



Leading Through Innovation

CARBIDE INSERTS & HOLDERS



i - ONE DRILLS

i-One Drills

- High Performance Exchangeable for General Steels and Cast Iron
- Leistungsstarke, austauschbare Bohrwerkzeuge für allgemeine Stähle und Gusseisen

SELECTION GUIDE

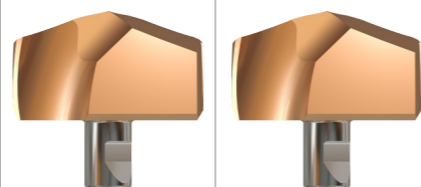


SERIES	Y101H	Y121H	Y141H	Y161H
SIZE MIN	10.00	12.00	14.00	16.00
SIZE MAX	11.91	13.90	15.90	17.90
PAGE	A24	A25	A26	A27

SURFACE TREATMENT H-Coating

CARBIDE INSERTS & HOLDERS
***i*-ONE DRILLS**

High Performance Exchangeable for General Steels and Cast Iron



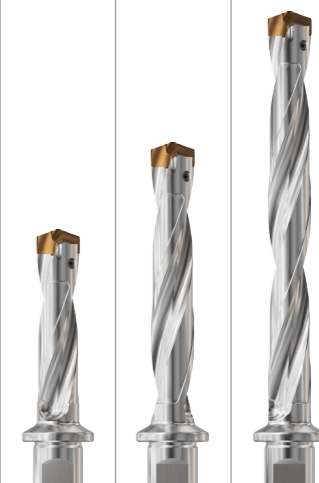
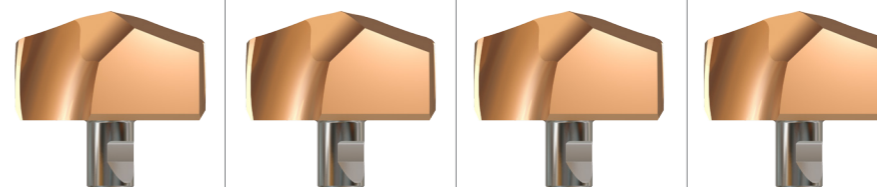
◎ : Excellent ○ : Good

Recommended cutting conditions : p.A34

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc					
P	1	Non-alloy steel	About 0.15% C Annealed	125		◎	◎	◎	◎	
	2		About 0.45% C Annealed	190	13	◎	◎	◎	◎	
	3		About 0.45% C Quenched & Tempered	250	25	◎	◎	◎	◎	
	4		About 0.75% C Annealed	270	28	◎	◎	◎	◎	
	5		About 0.75% C Quenched & Tempered	300	32	◎	◎	◎	◎	
	6	Low alloy steel	Annealed	180	10	◎	◎	◎	◎	
	7		Quenched & Tempered	275	29	◎	◎	◎	◎	
	8		Quenched & Tempered	300	32	◎	◎	◎	◎	
	9		Quenched & Tempered	350	38	◎	◎	◎	◎	
	10		High alloyed steel, and tool steel	Annealed	200	15	◎	◎	◎	◎
	11			Quenched & Tempered	325	35	◎	◎	◎	◎
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15					
	13		Martensitic Quenched & Tempered	240	23					
	14		Austenitic10	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	Non Metallic Materials	CuZn, CuSnZn (Brass)	90						
	28		CuSn, lead-free copper and electrolytic copper	100						
	29		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			
A28	A29	A30	A31	A32	A33			3XD	5XD	8XD

H-Coating



◎	◎	◎	◎	◎	◎	◎	◎				
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i-ONE DRILL INSERTS & HOLDERS

