

i-ONE DRILL INSERTS & HOLDERS

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

- Applications

- For carbon steels, alloy steels and cast iron.
- Holder length: 3xD, 5xD, 8xD

- Benefits

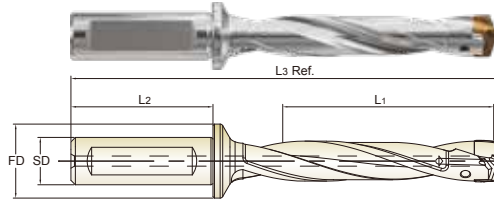
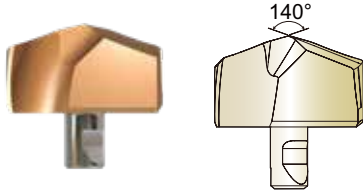
- Secure and quick clamping system.
- High performance with cost efficiency.
- Multi-layered coating delivers outstanding productivity and reliability.

- Anwendungen

- Für Kohlenstoffstähle, legierte Stähle und Gusseisen.
- Halterlänge: 3xD, 5xD, 8xD

- Vorteile

- Sicheres und schnelles Spannsystem.
- Hohe Leistungsfähigkeit bei gleichzeitiger Kosteneffizienz.
- Mehrschichtige Beschichtung bietet hervorragende Produktivität und Zuverlässigkeit.



p.A34



Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER	D245 - 246	-	-
ER COLLET CHUCK			D73 - 115

Unit : mm

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

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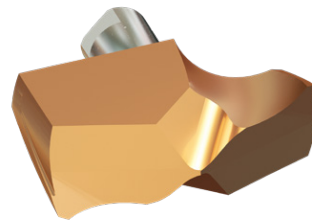
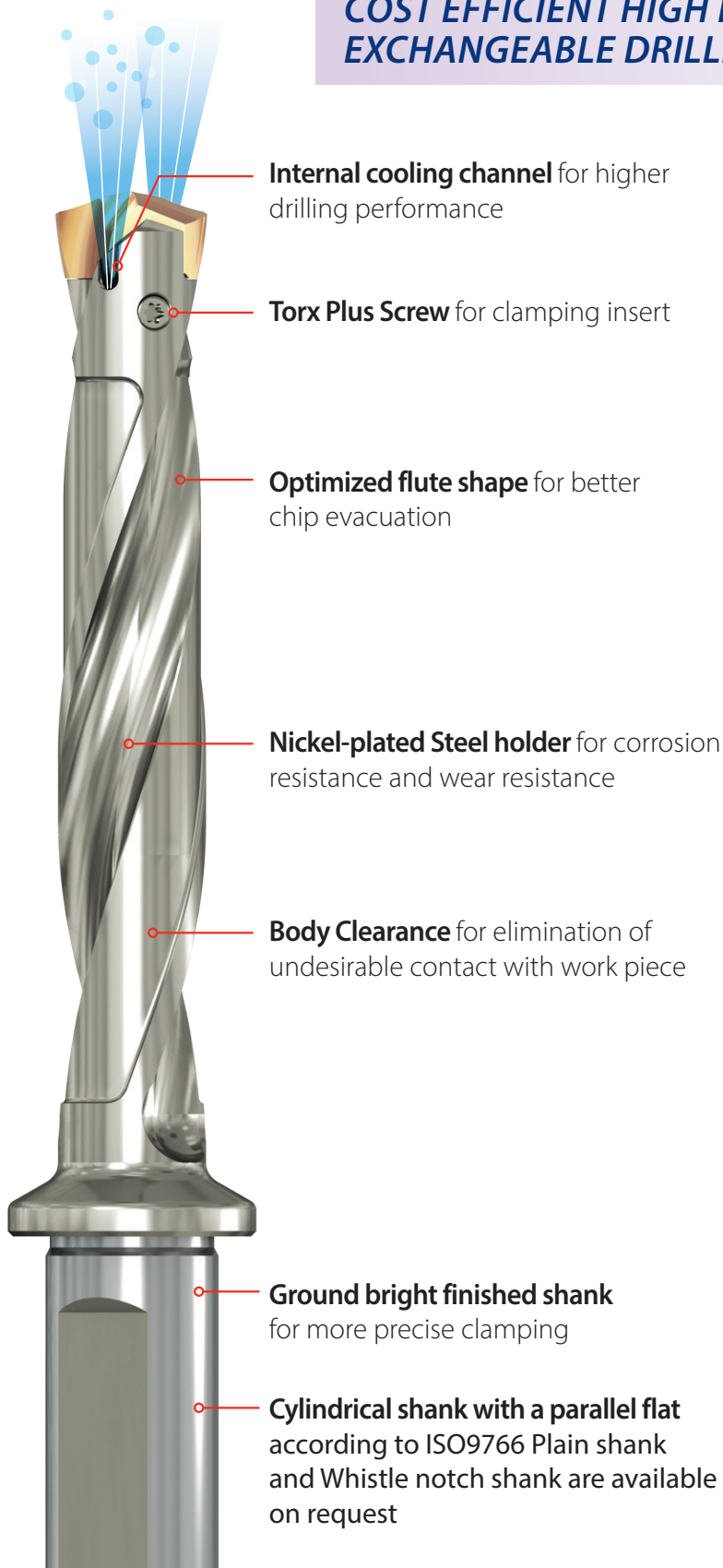
► Other diameters of insert and shank types of holder are available upon request.

