

i-DREAM DRILL INSERTS & HOLDERS

i-DREAM DRILL EINSÄTZE UND HALTER

- 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

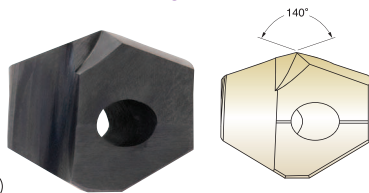
- For most steels materials / In den meisten Stahlsorten

i-Dream Drill INOX / i-Dream Drill INOX

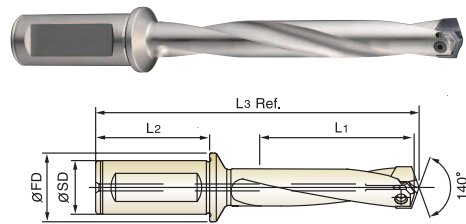
- For tough, ductile materials and stainless steels
 Für zähe, verformbare Werkstoffe und rostfreie Stähle.
- Light, sharp cutting edge / Scharfe Schneidkante
- Soft cutting action / Weicher Schnitt
- Minimize cutting forces / Minimaler Schneidendruck
- Reduce built-up edge / Reduzierte Gratbildung

- Features of *i-Dream Drill Holders*- **Merkmale des i-Dream Drill Halter**

- 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.



cutting conditions : p.50~51



Series Range	Insert EDP No.		Insert O.D.			Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Drilling Depth		Overall Length	Screw No.
	General (TiAlN)	INOX (TiCN)	dec.	frac.	mm					L1	L3 Ref.		
(mm)							SD	L2	FD				
E Ø20.00 to Ø21.99	YE1A2000	YE2C2000	0.7874		20.00	ZH20003025	25	56	32	3D	60	145.5	TX2021T20
	YE1A2024	YE2C2024	0.7969	51/64	20.24	ZH20005025				5D	100	185.5	
						ZH20007025				7D	140	225.5	
	YE1A2050	YE2C2050	0.8071		20.50	ZH20503025	3D	61.5	147.5				
	YE1A2064	YE2C2064	0.8125	13/16	20.64	ZH20505025	25	56	32	5D	102.5	188.5	
	YE1A2070	YE2C2070	0.8150		20.70	ZH20507025	7D	143.5	229.5	TX2122T20			
	YE1A2100	YE2C2100	0.8268		21.00	ZH21003025	3D	63	149.5				
	YE1A2103	YE2C2103	0.8281	53/64	21.03	ZH21005025	25	56	32		5D	105	191.5
	YE1A2143	YE2C2143	0.8438	27/32	21.43	ZH21007025	7D	147	233.5				
	YE1A2150	YE2C2150	0.8465		21.50	ZH21503025	3D	64.5	150.5				
YE1A2170	YE2C2170	0.8543		21.70	ZH21505025	25	56	32	5D	107.5	193.5	TX2223T20	
YE1A2183	YE2C2183	0.8594	55/64	21.83	ZH21507025	7D	150.5	236.5					
F Ø22.00 to Ø23.99	YF1A2200	YF2C2200	0.8661		22.00	ZH22003025	25	56	32	3D	66	152.4	TX2223T20
						ZH22005025				5D	110	196.4	
	YF1A2223	YF2C2223	0.8750	7/8	22.23	ZH22007025				7D	154	240.4	
	YF1A2250	YF2C2250	0.8858		22.50	ZH22503025	3D	67.5	153.4				
	YF1A2262	YF2C2262	0.8906	57/64	22.62	ZH22505025	25	56	32	5D	112.5	198.4	
	YF1A2270	YF2C2270	0.8937		22.70	ZH22507025	7D	157.5	243.4	TX2324T20			
	YF1A2300	YF2C2300	0.9055		23.00	ZH23003025	3D	69	155.4				
	YF1A2302	YF2C2302	0.9062	29/32	23.02	ZH23005025	25	56	32		5D	115	201.4
	YF1A2342	YF2C2342	0.9219	59/64	23.42	ZH23007025	7D	161	247.4				
	YF1A2350	YF2C2350	0.9252		23.50	ZH23503025	3D	70.5	157.4				
YF1A2370	YF2C2370	0.9331		23.70	ZH23505025	25	56	32	5D	117.5	204.4	TX2324T20	
YF1A2381	YF2C2381	0.9375	15/16	23.81	ZH23507025	7D	164.5	251.4					

▶ TiN, TiCN, TiAlN & Hardslick are available on your request.