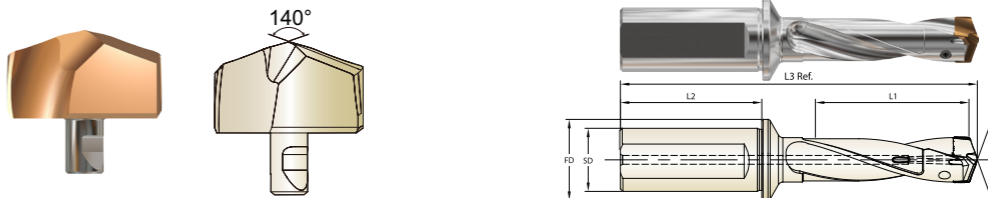
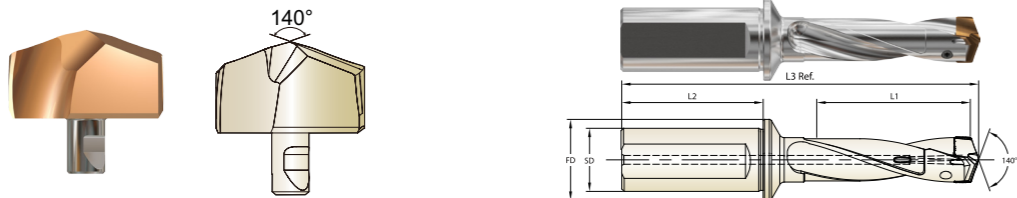
i-ONE DRILL INSERTS & HOLDERS

i-ONE DRILL EINSÄTZE UND HALTER
PLAQUETTES ET PORTE-PLAQUETTE i-ONE DRILL
INSERTI & PORTAINSERTI i-ONE DRILL

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- 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.

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Feature icons: CARBIDE, ISO 9766, h7, 140°, Coating, p.A34. Flat Shank, INDEXABLE DRILL HOLDER, ER COLLET CHUCK.

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Table for Y181H series with columns: Series Range, Insert EDP No., Insert O.D., Holder EDP No., Shank Dia., Shank Length, Flange Dia., Drilling Depth, Overall Length, Screw No. Includes rows for S18 and S20 series.

Table for Y201H series with columns: Series Range, Insert EDP No., Insert O.D., Holder EDP No., Shank Dia., Shank Length, Flange Dia., Drilling Depth, Overall Length, Screw No. Includes rows for S20 series.

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

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Material compatibility table for YG-1 CO., LTD. with columns for ISO, Material Description, and various material types like P, M, K, N, S, H.

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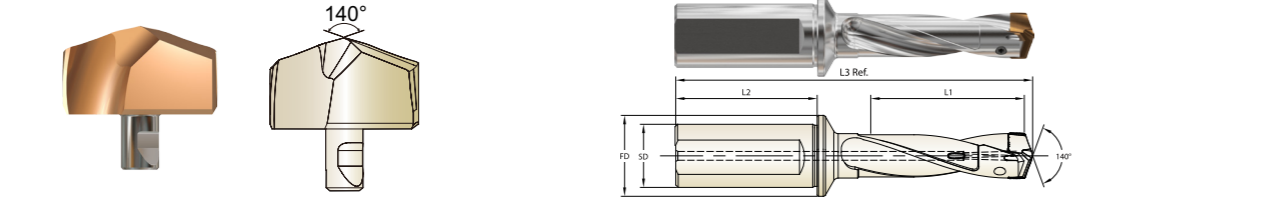
Y261H SERIES

Y281H SERIES

i-ONE DRILL INSERTS & HOLDERS

- i-ONE DRILL EINSÄTZE UND HALTER
PLAQUETTES ET PORTE-PLAQUETTE i-ONE DRILL
INSERTI & PORTAINSERTI i-ONE DRILL

- Applications: For carbon steels, alloy steels and cast iron.
Benefits: Secure and quick clamping system. High performance with cost efficiency. Multi-layered coating delivers outstanding productivity and reliability.



Icons for CARBIDE, ISO 9766, h7, 140°, Coating, and Full-Flat Shank. Includes a note 'p.A34' and 'ER COLLET CHUCK'.

Table with columns: Series Range, Insert EDP No., Insert O.D. (H-Coating, h7 dec/frac, mm), Holder EDP No., Shank Dia., Shank Length, Flange Dia., Drilling Depth, Overall Length (L3 Ref), Screw No. Lists series S26 and S28 with various insert and holder options.

