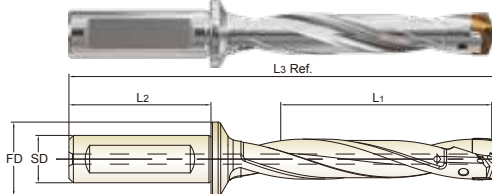
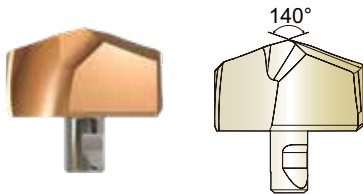


**i-ONE DRILL INSERTS & HOLDERS**

- 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.  
 ▶ 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.



CARBIDE ISO 9766 h7 140° Coating p.A34

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

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 L1	Overall Length L3 Ref.	Screw No.						
		h7															
		dec.	frac.	mm													
<b>S16</b> Ø16.00 to Ø17.99	<b>Y161H1600</b>	0.6299	-	16.00	<b>ZD16003020</b>	20	50	25	3D	51.0	127.0						
	<b>Y161H1609</b>	0.6335	-	16.09													
	<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>ZD16008020</b>	20	50	25	5D	85.0	160.0						
	<b>Y161H1670</b>	0.6575	-	16.70													
	<b>Y161H1680</b>	0.6614	-	16.80													
	<b>Y161H1690</b>	0.6654	-	16.90													
	<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>ZD17003020</b>	20	50	25	3D	54.0	130.0							
<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														
											<b>ZD17008020</b>	20	50	25	5D	90.0	165.0

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

◎ : Excellent ○ : Good

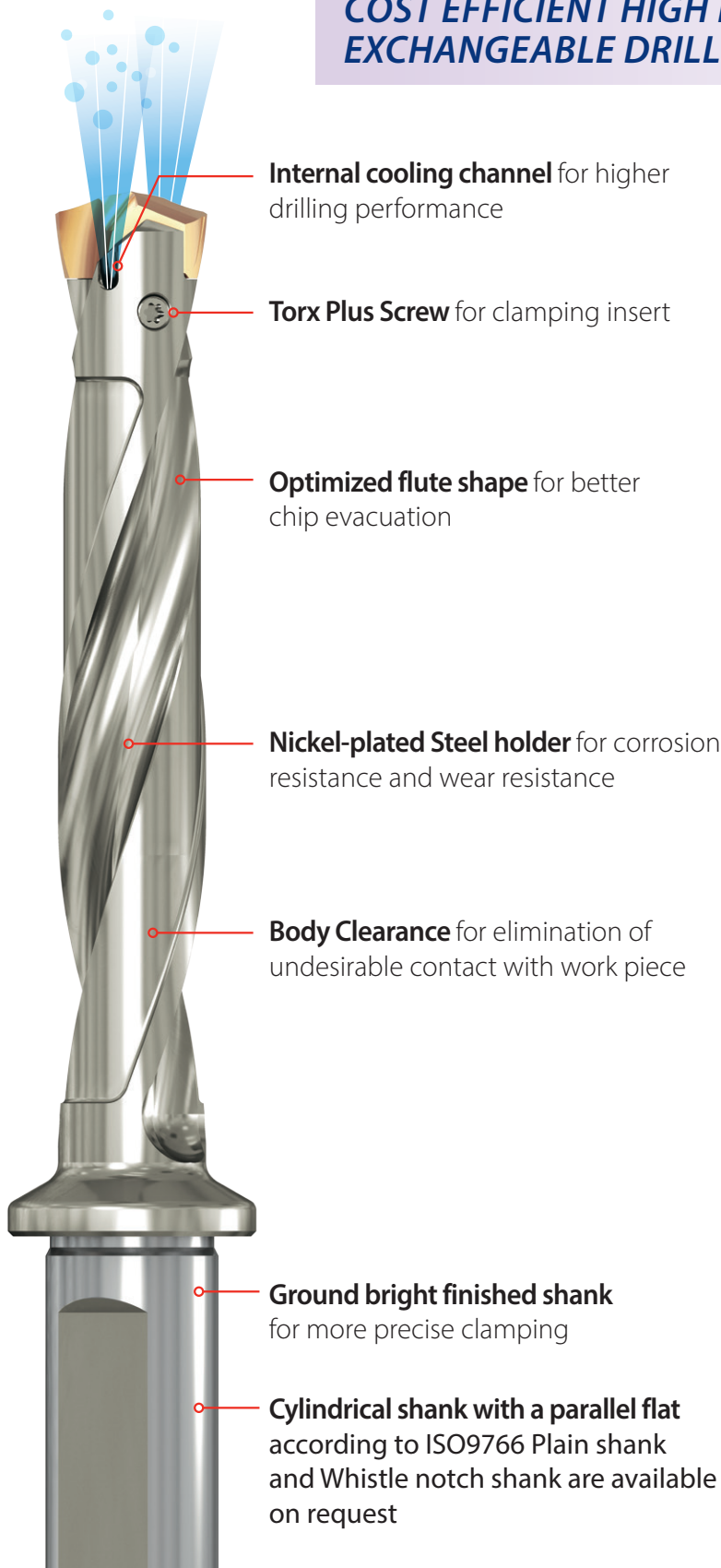
ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Duplex	Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	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 Holder with Coolant Holes

