

**YE-IO20** **EUROPE**



**YIG**

***i*-ONE DRILLS**

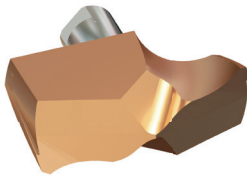
**MICRO GRAIN CARBIDE INSERTS  
AND PREMIUM TOOL STEEL HOLDERS**

Cost Efficient High Performance  
Exchangeable Drilling Tools

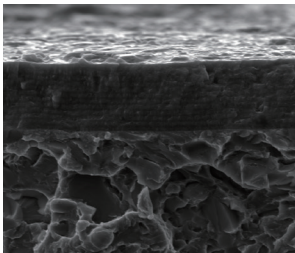
## FEATURES OF *i*-ONE DRILLS

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

**“COST EFFICIENT HIGH PERFORMANCE EXCHANGEABLE DRILLING TOOLS”**

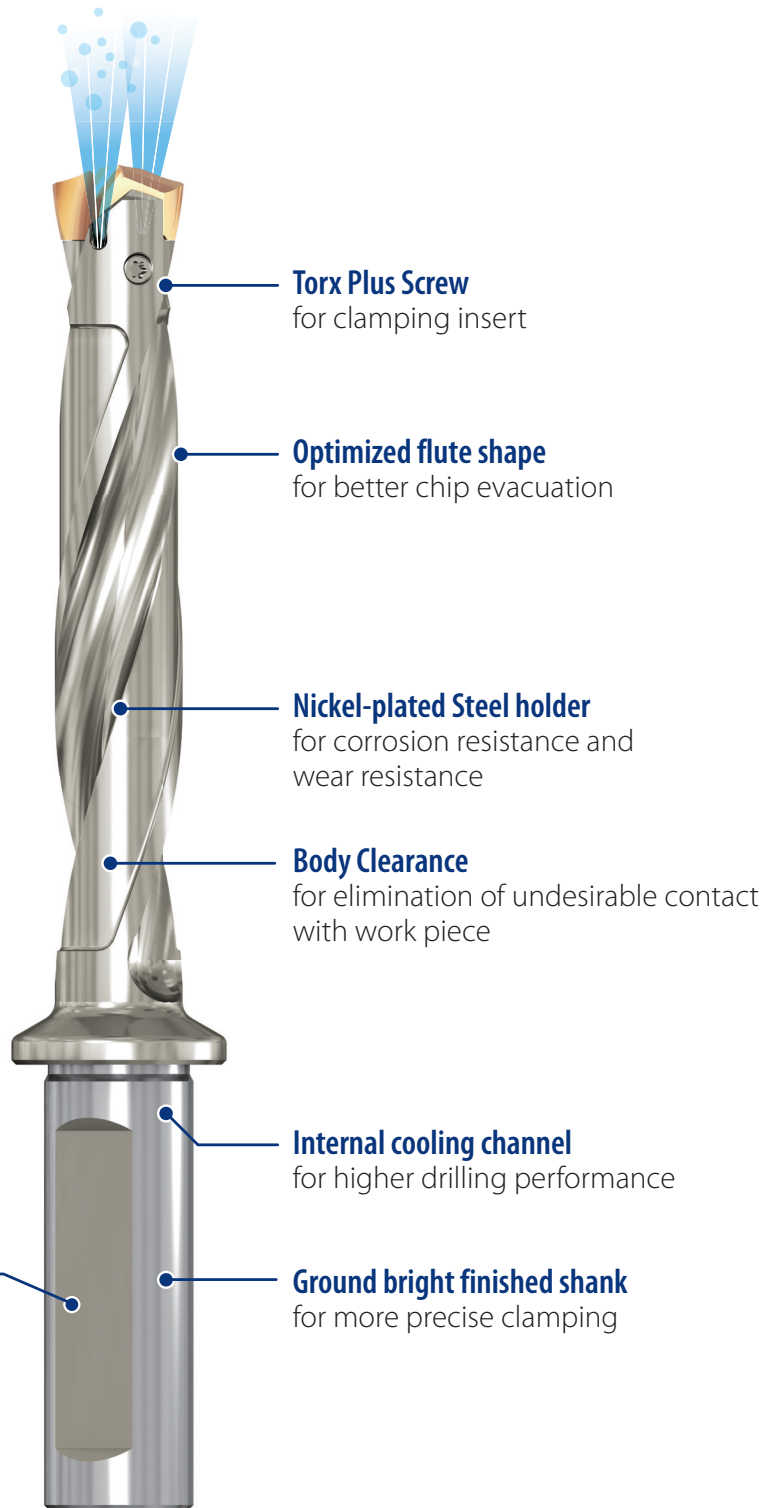


- **Secure & Quick clamping system**
- **Multi layered 'H'-coating**  
reduces the cracking and provides higher shear strength while achieving excellent oxidation resistance and hot hardness



- **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

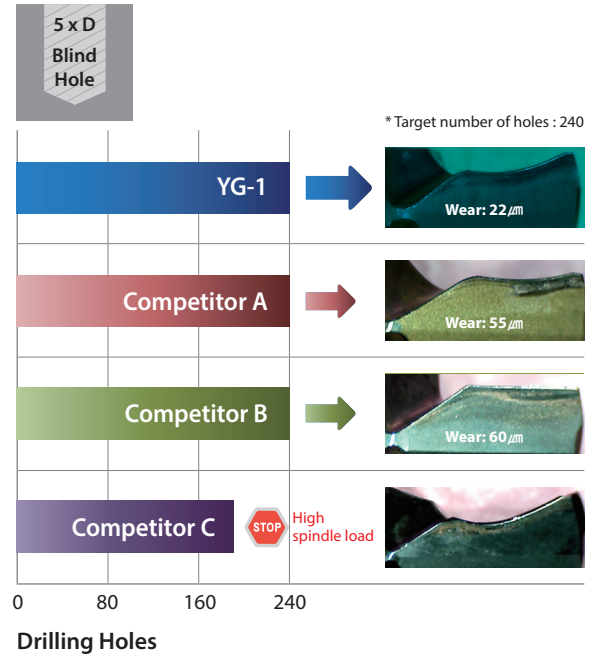
**Cylindrical shank with a parallel flat**  
according to ISO9766 Plain shank and Whistle notch shank are available on request