◎ : Excellent ○ : Good

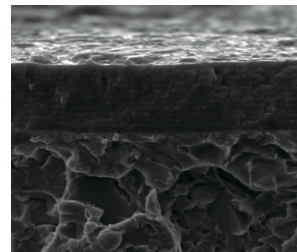
ISO	P											M				K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel and tool steel		Stainless steel		Duplex	Grey cast iron		Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14		15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10		10	26	3	25		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	180	260	160	250	130	230	
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎					◎	◎	◎	◎	◎	◎	
ISO	N										S							H				
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys			Hardened steel		Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc											15	30	25	38	34			55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommended																						

Micro Grain Carbide Inserts and Premium Tool Steel 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

SELECTION GUIDE



SERIES

SIZE MIN

SIZE MAX

PAGE

SURFACE TREATMENT

Y101H	Y121H	Y141H	Y161H
10.00	12.00	14.00	16.00
11.91	13.90	15.90	17.90
A24	A25	A26	A27

H-Coating

CARBIDE INSERTS & HOLDERS

i-ONE DRILLS

High Performance Exchangeable
for General Steels and Cast Iron



Please visit
globalyg1.com/mat
for material search

◎ : 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	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				

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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.

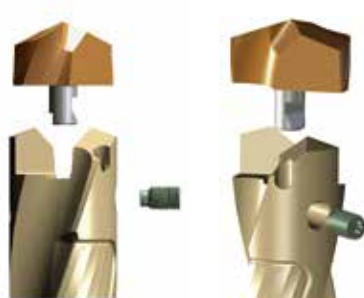
Comparison with Split Point Drill, Spade Drill & Dream Drill



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.



Torx Plus® Screw

Torx Plus® Wrench



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

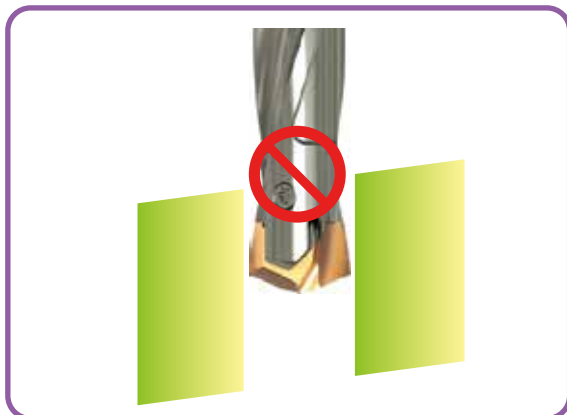
Benutzen Sie den Winkeldreher oder T - Schlüsse