#### *COST EFFICIENT HIGH PERFORMANCE EXCHANGEABLE DRILLING TOOLS*



**Internal cooling channel** for higher drilling performance

**Torx Plus Screw** for clamping insert

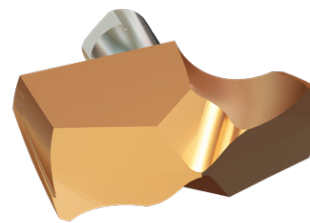
**Optimized flute shape** for better chip evacuation

**Nickel-plated Steel holder** for corrosion resistance and wear resistance

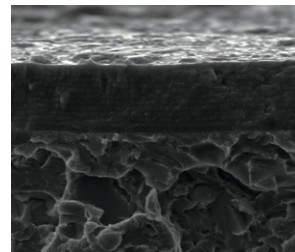
**Body Clearance** for elimination of undesirable contact with work piece

**Ground bright finished shank** for more precise clamping

**Cylindrical shank with a parallel flat** according to 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

SELECTION GUIDE



SERIES

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

SIZE MIN

SIZE MAX

PAGE

SURFACE TREATMENT

H-Coating

CARBIDE INSERTS & HOLDERS

*i*-ONE DRILLS

High Performance Exchangeable  
for General Steels and Cast Iron



Please visit  
[globalyg1.com/mat](http://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	Low alloy steel	About 0.75% C Annealed	270	28	◎	◎	◎	◎
	5		About 0.75% C Quenched & Tempered	300	32	◎	◎	◎	◎
	6		Annealed	180	10	◎	◎	◎	◎
	7		Quenched & Tempered	275	29	◎	◎	◎	◎
	8	High alloyed steel, and tool steel	Quenched & Tempered	300	32	◎	◎	◎	◎
	9		Quenched & Tempered	350	38	◎	◎	◎	◎
	10		Annealed	200	15	◎	◎	◎	◎
	11		Quenched & Tempered	325	35	◎	◎	◎	◎
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15				
	13		Martensitic Quenched & Tempered	240	23				
	14	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		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>A28</b>	<b>A29</b>	<b>A30</b>	<b>A31</b>	<b>A32</b>		<b>A33</b>				
<b>H-Coating</b>								<b>3XD</b>	<b>5XD</b>	<b>8XD</b>



⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙				1
⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙				2
⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙				3
⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙				4
⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙				5
⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙				6
⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙				7
⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙				8
⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙				9
⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙				10
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											13
											14
⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙				15
⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙				16
⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙				17
⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙				18
⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙				19
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HSS

i-ONE DRILLS

i-DREAM DRILLS

DREAM DRILLS -PRO

DREAM DRILLS -GENERAL

DREAM DRILLS -HIGH FEED

DREAM DRILLS -FLAT BOTTOM

DREAM DRILLS -INOX

DREAM DRILLS -ALU

DREAM DRILLS -MQL

DREAM DRILLS for HIGH HARDENED STEELS

GENERAL CARBIDE DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

SUPER-GP DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

REAMERS

COUNTER SINKS

COUNTER BORES

TECHNICAL DATA

VC = M/MIN  
RPM = rev./min.  
FEED = mm/rev.

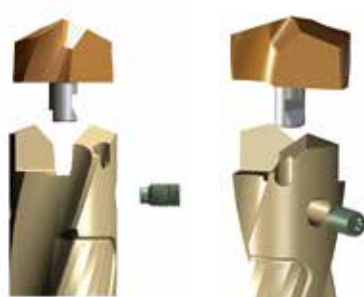
ISO	VDI 3323	Material Description	Vc (m/min)	Feed(mm/rev)					
				Ø10.0-11.99	Ø12.09-14.99	Ø15.00-17.99	Ø18.00-21.99	Ø22.0-26.9	Ø27.0-33.99
P	1	Non-alloy steel	100-126	0.14-0.24	0.18-0.31	0.23-0.39	0.30-0.44	0.37-0.57	0.41-0.61
	2		84-110	0.12-0.21	0.15-0.26	0.23-0.39	0.30-0.44	0.37-0.57	0.41-0.61
	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.



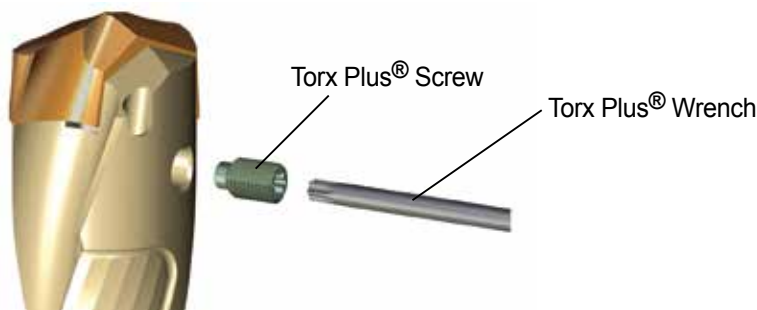
**ASSEMBLY OF i-ONE DRILLS**  
**MONTAGE DES i-ONE DRILLS**