## CASE STUDY

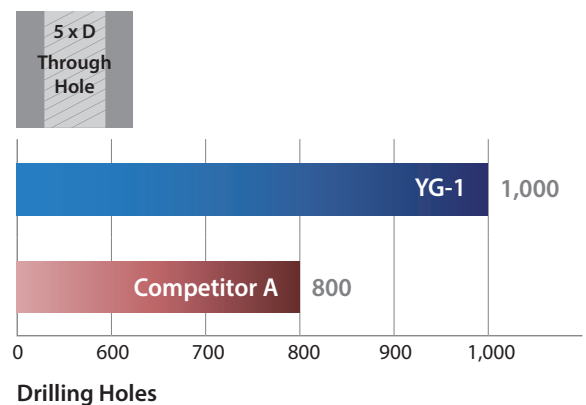
### ► Ø14.0mm, Alloy Steel

Tool	Y141H1400	Competitors
O.D Size (mm)	<b>Ø14.0 (0.5512 inch)</b>	
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)	<b>Ø16.0 (0.6299 inch)</b>	
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

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

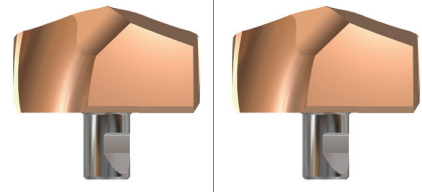
Please visit  
[globalyg1.com/mat](http://globalyg1.com/mat)  
 for material search

## i-ONE DRILLS

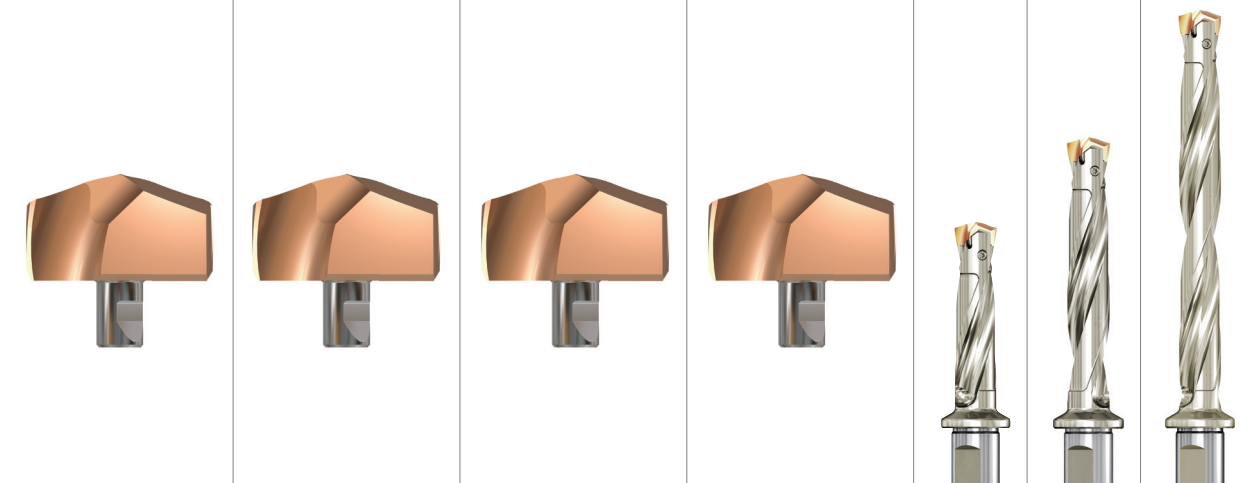
High Performance Exchangeable Carbide Inserts  
for General Steels and Cast Iron

◎ : Excellent ○ : Good

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




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				
<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	H-Coating			3XD	5XD	8XD




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### GUIDE LINE TO ICONS


**Tool Raw Material**


 CARBIDE

**Point Angle**


 140°

**Tolerance of Dimension**

 h7 Tolerance of Outside Diameter

 ISO 9766 Tolerance of Shank Diameter

**Cutting Condition Page**



# MICRO GRAIN CARBIDE INSERTS and PREMIUM TOOL STEEL HOLDERS

## i-ONE DRILLS INSERTS & HOLDERS

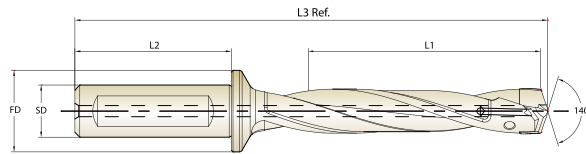
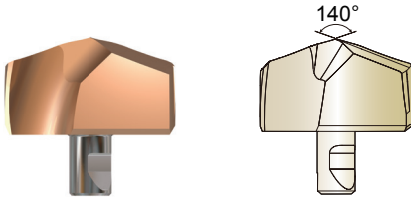
### Y101H SERIES