- ▶ 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

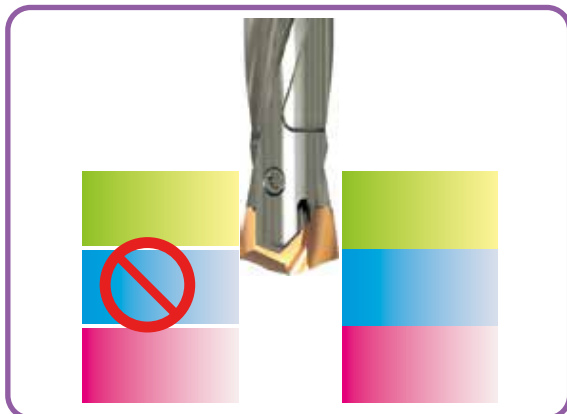

Intersecting cross hole is bigger than the drill insert's Margin Length.

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).

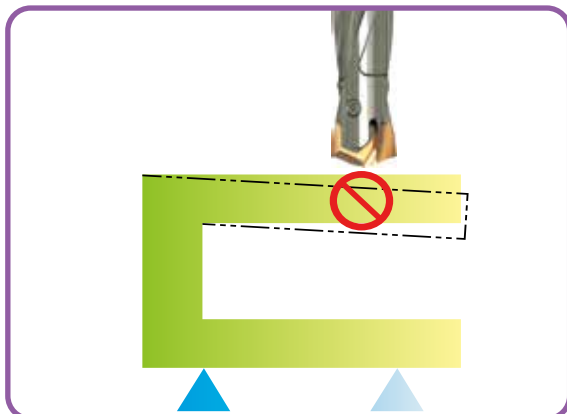


For drilling stacked plates, minimize the space between the plates.

Beim Bohren von Blechpaketen den Abstand der Bleche minimieren.

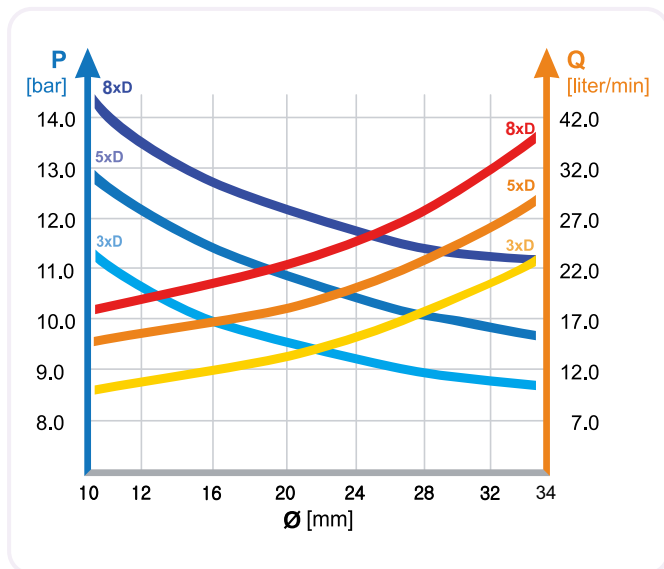
The space between stacked plates can cause insert breakage or poor chip control.

Freiraum in Blechpaketen kann den Bruch des Schneideinsatzes oder schlechte Entspanung 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



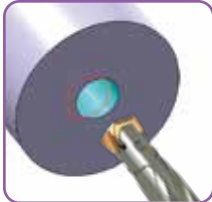
- 3) Build-up on cutting edge**
- Increase cutting speed
 - Use a coated insert



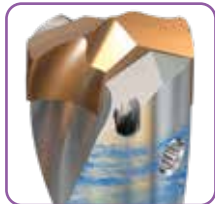
- 4) Chipping or break down on outer corner**
- Reduce feed
 - Rigid clamping of workpiece



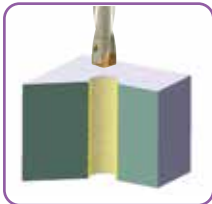
- 5) Wear of land margin**
- Rigid clamping of workpiece
 - Reduce cutting speed
 - Increase coolant flow



- 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