

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

**YG-1 USA**

730 Corporate Woods Parkway, Vernon Hills, IL 60061 U.S.A.

**Phone: +1-800-765-8665**

**Technical Assistance: +1-888-868-5988**

**E-mail: [info@yg1usa.com](mailto:info@yg1usa.com)**

**[www.yg1usa.com](http://www.yg1usa.com)**

**YG-1 CANADA**

3375 North Service Road, Unit A8, Burlington, ON, CANADA, L7N 3G2

**Phone: +1-905-335-2500**

**Fax: +1-905-335-4003**

**E-mail: [orders@yg1.ca](mailto:orders@yg1.ca)**

**[www.yg1.ca](http://www.yg1.ca)**

**HEAD OFFICE**

13-40, Songdogwahak-ro 16beon-gil, Yeonsu-gu, Incheon 21984, South Korea

**Notice** YG-1 Global head office is relocating from December 2020 to a new address as above;

**Phone: +82-32-526-0909**

**E-mail: [yg1@yg1.kr](mailto:yg1@yg1.kr)**

**[www.yg1.kr](http://www.yg1.kr)**

**Note** The information is provided for reference only. Tool specifications are subject to change without prior notice. Although we endeavor to supply accurate and timely information, there can be no guarantee to cover every particular application. YG-1 or publishers are not liable for any damage for use of the information.



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SCAN QR CODE  
TO SEE i-ONE DRILLS AT WORK



YG1YUIO210101001



**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”**

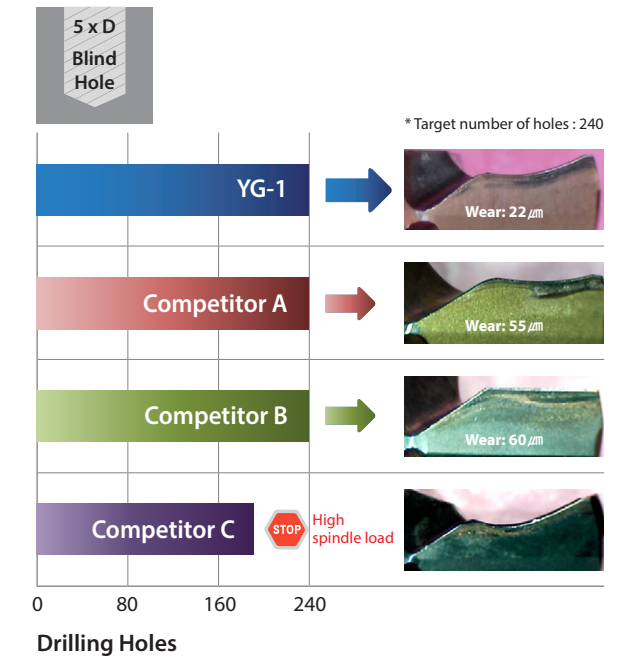
- Torx Plus® Screw** for clamping insert
- Optimized flute shape** for better chip evacuation
- Nickel-plated Steel holder** for corrosion resistance and wear resistance
- Body Clearance** for elimination of undesirable contact with work piece
- Internal cooling channel** for higher drilling performance
- Ground bright finished shank** for more precise clamping
- Cylindrical shank with a parallel flat** according to ISO9766 Plain shank and Whistle notch shank are available on request

- 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

## CASE STUDY

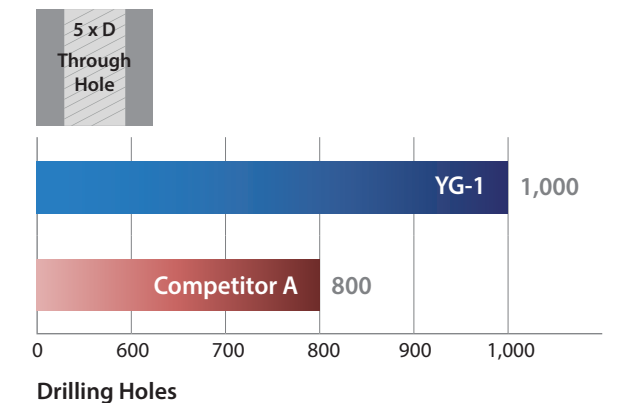
### ► Ø14.0mm, Alloy Steel

Tool	Y141H1400	Competitors
O.D Size (mm)	Ø14.0 (.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. (.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 (.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. (.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(dec.)	.3937	.4724	.5512	.6299
SIZE MAX(dec.)	.4688	.5472	.6260	.7047
PAGE	6	7	8	9

