i - DREAM DRILLS

YA1A SERIES
YA2C SERIES

i-DREAM DRILL INSERTS & HOLDERS

i-DREAM DRILL EINSÄTZE UND HALTER
PLAQUETTES ET PORTE-PLAQUETTE I-DREAM DRILL - USAGE GÉNÉRAL / INOX
INSERTI & PORTAINSERTI i-DREAM DRILL

- Features of *i*-*Dream Drill* Inserts-
Merkmale des i-Dream Drill Einsätze

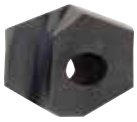
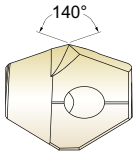
▶ Secure and accurate seating resulting in accurate repeatability and concentricity.
Der sichere und genaue Sitz der Platte garantiert genaue Wiederholbarkeit beim Einsatz und beim Rundlauf.

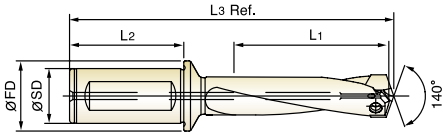
i-Dream Drill ***General*** */ i-Dream Drill* ***allgemeinen***
▶ For most steels materials / In den meisten Stahlsorten

i-Dream Drill ***INOX*** */ i-Dream Drill* ***INOX***
▶ For tough, ductile materials and stainless steels
Für zähe, verformbare Werkstoffe und rostfreie Stähle.
▶ Light, sharp cutting edge / Scharfe Schneidkante
▶ Soft cutting action / Weicher Schnitt
▶ Minimize cutting forces / Minimaler Schneidendruck
▶ Reduce built-up edge / Reduzierte Gratbildung

- Features of *i*-*Dream Drill* Holders-
- Merkmale des i-Dresm Drill Halters-

▶ Special Alloy Steels maintain its hardness and toughness under high temperatures.
Speziell legierter Stahl, der seine Härte und Zähigkeit auch bei hohen Temperaturen behält.
▶ Innovative surface treatment improves wear resistance and reduces corrosion.
Innovative Oberflächenbehandlung, die die Verschleissfestigkeit erhöht und die Korrosion vermindert.
▶ High Performance flute design allows maximum chip evacuation and minimum interference.
Optimierte Nutenform für maximale Spanabfuhr.

CARBIDE | ISO 9766 | h7 | 140° | TiAlN | TiCN

p.A54, 55

Recommended ToolHolder

	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	Screw No.
(mm)	General (TiAlN)	INOX (TiCN)	h7 dec.	h7 frac.	h7 mm		SD	L2	FD	L1		L3 Ref.	
A Ø12.00 to Ø13.99	YA1A1200	YA2C1200	.4724	-	12.00	ZH12003020	20	50	25	3D	36	112.4	TX1213T08
	YA1A1210	YA2C1210	.4764	-	12.10								
	YA1A1220	YA2C1220	.4803	-	12.20	ZH12005020				5D	60	136.4	
	YA1A1230	YA2C1230	.4844	31/64	12.30	ZH12007020				7D	84	160.4	
	YA1A1250	YA2C1250	.4921	-	12.50	ZH12503020	20	50	25	3D	37.5	113.4	
	YA1A1260	YA2C1260	.4961	-	12.60								
	YA1A1270	YA2C1270	.5000	1/2	12.70	ZH12505020				5D	62.5	138.4	
	YA1A1280	YA2C1280	.5039	-	12.80								
	YA1A1290	YA2C1290	.5079	-	12.90	ZH12507020				7D	87.5	163.4	
	YA1A1300	YA2C1300	.5118	-	13.00	ZH13003020	20	50	25	3D	39	115.4	TX1314T08
	YA1A1310	YA2C1310	.5156	33/64	13.10								
	YA1A1320	YA2C1320	.5197	-	13.20	ZH13005020				5D	65	141.4	
	YA1A1349	YA2C1349	.5312	17/32	13.49	ZH13007020				7D	91	167.4	
	YA1A1350	YA2C1350	.5315	-	13.50	ZH13503020	20	50	25	3D	40.5	116.4	
	YA1A1360	YA2C1360	.5354	-	13.60								
	YA1A1370	YA2C1370	.5394	-	13.70	ZH13505020				5D	67.5	143.4	
	YA1A1380	YA2C1380	.5433	-	13.80								
	YA1A1389	YA2C1389	.5469	35/64	13.89	ZH13507020				7D	94.5	170.4	