#### ► 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 (mm)	Insert EDP No. H-Coating	Insert O.D. h7			Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Drilling Depth		Overall Length		Screw No. 
		dec.	frac.	mm					L1	L3 Ref.			
<b>S10</b> Ø10.00 to Ø11.99	<b>Y101H1000</b>	0.3937		10.00	<b>ZD10003016</b> <b>ZD10005016</b> <b>ZD10008016</b>	16	48	23	3D	31.5	103.0	TX1011P5	
	<b>Y101H1010</b>	0.3976		10.10					5D	52.5	123.0		
	<b>Y101H1020</b>	0.4016		10.20					8D	84.0	153.0		
	<b>Y101H1030</b>	0.4055		10.30									
	<b>Y101H1032</b>	0.4063	13/32	10.32									
	<b>Y101H1040</b>	0.4094		10.40									
	<b>Y101H1050</b>	0.4134		10.50	<b>ZD10503016</b> <b>ZD10505016</b> <b>ZD10508016</b>	16	48	23	3D	33.0	104.0		
	<b>Y101H1060</b>	0.4173		10.60					5D	55.0	125.0		
	<b>Y101H1070</b>	0.4213		10.70					8D	88.0	156.5		
	<b>Y101H1072</b>	0.4219	27/64	10.72	<b>ZD11003016</b> <b>ZD11005016</b> <b>ZD11008016</b>	16	48	23	3D	34.5	105.0		
	<b>Y101H1080</b>	0.4252		10.80					5D	57.5	127.0		
	<b>Y101H1090</b>	0.4291		10.90					8D	92.0	160.0		
	<b>Y101H1100</b>	0.4331		11.00									
	<b>Y101H1110</b>	0.4370		11.10									
	<b>Y101H1111</b>	0.4375	7/16	11.11									
	<b>Y101H1120</b>	0.4409		11.20	<b>ZD11503016</b> <b>ZD11505016</b> <b>ZD11508016</b>	16	48	23	3D	36.0	106.0		
	<b>Y101H1130</b>	0.4449		11.30					5D	60.0	129.0		
	<b>Y101H1140</b>	0.4488		11.40					8D	96.0	163.5		
	<b>Y101H1150</b>	0.4528		11.50									
<b>Y101H1151</b>	0.4531	29/64	11.51										
<b>Y101H1160</b>	0.4567		11.60										
<b>Y101H1170</b>	0.4606		11.70										
<b>Y101H1180</b>	0.4646		11.80										
<b>Y101H1190</b>	0.4685		11.90										
<b>Y101H1191</b>	0.4688	15/32	11.91										

► 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	10	29	32	38	15	35	15	23	10	10	26	3	25			21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				◎	◎	◎	◎	◎	◎	
ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

## MICRO GRAIN CARBIDE INSERTS and PREMIUM TOOL STEEL HOLDERS

### i-ONE DRILLS INSERTS & HOLDERS

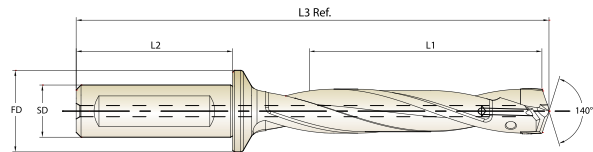
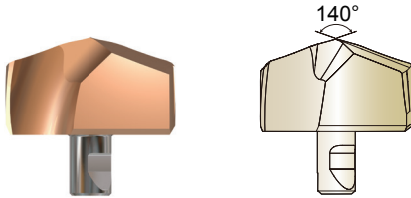
### Y121H SERIES

#### ► 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. SD	Shank Length L2	Flange Dia. FD	Drilling Depth		Overall Length L3 Ref.	Screw No.
		h7							L1			
(mm)	H-Coating	dec.	frac.	mm								
<b>S12</b> Ø12.00 to Ø13.99	<b>Y121H1200</b>	0.4724		12.00	<b>ZD12003016</b> <b>ZD12005016</b> <b>ZD12008016</b>	16	48	23	3D	37.5	109.8	TX1213P5
	<b>Y121H1210</b>	0.4764		12.10					5D	62.5	133.8	
	<b>Y121H1220</b>	0.4803		12.20					8D	100.0	169.8	
	<b>Y121H1230</b>	0.4844	31/64	12.30								
	<b>Y121H1240</b>	0.4882		12.40								
	<b>Y121H1250</b>	0.4921		12.50								
	<b>Y121H1260</b>	0.4961		12.60	<b>ZD12503016</b> <b>ZD12505016</b> <b>ZD12508016</b>	16	48	23	3D	39.0	110.8	
	<b>Y121H1270</b>	0.5000	1/2	12.70					5D	65.0	135.8	
	<b>Y121H1280</b>	0.5039		12.80					8D	104.0	173.3	
	<b>Y121H1290</b>	0.5079		12.90								
	<b>Y121H1300</b>	0.5118		13.00								
	<b>Y121H1310</b>	0.5156	33/64	13.10								
	<b>Y121H1320</b>	0.5197		13.20	<b>ZD13003016</b> <b>ZD13005016</b> <b>ZD13008016</b>	16	48	23	3D	40.5	112.8	
	<b>Y121H1330</b>	0.5236		13.30					5D	67.5	138.8	
	<b>Y121H1340</b>	0.5276		13.40					8D	108.0	177.8	
	<b>Y121H1349</b>	0.5313	17/32	13.49								
	<b>Y121H1350</b>	0.5315		13.50								
	<b>Y121H1360</b>	0.5354		13.60								
	<b>Y121H1370</b>	0.5394		13.70	<b>ZD13503016</b> <b>ZD13505016</b> <b>ZD13508016</b>	16	48	23	3D	42.0	113.8	
<b>Y121H1380</b>	0.5433		13.80	5D					70.0	140.8		
<b>Y121H1389</b>	0.5469	35/64	13.89	8D					112.0	181.3		
<b>Y121H1390</b>	0.5472		13.90									

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

◎ : Excellent ○ : Good

ISO	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		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323																					
HRC	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	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										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323																					
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

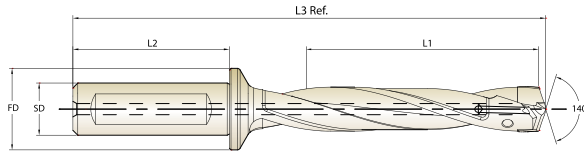
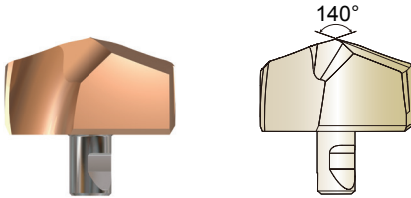
### Y141H SERIES