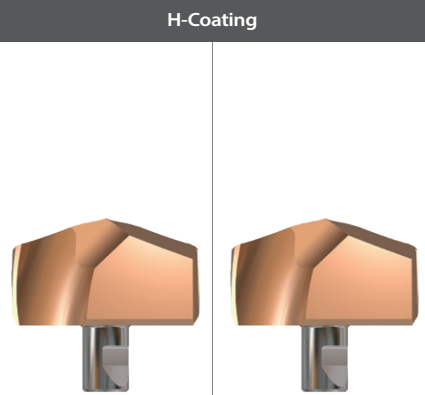
Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

## i-ONE DRILLS

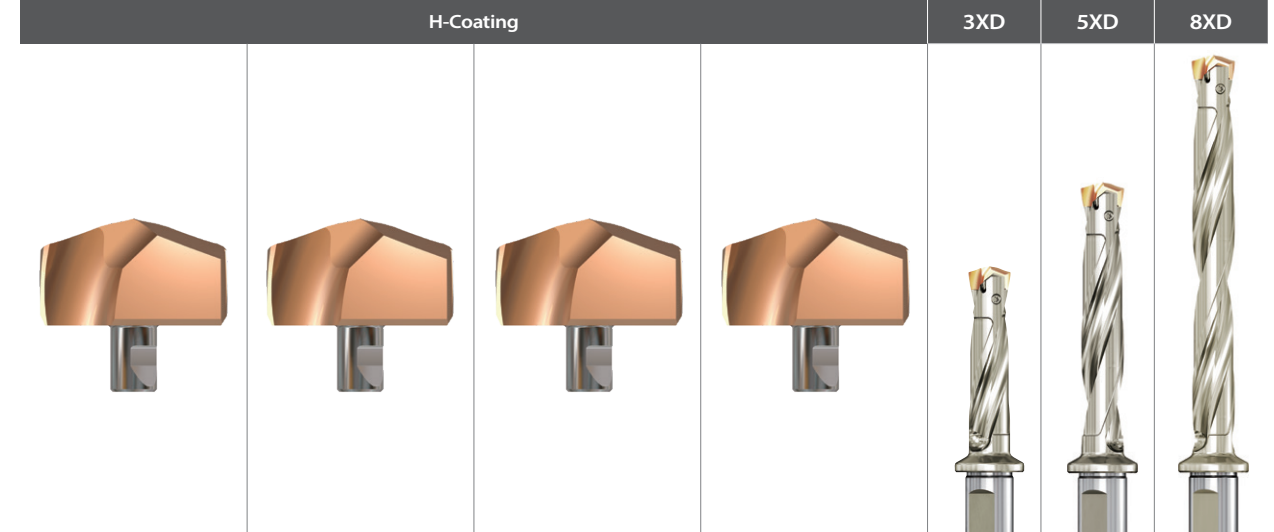
High Performance Exchangeable Carbide Inserts for General Steels and Cast Iron

◎ : Excellent ○ : Good

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRC	Y101H	Y121H	Y141H	Y161H	
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		Ferritic	130		◎	◎	◎	◎	
20	Malleable cast iron	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
.7087	.7874	.8661	.9449	1.0236	1.1024	1.1811	1.2598	3XD	5XD	8XD
.7835	.8622	.9409	1.0197	1.0984	1.1772	1.2559	1.3346			
10	11	12	13	14	15	16	17			



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### GUIDE LINE TO ICONS

**Tool Raw Material**

CARBIDE

**Point Angle**

140°

**Tolerance of Dimension**

Tolerance of Outside Diameter

Tolerance of Shank Diameter

**Cutting Condition Page**







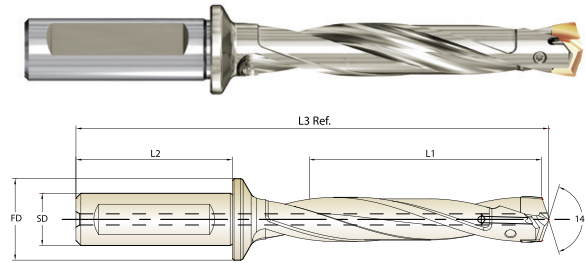
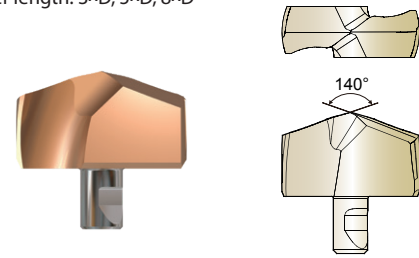
MICRO GRAIN CARBIDE INSERTS & PREMIUM TOOL STEEL HOLDERS