▶ 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			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
YA1A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				◎	◎	◎	◎	◎	◎
YA2C	○	○	○	○		○	○			○		◎	◎	◎						

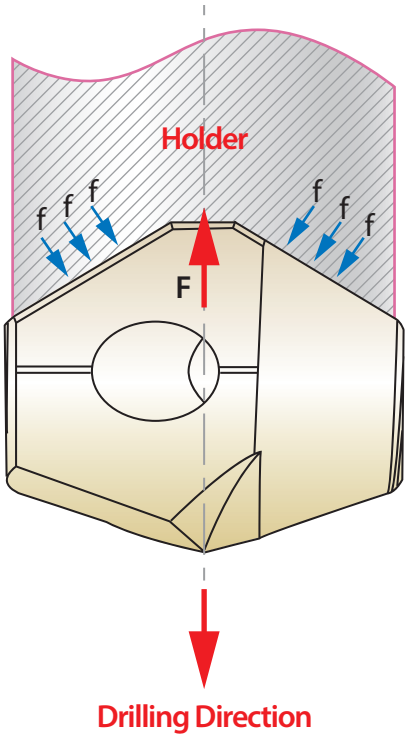
ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	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
YA1A																					
YA2C	○	○	○	○	○	○	○	○													

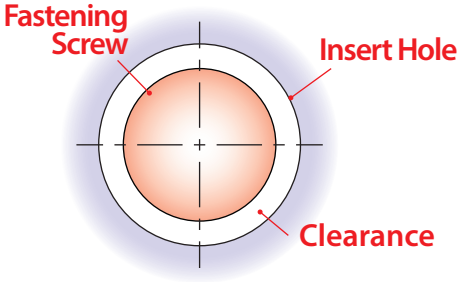
i - DREAM DRILLS

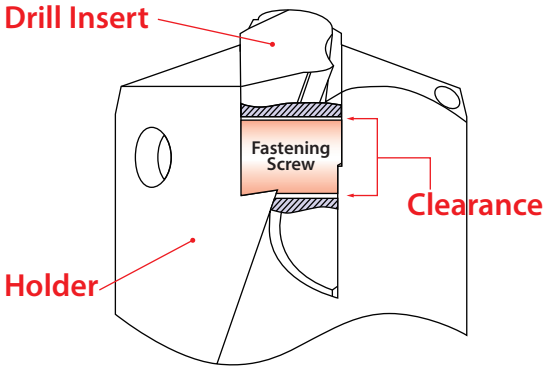
Reference page : p.A39 - p.A58

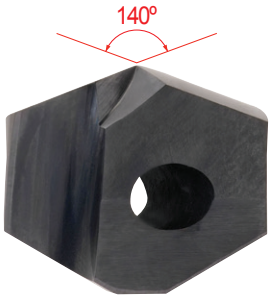
Stable Insert locking System

- V type locking system allowed for stabilized drilling
- Design that fastening screw doesn't touch insert to protect the insert locking system from the vibration during the drilling cycle









Self-Centering 140° Point & Helical Thinning

- Excellent Centering
- Minimized cutting resistance
- Design for maximum toughness, hardness and chip evacuation
- High penetration rate
- Reduced heat from cutting edge processing to allow long tool life
- Lower required torque and horsepower

CARBIDE INSERTS & HOLDERS
i-DREAM DRILLS

For General Steels and Stainless Steels

SERIES	YA1A	YA2C	YB1A	YB2C
TYPE	A		B	
SIZE MIN	12.00		14.00	
SIZE MAX	13.89		15.87	
PAGE	A44		A45	
SURFACE TREATMENT	TiAlN	TiCN	TiAlN	TiCN


Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A54, 55

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	YA1A	YA2C	YB1A	YB2C
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		Ni or Co Based	Annealed	250	25				
	34			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				

i - DREAM DRILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

YA1A, YB1A, YC1A, YD1A, YE1A, YF1A, YG1A, YH1A, YI1A, YJ1A SERIES

i-DREAM DRILLS - GENERAL

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

ISO	VDI 3323	Material Description	Vc (m/min)	Feed(mm/rev)				
				Ø12.00-14.99	Ø15.00-17.99	Ø18.00-21.99	Ø22.00-26.99	Ø27.00-31.99
P	1	Non-alloy steel	95-120	0.16-0.28	0.21-0.35	0.27-0.40	0.34-0.52	0.37-0.55
	2		80-105	0.14-0.24	0.21-0.35	0.27-0.40	0.34-0.52	0.37-0.55
	3		60-80	0.12-0.20	0.17-0.28	0.22-0.32	0.30-0.46	0.33-0.49
	4		55-70	0.10-0.16	0.15-0.25	0.21-0.30	0.25-0.38	0.29-0.43
	5		55-70	0.10-0.16	0.15-0.25	0.21-0.30	0.25-0.38	0.29-0.43
	6	Low alloy steel	70-90	0.12-0.20	0.17-0.28	0.22-0.32	0.30-0.46	0.34-0.50
	7		60-80	0.12-0.20	0.15-0.25	0.22-0.32	0.30-0.46	0.34-0.50
	8		55-70	0.10-0.16	0.13-0.21	0.21-0.30	0.25-0.38	0.29-0.43
	9		45-60	0.08-0.12	0.13-0.21	0.21-0.30	0.25-0.38	0.29-0.43
	10	High alloyed steel, and tool steel	50-65	0.10-0.16	0.13-0.21	0.18-0.26	0.20-0.31	0.24-0.35
	11		40-55	0.10-0.16	0.11-0.18	0.21-0.30	0.20-0.31	0.24-0.35
K	15	Grey cast iron	100-125	0.15-0.26	0.20-0.37	0.27-0.42	0.36-0.51	0.40-0.55
	16		75-95	0.11-0.20	0.16-0.29	0.20-0.30	0.25-0.35	0.29-0.40
	17	Nodular cast iron	95-120	0.13-0.22	0.17-0.31	0.21-0.32	0.28-0.40	0.32-0.44
	18		75-95	0.11-0.20	0.14-0.26	0.19-0.29	0.25-0.35	0.29-0.40
	19	Malleable cast iron	100-125	0.13-0.22	0.17-0.31	0.21-0.32	0.28-0.40	0.32-0.44
	20		75-95	0.11-0.18	0.14-0.26	0.19-0.29	0.25-0.35	0.29-0.40

▶ 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, 7xD holders.
▶ For use of 7xD 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 | Dream Drill

Spade Drill | i-Dream Drill

YA2C, YB2C, YC2C, YD2C, YE2C, YF2C, YG2C, YH2C, YI2C, YJ2C SERIES

i-DREAM DRILLS - INOX

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

ISO	VDI 3323	Material Description	Vc (m/min)	Feed(mm/rev)				
				Ø12.00-14.99	Ø15.00-17.99	Ø18.00-21.90	Ø22.00-26.99	Ø27.00-31.99
P	1	Non-alloy steel	**95-120**	0.16-0.28	0.21-0.35	0.27-0.40	0.34-0.52	0.37-0.55
	2		**80-105**	0.14-0.24	0.21-0.35	0.27-0.40	0.34-0.52	0.37-0.55
	3		**60-80**	0.12-0.20	0.17-0.28	0.22-0.32	0.30-0.46	0.33-0.49
	4		**55-70**	0.10-0.16	0.15-0.25	0.21-0.30	0.25-0.38	0.29-0.43
	6	Low alloy steel	**70-90**	0.12-0.20	0.17-0.28	0.22-0.32	0.30-0.46	0.34-0.50
	7		**60-80**	0.12-0.20	0.15-0.25	0.22-0.32	0.30-0.46	0.34-0.50
	10	High alloyed steel, and tool steel	**50-65**	0.10-0.16	0.13-0.21	0.18-0.26	0.20-0.31	0.24-0.35
M	12	Stainless steel	**30-45**	0.08-0.14	0.09-0.15	0.10-0.16	0.12-0.20	0.14-0.22
	13		**30-45**	0.08-0.14	0.09-0.15	0.10-0.16	0.12-0.20	0.14-0.22
	14		**45-60**	0.10-0.16	0.12-0.18	0.14-0.20	0.15-0.26	0.18-0.28
N	21	Aluminum-wrought alloy	**250-330**	0.30-0.40	0.35-0.45	0.40-0.50	0.45-0.55	0.50-0.60
	22		**200-250**	0.30-0.40	0.35-0.45	0.40-0.50	0.45-0.55	0.50-0.60
	23	Aluminum-cast, alloyed	**200-250**	0.25-0.35	0.30-0.40	0.35-0.45	0.40-0.50	0.45-0.55
	24		**150-220**	0.25-0.35	0.30-0.40	0.35-0.45	0.40-0.50	0.45-0.55
	25		**100-200**	0.20-0.30	0.25-0.35	0.30-0.40	0.35-0.45	0.40-0.50
	26	Copper and Copper Alloys (Bronze / Brass)	**115-145**	0.16-0.28	0.23-0.36	0.29-0.36	0.37-0.45	0.41-0.48
	27		**145-185**	0.17-0.29	0.24-0.37	0.30-0.38	0.38-0.46	0.42-0.49
	28		**95-120**	0.06-0.09	0.09-0.13	0.11-0.13	0.15-0.18	0.19-0.22