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

◎ : Excellent ○ : Good

ISO material compatibility chart for P, M, K, N, S, H groups. Lists material descriptions like VDI 3323, HRc, HB and recommended ranges.



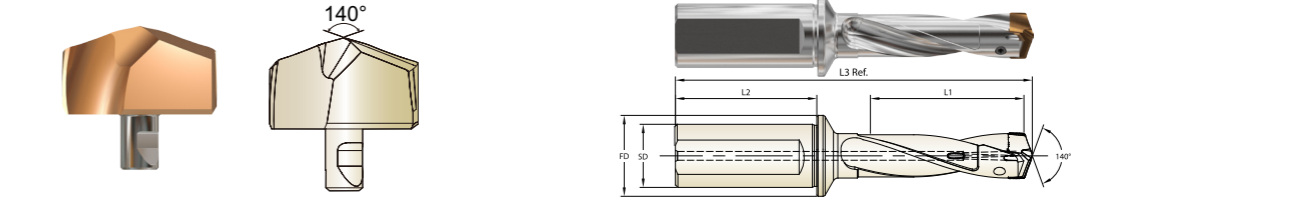
Y301H SERIES

Y321H SERIES

i-ONE DRILL INSERTS & HOLDERS

- i-ONE DRILL EINSÄTZE UND HALTER
PLAQUETTES ET PORTE-PLAQUETTE i-ONE DRILL
INSERTI & PORTAINSERTI i-ONE DRILL

- Applications: For carbon steels, alloy steels and cast iron.
Benefits: Secure and quick clamping system. High performance with cost efficiency. Multi-layered coating delivers outstanding productivity and reliability.



Icons for CARBIDE, ISO 9766, h7, 140°, Coating, and Full-Flat Shank. Includes a note 'p.A34' and 'ER COLLET CHUCK'.

Table with columns: Series Range, Insert EDP No., Insert O.D. (H-Coating, h7 dec/frac, mm), Holder EDP No., Shank Dia., Shank Length, Flange Dia., Drilling Depth, Overall Length (L3 Ref), Screw No. Lists series S30 and S32 with various insert and holder options.

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

◎ : Excellent ○ : Good

ISO material compatibility chart for P, M, K, N, S, H groups. Lists material descriptions like VDI 3323, HRc, HB and recommended ranges.

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

ISO	VDI 3323	Material Description	Cutting Speed	Feed					
				Vc	Ø10.0-11.99	Ø12.09-14.99	Ø15.00-17.99	Ø18.00-21.99	Ø22.0-26.9
P	1	Non-alloy steel	80-135	0.13-0.29	0.18-0.33	0.23-0.37	0.28-0.43	0.34-0.50	0.36-0.52
	2		70-120	0.13-0.29	0.18-0.33	0.23-0.37	0.28-0.43	0.34-0.50	0.36-0.52
	3		70-95	0.13-0.29	0.18-0.33	0.23-0.37	0.28-0.43	0.34-0.50	0.36-0.52
	4		70-95	0.13-0.29	0.18-0.33	0.23-0.37	0.28-0.43	0.34-0.50	0.36-0.52
	5		40-80	0.13-0.29	0.18-0.33	0.23-0.37	0.28-0.43	0.34-0.50	0.36-0.52
	6	Low alloy steel	80-100	0.12-0.29	0.17-0.33	0.22-0.35	0.27-0.38	0.32-0.45	0.35-0.49
	7		70-90	0.12-0.29	0.17-0.33	0.22-0.35	0.27-0.38	0.32-0.45	0.35-0.49
	8		60-80	0.12-0.29	0.17-0.33	0.22-0.35	0.27-0.38	0.32-0.45	0.35-0.49
	9		50-60	0.12-0.29	0.17-0.33	0.22-0.35	0.27-0.38	0.32-0.45	0.35-0.49
	10	High alloyed steel, and tool steel	45-80	0.12-0.24	0.15-0.29	0.20-0.34	0.25-0.39	0.27-0.39	0.34-0.40
	11		35-70	0.12-0.24	0.15-0.29	0.20-0.34	0.25-0.39	0.27-0.39	0.34-0.40
K	15	Grey cast iron	100-140	0.15-0.35	0.20-0.40	0.25-0.45	0.30-0.55	0.35-0.60	0.40-0.60
	16		90-120	0.15-0.35	0.20-0.40	0.25-0.45	0.30-0.55	0.35-0.60	0.40-0.60
	17	Nodular cast iron	100-135	0.15-0.35	0.20-0.40	0.25-0.45	0.30-0.55	0.35-0.60	0.40-0.60
	18		90-120	0.15-0.35	0.20-0.40	0.25-0.45	0.30-0.55	0.35-0.60	0.40-0.60
	19	Malleable cast iron	100-135	0.15-0.35	0.20-0.40	0.25-0.45	0.30-0.55	0.35-0.60	0.40-0.60
20	90-120		0.15-0.35	0.20-0.40	0.25-0.45	0.30-0.55	0.35-0.60	0.40-0.60	