**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



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

► 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	38	10	29	32	38	15	35	15	23	10	10	26	3	25		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																					

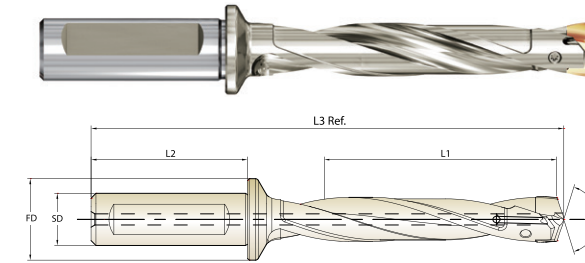
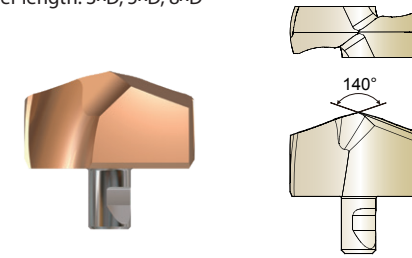
MICRO GRAIN CARBIDE INSERTS & PREMIUM TOOL STEEL HOLDERS

**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



Series Range	Insert EDP No.	Insert O.D.			Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Drilling Depth L1	Overall Length L3 Ref.	Screw No.	
		h7										
		dec.	frac.	mm								
<b>S24</b> Ø24.00 to Ø25.99	<b>Y241H2400</b>	.9449		24.00	<b>ZD24003125</b> <b>ZD24005125</b> <b>ZD24008125</b>	1-1/4	2-3/8	1-15/32	3D	2-61/64	6-17/32	TX2425P10
	<b>Y241H2410</b>	.9488		24.10					5D	4-59/64	8-15/32	
	<b>Y241H2420</b>	.9528		24.20					8D	7-7/8	11-23/64	
	<b>Y241H2421</b>	.9531	61/64	24.21								
	<b>Y241H2430</b>	.9567		24.30								
	<b>Y241H2440</b>	.9606		24.40								
	<b>Y241H2450</b>	.9646		24.50								
	<b>Y241H2460</b>	.9685		24.60								
	<b>Y241H2461</b>	.9688	31/32	24.61								
	<b>Y241H2470</b>	.9724		24.70								
	<b>Y241H2480</b>	.9764		24.80								
	<b>Y241H2490</b>	.9803		24.90								
	<b>Y241H2500</b>	.9844	63/64	25.00	<b>ZD25003125</b> <b>ZD25005125</b> <b>ZD25008125</b>	1-1/4	2-3/8	1-15/32	3D	3-5/64	6-47/64	TX2526P10
	<b>Y241H2510</b>	.9882		25.10					5D	5-1/8	8-47/64	
	<b>Y241H2520</b>	.9921		25.20					8D	8-3/16	11-3/4	
	<b>Y241H2530</b>	.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 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	10	29	32	38	15	35	15	23	10	10	26	3	25		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																					

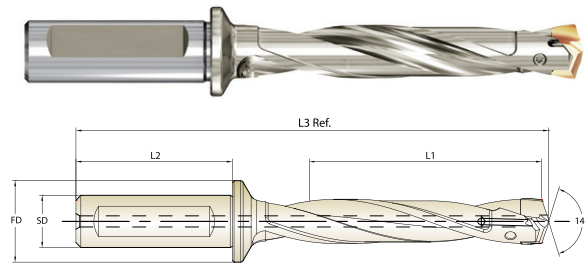
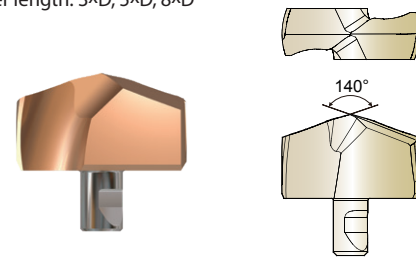
MICRO GRAIN CARBIDE INSERTS & PREMIUM TOOL STEEL HOLDERS