#### ► 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 (mm)	Insert EDP No. H-Coating	Insert O.D. h7			Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Drilling Depth		Overall Length		Screw No. TX1415P7
		dec.	frac.	mm					L1	L3 Ref.			
<b>S14</b> Ø14.00 to Ø15.99	<b>Y141H1400</b>	0.5512		14.00	<b>ZD14003016</b> <b>ZD14005016</b> <b>ZD14008016</b>	16	48	23	3D	43.5	116.3		
	<b>Y141H1410</b>	0.5551		14.10					5D	72.5	144.3		
	<b>Y141H1420</b>	0.5591		14.20					8D	116.0	186.3		
	<b>Y141H1429</b>	0.5625	9/16	14.29									
	<b>Y141H1430</b>	0.5630		14.30									
	<b>Y141H1440</b>	0.5669		14.40									
	<b>Y141H1450</b>	0.5709		14.50	<b>ZD14503016</b> <b>ZD14505016</b> <b>ZD14508016</b>	16	48	23	3D	45.0	118.3		
	<b>Y141H1460</b>	0.5748		14.60					5D	75.0	147.3		
	<b>Y141H1468</b>	0.5781	37/64	14.68					8D	120.0	190.8		
	<b>Y141H1470</b>	0.5787		14.70									
	<b>Y141H1480</b>	0.5827		14.80									
	<b>Y141H1490</b>	0.5866		14.90									
	<b>Y141H1500</b>	0.5906		15.00	<b>ZD15003016</b> <b>ZD15005016</b> <b>ZD15008016</b>	16	48	23	3D	46.5	120.3		
	<b>Y141H1508</b>	0.5938	19/32	15.08					5D	77.5	150.3		
	<b>Y141H1510</b>	0.5945		15.10					8D	124.0	195.3		
	<b>Y141H1520</b>	0.5984		15.20									
	<b>Y141H1530</b>	0.6024		15.30									
	<b>Y141H1540</b>	0.6063		15.40									
	<b>Y141H1548</b>	0.6094	39/64	15.48	<b>ZD15503016</b> <b>ZD15505016</b> <b>ZD15508016</b>	16	48	23	3D	48.0	121.3		
	<b>Y141H1550</b>	0.6102		15.50					5D	80.0	152.3		
<b>Y141H1560</b>	0.6142		15.60	8D					128.0	198.8			
<b>Y141H1570</b>	0.6181		15.70										
<b>Y141H1580</b>	0.6220		15.80										
<b>Y141H1588</b>	0.6250	5/8	15.88										
<b>Y141H1590</b>	0.6260		15.90										

► 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 alloy steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25				
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	
ISO 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
Recommended																					



## MICRO GRAIN CARBIDE INSERTS and PREMIUM TOOL STEEL HOLDERS

### i-ONE DRILLS INSERTS & HOLDERS

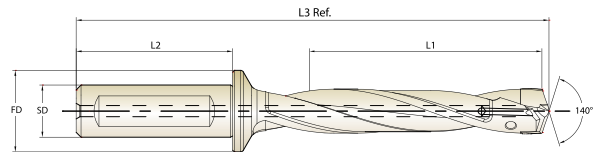
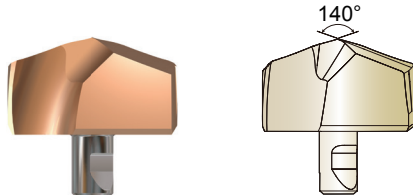
**Y161H SERIES**

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

► 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	10	29	32	38	15	35	15	23	10	10	26	3	25			21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	
ISO Material Description	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

# MICRO GRAIN CARBIDE INSERTS and PREMIUM TOOL STEEL HOLDERS

## i-ONE DRILLS INSERTS & HOLDERS

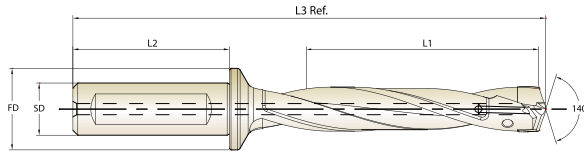
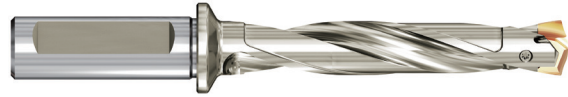
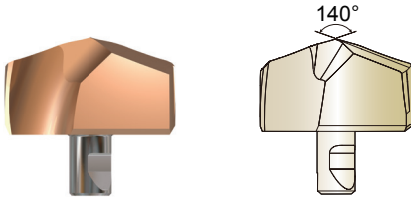
### Y181H SERIES

#### ► 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 (mm)	Insert EDP No. H-Coating	Insert O.D.			Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Drilling Depth		Overall Length L3 Ref.	Screw No.
		dec.	frac.	mm					L1	L3 Ref.		
<b>S18</b> Ø18.00 to Ø19.99	<b>Y181H1800</b>	0.7087		18.00	<b>ZD18003025</b> <b>ZD18005025</b> <b>ZD18008025</b>	25	56	32	3D	57.0	141.3	TX1819P9
	<b>Y181H1810</b>	0.7126		18.10					5D	95.0	178.3	
	<b>Y181H1820</b>	0.7165		18.20					8D	152.0	233.8	
	<b>Y181H1826</b>	0.7188	23/32	18.26								
	<b>Y181H1830</b>	0.7205		18.30								
	<b>Y181H1840</b>	0.7244		18.40								
	<b>Y181H1850</b>	0.7283		18.50								
	<b>Y181H1860</b>	0.7323		18.60								
	<b>Y181H1865</b>	0.7344	47/64	18.65								
	<b>Y181H1870</b>	0.7362		18.70								
	<b>Y181H1880</b>	0.7402		18.80								
	<b>Y181H1890</b>	0.7441		18.90	<b>ZD19003025</b> <b>ZD19005025</b> <b>ZD19008025</b>	25	56	32	3D	60.0	145.3	TX1920P9
	<b>Y181H1900</b>	0.7480		19.00					5D	100.0	184.3	
	<b>Y181H1905</b>	0.7500	3/4	19.05					8D	160.0	242.8	
	<b>Y181H1910</b>	0.7520		19.10								
	<b>Y181H1920</b>	0.7559		19.20								
	<b>Y181H1927</b>	0.7587		19.27								
	<b>Y181H1930</b>	0.7598		19.30								
	<b>Y181H1940</b>	0.7638		19.40								
	<b>Y181H1945</b>	0.7656	49/64	19.45								
<b>Y181H1950</b>	0.7677		19.50									
<b>Y181H1960</b>	0.7717		19.60									
<b>Y181H1970</b>	0.7756		19.70									
<b>Y181H1980</b>	0.7795		19.80									
<b>Y181H1984</b>	0.7813	25/32	19.84									
<b>Y181H1990</b>	0.7835		19.90									

