



# CARBIDE INSERT

Being the best through innovation



# *i* - Dream Drills

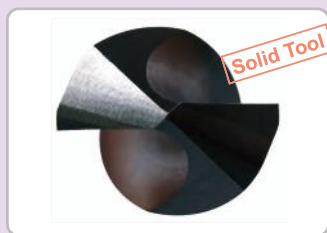
用于普通钢和不锈钢

Available for General Steels and for Stainless Steels

# SELECTION GUIDE

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<b>YA1A / YB1A</b>		一般-梦幻钻 / i-Dream Drill General	<b>34</b>
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<b>YB1A / YC1A</b>		一般-梦幻钻 / i-Dream Drill General	<b>35</b>
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<b>YG2C / YH2C</b>		不锈钢用的 i-梦幻钻 / i-Dream Drill INOX	
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推荐的切削条件 RECOMMENDED CUTTING CONDITIONS			<b>40</b>

## 与开裂式顶尖钻, 铲钻和梦幻钻进行对照 Comparison with Split Point Drill, Spade Drill & Dream Drill



Normal Split Point Drill



Dream Drill



Spade Drill



i-Dream Drill

# i-DREAM DRILLS, CARBIDE INSERT

◎ : 优(Excellent)  
○ : 良(Good)

普通钢 易切削钢 Non- alloyed Steels, Free Machining Steels	碳钢		合金钢		高合金钢		结构钢		工具钢		不锈钢	铸铁		铝	铜合金
	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	~HRc24 (~HB250)	~HRc28 (~HB275)	HRc28~ (HB275~)	~HRc28 (~HB275)	HRc28~ (HB275~)	~HRc37 (~HB350)	HRc37~ (HB350~)	~HRc24 (~HB250)	HRc24~ (HB250~)	~HRc13 (~HB200)	HRc13~ (HB200~)	~HRc28 (~HB275)	~HRc19 (~HB220)	HRc19~ (HB220~)	~HRc8 (~HB180)
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# i-梦幻钻 刀片 & 刀柄

## i-DREAM DRILL INSERTS & HOLDERS

**- i-梦幻钻刀片 优点**

Features of i-Dream Drill Inserts

- ▶ 牢固精确的底座可以使产品重复使用而不影响精度。  
Secure and accurate seating resulting in accurate repeatability and concentricity.

一般i-梦幻钻 / i-Dream Drill General

- ▶ 适用于大多数钢材 / For most steels materials

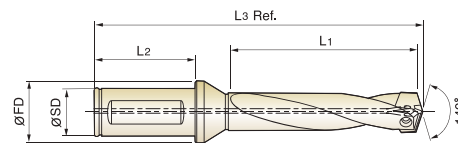
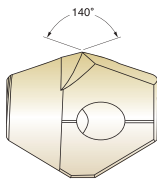
不锈钢用的 i-梦幻钻 / i-Dream Drill INOX :

- ▶ 适用于比较坚韧的材质和不锈钢  
For tough, ductile materials and stainless steels
- ▶ 具有轻而锋利的切削刃 / Light, sharp cutting edge
- ▶ 有软切削作用 / Soft cutting action
- ▶ 可以减少切削力 / Minimize cutting forces
- ▶ 减少积屑瘤 / Reduce built-up edge

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Features of i-Dream Drill Holders

- ▶ 特殊的合金钢材质使产品在高温下仍能保持其硬度和韧性  
Special Alloy Steels that maintains its hardness and toughness under high temperatures.
- ▶ 新开发的表面处理方式可以提高产品的耐磨性并减少腐蚀  
Innovative surface treatment that improves wear resistance and reduces corrosion.
- ▶ 高性能的沟槽设计使排屑最大化和阻碍最小化  
High Performance flute design allowing maximum chip evacuation and minimum interference.



切削条件 /cutting conditions:p.40~41

Series Range (mm)	Insert EDP No.		Insert O.D.			Drilling Depth	Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Flute Length L1	Overall Length L3 Ref.	Clamping Screw No.
	General (TiAlN)	INOX (TiCN)	dec.	frac.	mm								
A Ø12.00 to Ø13.99	YA1A1200	YA2C1200	0.4724		12.00	3D	ZH12003020				52	121	TX1213T08
	YA1A1210	YA2C1210	0.4764		12.10	5D	ZH12005020	20	50	25	77	146	
	YA1A1220	YA2C1220	0.4803		12.20	7D	ZH12007020				101	170	
	YA1A1230	YA2C1230	0.4844	31/64	12.30								
	YA1A1250	YA2C1250	0.4921		12.50								
	YA1A1260	YA2C1260	0.4961		12.60	3D	ZH12503020				54	122	
	YA1A1270	YA2C1270	0.5000	1/2	12.70	5D	ZH12505020	20	50	25	80	148	
	YA1A1280	YA2C1280	0.5039		12.80	7D	ZH12507020				106	174	
	YA1A1290	YA2C1290	0.5079		12.90								
	YA1A1300	YA2C1300	0.5118		13.00	3D	ZH13003020				56	124	
	YA1A1310	YA2C1310	0.5156	33/64	13.10	5D	ZH13005020	20	50	25	83	151	
	YA1A1320	YA2C1320	0.5197		13.20	7D	ZH13007020				110	178	
	YA1A1349	YA2C1349	0.5312	17/32	13.49								
	YA1A1350	YA2C1350	0.5315		13.50								
	YA1A1360	YA2C1360	0.5354		13.60	3D	ZH13503020				57	125	
	YA1A1370	YA2C1370	0.5394		13.70	5D	ZH13505020	20	50	25	85	153	
	YA1A1380	YA2C1380	0.5433		13.80	7D	ZH13507020				113	181	
	YA1A1389	YA2C1389	0.5469	35/64	13.89								
B Ø14.00 to Ø15.99	YB1A1400	YB2C1400	0.5512		14.00								
	YB1A1410	YB2C1410	0.5551		14.10	3D	ZH14003020				59	126	
	YB1A1420	YB2C1420	0.5591		14.20	5D	ZH14005020	20	50	25	88	155	
	YB1A1429	YB2C1429	0.5625	9/16	14.29	7D	ZH14007020				117	184	
	YB1A1430	YB2C1430	0.5630		14.30								
	YB1A1440	YB2C1440	0.5669		14.40								

涂层: TiN, TiCN, TiAlN & Hardslick 可根据客户需求进行加工。 / Coating: TiN, TiCN, TiAlN & Hardslick are available on your request.