- ▶ 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.

Comparison with Split Point Drill, Spade Drill & Dream Drill



Normal Split Point Drill

Solid Tool



Dream Drill

Solid Tool



Spade Drill

Insert Tool



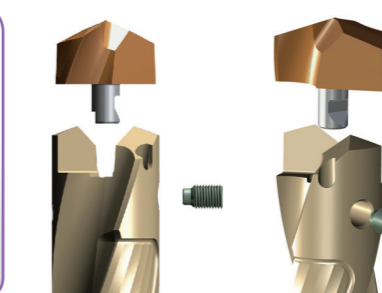
i-One Drill

Insert Tool

**ASSEMBLY OF i-ONE DRILLS
MONTAGE DES i-ONE DRILLS**

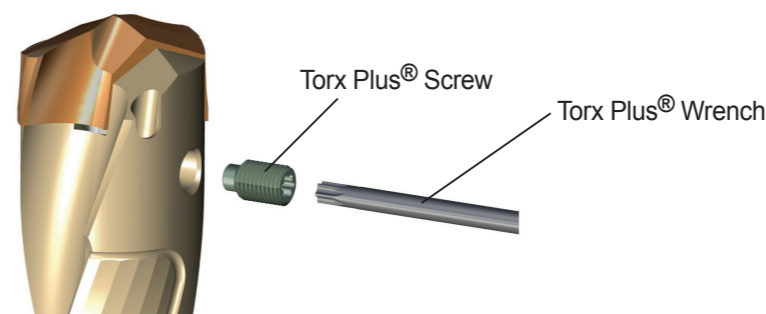


Make sure to clean the insert and insert seat.
Schneideinsatz und Haltersitz sorgfältig reinigen.



Slide the drill insert into the slot of the holder and press down the insert to touch the bottom of the slot.
Schneideinsatz in den Haltersitz einführen und den Schneideinsatz fest auf den Grund des Haltersitzes pressen.

After confirming the insert is pressed down to the bottom of the slot, tighten the screw using anti-seize compound.
Wenn der Schneideinsatz fest auf den Grund des Haltersitzes gepresst ist, die Schraube fest anziehen und dabei Spezialfett verwenden.



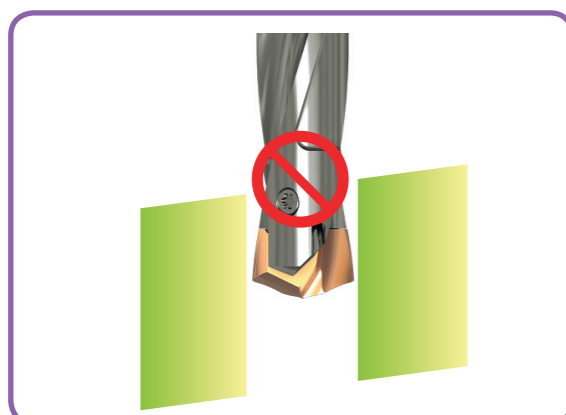
WRENCH TYPE	PRODUCT NO.	SERIES (INSERT SIZE)	TORX PLUS®	TORQUE (N·m)
	TWFP05	S10~S12 (10.00 ~ 13.90)	5 IP	0.6
	TWDP07	S14~S16 (14.00 ~ 17.90)	7 IP	1.0
	TWDP09	S18~S22 (18.00 ~ 23.90)	9 IP	1.5
	TWDP10	S24~S28 (24.00 ~ 29.77)	10 IP	2.2
	TWDP15	S30~S32 (30.00 ~ 33.73)	15 IP	3.2