▶ 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, 7xD holders.
▶ For use of 7xD 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.

i - DREAM DRILLS

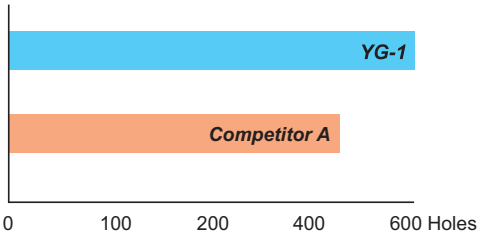
Reference page : p.A39 - p.A58

TEST I GENERAL

Cutting Condition

HOLDER	ZH14505020
INSERT	YB1A1450 / Ø14.5
Work Material	- ASTM : A36 - DIN : St37-2 - JIS : SS400
Cutting Speed	80 m/min
Feed	0.24 mm/rev.
Feedrate	421 mm/min.
RPM	1,756 rev./min.
Drilling	48.0 mm
Coolant	Internal
Machine type	Vertical Machining Center

RESULT



▶ YG-1 (Total Drilling 600 Holes)

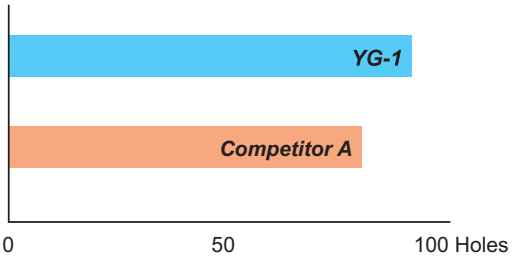
▶ Competitor A (Total Drilling 470 Holes)

TEST II INOX

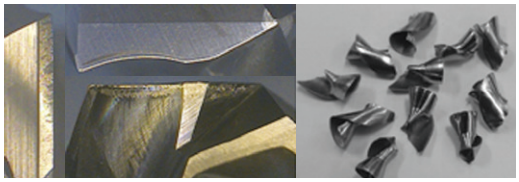
Cutting Condition

HOLDER	ZH14005020
INSERT	YB2C1400 / Ø14.0
Work Material	- AISI : 304 - DIN : X5CrNi189 - JIS : SUS304
Cutting Speed	55 m/min
Feed	0.15 mm/rev.
Feedrate	188 mm/min.
RPM	1,250 rev./min.
Drilling	50.0 mm
Coolant	Internal
Machine type	Vertical Machining Center

RESULT



▶ YG-1 (Total Drilling 100 Holes)



▶ Competitor A (Total Drilling 80 Holes)

ASSEMBLY OF *i* -DREAM DRILLS
MONTAGE DES i-DREAM 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.

