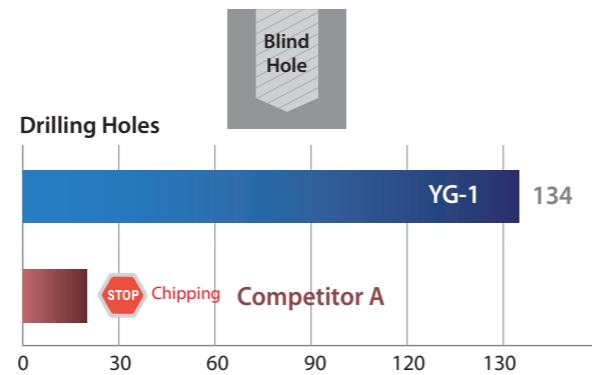
Tool Wear Comparison



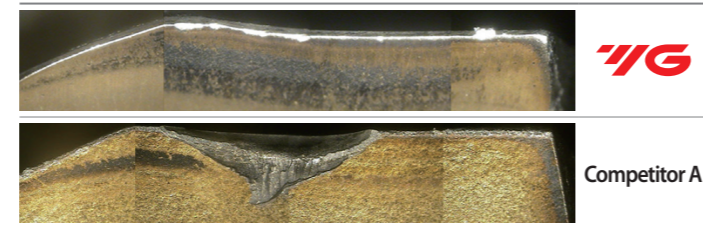
► Ø25.0mm, SUS304

Cutting Condition

O.D Size	Ø25.0
Work Material	- DIN: X5CrNi18-9 - AISI: 304 - JIS: SUS304
Cutting Speed	50 m/min.
RPM	637 rev./min.
Feed	0.20 mm/rev.
Drilling Depth	110.0 mm (Blind)
Cooling Method	Internal Cooling (15 bar) Water Soluble (9% Emulsion)
Machine	Vertical Machining Center



Tool Wear Comparison



SERIES	General	INOX	ZD*3	ZD*5	ZD*8
	Y*1H	Y*2Z			
	SIZE MIN	10.00			
SIZE MAX	33.50	33.50			
H-Coating		Z-Coating	3XD	5XD	8XD

i-ONE DRILLS

High-Performance Exchangeable
for General Steels, Cast Iron and Stainless Steels



Please visit
globalyg1.com/mat
for material search

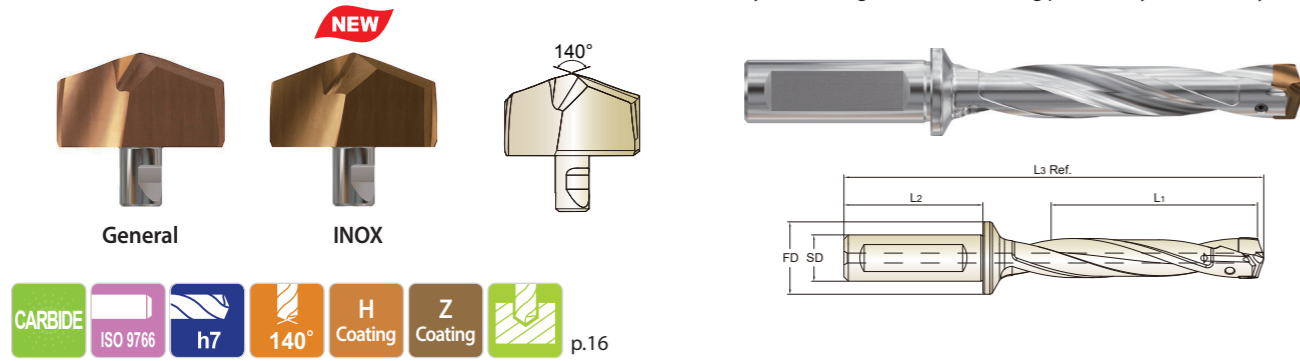
ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRC	General	INOX	3XD	5XD	8XD
P	1	Non-alloy steel	About 0.15% C Annealed	125	13	◎	○	◎	◎	◎
	2		About 0.45% C Annealed	190	13	◎	○	◎	◎	◎
	3		About 0.45% C Quenched & tempered	250	25	◎	○	◎	◎	◎
	4		About 0.75% C Annealed	270	28	◎	○	◎	◎	◎
	5	Low alloy steel	About 0.75% C Quenched & tempered	300	32	◎	○	◎	◎	◎
	6		Annealed	180	10	◎	○	◎	◎	◎
	7		Quenched & tempered	275	29	◎	○	◎	◎	◎
	8	High alloyed steel, and tool steel	Quenched & tempered	300	32	◎	○	◎	◎	◎
	9		Quenched & tempered	350	38	◎	○	◎	◎	◎
	10		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	3	◎	◎	◎	◎	◎
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		Fe Based Cured	280	30					
	33		Ni or Co Based Annealed	250	25					
	34		Ni or Co Based Cured	350	38					
	35	Titanium Alloys	Cast	320	34					
	36		Pure Titanium	400 Rm						
	37		Alpha + Beta Alloys Hardened	1050 Rm						
H	38	Hardened steel	Hardened	550	55					
	39		Hardened	630	60					
	40	Hardened Cast Iron	Cast	400	42					
	41		Hardened	550	55					