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

◎ : Excellent ○ : Good

ISO	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	10	29	32	38	15	35	15	23	10	10	26	3	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										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	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

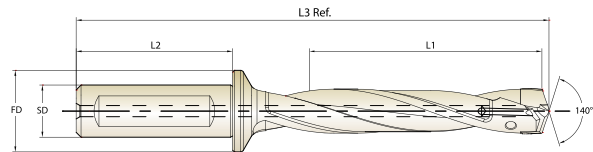
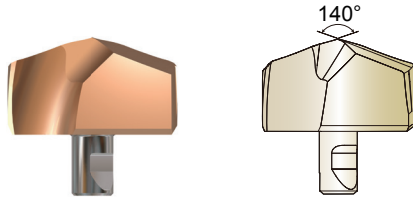
**Y201H** SERIES

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

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

◎ : Excellent ○ : Good

ISO	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	10	29	32	38	15	35	15	23	10	10	26	3	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										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	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

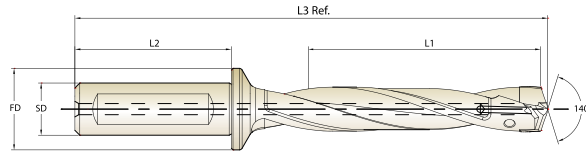
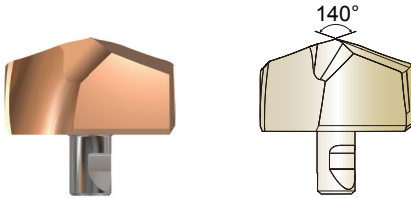
### Y221H SERIES

#### ► 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 (mm)	Insert EDP No.	Insert O.D.			Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Drilling Depth		Overall Length L3 Ref.	Screw No.															
		dec.	frac.	mm					L1	L1																	
<b>S22</b> Ø22.00 to Ø23.99	H-Coating	h7			<b>ZD22003025</b> <b>ZD22005025</b> <b>ZD22008025</b>	25	56	32	3D	69.0	153.4	TX2223P9															
	0.8661		22.00	5D									115.0	198.4													
	0.8701		22.10												8D	184.0	265.9										
	0.8740		22.20																								
	0.8750	7/8	22.23	25					56	32	3D		72.0	157.4	TX2324P9												
	0.8780		22.30													5D	120.0	204.4									
	0.8819		22.40																8D	192.0	274.9						
	0.8858		22.50																								
	0.8898		22.60								25		56	32		3D	72.0	157.4	TX2324P9								
	0.8906	57/64	22.62																	5D	120.0	204.4					
	0.8937		22.70																				8D	192.0	274.9		
	0.8976		22.80																								
	0.9016		22.90													25	56	32		3D	72.0	157.4	TX2324P9				
	0.9055		23.00																					5D	120.0	204.4	
	0.9063	29/32	23.02																								8D
	0.9094		23.10																								
	0.9134		23.20																	25	56	32		3D	72.0	157.4	TX2324P9
	0.9173		23.30																								
	0.9213		23.40		8D	192.0	274.9																				
	0.9219	59/64	23.42																								
	0.9252		23.50		25	56	32	3D				72.0												157.4	TX2324P9		
	0.9291		23.60																							5D	
	0.9331		23.70	8D					192.0	274.9																	
	0.9370		23.80																								
	0.9375	15/16	23.81	25				56	32	3D		72.0			157.4									TX2324P9			
	0.9409		23.90																							5D	

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

◎ : Excellent ○ : Good

ISO	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	10	29	32	38	15	35	15	23	10	10	26	3	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										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel		Chilled Cast Iron	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

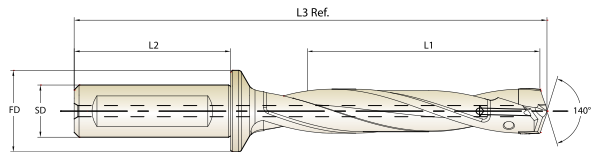
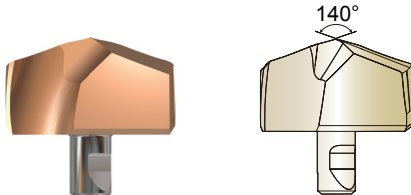
### Y241H SERIES

