i-Xmill Ball Corner Radius

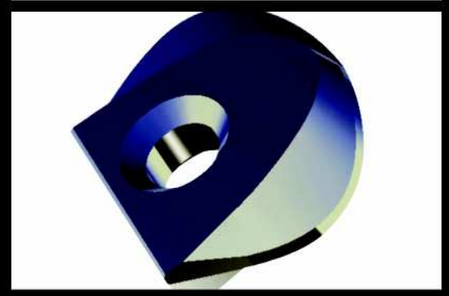
YU-EI1 1

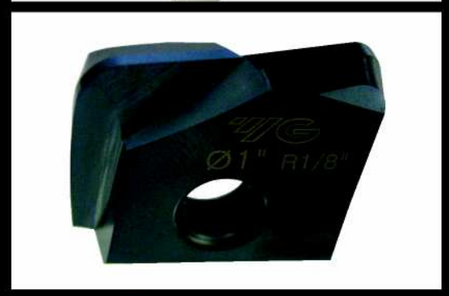
i-Xmill

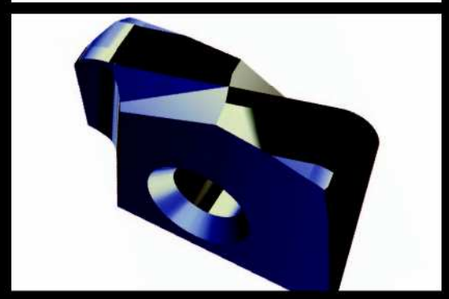
Ball Corner Radius

INSERTS & STEEL / CARBIDE HOLDERS

INSERTS & STEEL / CARBIDE HOLDERS







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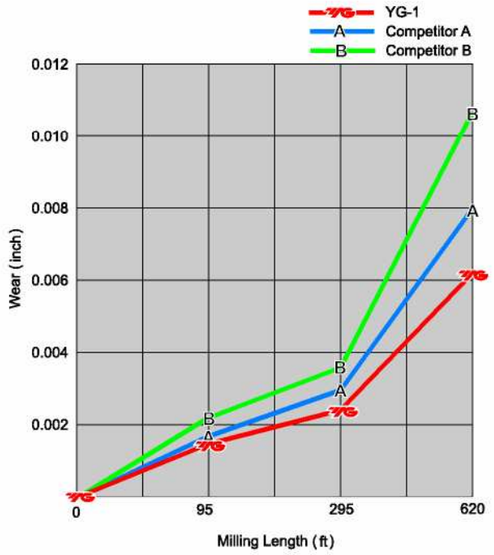
INDEX / CASE STUDY

Carbon Steels		Alloy Steels		Tool Steels		Cast Iron	Hardened Steels	Stainless Steels	Aluminum
~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc50~	~HRc28	~HRc8
o	o	o	o	o	o	o		o	o
O	o	o	o	o	o	o	o		
o	o	o	o	o	o	o		o	o
O	o	o	o	o	o	o	o		

◎ : Excellent, ○ : Good

CASE STUDY (BALL)



YG-1 i-Xmill (Total Milling Length 620ft)

Competitor A (Total Milling Length 620ft)

Competitor B (Total Milling Length 620ft)

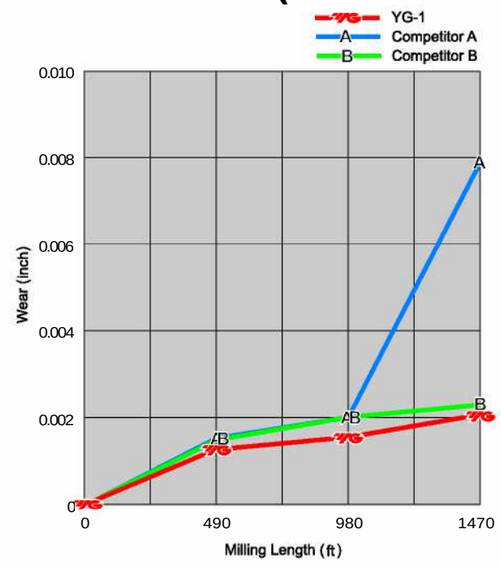
CUTTING CONDITION

Tools : i -Xmill Ball End Mill(XB1A040)
Size : ∅5/8(inch)
Work Material : JIS : SKD61(HRc50)
AISI : H13(HB480)