**i-ONE DRILLS INSERTS & HOLDERS**

**Y261H 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



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.		
		dec.	frac.	mm								
<b>S26</b> Ø26.00 to Ø27.99	<b>Y261H2600</b>	1.0236		26.00	<b>ZD26003125</b> <b>ZD26005125</b> <b>ZD26008125</b>	1-1/4	2-3/8	1-15/32	3D	3-3/16	6-51/64	TX2627P10
	<b>Y261H2619</b>	1.0311	1-1/32	26.19					5D	5-5/16	8-7/8	
	<b>Y261H2620</b>	1.0315		26.20					8D	8-1/2	12-1/64	
	<b>Y261H2650</b>	1.0433		26.50								
	<b>Y261H2659</b>	1.0469	1-3/64	26.59								
	<b>Y261H2660</b>	1.0472		26.60								
	<b>Y261H2670</b>	1.0512		26.70								
	<b>Y261H2680</b>	1.0551		26.80								
	<b>Y261H2690</b>	1.0591		26.90								
	<b>Y261H2699</b>	1.0626	1-1/16	26.99								
	<b>Y261H2700</b>	1.0630		27.00	<b>ZD27003125</b> <b>ZD27005125</b> <b>ZD27008125</b>	1-1/4	2-3/8	1-15/32	3D	3-5/16	6-29/32	TX2728P10
	<b>Y261H2710</b>	1.0669		27.10					5D	5-33/64	9-5/64	
	<b>Y261H2720</b>	1.0709		27.20					8D	8-13/16	12-21/64	
	<b>Y261H2730</b>	1.0748		27.30								
	<b>Y261H2738</b>	1.0780	1-5/64	27.38								
	<b>Y261H2740</b>	1.0787		27.40								
	<b>Y261H2750</b>	1.0827		27.50								
	<b>Y261H2760</b>	1.0866		27.60								
	<b>Y261H2770</b>	1.0906		27.70								
	<b>Y261H2778</b>	1.0937	1-3/32	27.78								
<b>Y261H2780</b>	1.0945		27.80									
<b>Y261H2790</b>	1.0984		27.90									

► 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	38	10	29	32	38	45	15	35	40	45	10	26	3	25	10	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																					

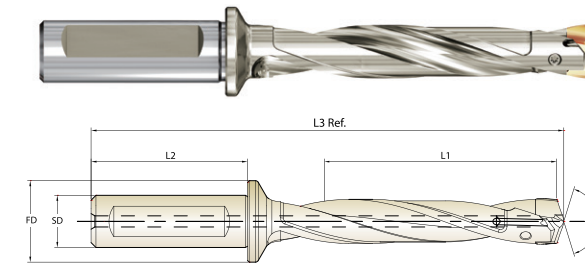
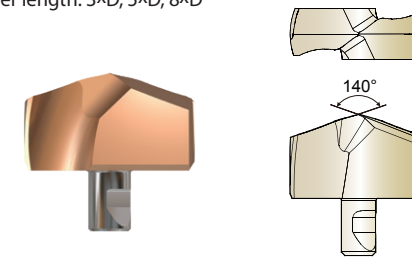
MICRO GRAIN CARBIDE INSERTS & PREMIUM TOOL STEEL HOLDERS

**i-ONE DRILLS INSERTS & HOLDERS**

**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



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.		
		dec.	frac.	mm								
<b>S28</b> Ø28.00 to Ø29.99	<b>Y281H2800</b>	1.1024		28.00	<b>ZD28003125</b> <b>ZD28005125</b> <b>ZD28008125</b>	1-1/4	2-3/8	1-15/32	3D	3-27/64	7-1/16	TX2830P10
	<b>Y281H2810</b>	1.1063		28.10					5D	5-45/64	9-5/16	
	<b>Y281H2818</b>	1.1094	1-7/64	28.18					8D	9-9/64	12-43/64	
	<b>Y281H2820</b>	1.1102		28.20								
	<b>Y281H2830</b>	1.1142		28.30								
	<b>Y281H2840</b>	1.1181		28.40								
	<b>Y281H2850</b>	1.1220		28.50								
	<b>Y281H2858</b>	1.1252	1-1/8	28.58								
	<b>Y281H2860</b>	1.1260		28.60								
	<b>Y281H2870</b>	1.1299		28.70								
	<b>Y281H2880</b>	1.1339		28.80	<b>ZD29003125</b> <b>ZD29005125</b> <b>ZD29008125</b>	1-1/4	2-3/8	1-15/32	3D	3-35/64	7-7/32	TX2930P10
	<b>Y281H2890</b>	1.1378		28.90					5D	5-29/32	9-35/64	
	<b>Y281H2900</b>	1.1417		29.00					8D	9-29/64	13-1/32	
	<b>Y281H2910</b>	1.1457		29.10								
	<b>Y281H2920</b>	1.1496		29.20								
	<b>Y281H2930</b>	1.1535		29.30								
	<b>Y281H2937</b>	1.1563	1-5/32	29.37								
	<b>Y281H2940</b>	1.1575		29.40								
	<b>Y281H2950</b>	1.1614		29.50								
	<b>Y281H2960</b>	1.1654		29.60								
<b>Y281H2970</b>	1.1693		29.70									
<b>Y281H2977</b>	1.1720	1-11/64	29.77									
<b>Y281H2980</b>	1.1732		29.80									
<b>Y281H2990</b>	1.1772		29.90									