#### ► 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	Screw No.	
		h7										
(mm)	H-Coating	dec.	frac.	mm		SD	L2	FD	L1	L3 Ref.		
<b>S24</b> Ø24.00 to Ø25.99	<b>Y241H2400</b>	0.9449		24.00	<b>ZD24003032</b> <b>ZD24005032</b> <b>ZD24008032</b>	32	60	37	3D	75.0	165.8	TX2425P10
	<b>Y241H2410</b>	0.9488		24.10					5D	125.0	214.8	
	<b>Y241H2420</b>	0.9528		24.20					8D	200.0	288.3	
	<b>Y241H2421</b>	0.9531	61/64	24.21								
	<b>Y241H2430</b>	0.9567		24.30								
	<b>Y241H2440</b>	0.9606		24.40								
	<b>Y241H2450</b>	0.9646		24.50								
	<b>Y241H2460</b>	0.9685		24.60								
	<b>Y241H2461</b>	0.9688	31/32	24.61								
	<b>Y241H2470</b>	0.9724		24.70								
	<b>Y241H2480</b>	0.9764		24.80								
	<b>Y241H2490</b>	0.9803		24.90								
	<b>Y241H2500</b>	0.9844	63/64	25.00	<b>ZD25003032</b> <b>ZD25005032</b> <b>ZD25008032</b>	32	60	37	3D	78.0	170.8	TX2526P10
	<b>Y241H2510</b>	0.9882		25.10					5D	130.0	221.8	
	<b>Y241H2520</b>	0.9921		25.20					8D	208.0	298.3	
	<b>Y241H2530</b>	0.9961		25.30								
	<b>Y241H2540</b>	1.0000	1	25.40								
	<b>Y241H2550</b>	1.0039		25.50								
	<b>Y241H2560</b>	1.0079		25.60								
	<b>Y241H2567</b>	1.0106		25.67								
<b>Y241H2570</b>	1.0118		25.70									
<b>Y241H2580</b>	1.0156	1-1/64	25.80									
<b>Y241H2590</b>	1.0197		25.90									

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

◎ : Excellent ○ : Good

ISO	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		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323																					
HRc	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	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										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323																					
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

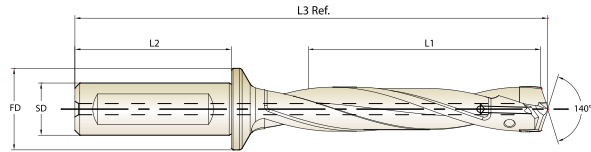
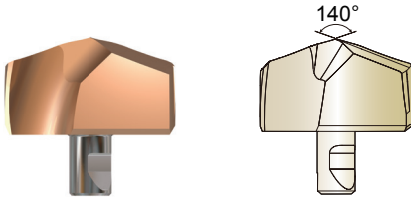
**Y261H** SERIES  
**Y281H** SERIES

### ► 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. SD	Shank Length L2	Flange Dia. FD	Drilling Depth		Overall Length L3 Ref.	Screw No.				
		dec.	frac.	mm					L1	L1						
<b>S26</b> Ø26.00 to Ø27.99	Y261H2600	1.0236		26.00	<b>ZD26003032</b> <b>ZD26005032</b> <b>ZD26008032</b>	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	<b>ZD27003032</b> <b>ZD27005032</b> <b>ZD27008032</b>	32	60	37	3D	84.0	175.2	TX2728P10				
	Y261H2699	1.0625	1-1/16	26.99					5D	140.0	230.2					
	Y261H2700	1.0630		27.00					8D	224.0	312.7					
	Y261H2738	1.0781	1-5/64	27.38												
	Y261H2750	1.0827		27.50												
Y261H2778	1.0938	1-3/32	27.78	<b>ZD28003032</b> <b>ZD28005032</b> <b>ZD28008032</b>	32	60	37	3D	87.0	179.2	TX2830P10					
Y281H2800	1.1024		28.00					5D	145.0	236.2						
Y281H2818	1.1094	1-7/64	28.18					8D	232.0	321.7						
Y281H2850	1.1220		28.50													
Y281H2858	1.1250	1-1/8	28.58													
Y281H2897	1.1406	1-9/64	28.97													
Y281H2900	1.1417		29.00					<b>ZD29003032</b> <b>ZD29005032</b> <b>ZD29008032</b>	32	60		37	3D	90.0	183.2	TX2930P10
Y281H2937	1.1563	1-5/32	29.37										5D	150.0	242.2	
Y281H2950	1.1614		29.50	8D	240.0	330.7										
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						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	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										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel		Chilled Cast Iron	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

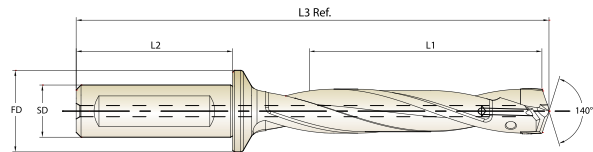
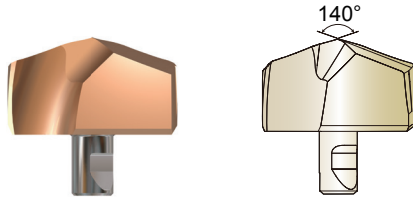
**Y301H** SERIES  
**Y321H** SERIES

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

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

◎ : Excellent ○ : Good

ISO	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	10	29	32	38	15	35	15	23	10	10	26	3	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				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	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																					