- Use the Torx Plus wrench
Benutzen Sie den Winkeldreher oder T - Schlüsse
- ▶ Need to use appropriate wrenches and screws as indicated.
Unbedingt die angegebenen Schrauben und Dreher verwenden.
 - ▶ It's important to tighten up the screw properly.
Es ist wichtig, die Schraube korrekt und fest anzuziehen.

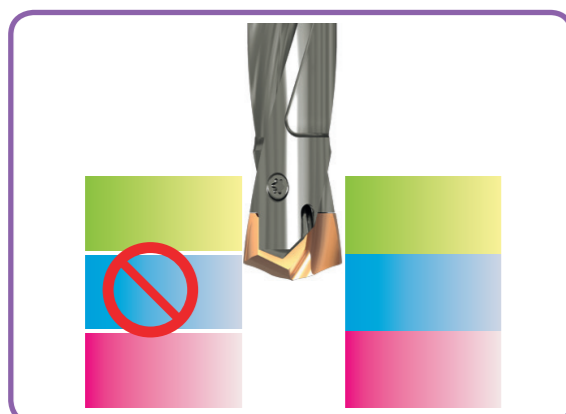
**CAUTION-NOT RECOMMENDABLE APPLICATION
ACHTUNG - NICHT EMPFOHLENE ANWENDUNG**



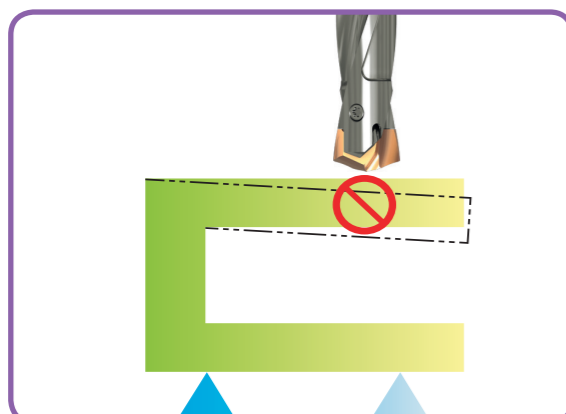
Intersecting cross hole is bigger than the drill insert's Margin Length.
Der Haltersitz ist größer als die Breite des Schneideinsatzes.



Material with slanting entrance and exit over 7 degrees.
(If drilling 7 degrees or under slanting surface, reduce the feed about 30-50%)
Werkstücke mit schrägem Anschnitt oder Austritt von über 7°. (Zum Bohren von bis zu 7° Schräge den Vorschub um ca. 30-50% reduzieren).

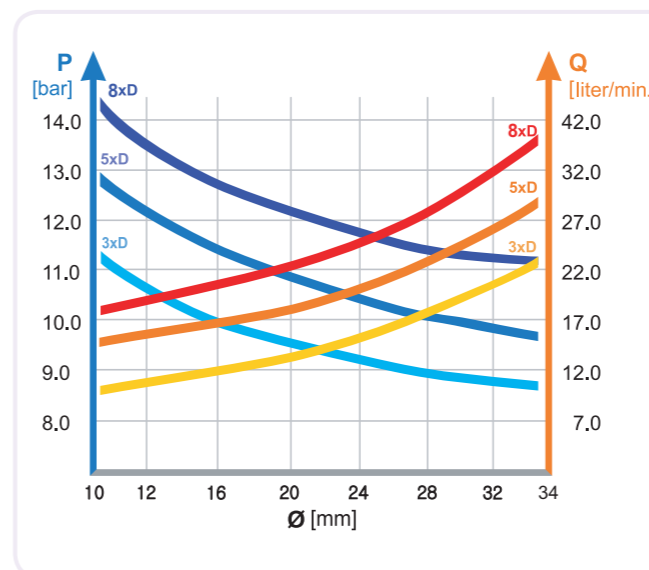


For drilling stacked plates, minimize the space between the plates.
Beim Bohren von Blechpaketen den Abstand der Bleche minimieren.
The space between stacked plates can cause insert breakage or poor chip control.
Freiraum in Blechpaketen kann den Bruch des Schneideinsatzes oder schlechte Entspannung verursachen.