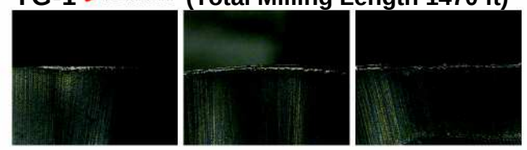
Cutting Speed : 263 SFM
R.P.M : 1600 rev./min.
Feed : 15.4 inch/min.
Feed per rev. : 0.01 IPR
Milling Method : Side Cutting

Milling Depth : Axial : 0.03 inch
Radial : 0.06 inch
Coolant : Oil Mist
Machine : Machining Center

CASE STUDY (CORNER RADIUS)

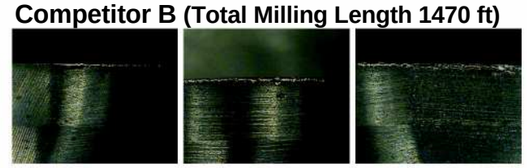


YG-1 i-Xmill (Total Milling Length 1470 ft)



Competitor A (Total Milling Length 1470 ft)

Competitor B (Total Milling Length 1470 ft)



CUTTING CONDITION

Tools : i-Xmill Corner Radius (XRAA160 20)
Size : ∅16 x R2.0 (Metric)
Work Material : KS : KP4M (Mold steel HRc35)
DIN : 40CrMnNiMo8-6-4(1.2738)
AISI : P20+Ni

Cutting Speed : 920 SFM
R.P.M : 5570 rev./min.
Feed : 87.8 inch/min.
Feed per rev. : 0.018 IPR
Milling Method : Side Cutting

Milling Depth : Axial : 0.118 inch
Radial : 0.008 inch
Coolant : Oil Mist
Overhang : 2.8 inch
Machine : Machining Center

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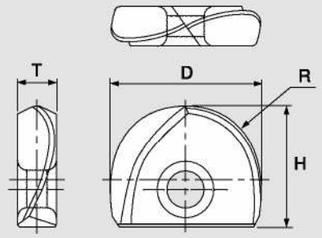


Unit : inch

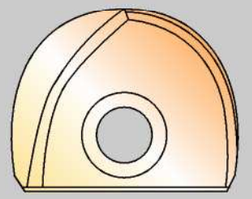
SIZE (D)	EDP No. For GENERAL MATERIAL	EDP No. For HARDENED MATERIAL	RADIUS (R)	HEIGHT (H)	THICKNESS (T)
5/16	**XB1A020**	**XB2C020**	R5/32	5/16	0.094
3/8	**XB1A024**	**XB2C024**	R3/16	3/8	0.106
1/2	**XB1A032**	**XB2C032**	R1/4	7/16	0.126
5/8	**XB1A040**	**XB2C040**	R5/16	1/2	0.165
3/4	**XB1A048**	**XB2C048**	R3/8	5/8	0.205
1	**XB1A100**	**XB2C100**	R1/2	3/4	0.244
1*1/4	**XB1A116**	**XB2C116**	R5/8	31/32	0.283

Unit : mm

SIZE (D)	EDP No. For GENERAL MATERIAL	EDP No. For HARDENED MATERIAL	RADIUS (R)	HEIGHT (H)	THICKNESS (T)
8	**XB1N080**	**XB2N080**	R4.0	8	2.4
10	**XB1N100**	**XB2N100**	R5.0	9.5	2.7
12	**XB1N120**	**XB2N120**	R6.0	11	3.2
16	**XB1N160**	**XB2N160**	R8.0	13	4.2
20	**XB1N200**	**XB2N200**	R10.0	16	5.2
25	**XB1N250**	**XB2B250**	R12.5	19.5	6.2
30	**XB1N300**	**XB2N300**	R15.0	23.5	7.2
32	**XB1N320**	**XB2N320**	R16.0	24.5	7.2

- For General Material (~HRc50)
- For Hardened Material (HRc40~HRc65)

CARBIDE INSERT ADVANTAGES



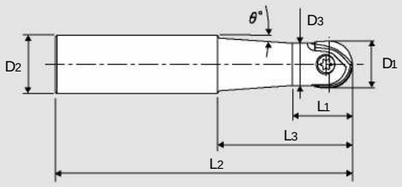
1. Helical end gash ("S" gash) geometry.
- Low milling torque.
- Prevents Chattering.
- Improves Chip ejection.
- Prolong tool life.