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

General **Y101H**
INOX **Y102Z**

- Applications
- For Carbon Steels, Alloy Steels, Cast Iron and Stainless Steels
- 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 Z Coating p.16

Series Range	Insert EDP No.		Insert O.D. h7	Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Drilling Depth L1	Overall Length L3 Ref.	Screw No.			
	General (H-Coating)	INOX (Z-Coating)											
S10 Ø10.00 to Ø11.90	Y101H1000	Y102Z1000	10.00	ZD10003016	16	48	23	3D	31.5	103.0			
	Y101H1010	Y102Z1010	10.10					5D	52.5	123.0			
	Y101H1020	Y102Z1020	10.20					8D	84.0	153.0			
	Y101H1030	Y102Z1030	10.30	ZD10008016	16	48	23	3D	33.0	104.0			
	Y101H1040	Y102Z1040	10.40								5D	55.0	125.0
	Y101H1050	Y102Z1050	10.50								8D	88.0	156.5
	Y101H1060	Y102Z1060	10.60	ZD10503016	16	48	23	3D	34.5	105.0			
	Y101H1070	Y102Z1070	10.70								5D	57.5	127.0
	Y101H1080	Y102Z1080	10.80								8D	92.0	160.0
	Y101H1090	Y102Z1090	10.90	ZD11003016	16	48	23	3D	36.0	106.0			
	Y101H1100	Y102Z1100	11.00								5D	60.0	129.0
	Y101H1110	Y102Z1110	11.10								8D	96.0	163.5
	Y101H1120	Y102Z1120	11.20	ZD11503016	16	48	23	3D	37.5	109.8			
	Y101H1130	Y102Z1130	11.30								5D	62.5	133.8
	Y101H1140	Y102Z1140	11.40								8D	100.0	169.8
	Y101H1150	Y102Z1150	11.50	ZD12503016	16	48	23	3D	39.0	110.8			
	Y101H1160	Y102Z1160	11.60								5D	65.0	135.8
	Y101H1170	Y102Z1170	11.70								8D	104.0	173.3
	Y101H1180	Y102Z1180	11.80	ZD13003016	16	48	23	3D	40.5	112.8			
Y101H1190	Y102Z1190	11.90	5D								67.5	138.8	
			8D								108.0	177.8	
			ZD13503016	16	48	23	3D	42.0	113.8				
										5D	70.0	140.8	
										8D	112.0	181.3	

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

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel						
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRC	13	25	28	32	38	10	29	32	38	15	15	23	10	10	26	3	25	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	200	325	200	240	180	180	260	160	250	130	230
General	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
INOX	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

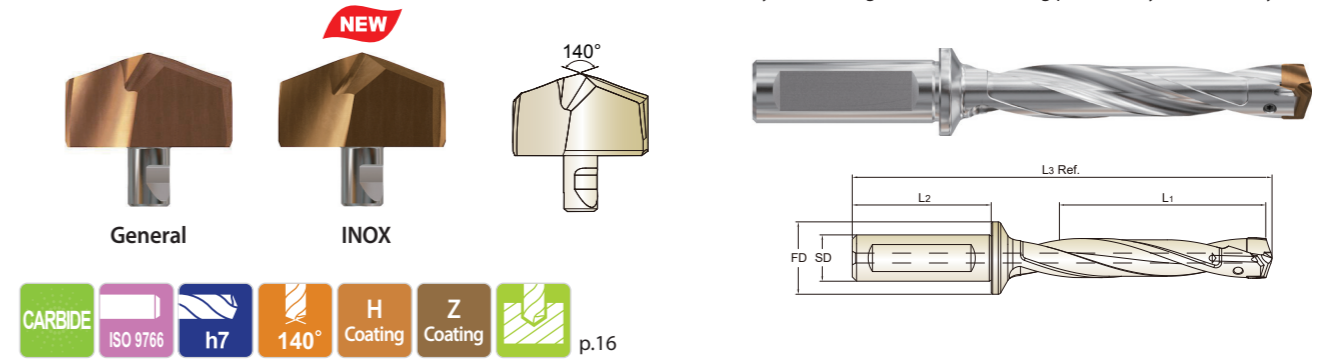
ISO Material Description	N										S				H						
	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
General																					
INOX																					

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

General **Y121H**
INOX **Y122Z**

- Applications
- For Carbon Steels, Alloy Steels, Cast Iron and Stainless Steels
- 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 Z Coating p.16