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

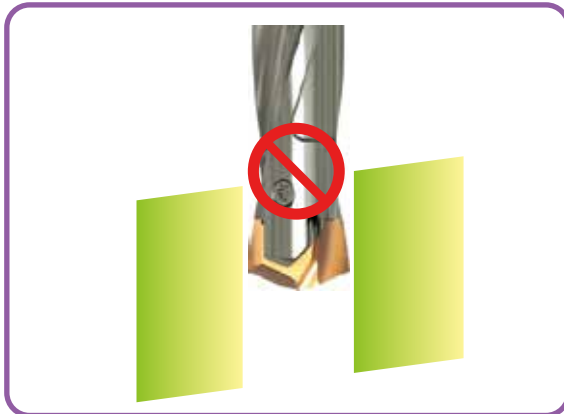
Use the Torx Plus wrench  
 Benutzen Sie den Winkeldreher oder T - Schlüsse

- ▶ 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**

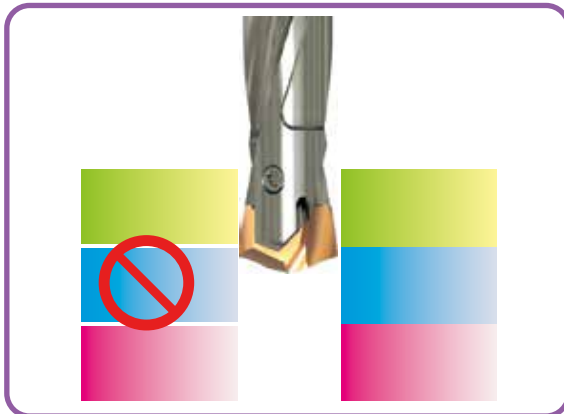

Intersecting cross hole is bigger than the drill insert's Margin Length.

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).

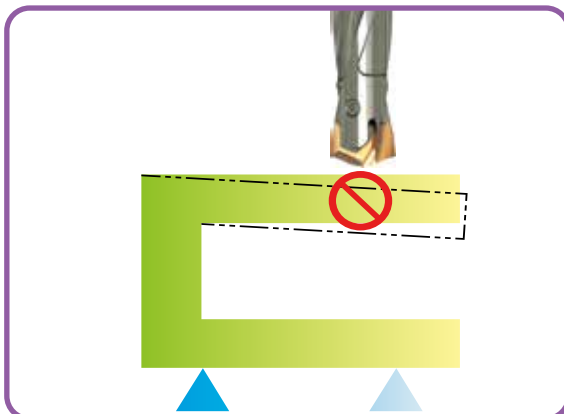


For drilling stacked plates, minimize the space between the plates.

Beim Bohren von Blechpaketen den Abstand der Bleche minimieren.

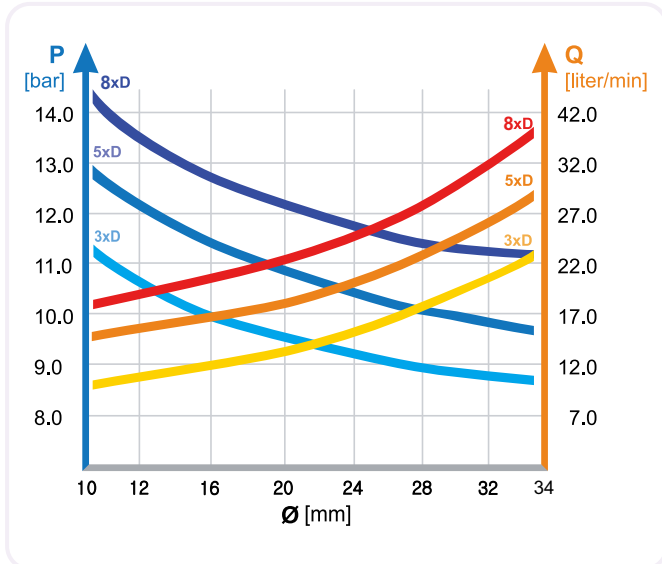
The space between stacked plates can cause insert breakage or poor chip control.

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



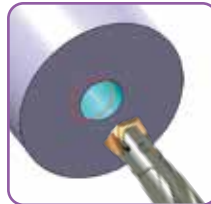
- 3) Build-up on cutting edge**
- Increase cutting speed
  - Use a coated insert



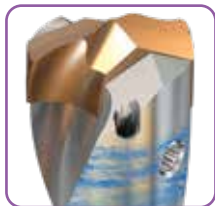
- 4) Chipping or break down on outer corner**
- Reduce feed
  - Rigid clamping of workpiece



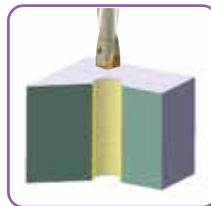
- 5) Wear of land margin**
- Rigid clamping of workpiece
  - Reduce cutting speed
  - Increase coolant flow



- 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