2. Polished cutting edges.
- Better wear resistance and tool life.
- Improves repeatability in performance.
- Improves surface roughness on work-piece.
- Improves coating addition.

3. Special coating.
- Combine high hardness with high thermal stability against oxidation.
- Superior wear resistance.
- Faster feeds and speeds.

• The Ball insert tolerance is ± 0.0004" (0.01 mm) and the set-up accuracy is ± 0.0008" (0.02mm)

TAPER NECK TYPE



Unit : inch

MILL DIAMETER (D1)	EDP No.	SHANK DIAMETER (D2)	NECK DIAMETER (D3)	LENGTH OF CUT (L1)	LENGTH BELOW SHANK (L3)	OVERALL LENGTH (L2)	INTERFERENCE ANGLE (θ°)	LENGTH TYPE	WRENCH	SCREW
5/16	**ZBT1020**	1/2	9/32	1/2	1*5/8	3*5/8	4° 33′	Short	TWF07	TX0807
	ZBT2020			1	2*1/2	4*3/8	3° 25′	Regular		
3/8	**ZBT1024**	1/2	11/32	5/8	1*1/2	3*9/16	3° 49′	Short	TWF08	TX1008
	ZBT2024			1*1/4	2*5/16	4*3/8	3° 08′	Regular		
1/2	**ZBT1032**	5/8	7/16	11/16	2*3/16	4*3/8	2° 49′	Short	TWF10	TX1210
5/8	**ZBT1040**	3/4	9/16	13/16	2*9/16	5	2° 25′	Short	TWF15	TX1615
3/4	**ZBT1048**	1	43/64	1	3*1/8	6	3° 53′	Short	*TWB20	TX2020
1	**ZBT1100**	1*1/4	29/32	1*1/4	3*9/16	7	4° 07′	Short	*TWB25	TX2525
1*1/4	**ZBT1116**	1*1/4	1*1/16	1*9/16	4*3/8	8	1° 30′	Short	*TWB30	TX3030

* Need to use T-HANDLE (TWH600)

Unit : mm

MILL DIAMETER (D1)	EDP No.	SHANK DIAMETER (D2)	NECK DIAMETER (D3)	LENGTH OF CUT (L1)	LENGTH BELOW SHANK (L3)	OVERALL LENGTH (L2)	INTERFERENCE ANGLE (θ°)	LENGTH TYPE	WRENCH	SCREW
8	**ZBT0801**	12	7.2	12	35	90	4° 43′	Short	TWF07	TX0807
	ZBT0802			25	55	110	3° 37′	Regular		
10	**ZBT1001**	12	9	15	35	90	2° 51′	Short	TWF08	TX1008
	ZBT1002			30	55	110	2° 17′	Regular		
12	**ZBT1201**	16	10.5	17	55	110	3° 23′	Short	TWF10	TX1210
16	**ZBT1601**	20	14.5	20	65	125	2° 51′	Short	TWF15	TX1615
20	**ZBT2001**	25	18	25	75	145	3° 26′	Short	* TWB20	TX2020
25	**ZBT2501**	32	22.5	30	90	170	4° 03′	Short	* TWB25	TX2525
30,32	**ZBT3001**	32	27	40	110	195	1° 38′	Short	*TWB30	TX3030

* Need to use T-HANDLE (TWH600)