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	Non-alloyed Steels, Free Machining Steels	Carbon Steels	Alloy Steels	High Alloyed steels	Structural Steels	Tool Steels	Stainless Steels	Cast Iron	Aluminum	Copper Alloys
	~HRc24 (~HB250)	~HRc28 (~HB275)	HRc28~ (~HB275~)	~HRc28 HRc28~ (~HB275~)	~HRc37 HRc37~ (~HB350) (~HB350~)	~HRc24 HRc24~ (~HB250) (~HB250~)	~HRc13 HRc13~ (~HB200) (~HB200~)	~HRc28 (~HB275) (~HB220) (~HB220~)	HRc19~ (~HB180) (~HB180~)	~HRc8 (~HB110)
Y*1A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
Y*2C	○	○	○	○	○	○	◎	○	○	○



**YB1A / YB2C**  
**YC1A / YC2C**

**i-梦幻钻 刀片 & 刀柄**  
**i-DREAM DRILL INSERTS & HOLDERS**

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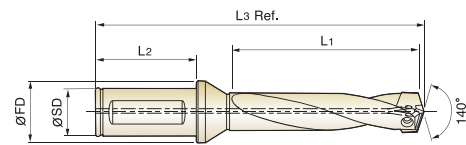
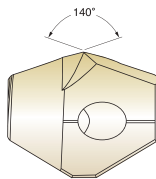
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	General (TiAIN)	INOX (TiCN)	dec.	frac.	mm								
B Ø14.00 to Ø15.99	YB1A1450	YB2C1450	0.5709		14.50	3D	ZH14503020				61	128	TX1415T08
	YB1A1460	YB2C1460	0.5748		14.60	5D	ZH14505020	20	50	25	91	158	
	YB1A1468	YB2C1468	0.5781	37/64	14.68	7D	ZH14507020				121	188	
	YB1A1480	YB2C1480	0.5827		14.80								
	YB1A1500	YB2C1500	0.5906		15.00								
	YB1A1508	YB2C1508	0.5938	19/32	15.08	3D	ZH15003020				63	130	
	YB1A1510	YB2C1510	0.5945		15.10	5D	ZH15005020	20	50	25	94	161	
	YB1A1520	YB2C1520	0.5984		15.20	7D	ZH15007020				125	192	
	YB1A1530	YB2C1530	0.6024		15.30								
	YB1A1548	YB2C1548	0.6094	39/64	15.48								
	YB1A1550	YB2C1550	0.6102		15.50								
	YB1A1560	YB2C1560	0.6142		15.60	3D	ZH15503020				65	131	
	YB1A1570	YB2C1570	0.6181		15.70	5D	ZH15505020	20	50	25	97	163	
	YB1A1580	YB2C1580	0.6220		15.80	7D	ZH15507020				128	194	
YB1A1587	YB2C1587	0.6250	5/8	15.87									
C Ø16.00 to Ø17.99	YC1A1600	YC2C1600	0.6299		16.00								TX1617T08
	YC1A1609	YC2C1609	0.6335		16.09	3D	ZH16003020				65	131	
	YC1A1620	YC2C1620	0.6378		16.20	5D	ZH16005020	20	50	25	98	164	
	YC1A1627	YC2C1627	0.6406	41/64	16.27	7D	ZH16007020				131	197	
	YC1A1630	YC2C1630	0.6417		16.30								
	YC1A1650	YC2C1650	0.6496		16.50	3D	ZH16503020				67	133	
	YC1A1667	YC2C1667	0.6562	21/32	16.67	5D	ZH16505020	20	50	25	101	167	
	YC1A1680	YC2C1680	0.6614		16.80	7D	ZH16507020				134	200	

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Y * 1A	◎	◎	◎	◎	◎	◎	◎	◎		
Y * 2C	○	○	○		○	○	◎		○	○

i-DREAM DRILLS

DREAM DRILLS -GENERAL

DREAM DRILLS -SOFT

DREAM DRILLS -INOX

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

GENERAL CARBIDE DRILLS

NC-SPOTTING DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

WORM PATTERN DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

TECHNICAL DATA



# i-梦幻钻 刀片 & 刀柄

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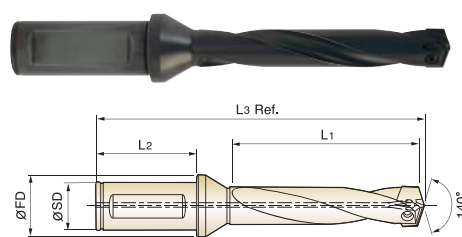
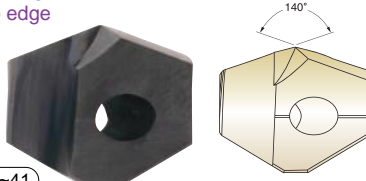
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切削条件 / cutting conditions: p.40~41

Series Range (mm)	Insert EDP No.		Insert O.D.			Drilling Depth	Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Flute Length	Overall Length	Clamping Screw No.
	General (TiAIN)	INOX (TiCN)	dec.	frac.	mm			SD	L2	FD	L1	L3 Ref.	
C Ø16.00 to Ø17.99	YC1A1700	YC2C1700	0.6693		17.00	3D	ZH17003020				69	134	TX1617T08
	YC1A1707	YC2C1707	0.6919	43/64	17.07	5D	ZH17005020	20	50	25	104	169	
	YC1A1746	YC2C1746	0.6875	11/16	17.46	7D	ZH17007020				139	204	
	YC1A1750	YC2C1750	0.6890		17.50	3D	ZH17503020				70	135	
	YC1A1780	YC2C1780	0.7008		17.80	5D	ZH17505020	20	50	25	106	171	
	YC1A1786	YC2C1786	0.7031	45/64	17.86	7D	ZH17507020				142	207	
D Ø18.00 to Ø19.99	YD1A1800	YD2C1800	0.7087		18.00	3D	ZH18003025				72	149	TX1819T15
	YD1A1826	YD2C1826	0.7188	23/32	18.26	5D	ZH18005025	25	56	32	109	186	
	YD1A1850	YD2C1850	0.7283		18.50	7D	ZH18007025				146	223	
	YD1A1865	YD2C1865	0.7283		18.50	3D	ZH18503025				74	150	
	YD1A1865	YD2C1865	0.7344	47/64	18.65	5D	ZH18505025	25	56	32	112	188	
	YD1A1880	YD2C1880	0.7402		18.80	7D	ZH18507025				150	226	
	YD1A1900	YD2C1900	0.7480		19.00	3D	ZH19003025				76	152	
	YD1A1905	YD2C1905	0.7500	3/4	19.05	5D	ZH19005025	25	56	32	115	191	
	YD1A1927	YD2C1927	0.7587		19.27	7D	ZH19007025				154	230	
	YD1A1945	YD2C1945	0.7656	49/64	19.45								
	YD1A1950	YD2C1950	0.7677		19.50	3D	ZH19503025				77	153	
	YD1A1980	YD2C1980	0.7795		19.80	5D	ZH19505025	25	56	32	117	193	
	YD1A1984	YD2C1984	0.7812	25/32	19.84	7D	ZH19507025				157	233	