► 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	38	10	29	32	38	45	15	35	40	45	10	26	3	25	10	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																					

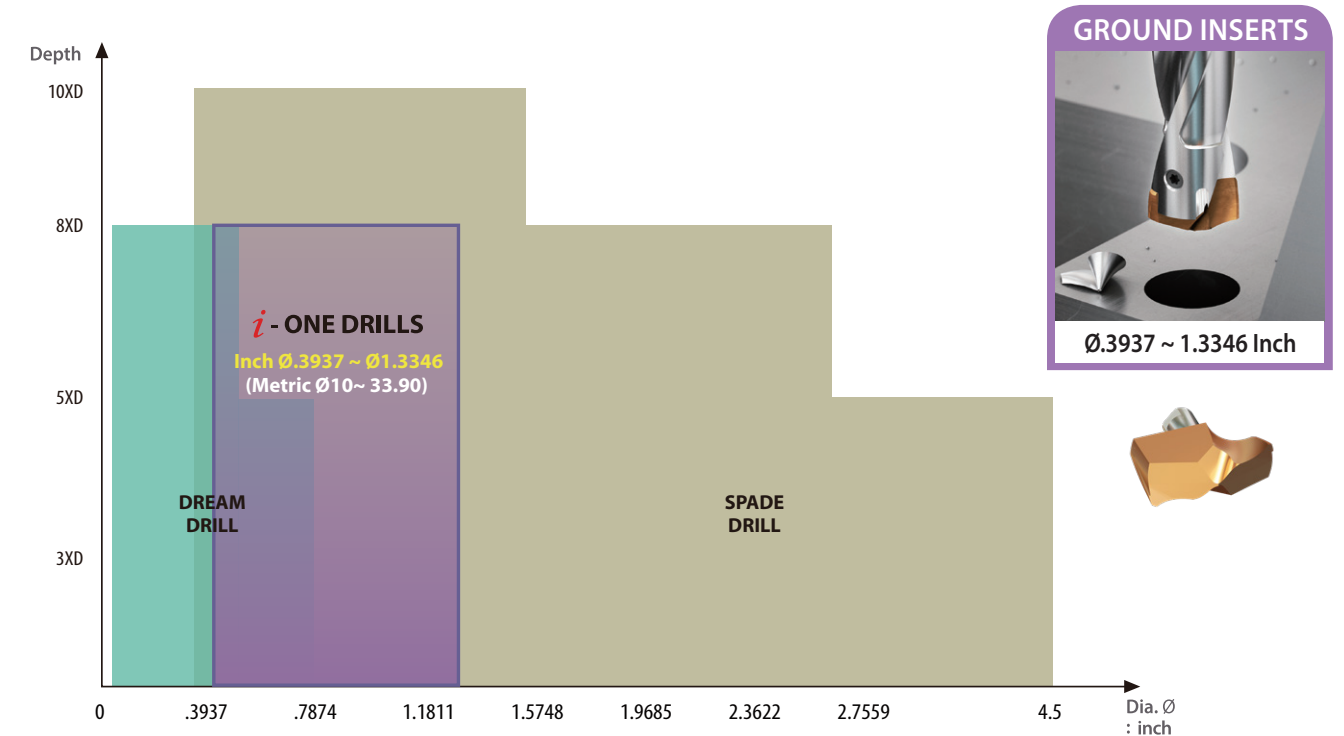


SFM = ft/min.  
Feed(IPR) = inch/rev.