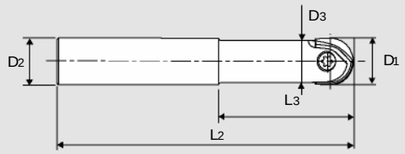
TOOL STEEL HOLDER ADVANTAGES

1. Premium alloy steel with excellent strength.

2. Precise shank, Tolerance (h6).

3. Black oxide treated, to prevent corrosion and improve

STRAIGHT NECK TYPE



Unit : inch

MILL DIAMETER (D1)	EDP No.	SHANK DIAMETER (D2)	NECK DIAMETER (D3)	LENGTH BELOW SHANK (L3)	OVERALL LENGTH (L2)	LENGTH TYPE	WRENCH	SCREW
1/2	**ZBS1032**	1/2	7/16	1*3/8	3*1/2	Short	TWF10	TX1210
	ZBS2032			2*3/16	4*3/8	Regular		
5/8	**ZBS1040**	5/8	9/16	1*3/8	3*3/4	Short	TWF15	TX1615
	ZBS2040			2*9/16	5	Regular		
3/4	**ZBS1048**	3/4	43/64	1*9/16	4*3/8	Short	* TWB20	TX2020
	ZBS2048			3	6	Regular		
1	**ZBS1100**	1	29/32	1*3/4	5	Short	* TWB25	TX2525
	ZBS2100			3*9/16	6*3/4	Regular		
1*1/4	**ZBS1116**	1*1/4	1*1/16	2*1/4	5*1/2	Short	* TWB30	TX3030
	ZBS2116			4*3/8	7*3/4	Regular		

* Need to use T-HANDLE (TWH600)

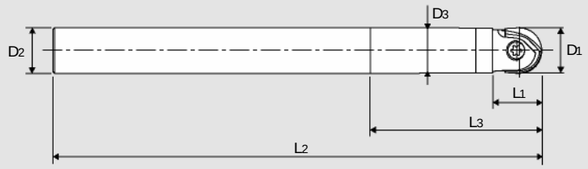
Unit : mm

MILL DIAMETER (D1)	EDP No.	SHANK DIAMETER (D2)	NECK DIAMETER (D3)	LENGTH BELOW SHANK (L3)	OVERALL LENGTH (L2)	LENGTH TYPE	WRENCH	SCREW
12	**ZBS1201**	12	10.5	35	90	Short	TWF10	TX1210
	ZBS1202			55	110	Regular		
16	**ZBS1601**	16	14.5	35	95	Short	TWF15	TX1615
	ZBS1602			65	125	Regular		
20	**ZBS2001**	20	18	40	110	Short	* TWB20	TX2020
	ZBS2002			75	145	Regular		
25	**ZBS2501**	25	22.5	45	125	Short	* TWB25	TX2525
	ZBS2502			90	170	Regular		
30, 32	**ZBS3001**	32	27	55	140	Short	* TWB30	TX3030
	ZBS3002			110	195	Regular		

* Need to use T-HANDLE (TWH600)

TOOL STEEL HOLDER ADVANTAGES

1. **Premium alloy steel with excellent strength.**
2. **Precise shank, Tolerance (h6).**
3. **Black oxide treated, to prevent corrosion and improve lubricity.**



Unit : inch

MILL DIAMETER (D1)	EDP No.	SHANK DIAMETER (D2)	NECK DIAMETER (D3)	LENGTH OF CUT (L1)	LENGTH BELOW SHANK (L3)	OVERALL LENGTH (L2)	LENGTH TYPE	WRENCH	SCREW
5/16	**ZBCB020**	5/16	19/64	1/2	1*9/16	5*1/8	Long	TWF07	TX0807
3/8	**ZBCB024**	3/8	23/64	5/8	2	5*1/2	Long	TWF08	TX1008
1/2	**ZBCB032**	1/2	31/64	11/16	2*3/8	5*15/16	Long	TWF10	TX1210
5/8	**ZBCB040**	5/8	39/64	13/16	3*3/16	7*15/16	Long	TWF15	TX1615
	ZBCD040					9*7/8			
3/4	**ZBCB048**	3/4	47/64	1	3*3/16	7*15/16	Long	* TWB20	TX2020
	ZBCC048				4	9*7/8			
1	**ZBCB100**	1	63/64	1*3/16	4*3/4	9*7/8	Long	* TWB25	TX2525
1*1/4	**ZBCB116**	1*1/4	1*15/64	1*9/16	5*15/16	11*7/8	Long	* TWB30	TX3030

* Need to use T-HANDLE (TWH600)