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	普通钢 易切削钢	碳钢		合金钢		高合金钢		结构钢		工具钢		不锈钢	铸铁		铝	铜合金
	Non-alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	~HRc24 (~HB250)	~HRc28 (~HB275)	HRc28~ (HB275~)	~HRc28 (~HB275)	HRc28~ (HB275~)	~HRc37 (~HB350)	HRc37~ (HB350~)	~HRc24 (~HB250)	HRc24~ (HB250~)	~HRc13 (~HB200)	HRc13~ (HB200~)	~HRc28 (~HB275)	~HRc19 (~HB220)	HRc19~ (HB220~)	~HRc8 (~HB180)	~HB110
Y*1A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎		
Y*2C	○	○		○				○		○		◎			○	○



**YE1A / YE2C**  
**YF1A / YF2C**

HSS

# i-梦幻钻 刀片 & 刀柄

## I-DREAM DRILL INSERTS & HOLDERS

i-DREAM DRILLS

DREAM DRILLS -GENERAL

DREAM DRILLS -SOFT

DREAM DRILLS -INOX

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

GENERAL CARBIDE DRILLS

NC-SPOTTING DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

WORM PATTERN DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

TECHNICAL DATA

**- i-梦幻钻刀片 优点**

Features of i-Dream Drill Inserts

- ▶ 牢固精确的底座可以使产品重复使用而不影响精度。  
Secure and accurate seating resulting in accurate repeatability and concentricity.

一般i-梦幻钻 / i-Dream Drill General

- ▶ 适用于大多数钢材 / For most steels materials

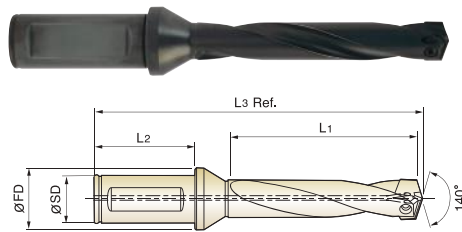
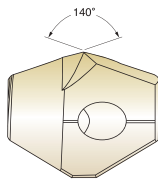
不锈钢用的 i-梦幻钻 / i-Dream Drill INOX :

- ▶ 适用于比较坚韧的材质和不锈钢  
For tough, ductile materials and stainless steels
- ▶ 具有轻而锋利的切削刃 / Light, sharp cutting edge
- ▶ 有软切削作用 / Soft cutting action
- ▶ 可以减少切削力 / Minimize cutting forces
- ▶ 减少积屑瘤 / Reduce built-up edge

**- i-梦幻钻刀柄 优点**

Features of i-Dream Drill Holders

- ▶ 特殊的合金钢材质使产品在高温下仍能保持其硬度和韧性  
Special Alloy Steels that maintains its hardness and toughness under high temperatures.
- ▶ 新开发的表面处理方式可以提高产品的耐磨性并减少腐蚀  
Innovative surface treatment that improves wear resistance and reduces corrosion.
- ▶ 高性能的沟槽设计使排屑最大化和阻碍最小化  
High Performance flute design allowing maximum chip evacuation and minimum interference.



切削条件 /cutting conditions:p.40~41

Series Range (mm)	Insert EDP No.		Insert O.D.			Drilling Depth	Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Flute Length		Overall Length	Clamping Screw No.
	General (TiAlN)	INOX (TiCN)	dec.	frac.	mm						L1	L3 Ref.		
E Ø20.00 to Ø21.99	YE1A2000	YE2C2000	0.7874		20.00	3D	ZH20003025				77	152	TX2021T20	
	YE1A2024	YE2C2024	0.7969	51/64	20.24	5D	ZH20005025	25	56	32	118	193		
	YE1A2050	YE2C2050	0.8071		20.50	7D	ZH20007025				159	234		
	YE1A2064	YE2C2064	0.8125	13/16	20.64	3D	ZH20503025				79	154		
	YE1A2070	YE2C2070	0.8150		20.70	5D	ZH20505025	25	56	32	121	196		
	YE1A2100	YE2C2100	0.8268		21.00	7D	ZH20507025				163	238		
	YE1A2103	YE2C2103	0.8281	53/64	21.03	3D	ZH21003025				81	156		
	YE1A2103	YE2C2103	0.8281	53/64	21.03	5D	ZH21005025	25	56	32	124	199		
	YE1A2143	YE2C2143	0.8438	27/32	21.43	7D	ZH21007025				167	242		
	YE1A2150	YE2C2150	0.8465		21.50	3D	ZH21503025				83	157		
YE1A2170	YE2C2170	0.8543		21.70	5D	ZH21505025	25	56	32	126	200			
YE1A2183	YE2C2183	0.8594	55/64	21.83	7D	ZH21507025				170	244			
F Ø22.00 to Ø23.99	YF1A2200	YF2C2200	0.8661		22.00	3D	ZH22003025				85	159	TX2223T20	
	YF1A2223	YF2C2223	0.8750	7/8	22.23	5D	ZH22005025	25	56	32	129	203		
	YF1A2250	YF2C2250	0.8858		22.50	7D	ZH22007025				174	248		
	YF1A2250	YF2C2250	0.8858		22.50	3D	ZH22503025				86	159		
	YF1A2262	YF2C2262	0.8906	57/64	22.62	5D	ZH22505025	25	56	32	132	205		
	YF1A2270	YF2C2270	0.8937		22.70	7D	ZH22507025				178	251		
	YF1A2300	YF2C2300	0.9055		23.00	3D	ZH23003025				88	161		
	YF1A2302	YF2C2302	0.9062	29/32	23.02	5D	ZH23005025	25	56	32	135	208		
	YF1A2342	YF2C2342	0.9219	59/64	23.42	7D	ZH23007025				182	255		
	YF1A2350	YF2C2350	0.9252		23.50	3D	ZH23503025				90	163		
YF1A2370	YF2C2370	0.9331		23.70	5D	ZH23505025	25	56	32	137	210			
YF1A2381	YF2C2381	0.9375	15/16	23.81	7D	ZH23507025				185	258			

涂层: TiN, TiCN, TiAlN & Hardslick可根据客户需求进行加工。 / Coating: TiN, TiCN, TiAlN & Hardslick are available on your request.