Series Range	Insert EDP No.		Insert O.D. h7	Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Drilling Depth L1	Overall Length L3 Ref.	Screw No.			
	General (H-Coating)	INOX (Z-Coating)											
S12 Ø12.00 to Ø13.90	Y121H1200	Y122Z1200	12.00	ZD12003016	16	48	23	3D	37.5	109.8			
	Y121H1210	Y122Z1210	12.10					5D	62.5	133.8			
	Y121H1220	Y122Z1220	12.20					8D	100.0	169.8			
	Y121H1230	Y122Z1230	12.30	ZD12503016	16	48	23	3D	39.0	110.8			
	Y121H1240	Y122Z1240	12.40								5D	65.0	135.8
	Y121H1250	Y122Z1250	12.50								8D	104.0	173.3
	Y121H1260	Y122Z1260	12.60	ZD13003016	16	48	23	3D	40.5	112.8			
	Y121H1270	Y122Z1270	12.70								5D	67.5	138.8
	Y121H1280	Y122Z1280	12.80								8D	108.0	177.8
	Y121H1290	Y122Z1290	12.90	ZD13503016	16	48	23	3D	42.0	113.8			
	Y121H1300	Y122Z1300	13.00								5D	70.0	140.8
	Y121H1310	Y122Z1310	13.10								8D	112.0	181.3
	Y121H1320	Y122Z1320	13.20	ZD13505016	16	48	23	3D	42.0	113.8			
	Y121H1330	Y122Z1330	13.30								5D	70.0	140.8
	Y121H1340	Y122Z1340	13.40								8D	112.0	181.3
	Y121H1350	Y122Z1350	13.50	ZD13508016	16	48	23	3D	42.0	113.8			
	Y121H1360	Y122Z1360	13.60								5D	70.0	140.8
	Y121H1370	Y122Z1370	13.70								8D	112.0	181.3
	Y121H1380	Y122Z1380	13.80	ZD13508016	16	48	23	3D	42.0	113.8			
Y121H1390	Y122Z1390	13.90	5D								70.0	140.8	

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

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel						
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRC	13	25	28	32	38	10	29	32	38	15	15	23	10	10	26	3	25	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	200	325	200	240	180	180	260	160	250	130	230
General	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
INOX	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

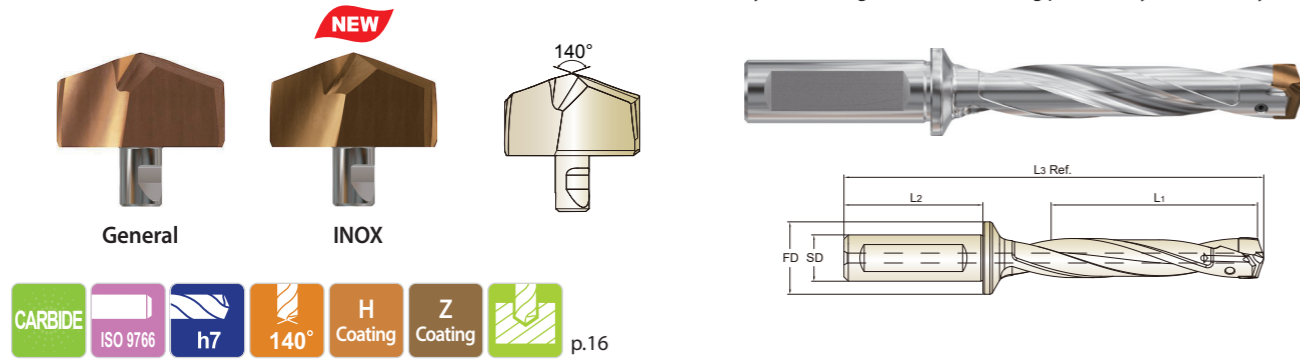
ISO Material Description	N										S				H						
	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
General																					
INOX																					

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

General **Y141H**
INOX **Y142Z**

- Applications
- For Carbon Steels, Alloy Steels, Cast Iron and Stainless Steels
- 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 Z Coating p.16

Series Range	Insert EDP No.		Insert O.D. h7	Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Drilling Depth		Overall Length L3 Ref.	Screw No.
	General (H-Coating)	INOX (Z-Coating)						L1	L1		
S14 Ø14.00 to Ø15.90	Y141H1400	Y142Z1400	14.00	ZD14003016	16	48	23	3D	43.5	116.3	TX1415P7
	Y141H1410	Y142Z1410	14.10					5D	72.5	144.3	
	Y141H1420	Y142Z1420	14.20					8D	116.0	186.3	
	Y141H1430	Y142Z1430	14.30	ZD14503016	16	48	23	3D	45.0	118.3	
	Y141H1440	Y142Z1440	14.40					5D	75.0	147.3	
	Y141H1450	Y142Z1450	14.50					8D	120.0	190.8	
	Y141H1460	Y142Z1460	14.60	ZD15003016	16	48	23	3D	46.5	120.3	
	Y141H1470	Y142Z1470	14.70					5D	77.5	150.3	
	Y141H1480	Y142Z1480	14.80					8D	124.0	195.3	
	Y141H1490	Y142Z1490	14.90	ZD15503016	16	48	23	3D	48.0	121.3	
	Y141H1500	Y142Z1500	15.00					5D	80.0	152.3	
	Y141H1510	Y142Z1510	15.10					8D	128.0	198.8	
	Y141H1520	Y142Z1520	15.20	ZD15005016	16	48	23	3D	48.0	121.3	
	Y141H1530	Y142Z1530	15.30					5D	80.0	152.3	
	Y141H1540	Y142Z1540	15.40					8D	128.0	198.8	
	Y141H1550	Y142Z1550	15.50	ZD15008016	16	48	23	3D	48.0	121.3	
	Y141H1560	Y142Z1560	15.60					5D	80.0	152.3	
	Y141H1570	Y142Z1570	15.70					8D	128.0	198.8	
	Y141H1580	Y142Z1580	15.80	ZD15505016	16	48	23	3D	48.0	121.3	
Y141H1590	Y142Z1590	15.90	5D					80.0	152.3		