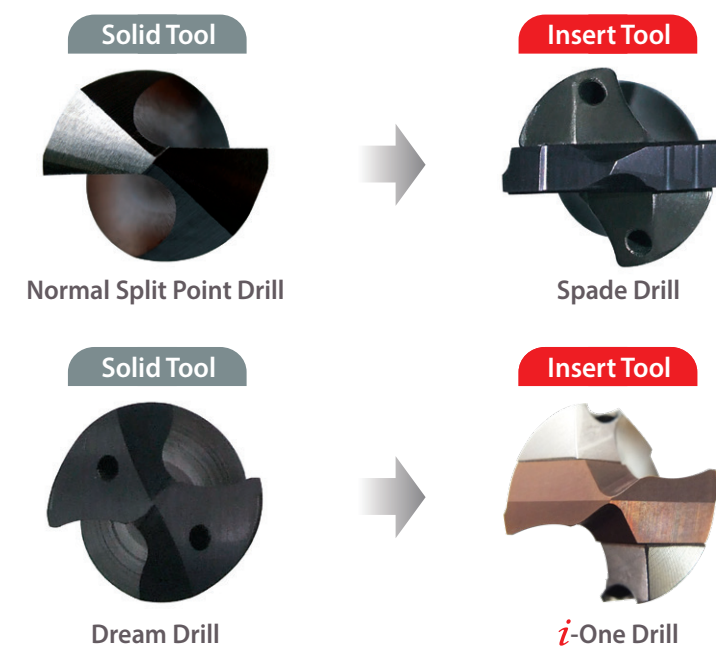
ISO	VDI 3323	Material Description	Cutting Speed	Feed(IPR)					
				SFM	Ø10.0~11.99	Ø12.09~14.99	Ø15.00~17.99	Ø18.00~21.99	Ø22.0~26.99
P	1	Non-alloy steel	328~413	.006~.009	.007~.012	.009~.015	.012~.017	.015~.022	.016~.024
	2		276~361	.005~.008	.006~.010	.009~.015	.012~.017	.015~.022	.016~.024
	3		207~276	.004~.007	.005~.009	.007~.012	.009~.014	.013~.020	.014~.021
	4		190~243	.004~.006	.004~.007	.007~.011	.009~.013	.011~.017	.013~.019
	5		190~243	.004~.006	.004~.007	.007~.011	.009~.013	.011~.017	.013~.019
	6	Low alloy steel	243~312	.004~.007	.005~.009	.007~.012	.009~.014	.013~.020	.015~.022
	7		207~276	.004~.007	.005~.009	.007~.011	.009~.014	.013~.020	.015~.022
	8		190~243	.004~.006	.004~.007	.006~.009	.009~.013	.011~.017	.013~.019
	9		154~207	.003~.004	.004~.005	.006~.009	.009~.013	.011~.017	.013~.019
	10	High alloyed steel, and tool steel	174~223	.004~.006	.004~.007	.006~.009	.008~.011	.009~.013	.010~.015
	11		138~190	.004~.006	.004~.007	.005~.008	.009~.013	.009~.013	.010~.015
K	15	Grey cast iron	344~430	.005~.009	.007~.011	.009~.016	.012~.018	.016~.022	.017~.024
	16		259~328	.004~.007	.005~.009	.007~.013	.009~.013	.011~.015	.013~.017
	17	Nodular cast iron	328~413	.004~.008	.006~.009	.007~.013	.009~.014	.012~.017	.014~.019
	18		259~328	.004~.007	.005~.009	.006~.011	.008~.013	.011~.015	.013~.017
	19	Malleable cast iron	344~430	.004~.008	.006~.009	.007~.013	.009~.014	.012~.017	.014~.019
20	259~328		.004~.006	.005~.008	.006~.011	.008~.013	.011~.015	.013~.017	

- ▶ 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.

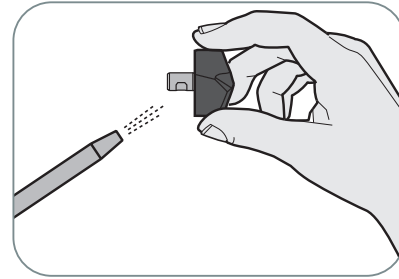
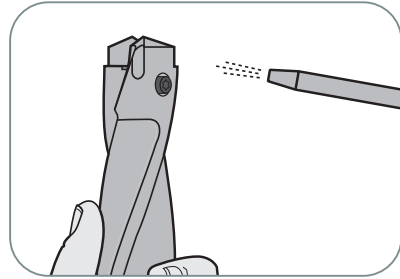
YG-1 EXCHANGEABLE RANGE OF DRILLS - POSITIONING MAP