◎: 优(Excellent) ○: 良(Good)

	普通钢 易切削钢	碳钢		合金钢		高合金钢		结构钢		工具钢		不锈钢	铸铁		铝	铜合金
	Non-alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	~HRc24 (~HB250)	~HRc28 (~HB275)	HRc28~ (~HB275~)	~HRc28 (~HB275)	HRc28~ (~HB275~)	~HRc37 (~HB350)	HRc37~ (~HB350~)	~HRc24 (~HB250)	HRc24~ (~HB250~)	~HRc13 (~HB200)	HRc13~ (~HB200~)	~HRc28 (~HB275)	~HRc19 (~HB220)	HRc19~ (~HB220~)	~HRc8 (~HB180)	~HB110
Y*1A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎		
Y*2C	○	○	○	○	○	○	○	○	○	○	○	◎			○	○

**i-梦幻钻 刀片 & 刀柄**  
**i-DREAM DRILL INSERTS & HOLDERS**

**- i-梦幻钻刀片 优点**

**Features of i-Dresm Drill Inserts**

- ▶ 牢固精确的底座可以使产品重复使用而不影响精度。  
Secure and accurate seating resulting in accurate repeatability and concentricity.

一般i-梦幻钻 / i-Dream Drill General

- ▶ 适用于大多数钢材 / For most steels materials

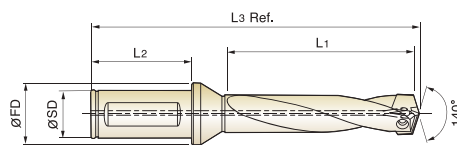
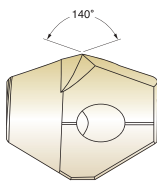
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High Performance flute design allowing maximum chip evacuation and minimum interference.



切削条件 / cutting conditions: p.40~41

Series Range (mm)	Insert EDP No.		Insert O.D.			Drilling Depth	Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Flute Length L1	Overall Length L3 Ref.	Clamping Screw No.
	General (TiAlN)	INOX (TiCN)	dec.	frac.	mm								
G Ø24.00 to Ø25.99	YG1A2400	YG2C2400	0.9449		24.00	3D	ZH24003032				91	172	TX2425T20
	YG1A2421	YG2C2421	0.9531	61/64	24.21	5D	ZH24005032	32	60	37	140	221	
	YG1A2450	YG2C2450	0.9646		24.50	7D	ZH24007032				189	270	
	YG1A2461	YG2C2461	0.9688	31/32	24.61	3D	ZH24503032				93	173	
	YG1A2461	YG2C2461	0.9688	31/32	24.61	5D	ZH24505032	32	60	37	143	223	
	YG1A2470	YG2C2470	0.9724		24.70	7D	ZH24507032				193	273	
	YG1A2500	YG2C2500	0.9843	63/64	25.00	3D	ZH25003032				95	175	
	YG1A2500	YG2C2500	0.9843	63/64	25.00	5D	ZH25005032	32	60	37	146	226	
	YG1A2540	YG2C2540	1.0000	1	25.40	7D	ZH25007032				197	277	
	YG1A2550	YG2C2550	1.0039		25.50								
YG1A2567	YG2C2567	1.0106		25.67	3D	ZH25503032				97	177		
YG1A2570	YG2C2570	1.0118		25.70	5D	ZH25505032	32	60	37	148	228		
YG1A2580	YG2C2580	1.0156	1*1/64	25.80	7D	ZH25507032				200	280		
H Ø26.00 to Ø27.99	YH1A2600	YH2C2600	1.0236		26.00	3D	ZH26003032				98	177	TX2627T25
	YH1A2619	YH2C2619	1.0312	1*1/32	26.19	5D	ZH26005032	32	60	37	150	229	
	YH1A2619	YH2C2619	1.0312	1*1/32	26.19	7D	ZH26007032				202	281	
	YH1A2650	YH2C2650	1.0433		26.50	3D	ZH26503032				99	178	
	YH1A2659	YH2C2659	1.0469	1*3/64	26.59	5D	ZH26505032	32	60	37	152	231	
	YH1A2659	YH2C2659	1.0469	1*3/64	26.59	7D	ZH26507032				205	284	
	YH1A2699	YH2C2699	1.0625	1*1/16	26.99	3D	ZH27003032				101	180	
	YH1A2700	YH2C2700	1.0630		27.00	5D	ZH27005032	32	60	37	155	234	
	YH1A2700	YH2C2700	1.0630		27.00	7D	ZH27007032				209	288	
	YH1A2750	YH2C2750	1.0827		27.50	3D	ZH27503032				103	181	
YH1A2778	YH2C2778	1.0938	1*3/32	27.78	5D	ZH27505032	32	60	37	159	237		
YH1A2778	YH2C2778	1.0938	1*3/32	27.78	7D	ZH27507032				214	292		

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	~HRc24 (~HB250)	~HRc28 (~HB275)	HRc28~ (~HB275)	~HRc28 (~HB275)	HRc28~ (~HB275)	~HRc37 (~HB350)	HRc37~ (~HB350)	~HRc24 (~HB250)	HRc24~ (~HB250)	~HRc13 (~HB200)	HRc13~ (~HB200)	~HRc28 (~HB275)	~HRc19 (~HB220)	HRc19~ (~HB220)	~HRc8 (~HB180)	~HB110
Y*1A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎						
Y*2C	○	○	○	○	○	○	◎	○	○	○						