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

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRC	13	25	28	32	38	15	23	10	10	10	26	3	25	21							
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
General	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	
INOX	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	

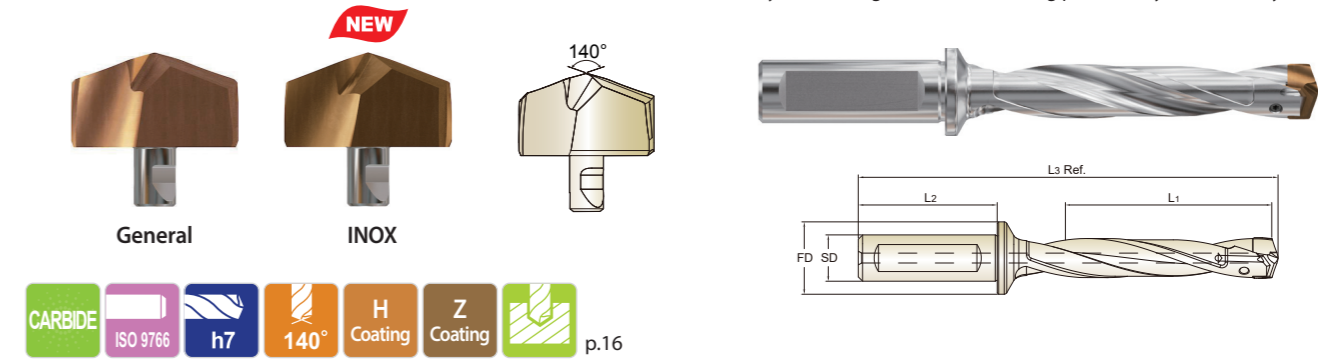
ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28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

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

General **Y161H**
INOX **Y162Z**

- Applications
- For Carbon Steels, Alloy Steels, Cast Iron and Stainless Steels
- 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 Z Coating p.16

Series Range	Insert EDP No.		Insert O.D. h7	Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Drilling Depth		Overall Length L3 Ref.	Screw No.
	General (H-Coating)	INOX (Z-Coating)						L1	L1		
S16 Ø16.00 to Ø17.90	Y161H1600	Y162Z1600	16.00	ZD16003020	20	50	25	3D	51.0	127.0	TX1617P7
	Y161H1610	Y162Z1610	16.10					5D	85.0	160.0	
	Y161H1620	Y162Z1620	16.20					8D	136.0	209.5	
	Y161H1630	Y162Z1630	16.30	ZD16005020	20	50	25	3D	51.0	127.0	
	Y161H1640	Y162Z1640	16.40					5D	85.0	160.0	
	Y161H1650	Y162Z1650	16.50					8D	136.0	209.5	
	Y161H1660	Y162Z1660	16.60	ZD16008020	20	50	25	3D	51.0	127.0	
	Y161H1670	Y162Z1670	16.70					5D	85.0	160.0	
	Y161H1680	Y162Z1680	16.80					8D	136.0	209.5	
	Y161H1690	Y162Z1690	16.90	ZD17003020	20	50	25	3D	54.0	130.0	
	Y161H1700	Y162Z1700	17.00					5D	90.0	165.0	
	Y161H1710	Y162Z1710	17.10					8D	144.0	217.5	
	Y161H1720	Y162Z1720	17.20	ZD17005020	20	50	25	3D	54.0	130.0	
	Y161H1730	Y162Z1730	17.30					5D	90.0	165.0	
	Y161H1740	Y162Z1740	17.40					8D	144.0	217.5	
	Y161H1750	Y162Z1750	17.50	ZD17008020	20	50	25	3D	54.0	130.0	
	Y161H1760	Y162Z1760	17.60					5D	90.0	165.0	
	Y161H1770	Y162Z1770	17.70					8D	144.0	217.5	
	Y161H1780	Y162Z1780	17.80	ZD17005020	20	50	25	3D	54.0	130.0	
Y161H1790	Y162Z1790	17.90	5D					90.0	165.0		

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

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRC	13	25	28	32	38	15	23	10	10	10	26	3	25	21							
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
General	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	
INOX	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	

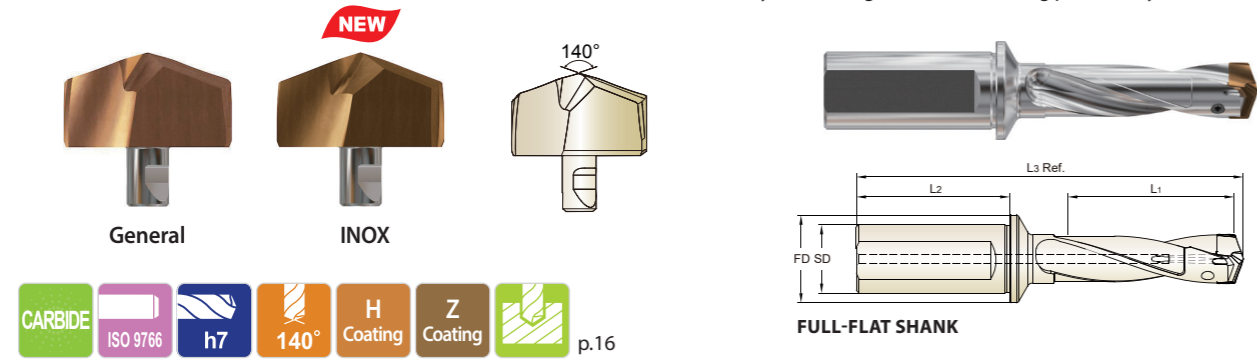
ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28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