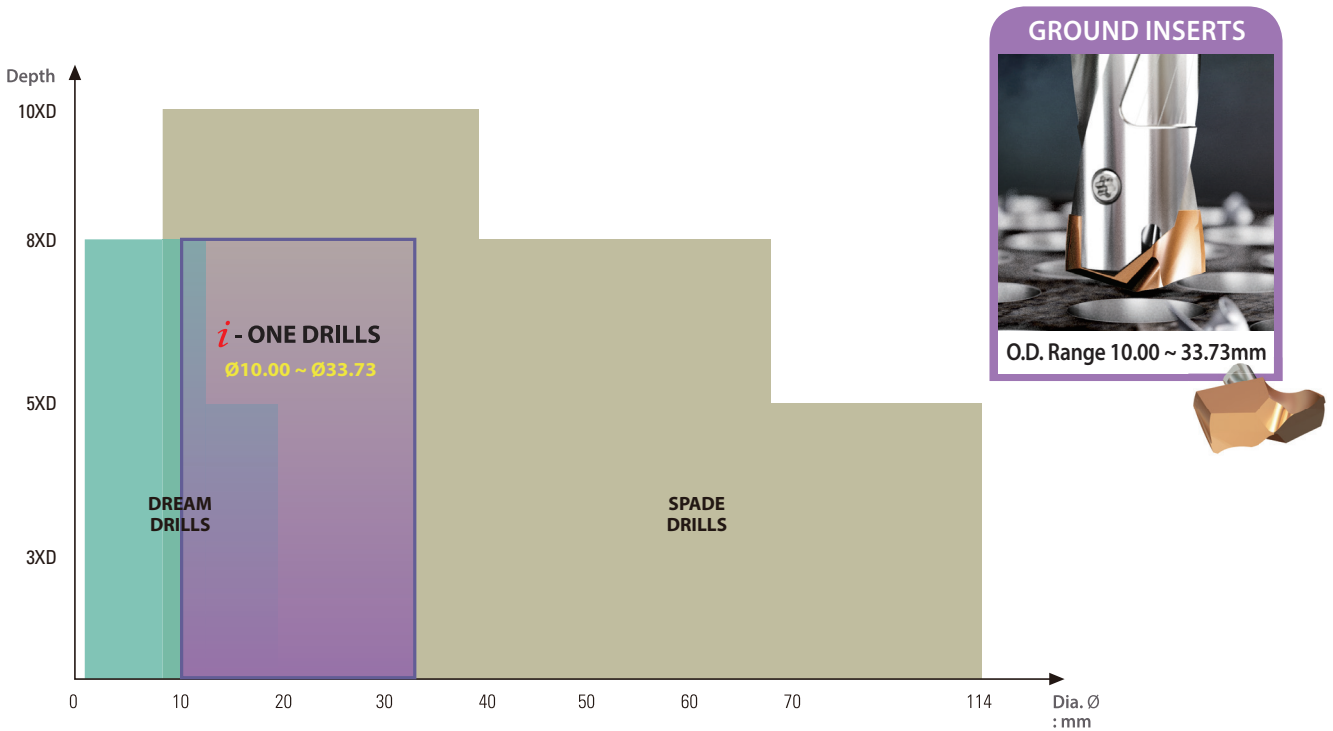
RPM = rev./min.  
FEED = mm/min.

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.



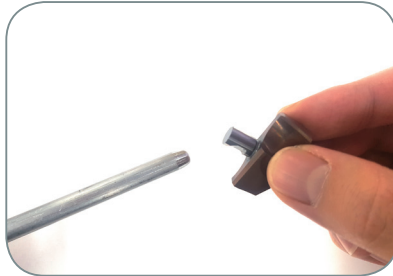
YG-1 EXCHANGEABLE RANGE OF DRILLS - POSITIONING MAP



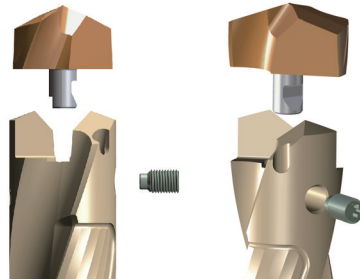
COMPARISON WITH SPLIT POINT DRILL - SPADE DRILL & DREAM DRILL



## ASSEMBLY OF *i*-ONE DRILLS

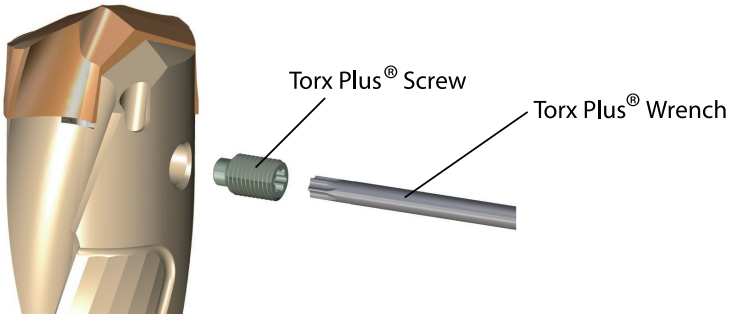




Make sure to clean the insert and insert seat.



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.

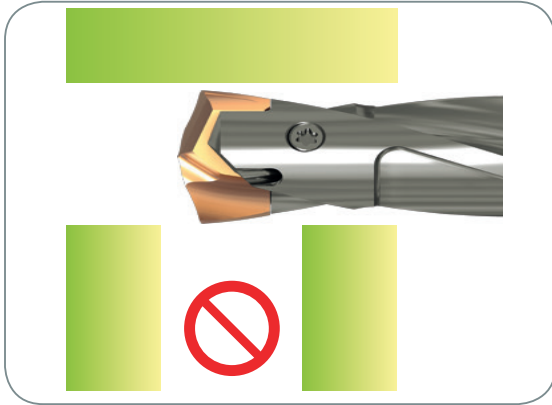


Wrench Type	Product No.	Series (Insert Size )	Torx Plus®	Torque (N·m)
	TWFP05	S10~S12 (Ø10.00 ~ Ø13.90)	5 IP	0.6
	TWDP07	S14~S16 (Ø14.00 ~ Ø17.90)	7 IP	1.0
	TWDP09	S18~S22 (Ø18.00 ~ Ø23.90)	9 IP	1.5
	TWDP10	S24~S28 (Ø24.00 ~ Ø29.77)	10 IP	2.2
	TWDP15	S30~S32 (Ø30.00 ~ Ø33.73)	15 IP	3.2