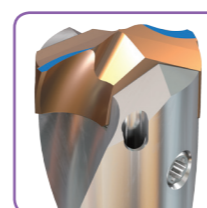
The material needs to be fixtured securely before drilling.
Das Werkstück muss fest und sicher aufgespannt sein

**RECOMMENDED COOLANT PRESSURE AND FLOW RATE ON VERTICAL DRILLING
EMPFOHLENE KÜHLMITTELDRUCK UND - MENGE BEIM VERTIKALEN BOHREN**

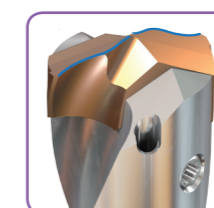


- Recommended emulsion mix is 6 - 8%.
Empfohlene Emulsionsmischung 6 - 8%.
- For Drilling into Stainless and High Strength steels, a mix of 10% is recommended.
Beim Bohren in rostfreie und hochfeste Stähle werden 10% empfohlen.
- For horizontal drilling, 30% reduction on the coolant pressure and flow rate is possible.
Beim horizontalen Bohren können Kühlmitteldruck und - menge um 30% gemindert werden.
- Dry drilling is possible for 1-2xD drilling. (But not recommended.)
Trocken Bohren ist möglich bei 1-2xD. (Aber nicht empfohlen.)

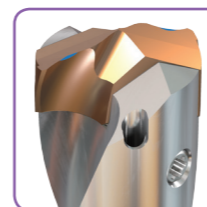
**TROUBLE SHOOTING
PROBLEMLÖSUNGEN**



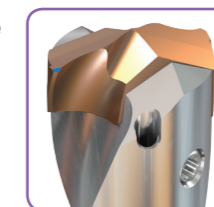
- 1) Heavy flank wear / Fast flank wear**
- Reduce cutting speed
 - Increase feed



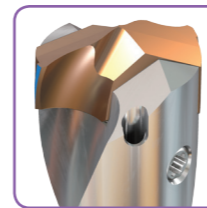
- 2) Chipping on cutting edge**
- Reduce feed
 - Check the rigidity of spindle and chuck
 - Rigid clamping of workpiece



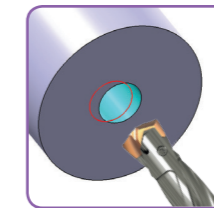
- 3) Build-up on cutting edge**
- Increase cutting speed
 - Use a coated insert



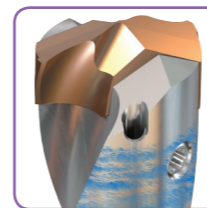
- 4) Chipping or break down on outer corner**
- Reduce feed
 - Rigid clamping of workpiece



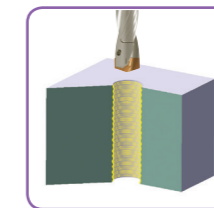
- 5) Wear of land margin**
- Rigid clamping of workpiece
 - Reduce cutting speed
 - Increase coolant flow



- 6) Unsatisfactory positioning of the hole**
- Rigid clamping of workpiece
 - Reduce feed during entrance or exit



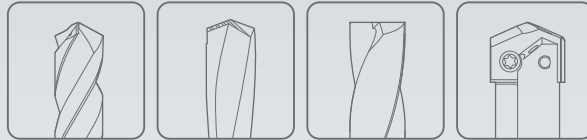
- 7) Scratching on holder**
- Rigid clamping of workpiece
 - Reduce feed
 - Increase coolant flow



- 8) Unsatisfactory surface finish**
- Rigid clamping of workpiece
 - Increase coolant flow and pressure



Global Cutting Tool Leader **YG-1**



HOLEMAKING