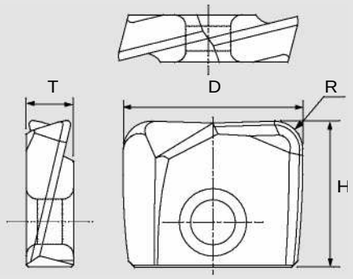
Unit : mm

MILL DIAMETER (D1)	EDP No.	SHANK DIAMETER (D2)	NECK DIAMETER (D3)	LENGTH OF CUT (L1)	LENGTH BELOW SHANK (L3)	OVERALL LENGTH (L2)	LENGTH TYPE	WRENCH	SCREW
8	**ZBC1080**	8	7.7	12	25	130	Long	TWF07	TX0807
10	**ZBC1100**	10	9.7	15	30	140	Long	TWF08	TX1008
12	**ZBC1120**	12	11.7	17	35	150	Long	TWF10	TX1210
16	**ZBC1160**	16	15.7	20	50	200	Long	TWF15	TX1615
20	**ZBC1200**	20	19.7	25	60	200	Long	* TWB20	TX2020
25	**ZBC1 250**	25	24.7	30	75	200	Long	* TWB25	TX2525
30, 32	**ZBC1 320**	32	29.7	40	90	250	Long	* TWB30	TX3030

* Need to use T-HANDLE (TWH600)

i-Xmill CARBIDE HOLDER ADVANTAGES

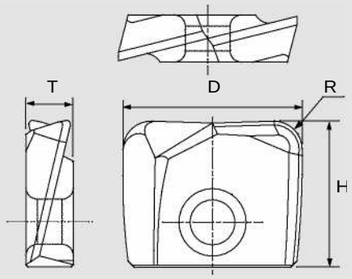
1. Equal tool rigidity with solid carbide end mill makes the stable and high finishing machining with the less vibration.
2. The high finishing machining for the deeper part of mold.
3. The tool life is longer than steel holder.
4. Shrink Fit Holding system can be applied.
5. Upon request, the broken holder is able to be fixed.



Unit : inch

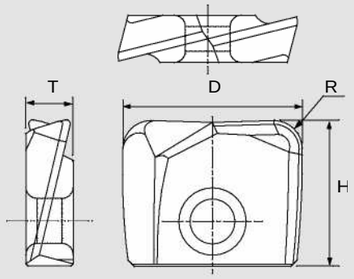
SIZE (D)	EDP No. (SAB) For GENERAL MATERIAL	EDP No. (SAB) For HARDENED MATERIAL	CORNER RADIUS (R)	HEIGHT (H)	THICKNESS (T)
5/16	XR1A020 01	XR2A020 01	R1/64	5/16	0.094
	XR1A020 02	XR2A020 02	R1/32		
3/8	XR1A024 01	XR2A024 01	R1/64	3/8	0.106
	XR1A024 02	XR2A024 02	R1/32		
	XR1A024 04	XR2A024 04	R1/16		
1/2	XR1A032 01	XR2A032 01	R1/64	7/16	0.126
	XR1A032 02	XR2A032 02	R1/32		
	XR1A032 04	XR2A032 04	R1/16		
5/8	XR1A040 01	XR2A040 01	R1/64	1/2	0.165
	XR1A040 02	XR2A040 02	R1/32		
	XR1A040 04	XR2A040 04	R1/16		
	XR1A040 08	XR2A040 08	R1/8		
3/4	XR1A048 01	XR2A048 01	R1/64	5/8	0.205
	XR1A048 02	XR2A048 02	R1/32		
	XR1A048 04	XR2A048 04	R1/16		
	XR1A048 08	XR2A048 08	R1/8		
1	XR1A100 01	XR2A100 01	R1/64	3/4	0.244
	XR1A100 02	XR2A100 02	R1/32		
	XR1A100 04	XR2A100 04	R1/16		
	XR1A100 08	XR2A100 08	R1/8		
1*1/4	XR1A116 01	XR2A116 01	R1/64	29/32	0.283
	XR1A116 02	XR2A116 02	R1/32		
	XR1A116 04	XR2A116 04	R1/16		
	XR1A116 08	XR2A116 08	R1/8		

∗ **The other corner radius value are available on request.**
▶For General Material (~HRc50)
▶For Hardened Material (HRc40~HRc65) Unit : mm