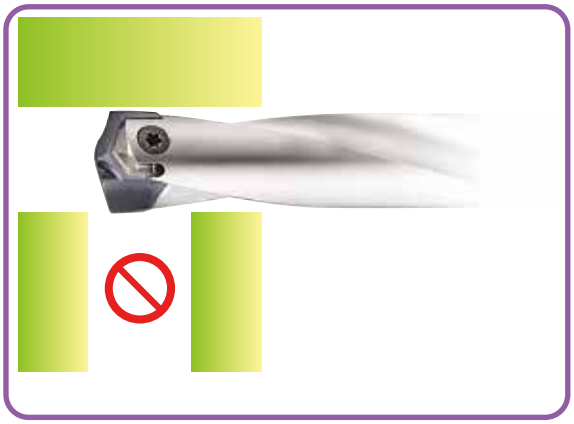
After confirming the insert is pressed down to the bottom of the slot, tighten the screw using anti-seize compound.
Wenn der Schneideinsatz fest auf den Grund des Haltersitzes gepresst ist, die Schraube fest anziehen und dabei Spezialfett verwenden.

WRENCH TYPE	PRODUCT NO.	T-HANDLE No.	SERIES (SIZE)
WING TYPE 	TWWT08	—	A (Ø12.00-Ø13.99)
			B (Ø14.00-Ø15.99)
			C (Ø16.00-Ø17.99)
TORX BIT TYPE 	TWBT15	TWH600 	D (Ø18.00-Ø19.99)
	TWBT20		E, F, G (Ø20.00-Ø25.99)
	TWBT25		H, I, J (Ø26.00-Ø31.99)

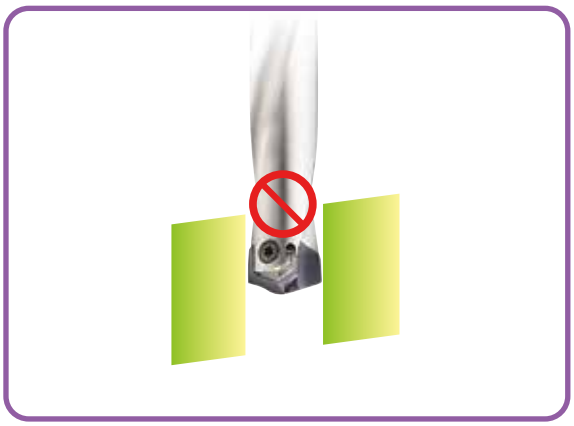
Use the wing type or T-type wrench.
Benutzen Sie den Winkeldreher oder T - Schlüsse

- ▶ 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

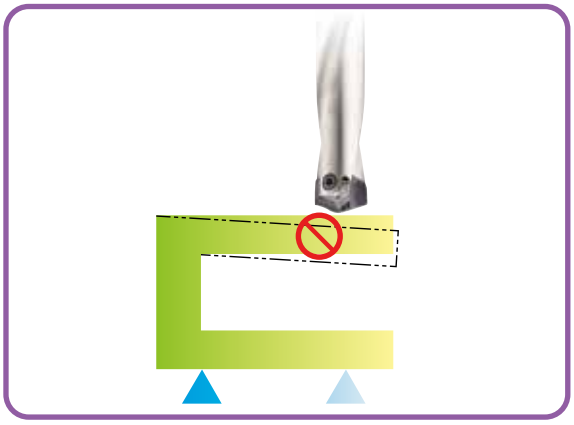


Intersecting cross hole is bigger than the drill insert's Margin Length.
Der Haltersitz ist größer als die Breite des Schneideinsatzes.



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.

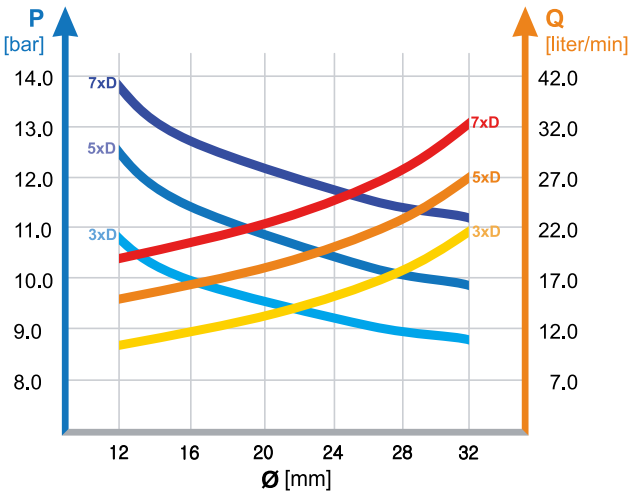


The material needs to be fixtured securely before drilling.
Das Werkstück muss fest und sicher aufgespannt sein

i - DREAM DRILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

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