▶ 10×D Holder is available on your request.

◎ : Excellent ○ : Good

	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 Werkstück		Tensile Strength	Hardness		Cutting Speed	Feed [mm/rev]				
		[N/mm²]	HB	HRC	Vc [M/min]	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,	~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
	10SPb20 etc	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
		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
Alloyed steels	45CrMo4, 42CrMo4, 16MnCr5, Ck75, 35CrMo4, 16MnCr5 etc	~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
		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
High-alloyed steels	36CrNiMo4, 41CrAlMo7 etc	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 Free machining(Pb>1%)		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
			130		100~200	0.20~0.30	0.25~0.35	0.30~0.40	0.35~0.45	0.40~0.50
Copper alloys	Brass Electrolitic copper		110		115~145	0.16~0.28	0.23~0.36	0.29~0.36	0.37~0.45	0.41~0.48
			90		145~185	0.17~0.29	0.24~0.37	0.30~0.38	0.38~0.46	0.42~0.49
Non ferrous material	Duroplastics Fiber plastics Hard rubber		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

*Formulas :

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)

$$\begin{aligned} \text{M/min} &= \frac{(\text{RPM}) \cdot \pi \cdot (\text{DIA.})}{1000} \\ \text{mm/min} &= (\text{RPM}) \cdot (\text{mm/rev}) \\ \text{RPM} &= \frac{(\text{M/min}) \cdot 1000}{(\pi) \cdot (\text{DIA.})} \end{aligned}$$

- 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 Werkstück		Tensile Strength	Hardness		Cutting Speed Vc [SFM]	Feed [IPR]				
			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
		900~1200	265~350	27~37	180~230	0.004~0.006	0.006~0.010	0.008~0.012	0.010~0.015	0.011~0.017
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
		1110~1230	330~360	35~39	148~197	0.003~0.005	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
		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
Structural steels	St33, St37-2, St44-2, St52, St60 etc	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
		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
Tool steels	102Cr6, 105WCr6, C75W etc	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
		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
Grey cast iron	Pearlitic, Ferritic Pearlitic	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
		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
Cast iron nodular	Ferritic Pearlitic	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
		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
Malleable cast iron	Ferritic Pearlitic	450	125		328~410	0.005~0.009	0.007~0.012	0.008~0.013	0.011~0.016	0.013~0.017
		780	230	21	246~312	0.004~0.007	0.006~0.010	0.007~0.011	0.010~0.014	0.011~0.016
Aluminum alloys (Wrought)	not heat treatable hardened		65		820~1083	0.0118~0.0157	0.0138~0.0177	0.0157~0.0197	0.0177~0.0217	0.0197~0.0236
			150		656~820	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	0.0098~0.0138	0.0118~0.0157	0.0138~0.0177	0.0157~0.0197	0.0177~0.0217
			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 Electrolitic 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
			100		312~394	0.002~0.004	0.004~0.005	0.004~0.005	0.006~0.007	0.007~0.009
Non ferrous material	Duroplastics Fiber plastics Hard rubber									
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

*Formulas :

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

$$\begin{aligned} \text{SFM} &= \frac{(\text{RPM}) \cdot \pi \cdot (\text{DIA.})}{12} \\ \text{IPM} &= (\text{RPM}) \cdot (\text{IPR}) \\ \text{RPM} &= \frac{(\text{SFM}) \cdot 12}{(\pi) \cdot (\text{DIA.})} \end{aligned}$$

► 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.