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

General	Y261H	Y281H
INOX	Y262Z	Y282Z

- Applications
- For Carbon Steels, Alloy Steels, Cast Iron and Stainless Steels
- 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 Z Coating p.16

FULL-FLAT SHANK

Series Range	Insert EDP No.		Insert O.D. h7	Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Drilling Depth		Overall Length L3 Ref.	Screw No.
	General (H-Coating)	INOX (Z-Coating)						L1	L1		
S26 Ø26.00 to Ø27.50	Y261H2600	Y262Z2600	26.00	ZD26003032				3D	81.0	172.2	TX2627P10
	Y261H2650	Y262Z2650	26.50	ZD26005032	32	60	37	5D	135.0	225.2	
	Y261H2700	Y262Z2700	27.00	ZD26008032				8D	216.0	304.7	
	Y261H2750	Y262Z2750	27.50	ZD27003032				3D	84.0	175.2	
S28 Ø28.00 to Ø29.50	Y281H2800	Y282Z2800	28.00	ZD28003032				3D	87.0	179.2	TX2829P10
	Y281H2850	Y282Z2850	28.50	ZD28005032	32	60	37	5D	145.0	236.2	
	Y281H2900	Y282Z2900	29.00	ZD28008032				8D	232.0	321.7	
	Y281H2950	Y282Z2950	29.50	ZD29003032				3D	90.0	183.2	
				ZD29005032	32	60	37	5D	150.0	242.2	TX2930P10
				ZD29008032				8D	240.0	330.7	

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

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRC	13	25	28	32	38	42	48	52	58	62	68	72	78	82	88	92	98	102	108	112	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
General	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	
INOX	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	

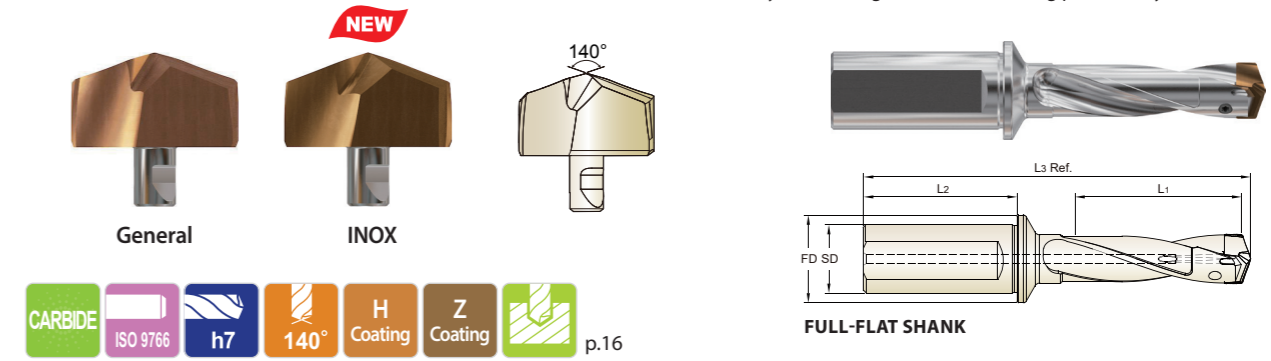
ISO Material Description	N										S					H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27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

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

General	Y301H	Y321H
INOX	Y302Z	Y322Z

- Applications
- For Carbon Steels, Alloy Steels, Cast Iron and Stainless Steels
- 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 Z Coating p.16

FULL-FLAT SHANK

Series Range	Insert EDP No.		Insert O.D. h7	Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Drilling Depth		Overall Length L3 Ref.	Screw No.
	General (H-Coating)	INOX (Z-Coating)						L1	L1		
S30 Ø30.00 to Ø31.50	Y301H3000	Y302Z3000	30.00	ZD30003032				3D	93.0	187.0	TX3031P15
	Y301H3050	Y302Z3050	30.50	ZD30005032	32	60	37	5D	155.0	248.0	
	Y301H3100	Y302Z3100	31.00	ZD30008032				8D	248.0	339.5	
	Y301H3150	Y302Z3150	31.50	ZD31003032				3D	96.0	191.0	
S32 Ø32.00 to Ø33.50	Y321H3200	Y322Z3200	32.00	ZD32003032				3D	99.0	197.2	TX3233P15
	Y321H3250	Y322Z3250	32.50	ZD32005032	32	60	37	5D	165.0	262.2	
	Y321H3300	Y322Z3300	33.00	ZD32008032				8D	264.0	359.7	
	Y321H3350	Y322Z3350	33.50	ZD33003032				3D	102.0	201.2	
				ZD33005032	32	60	37	5D	170.0	268.2	TX3334P15
				ZD33008032				8D	272.0	368.7	

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

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRC	13	25	28	32	38	42	48	52	58	62	68	72	78	82	88	92	98	102	108	112	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
General	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	
INOX	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	

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

i-ONE DRILLS - General

Vc=m/min.
Feed=mm/rev.