SIZE (D)	EDP No. For GENERAL MATERIAL	EDP No. For HARDENED MATERIAL	CORNER RADIUS (R)	HEIGHT (H)	THICKNESS (T)
8	XRAA080 03	XRBA080 03	R0.3	8	2.4
	XRAA080 05	XRBA080 05	R0.5		
	XRAA080 10	XRBA080 10	R1.0		
10	XRAA100 05	XRBA100 05	R0.5	9.5	2.7
	XRAA100 10	XRBA100 10	R1.0		
	XRAA100 20	XRBA100 20	R2.0		
12	XRAA120 05	XRBA120 05	R0.5	11	3.2
	XRAA120 10	XRBA120 10	R1.0		
	XRAA120 20	XRBA120 20	R2.0		
13	XRAA130 05	XRBA130 05	R0.5	11.2	3.2
	XRAA130 10	XRBA130 10	R1.0		
	XRAA1 30 20	XRBA1 30 20	R2.0		
16	XRAA160 05	XRBA160 05	R0.5	13	4.2
	XRAA160 10	XRBA160 10	R1.0		
	XRAA1 60 20	XRBA1 60 20	R2.0		
17	XRAA170 05	XRBA170 05	R0.5	13	4.2
	XRAA170 10	XRBA170 10	R1.0		
	XRAA1 70 20	XRBA1 70 20	R2.0		
20	XRAA200 05	XRBA200 05	R0.5	16	5.2
	XRAA200 10	XRBA200 10	R1.0		
	XRAA200 20	XRBA200 20	R2.0		
21	XRAA210 05	XRBA210 05	R0.5	16	5.2
	XRAA210 10	XRBA210 10	R1.0		
	XRAA210 20	XRBA210 20	R2.0		

∗ **The other corner radius value are available on request.**
▶For General Material (~HRc50)
▶For Hardened Material (HRc40~HRc65)

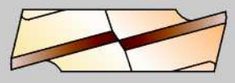


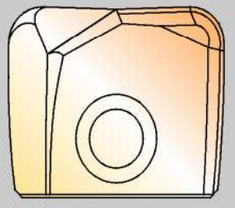
Unit : mm

SIZE (D)	EDP No. For GENERAL MATERIAL	EDP No. For HARDENED MATERIAL	CORNER RADIUS (R)	HEIGHT (H)	THICKNESS (T)
25	XRAA250 05	XRBA250 05	R0.5	19.5	6.2
	XRAA250 10	XRBA250 10	R1.0		
	XRAA250 20	XRBA250 20	R2.0		
26	XRAA260 05	XRBA260 05	R0.5	19.5	6.2
	XRAA260 10	XRBA260 10	R1.0		
	XRAA260 20	XRBA260 20	R2.0		
30	XRAA300 05	XRBA300 05	R0.5	23.5	7.2
	XRAA300 10	XRBA300 10	R1.0		
	XRAA300 20	XRBA300 20	R2.0		
32	XRAA320 05	XRBA320 05	R0.5	23.5	7.2
	XRAA320 10	XRBA320 10	R1.0		
	XRAA320 20	XRBA320 20	R2.0		

∗ **The other corner radius value are available on request.**
▶For General Material (~HRc50)
▶For Hardened Material (HRc40~HRc65)

i-Xmill CORNER RADIUS INSERT ADVANTAGES





1. The optimum geometry of the tool to achieve the better reliability and less vibration and cutting load.
2. Interchangeability with i-Xmill ball holder, but the precise cutting is possible with i-Xmill corner radius holder due to higher stability and strength of tool.
3. The various and wide cutting range makes it possible to machine over the roughing and finishing.
4. Special coating makes high hardness with high thermal stability against oxidation.

• The corner radius tolerance is ± 0.0006(± 0.01 5mm) and the set-up is ± 0.0008(±

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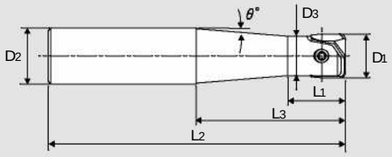
TAPER NECK TYPE