Y11A / Y12C  
YJ1A / YJ2C

HSS

# i-梦幻钻 刀片 & 刀柄 i-DREAM DRILL INSERTS & HOLDERS

i-DREAM DRILLS

DREAM DRILLS -GENERAL

DREAM DRILLS -SOFT

DREAM DRILLS -INOX

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

GENERAL CARBIDE DRILLS

NC-SPOTTING DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

WORM PATTERN DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

TECHNICAL DATA

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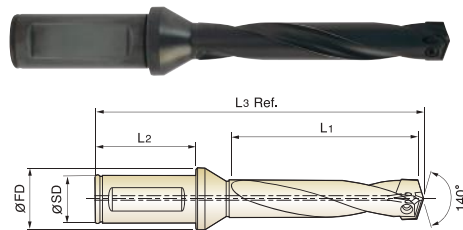
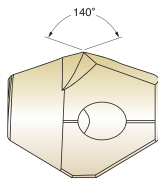
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	General (TiAlN)	INOX (TiCN)	dec.	frac.	mm						L1	L3 Ref.		
I Ø28.00 to Ø29.99	Y11A2800	YI2C2800	1.1024		28.00	3D	ZH28003032				105	183	TX2829T25	
	Y11A2818	YI2C2818	1.1094	1*7/64	28.18	5D	ZH28005032	32	60	37	161	239		
						7D	ZH28007032				217	295		
	Y11A2850	YI2C2850	1.1220		28.50	3D	ZH28503032				106	184		
	Y11A2858	YI2C2858	1.1250	1*1/8	28.58	5D	ZH28505032	32	60	37	163	241		
						7D	ZH28507032				220	298		
	Y11A2900	YI2C2900	1.1417		29.00	3D	ZH29003032				109	186		
	Y11A2937	YI2C2937	1.1562	1*5/32	29.37	5D	ZH29005032	32	60	37	168	245		
					7D	ZH29007032				226	303			
Y11A2950	YI2C2950	1.1614		29.50	3D	ZH29503032				110	187			
					5D	ZH29505032	32	60	37	170	247			
					7D	ZH29507032				229	306			
J Ø30.00 to Ø31.99	YJ1A3000	YJ2C3000	1.1811		30.00	3D	ZH30003032				112	189	TX3031T25	
	YJ1A3016	YJ2C3016	1.1875	1*3/16	30.16	5D	ZH30005032	32	60	37	172	249		
						7D	ZH30007032				232	309		
	YJ1A3050	YJ2C3050	1.2008		30.50	3D	ZH30503032				114	190		
	YJ1A3056	YJ2C3056	1.2031	1*11/64	30.56	5D	ZH30505032	32	60	37	176	252		
						7D	ZH30507032				238	314		
	YJ1A3096	YJ2C3096	1.2188	1*7/32	30.96	3D	ZH31003032				115	191		
	YJ1A3100	YJ2C3100	1.2205		31.00	5D	ZH31005032	32	60	37	177	253		
					7D	ZH31007032				239	315			
YJ1A3150	YJ2C3150	1.2402		31.50	3D	ZH31503032				118	194			
					5D	ZH31505032	32	60	37	182	258			
					7D	ZH31507032				246	322			

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	普通钢 易切削钢	碳钢		合金钢		高合金钢		结构钢		工具钢		不锈钢	铸铁		铝	铜合金
	Non-alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	~HRc24 (~HB250)	~HRc28 (~HB275)	HRc28~ (~HB275~)	~HRc28 (~HB275)	HRc28~ (~HB275~)	~HRc37 (~HB350)	HRc37~ (~HB350~)	~HRc24 (~HB250)	HRc24~ (~HB250~)	~HRc13 (~HB200)	HRc13~ (~HB200~)	~HRc28 (~HB275)	~HRc19 (~HB220)	HRc19~ (~HB220~)	~HRc8 (~HB180)	~HB110
Y*1A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎		
Y*2C	○	○		○				○		○		◎			○	○



METRIC

Material		Tensile Strength		Hardness		Cutting Speed Vc [M/min]	Feed [mm/rev]				
		[N/mm <sup>2</sup> ]	HB	HRc	Ø12.0 ~Ø14.9		Ø15.0 ~Ø17.9	Ø18.0 ~Ø21.9	Ø22.0 ~Ø26.9	Ø27.0 ~Ø31.9	
Non-alloyed steels, Cast steels Free-machining steels	9SMn28, 9SMnPb28, 10SPb20 etc	~500	100~150			95~120	0.16~0.28	0.21~0.35	0.27~0.40	0.34~0.52	0.37~0.55
		500~850	150~250	~24		80~105	0.14~0.24	0.21~0.35	0.27~0.40	0.34~0.52	0.37~0.55
Low-alloyed steels, Cast steels(<5% ) Carbon steels	C15, C22, 20Mn5, Ck45, C45 etc	~450	85~125			90~115	0.14~0.25	0.20~0.33	0.25~0.39	0.31~0.47	0.34~0.50