ISO	VDI 3323	Material Description	Vc	Feed					
				Ø10.00 - 13.99	Ø14.00 - 17.99	Ø18.00 - 21.99	Ø22.00 - 25.99	Ø26.00 - 29.99	Ø30.00 - 33.99
P	1	Non-alloy steel	80 - 135	0.13 - 0.29	0.20 - 0.35	0.26 - 0.41	0.31 - 0.47	0.35 - 0.51	0.38 - 0.53
	2		70 - 120						
	3		70 - 95						
	4		70 - 95						
	5		40 - 80						
	6	Low alloy steel	80 - 100	0.12 - 0.28	0.19 - 0.34	0.25 - 0.40	0.30 - 0.45	0.34 - 0.49	0.36 - 0.51
	7		70 - 90						
	8		60 - 80						
	9		50 - 60						
	10		High alloyed steel, and tool steel						
	11	35 - 70							
K	15	Grey cast iron	100 - 180	0.15 - 0.35	0.25 - 0.45	0.32 - 0.52	0.38 - 0.58	0.42 - 0.62	0.45 - 0.65
	16		90 - 160						
	17	Nodular cast iron	100 - 150						
	18		90 - 140						
	19	Malleable cast iron	100 - 150						
20	90 - 140								

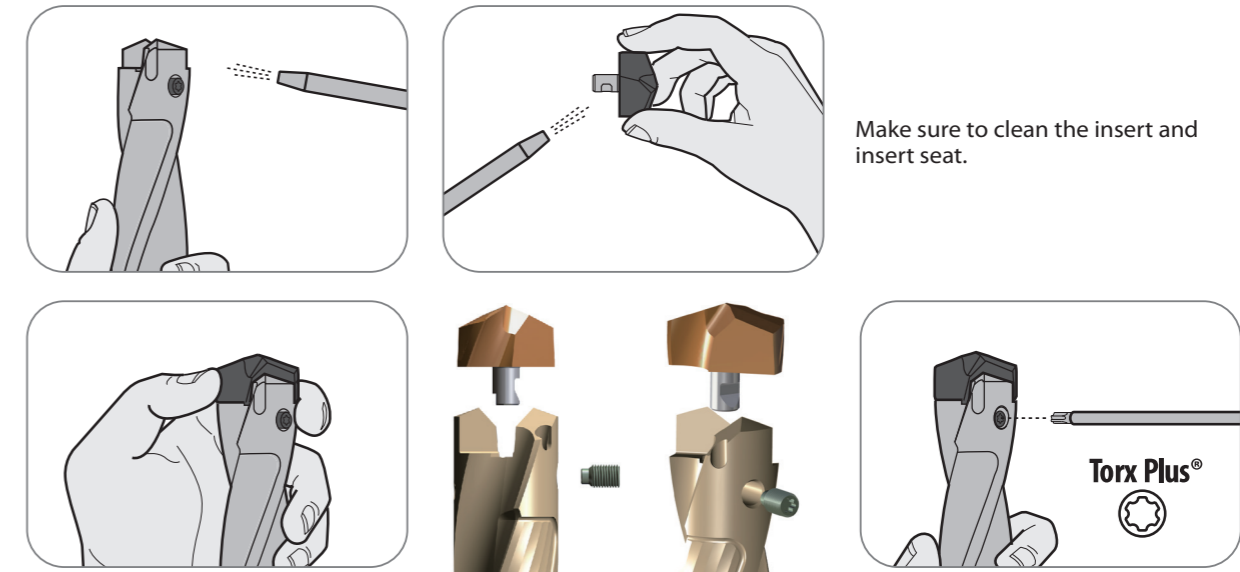
i-ONE DRILLS - INOX

Vc=m/min.
Feed=mm/rev.

ISO	VDI 3323	Material Description	Vc	Feed					
				Ø10.00 - 13.99	Ø14.00 - 17.99	Ø18.00 - 21.99	Ø22.00 - 25.99	Ø26.00 - 29.99	Ø30.00 - 33.99
P	1	Non-alloy steel	80 - 135	0.13 - 0.29	0.20 - 0.35	0.26 - 0.41	0.31 - 0.47	0.35 - 0.51	0.38 - 0.53
	2		70 - 120						
	3		70 - 95						
	4		70 - 95						
	6		Low alloy steel						
7	70 - 90								
10	High alloyed steel, and tool steel	45 - 80	0.12 - 0.25	0.17 - 0.30	0.22 - 0.35	0.26 - 0.39	0.29 - 0.42	0.32 - 0.45	
M	12	Stainless steel	40 - 70	0.09 - 0.14	0.13 - 0.17	0.16 - 0.20	0.19 - 0.24	0.22 - 0.27	0.25 - 0.30
	13		35 - 60						
	14		35 - 60						

- ▶ 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.