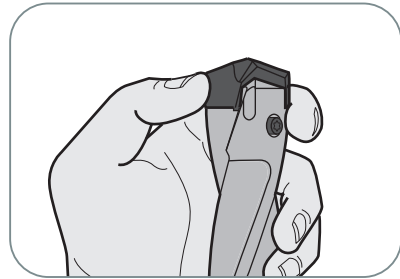
COMPARISON WITH SPLIT POINT DRILL - SPADE DRILL & DREAM DRILL



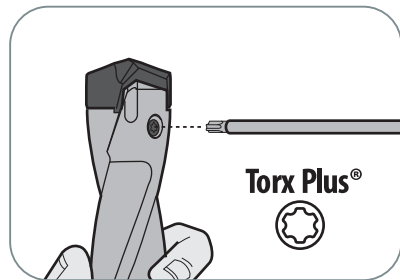
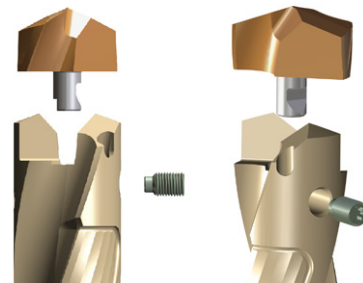
ASSEMBLY OF *i*-ONE DRILLS



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.



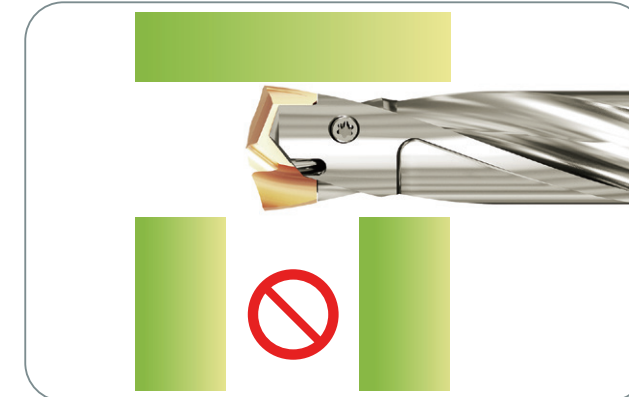
After confirming the insert is pressed down to the bottom of the slot, tighten the screw using anti-seize compound.