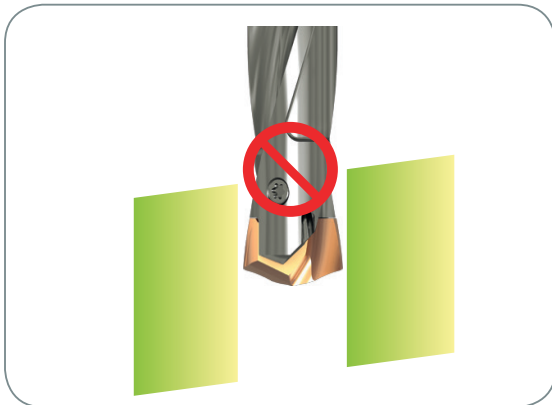
Use the Torx Plus wrench

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

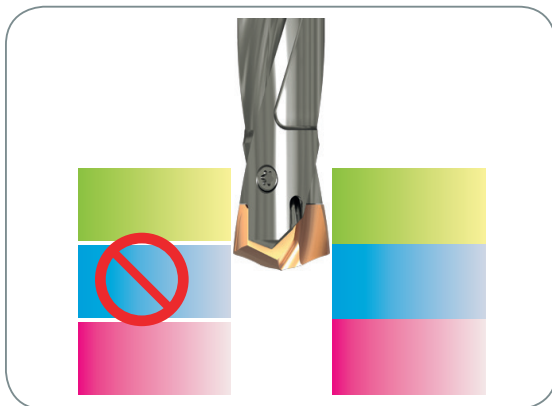
CAUTION-NOT RECOMMENDABLE APPLICATION



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

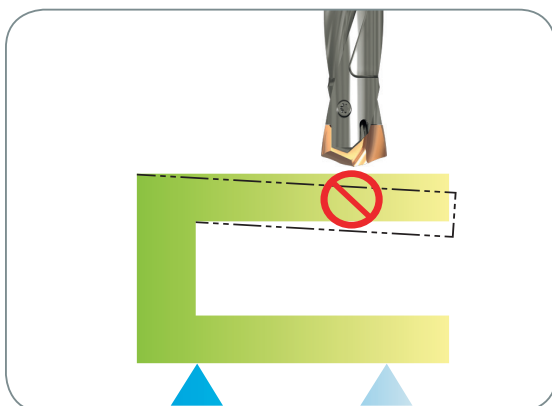


Material with slanting entrance and exit over 7 degrees. (If drilling 7 degrees or under slanting surface, reduce the feed about 30-50%)



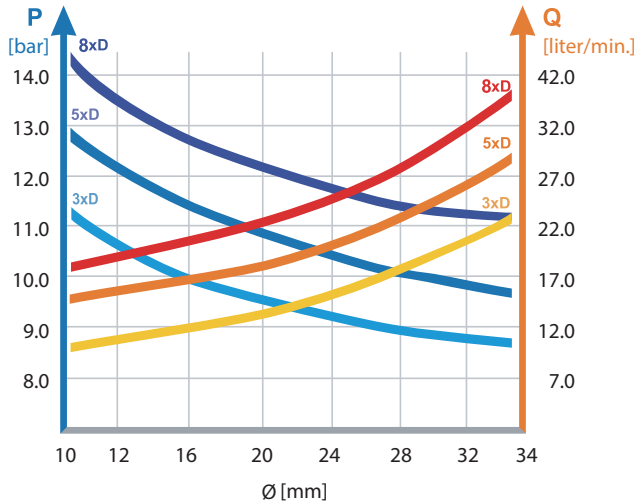
For drilling stacked plates, minimize the space between the plates.

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



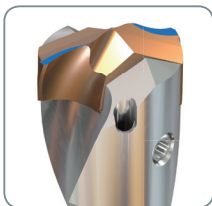
The material needs to be fixtured securely before drilling.

## RECOMMENDED COOLANT PRESSURE AND FLOW RATE ON VERTICAL DRILLING

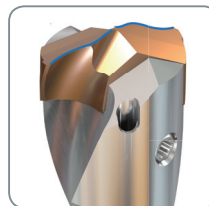


- Recommended emulsion mix is 6 - 8%.
- For Drilling into Stainless and High Strength steels, a mix of 10% is recommended.
- For horizontal drilling, 30% reduction on the coolant pressure and flow rate is possible.
- Dry drilling is possible for 1 - 2xD drilling. But not recommended.

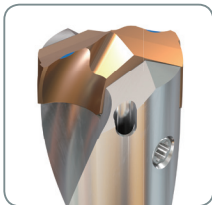
## TROUBLE SHOOTING



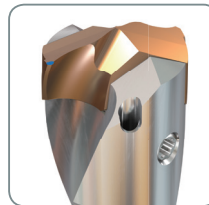
- 1) Heavy flank wear / Fast flank wear
- Reduce cutting speed
  - Increase feed



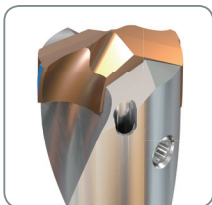
- 2) Chipping on cutting edge
- Reduce feed
  - Check the rigidity of spindle and chuck
  - Rigid clamping of workpiece



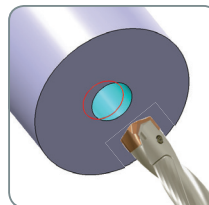
- 3) Build up on cutting edge
- Increase cutting speed
  - Use a coated insert



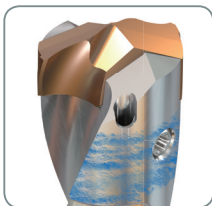
- 4) Chipping or break down on outer corner
- Reduce feed
  - Rigid clamping of workpiece



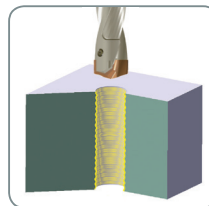
- 5) Wear of land margin
- Rigid clamping of workpiece
  - Reduce cutting speed
  - Increase coolant flow



- 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



A large grid of small squares, typical of graph paper, covering the majority of the page. The grid is composed of light gray lines on a white background, forming a uniform pattern of small squares.



# HIGH QUALITY PRODUCTS and ON TIME DELIVERY for WORLD-WIDE CUSTOMERS

Since 1982, YG-1 has been committed to quality, innovation and the unique customer experience. Our performance and experience have granted YG-1 the global impression of one of the leading manufacturers of high quality cutting tool solutions. This global footprint expands over 75 countries, with international logistic centers, pledging to our customers to give the best service available today - and tomorrow.














## EUROPE

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 **YG-1 CO., LTD.**

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