ASSEMBLY OF i-ONE DRILLS



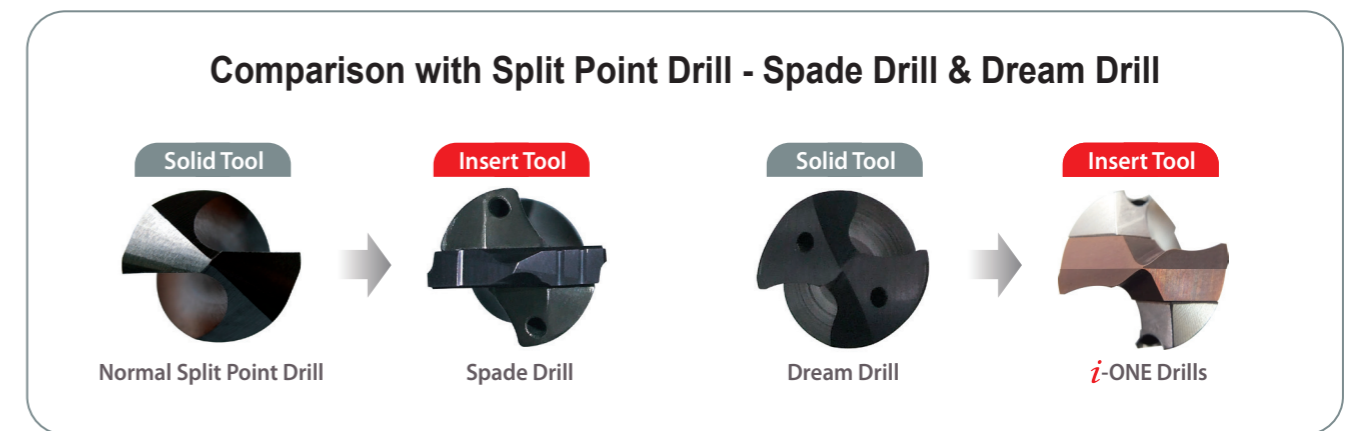
Make sure to clean the insert and insert seat.

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(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

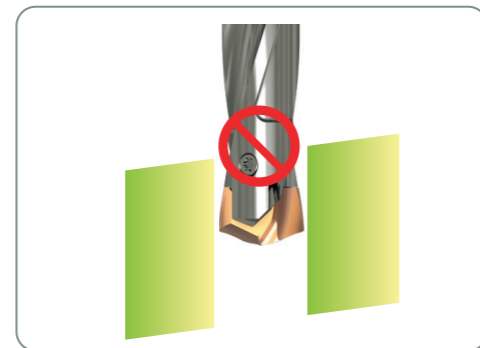
- ▶ Use the Torx Plus wrench
- ▶ Need to use appropriate wrenches and screws as indicated.
- ▶ It's important to tighten up the screw properly.



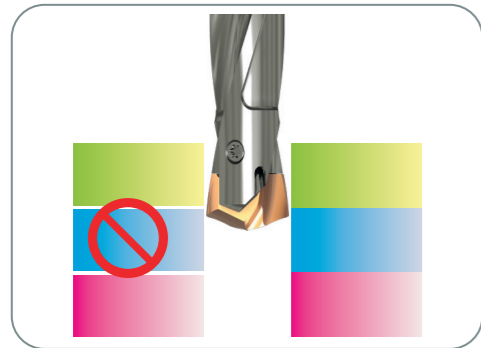
CAUTION-NOT RECOMMENDABLE APPLICATION



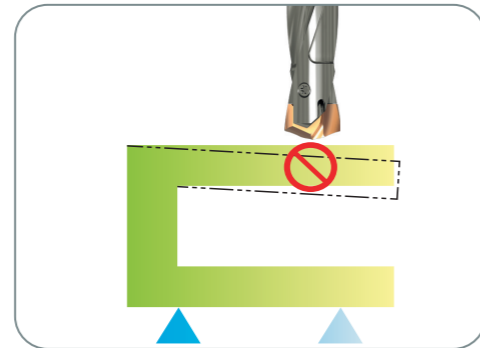
Intersecting cross hole is bigger than the drill insert's Margin Length.