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

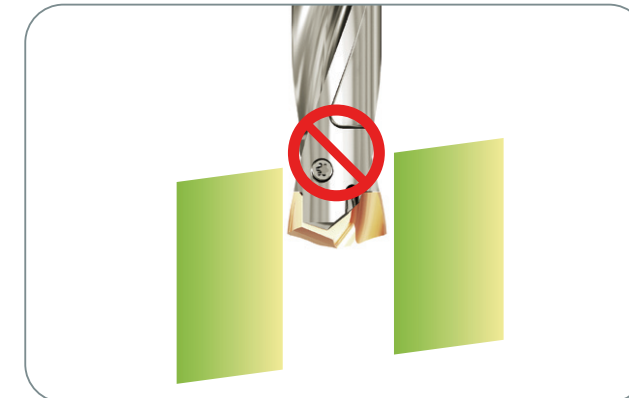
Use the Torx Plus® wrench

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

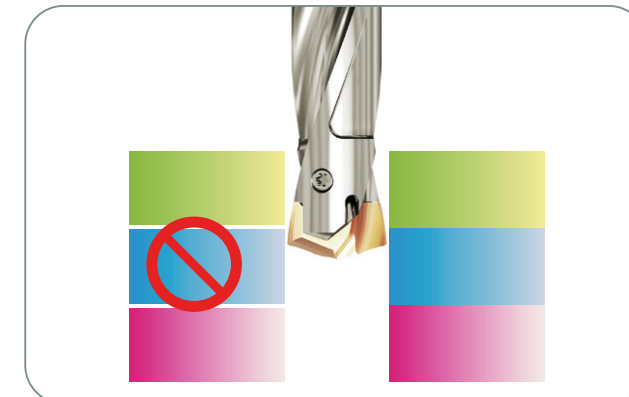
CAUTION-NOT RECOMMENDABLE APPLICATION



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

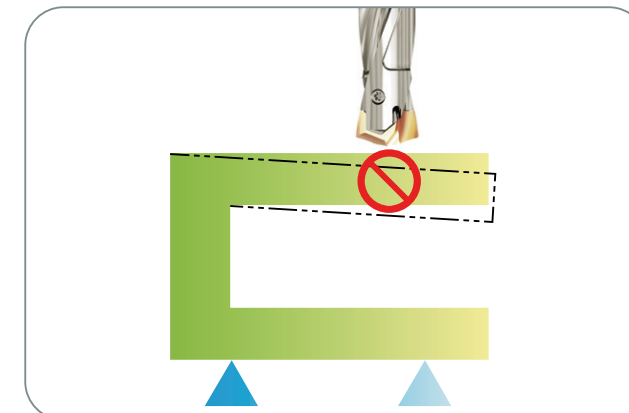


Material with slanting entrance and exit over 7 degree. (If drilling 7 degree or under slanting surface, reduce the feed about 30-50%)



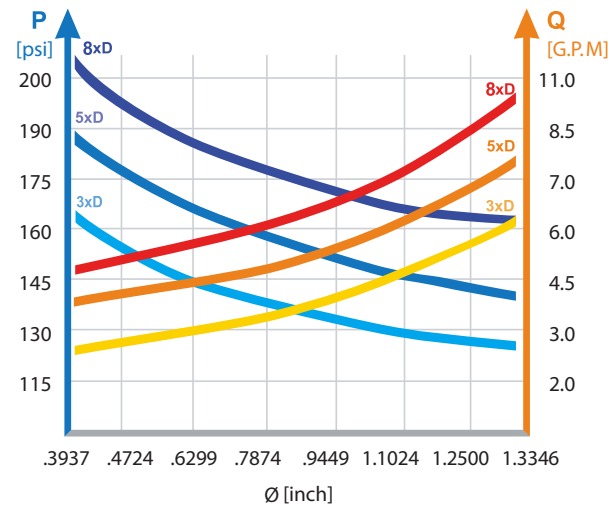
For drilling stacked plates, minimize the space between the plates.

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



The material needs to be fixtured securely before drilling.

## RECOMMENDED COOLANT PRESSURE AND FLOW RATE ON VERTICAL DRILLING



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

## TROUBLE SHOOTING

	<p>1) Heavy flank wear / Fast flank wear</p> <ul style="list-style-type: none"> <li>- Reduce cutting speed</li> <li>- Increase feed</li> </ul>		<p>2) Chipping on cutting edge</p> <ul style="list-style-type: none"> <li>- Reduce feed</li> <li>- Check the rigidity of spindle and chuck</li> <li>- Rigid clamping of workpiece</li> </ul>
	<p>3) Build up on cutting edge</p> <ul style="list-style-type: none"> <li>- Increase cutting speed</li> <li>- Use a coated insert</li> </ul>		<p>4) Chipping or break down on outer corner</p> <ul style="list-style-type: none"> <li>- Reduce feed</li> <li>- Rigid clamping of workpiece</li> </ul>
	<p>5) Wear of land margin</p> <ul style="list-style-type: none"> <li>- Rigid clamping of workpiece</li> <li>- Reduce cutting speed</li> <li>- Increase coolant flow</li> </ul>		<p>6) Unsatisfactory positioning of the hole</p> <ul style="list-style-type: none"> <li>- Rigid clamping of workpiece</li> <li>- Reduce feed during entrance or exit</li> </ul>
	<p>7) Scratching on holder</p> <ul style="list-style-type: none"> <li>- Rigid clamping of workpiece</li> <li>- Reduce feed</li> <li>- Increase coolant flow</li> </ul>		<p>8) Unsatisfactory surface finish</p> <ul style="list-style-type: none"> <li>- Rigid clamping of workpiece</li> <li>- Increase coolant flow and pressure</li> </ul>

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

Since 1982, YG-1 has 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.

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## YG-1 CO., LTD.

\* For more information on sales network, please contact the head office as below;

### YG-1 HEAD OFFICE

13-40, Songdogwahak-ro 16beon-gil, Yeonsu-gu, Incheon 21984, South Korea  
 Phone: +82-32-526-0909  
 E-mail: yg1@yg1.kr  
 www.yg1.kr

### YG-1 USA

730 Corporate Woods Parkway, Vernon Hills, IL 60061 U.S.A.  
 Phone: 800-765-8665  
 Technical Assistance: 888-868-5988  
 www.yg1usa.com