		450~755	125~225	~19		70~90	0.12~0.20	0.17~0.28	0.22~0.32	0.30~0.46	0.33~0.49
		755~900	225~265	19~27		60~80	0.12~0.20	0.17~0.28	0.22~0.32	0.30~0.46	0.33~0.49
Alloyed steels	45CrMo4, 42CrMo4, 16MnCr5, Ck75, 35CrMo4, 16MnCr5 etc	900~1200	265~350	27~37		55~70	0.10~0.16	0.15~0.25	0.21~0.30	0.25~0.38	0.29~0.43
		~600	125~175	~7		80~100	0.14~0.24	0.17~0.28	0.22~0.32	0.30~0.46	0.34~0.50
		600~800	175~235	7~22		70~90	0.12~0.20	0.17~0.28	0.22~0.32	0.30~0.46	0.34~0.50
		800~950	235~280	22~29		60~80	0.12~0.20	0.15~0.25	0.22~0.32	0.30~0.46	0.34~0.50
		950~1110	280~330	29~35		55~70	0.10~0.16	0.13~0.21	0.21~0.30	0.25~0.38	0.29~0.43
High-alloyed steels	36CrNiMo4, 41CrAlMo7 etc	1110~1230	330~360	35~39		45~60	0.08~0.12	0.13~0.21	0.21~0.30	0.25~0.38	0.29~0.43
		600~1020	225~300	19~32		45~60	0.12~0.20	0.15~0.25	0.21~0.30	0.20~0.31	0.24~0.35
		1020~1200	300~355	32~38		40~55	0.10~0.16	0.11~0.18	0.21~0.30	0.20~0.31	0.24~0.35
		1200~1330	355~390	38~42		40~50	0.08~0.12	0.09~0.14	0.18~0.26	0.19~0.29	0.23~0.34
Structural steels	St33, St37-2, St44-2, St52, St60 etc	350~500	100~150			75~95	0.14~0.24	0.21~0.35	0.27~0.39	0.29~0.44	0.32~0.47
		500~850	150~250	~24		60~75	0.12~0.20	0.20~0.33	0.22~0.32	0.25~0.38	0.29~0.43
Tool steels	102Cr6, 105WCr6, C75W etc	850~1200	250~355	24~38		50~65	0.10~0.16	0.17~0.28	0.21~0.30	0.21~0.32	0.26~0.38
		500~705	150~210	~16		50~65	0.10~0.16	0.13~0.21	0.18~0.26	0.20~0.31	0.24~0.35
Grey cast iron	Pearlitic, Ferritic Pearlitic	705~950	210~280	16~29		40~50	0.10~0.16	0.13~0.21	0.18~0.26	0.20~0.31	0.24~0.35
		500~700	150~210	~16		100~125	0.15~0.26	0.20~0.37	0.27~0.42	0.36~0.51	0.40~0.55
Cast iron nodular	Ferritic Pearlitic	700~850	210~250	16~24		75~95	0.11~0.20	0.16~0.29	0.20~0.30	0.25~0.35	0.29~0.40
		540	165	4		95~120	0.13~0.22	0.17~0.31	0.21~0.32	0.28~0.40	0.32~0.44
Malleable cast iron	Ferritic Pearlitic	850	250	24		75~95	0.11~0.20	0.14~0.26	0.19~0.29	0.25~0.35	0.29~0.40
		450	125			100~125	0.13~0.22	0.17~0.31	0.21~0.32	0.28~0.40	0.32~0.44
Aluminum alloys (Wrought)	not heat treatable hardened	780	230	21		75~95	0.11~0.18	0.14~0.26	0.19~0.29	0.25~0.35	0.29~0.40
			65			250~330	0.30~0.40	0.35~0.45	0.40~0.50	0.45~0.55	0.50~0.60
Aluminum alloys (Cast)	≤12% Si, not heat treatable ≤12% Si, hardened >12% Si, not heat treatable		150			200~250	0.30~0.40	0.35~0.45	0.40~0.50	0.45~0.55	0.50~0.60
			75			200~50	0.25~0.35	0.30~0.40	0.35~0.45	0.40~0.50	0.45~0.55
			90			150~220	0.25~0.35	0.30~0.40	0.35~0.45	0.40~0.50	0.45~0.55
Copper alloys	Free machining(Pb>1%) Brass Electrolytic copper		130			100~200	0.20~0.30	0.25~0.35	0.30~0.40	0.35~0.45	0.40~0.50
			110			115~145	0.16~0.28	0.23~0.36	0.29~0.36	0.37~0.45	0.41~0.48
Non ferrous material	Duroplastics Fiber plastics Hard rubber		90			145~185	0.17~0.29	0.24~0.37	0.30~0.38	0.38~0.46	0.42~0.49
			100			95~120	0.06~0.09	0.09~0.13	0.11~0.13	0.15~0.18	0.19~0.22
Stainless steels	Austenitic and Austenitic/ferritic										
			450~610	135~185	~9	45~60	0.10~0.16	0.12~0.18	0.14~0.20	0.15~0.26	0.18~0.28
		610~930	185~275	9~28		30~45	0.08~0.14	0.09~0.15	0.10~0.16	0.12~0.20	0.14~0.22