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

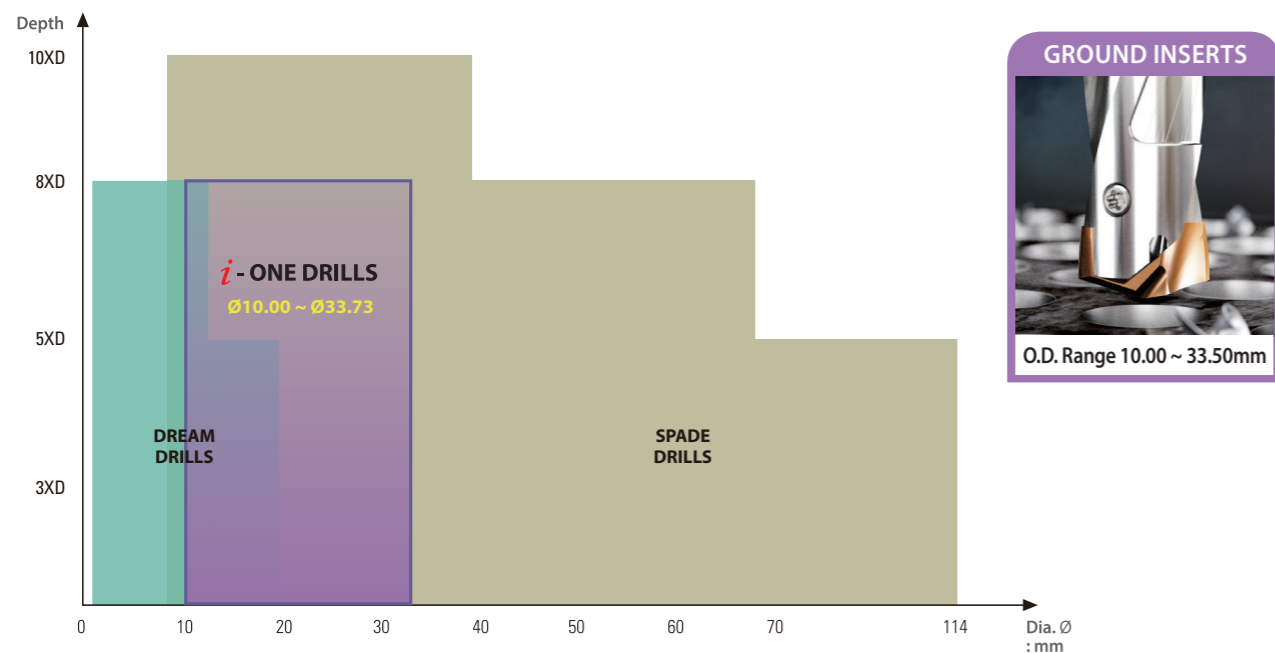


For drilling stacked plates, minimize the space between the plates. The space between stacked plates can cause insert breakage or poor chip control.

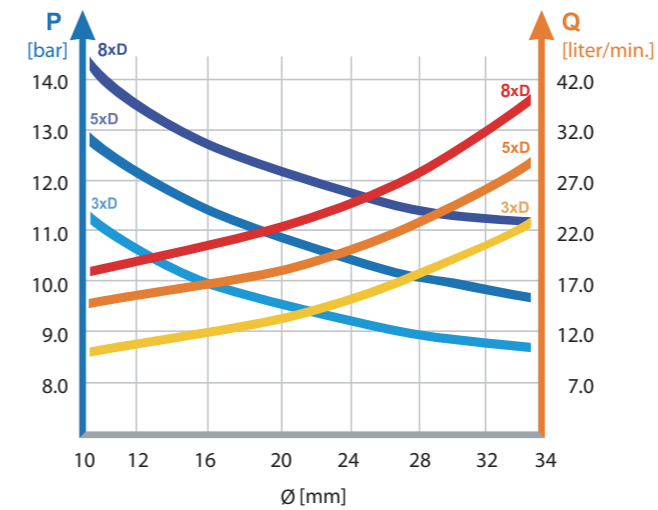


The material needs to be fixtured securely before drilling.

YG-1 EXCHANGEABLE RANGE OF DRILLS - POSITIONING MAP



RECOMMENDED COOLANT PRESSURE AND FLOW RATE ON VERTICAL DRILLING

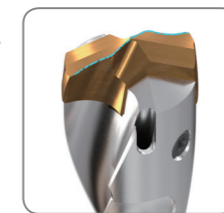


- Recommended emulsion mix is 6 - 8%.
- For Drilling into Stainless and High Strength steels, a mix of 10% is recommended.
- For horizontal drilling, 30% reduction on the coolant pressure and flow rate is possible.
- Dry drilling is possible for 1 - 2xD drilling. But not recommended.

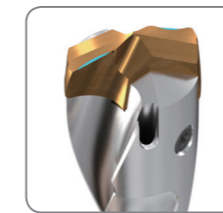
TROUBLE SHOOTING



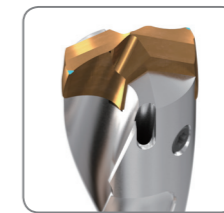
- 1) Heavy flank wear / Fast flank wear
- Reduce cutting speed
 - Increase feed



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



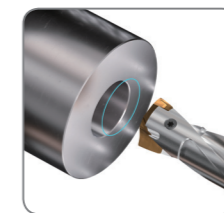
- 3) Build up on cutting edge
- Increase cutting speed
 - Use a coated insert



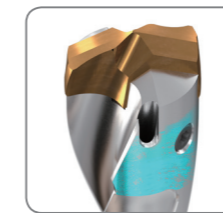
- 4) Chipping or break down on outer corner
- Reduce feed
 - Rigid clamping of workpiece



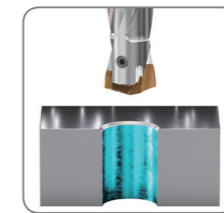
- 5) Wear of land margin
- Rigid clamping of workpiece
 - Reduce cutting speed
 - Increase coolant flow



- 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

i-ONE DRILLS

High-Performance Exchangeable for General Steels, Cast Iron and Stainless Steels

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