RPM = revolution per minute (rev/min)  
M/min = surface meter per minute(M/min)  
DIA. = diameter of drill (mm)  
mm/rev = feed rate(mm/rev)

\*Formulas :

$$M/min = \frac{(RPM) \cdot \pi \cdot (DIA.)}{1000}$$

$$mm/min = (RPM) \cdot (mm/rev)$$

$$RPM = \frac{(M/min) \cdot 1000}{(\pi) \cdot (DIA.)}$$

▶ 表中推荐的速度, 进给率和其它参数只用来参考

推荐降低速度和进给量(速度降低20%和进给降低10%)

▶ 建议在使用5xD, 7xD的刀柄时把进给率降低到85%, 70%

▶ 在使用7xD刀柄时, 建议用等于或大于140度顶尖的钻头钻一个直径2/3以上的定位中心孔  
定位中心孔的使用提高孔的定位, 圆度和表面粗糙度

▶ 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 drill a centering pre-hole with equal to or larger than 140 ° point angle to min. 2/3 cutting diameter.  
The use of the centering pre-hole improves hole location, roundness and surface finish.

INCH

Material		Tensile Strength			Hardness		Cutting Speed Vc [SFM]	Feed [IPR]				
		MPa	HB	HRC	Ø31/64 ~Ø37/64	Ø19/32 ~Ø45/64		Ø23/32 ~Ø55/64	Ø7/8 ~Ø1-1/16	Ø1-3/32 ~Ø1-1/4		
Non-alloyed steels, Cast steels Free-machining steels	9SMn28, 9SMnPb28, 10SPb20 etc	~500	100~150		312~394	0.006~0.011	0.008~0.014	0.011~0.016	0.013~0.020	0.015~0.022		
		500~850	150~250	~24	262~344	0.006~0.009	0.008~0.014	0.011~0.016	0.013~0.020	0.015~0.022		
Low-alloyed steels, Cast steels(<5% ) Carbon steels	C15, C22, 20Mn5, Ck45, C45 etc	~450	85~125		295~377	0.006~0.010	0.008~0.013	0.010~0.015	0.012~0.019	0.013~0.020		
		450~755	125~225	~19	230~295	0.005~0.008	0.007~0.011	0.009~0.013	0.012~0.018	0.013~0.019		
		755~900	225~265	19~27	197~262	0.005~0.008	0.007~0.011	0.009~0.013	0.012~0.018	0.013~0.019		
Alloyed steels	45CrMo4, 42CrMo4, 16MnCr5, Ck75, 35CrMo4, 16MnCr5 etc	~600	125~175	~7	262~328	0.006~0.009	0.007~0.011	0.009~0.013	0.012~0.018	0.013~0.020		
		600~800	175~235	7~22	230~295	0.005~0.008	0.007~0.011	0.009~0.013	0.012~0.018	0.013~0.020		
		800~950	235~280	22~29	197~262	0.005~0.008	0.006~0.010	0.009~0.013	0.012~0.018	0.013~0.020		
		950~1110	280~330	29~35	180~230	0.004~0.006	0.005~0.008	0.008~0.012	0.010~0.015	0.011~0.017		
High-alloyed steels	36CrNiMo4, 41CrAlMo7 etc	600~1020	225~300	19~32	148~197	0.005~0.008	0.006~0.010	0.008~0.012	0.008~0.012	0.009~0.014		
		1020~1200	300~355	32~38	131~180	0.004~0.006	0.004~0.007	0.008~0.012	0.008~0.012	0.009~0.014		
		1200~1330	355~390	38~42	131~164	0.003~0.005	0.004~0.006	0.007~0.010	0.007~0.011	0.009~0.013		
Structural steels	St33, St37-2, St44-2, St52, St60 etc	350~500	100~150		246~312	0.006~0.009	0.008~0.014	0.011~0.015	0.011~0.017	0.013~0.019		
		500~850	150~250	~24	197~246	0.005~0.008	0.008~0.013	0.009~0.013	0.010~0.015	0.011~0.017		
Tool steels	102Cr6, 105WCr6, C75W etc	850~1200	250~355	24~38	164~213	0.004~0.006	0.007~0.011	0.008~0.012	0.008~0.013	0.010~0.015		
		500~705	150~210	~16	164~213	0.004~0.006	0.005~0.008	0.007~0.010	0.008~0.012	0.009~0.014		
Grey cast iron	Pearlitic, Ferritic Pearlitic	705~950	210~280	16~29	131~164	0.004~0.006	0.005~0.008	0.007~0.010	0.008~0.012	0.009~0.014		
		500~700	150~210	~16	328~410	0.006~0.010	0.008~0.015	0.011~0.017	0.014~0.020	0.016~0.022		
Cast iron nodular	Ferritic Pearlitic	700~850	210~250	16~24	246~312	0.004~0.008	0.006~0.011	0.008~0.012	0.010~0.014	0.011~0.016		
		540	165	4	312~394	0.005~0.009	0.007~0.012	0.008~0.013	0.011~0.016	0.013~0.017		
Malleable cast iron	Ferritic Pearlitic	850	250	24	246~312	0.004~0.008	0.006~0.010	0.007~0.011	0.010~0.014	0.011~0.016		
		450	125		328~410	0.005~0.009	0.007~0.012	0.008~0.013	0.011~0.016	0.013~0.017		
Aluminum alloys (Wrought)	not heat treatable hardened	450	230	21	246~312	0.004~0.007	0.006~0.010	0.007~0.011	0.010~0.014	0.011~0.016		
			65		820~1083	0.0118~0.0157	0.0138~0.0177	0.0157~0.0197	0.0177~0.0217	0.0197~0.0236		
Aluminum alloys (Cast)	≤12% Si, not heat treatable ≤12% Si, hardened >12% Si, not heat treatable		75		656~820	0.0118~0.0157	0.0138~0.0177	0.0157~0.0197	0.0177~0.0217	0.0197~0.0236		
			90		492~722	0.0098~0.0138	0.0118~0.0157	0.0138~0.0177	0.0157~0.0197	0.0177~0.0217		
			130		328~656	0.0079~0.0118	0.0098~0.0138	0.0118~0.0157	0.0138~0.0177	0.0157~0.0197		
Copper alloys	Free machining(Pb>1%) Brass Electrolytic copper	110			377~476	0.006~0.011	0.009~0.014	0.011~0.014	0.015~0.018	0.016~0.019		
		90			476~607	0.007~0.011	0.009~0.015	0.012~0.015	0.015~0.018	0.017~0.019		
Non ferrous material	Duroplastics Fiber plastics Hard rubber	100			312~394	0.002~0.004	0.004~0.005	0.004~0.005	0.006~0.007	0.007~0.009		
Stainless steels	Austenitic and Austenitic/ferritic	450~610	135~185	~9	145~197	0.004~0.006	0.005~0.007	0.006~0.008	0.006~0.011	0.007~0.011		
		610~930	185~275	9~28	89~145	0.003~0.005	0.004~0.006	0.004~0.006	0.005~0.008	0.006~0.009		

Y□1A / Y□2C

Y□2C

i-DREAM  
DRILLS

DREAM  
DRILLS  
-GENERAL

DREAM  
DRILLS  
-SOFT

DREAM  
DRILLS  
-INOX

DREAM  
DRILLS  
-MQL TYPE

DREAM  
DRILLS  
for HARDENED  
STEELS

GENERAL  
CARBIDE  
DRILLS

NC-SPOTTING  
DRILLS

MULTI-1  
DRILLS

HPD DRILLS

GOLD-P  
DRILLS

WORM  
PATTERN  
DRILLS

STRAIGHT  
SHANK  
DRILLS

TAPER  
SHANK  
DRILLS

NC-SPOTTING  
DRILLS

CENTER  
DRILLS

SPADE  
DRILLS

TECHNICAL  
DATA

RPM = revolution per minute (rev/min)  
SFM = surface feet per minute (ft/min)  
DIA. = diameter of drill (inch)  
IPR = feed rate (inch/rev)  
IPM = inch per minute penetration rate

\*Formulas :

$$SFM = \frac{(RPM) \cdot \pi \cdot (DIA.)}{12}$$

$$IPM = (RPM) \cdot (IPR)$$

$$RPM = \frac{(SFM) \cdot 12}{(\pi) \cdot (DIA.)}$$

- ▶ 表中推荐的速度, 进给率和其它参数只可用来参考  
推荐降低速度和进给量(速度降低20%和进给降低10%)
- ▶ 建议在使用5xD, 7xD的刀柄时把进给率降低到85%, 70%
- ▶ 在使用7xD刀柄时, 建议用等于或大于140度顶尖的钻头钻一个直径2/3以上的定位中心孔  
定位中心孔的使用提高孔的定位, 圆度和表面粗糙度
- ▶ 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 drill a centering pre-hole with equal to or larger than 140 ° point angle to min. 2/3 cutting diameter.  
The use of the centering pre-hole improves hole location, roundness and surface finish.

**i-梦幻钻的装配**

**ASSEMBLY OF i-DREAM DRILLS**

i-DREAM DRILLS

DREAM DRILLS -GENERAL

DREAM DRILLS -SOFT

DREAM DRILLS -INOX

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

GENERAL CARBIDE DRILLS

NC-SPOTTING DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

WORM PATTERN DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

TECHNICAL DATA



确定刀片及刀架的清洁  
Make sure to clean the insert and insert seat.





将钻头刀片滑至夹具的夹缝中并按下刀片至夹缝底部

Slide the drill insert into the slot of the holder and press down the insert to touch the bottom of the slot.



确定刀片按压至夹缝底部后用抓具扣紧螺丝使其进一步融合  
After confirming the insert is pressed down to the bottom of the slot, tighten the screw using anti-seize compound.

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)

用翼形或T形扳手

Use the wing type or T-type wrench.

- ▶ 根据指示, 需要使用合适的扳手和螺钉  
Need to use appropriate wrenches and screws as indicated.
- ▶ 适当的拧紧螺钉是很重要的  
It's important to tighten up the screw properly.

## 注意-不推荐使用

### CAUTION-NOT RECOMMENDABLE APPLICATION



交叉孔比钻头刀片的钻边长度大

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



倾斜进入的材料和超过7度的出口 (如果钻7度的孔或者在倾斜面下钻孔, 可减少30-50%的进给)

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

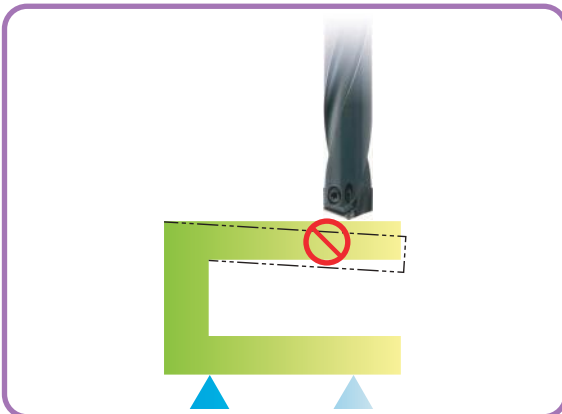


对于钻一堆整齐的薄板, 薄板之间的间隙减小到最低

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

整齐的薄板间隔可导致刀片破损或铁屑不易排除

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



在钻削前材料需要进行安全固定

The material needs to be fixtured securely before drilling.

i-DREAM DRILLS

DREAM DRILLS  
-GENERALDREAM DRILLS  
-SOFTDREAM DRILLS  
-INOXDREAM DRILLS  
-MQL TYPEDREAM DRILLS  
for HARDENED  
STEELSGENERAL  
CARBIDE  
DRILLSNC-SPOTTING  
DRILLSMULTI-1  
DRILLS

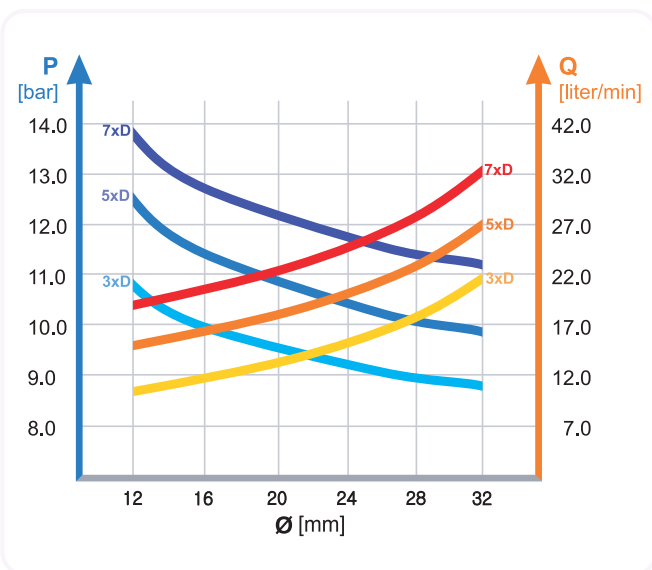
HPD DRILLS

GOLD-P  
DRILLSWORM  
PATTERN  
DRILLSSTRAIGHT  
SHANK  
DRILLSTAPER  
SHANK  
DRILLSNC-SPOTTING  
DRILLSCENTER  
DRILLSSPADE  
DRILLSTECHNICAL  
DATA



在立式钻孔中，推荐使用的油压和流速

RECOMMENDED COOLANT PRESSURE AND FLOW RATE ON VERTICAL DRILLING



- 推荐使用6-8%的混合乳化液  
Recommended emulsion mix is 6% - 8%.
- 钻孔加工不锈钢和高强度钢时，推荐使用10%的混合乳化液  
For Drilling in Stainless and High Strength steels, a mix of 10% is recommended.
- 对于水平钻孔，油压和流速降低30%是可能的  
For horizontal drilling, 30% reduction on the coolant pressure and flow rate is possible.
- 干式钻孔可以用于1-2xD钻削，但是不推荐使用  
Dry drilling is possible for 1-2xD drilling. But not recommended.

问题解答

TROUBLE SHOOTING



- 1) 巨大磨损/快速磨损  
降低切削速度  
增加进给量  
**Heavy flank wear / Fast flank wear**  
- Reduce cutting speed  
- Increase feed



- 2) 切削刃崩刃  
减少进给量  
检测主轴和刀夹刚性  
工件的刚性夹持  
**Chipping on cutting edge**  
- Reduce feed  
- Check the rigidity of spindle and chuck  
- Rigid clamping of workpiece



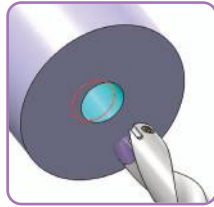
- 3) 刃边积瘤  
增加切削速度  
使用涂层刀片  
**Build up on cutting edge**  
- Increase cutting speed  
- Use a coated insert



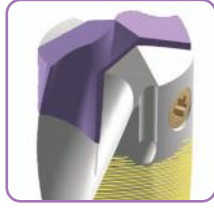
- 4) 在转角处崩刃或破损  
减少进给量  
增强工件夹持刚性  
**Chipping or break down on outer corner**  
- Reduce feed  
- Rigid clamping of workpiece



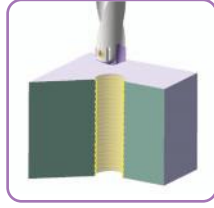
- 5) 刀具刃带磨损  
增强工件夹持刚性  
降低切削速度  
增加油流量  
**Wear of land margin**  
- Rigid clamping of workpiece  
- Reduce cutting speed  
- Increase coolant flow



- 6) 孔位置度不良  
增强工件夹持刚性  
在进入和退出时降低速度  
**Unsatisfactory positioning of the hole**  
- Rigid clamping of workpiece  
- Reduce feed during entrance or exit



- 7) 刀体损伤  
增强工件夹持刚性  
减少进给量  
增加油流量  
**Scratching on holder**  
- Rigid clamping of workpiece  
- Reduce feed  
- Increase coolant flow



- 8) 令人不满意的表面粗糙度  
增强工件夹持刚性  
增加油流量和油压力  
**Unsatisfactory surface finish**  
- Rigid clamping of workpiece  
- Increase coolant flow and pressure