Unit : inch

MILL DIAMETER (D1)	EDP No.	SHANK DIAMETER (D2)	NECK DIAMETER (D3)	LENGTH OF CUT (L1)	LENGTH BELOW SHANK (L3)	OVERALL LENGTH (L2)	INTERFERENCE ANGLE (θ°)	LENGTH TYPE	WRENCH	SCREW
5/16	ZRT1 032	1/2	17/64	13/32	7/8	4	13° 58'	Regular	TWF07	TX0807
	ZRT2032				2	5*1/8	4° 12'	Long		
3/8	ZRT2410	1/2	5/16	17/32	1	4	9° 27'	Regular	TWF08	TX1008
	ZRT2420				2	5*15/16	3° 6'	Long		
1/2	ZRT3220	5/8	27/64	5/8	2*3/8	6*5/16	3° 19'	Long	TWF10	TX1210

Unit : mm

MILL DIAMETER (D1)	EDP No.	SHANK DIAMETER (D2)	NECK DIAMETER (D3)	LENGTH OF CUT (L1)	LENGTH BELOW SHANK (L3)	OVERALL LENGTH (L2)	INTERFERENCE ANGLE (θ°)	LENGTH TYPE	WRENCH	SCREW
8	ZRT8011	12	6.7	10	22	100	9°	Regular	TWF07	TX0807
	ZRT8021				50	130	2° 43'	Long		
10	ZRT1001	12	8.6	13	25	100	4° 45'	Regular	TWF08	TX1008
	ZRT1002				50	150	1° 32'	Long		
12	ZRT1202	16	10.2	15	60	160	2° 32'	Long	TWF10	TX1210

i-Xmill STEEL HOLDER ADVANTAGES

1. Premium alloy steel with excellent strength.
2. Precise shank tolerance (h6).
3. Black oxide treated, to prevent corrosion and improve lubricity.

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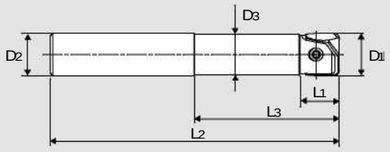
STRAIGHT NECK TYPE



Unit : inch

MILL DIAMETER (D1)	EDP No.	SHANK DIAMETER (D2)	NECK DIAMETER (D3)	LENGTH OF CUT (L1)	LENGTH BELOW SHANK (L3)	OVERALL LENGTH (L2)	LENGTH TYPE	WRENCH	SCREW
1/2	**ZRS1032**	1/2	7/16	17/32	1*3/16	4*3/8	Regular	TWF10	TX1210
5/8	**ZRS1040**	5/8	19/32	5/8	2	5*1/8	Regular	TWF15	TX1615
	ZRS2040				2*9/16	6*1/2	Intermediate		
3/4	**ZRS1048**	3/4	23/32	23/32	2*3/8	5*1/2	Regular	✻ TWB20	TX2020
	ZRS2048				3*1/8	7*1/8	Intermediate		
1	**ZRS1100**	1	31/32	29/32	2*3/4	5*15/16	Regular	✻ TWB25	TX2525
	ZRS2100				3*9/16	8	Intermediate		
1*1/4	**ZRS1116**	1*1/4	1*7/32	1*1/8	3*1/8	6*5/16	Regular	✻ TWB30	TX3030
	ZRS2116				4	8*11/16	Intermediate		

✻ Need to use T-HANDLE (TWH600)

Unit : mm

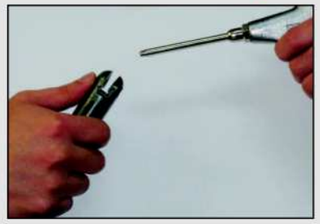
MILL DIAMETER (D1)	EDP No.	SHANK DIAMETER (D2)	NECK DIAMETER (D3)	LENGTH OF CUT (L1)	LENGTH BELOW SHANK (L3)	OVERALL LENGTH (L2)	LENGTH TYPE	WRENCH	SCREW
12	**ZRS1120**	12	11	13	30	110	Regular	TWF10	TX1210
16	**ZRS1160**	16	15	15	50	130	Regular	TWF15	TX1615
	ZRS2160				65	165	Intermediate		
20	**ZRS1200**	20	19	18	60	140	Regular	✻ TWB20	TX2020
	ZRS2200				80	180	Intermediate		
25	**ZRS1250**	25	24	23	70	150	Regular	✻ TWB25	TX2525
	ZRS2250				90	200	Intermediate		
30	**ZRS1300**	32	29	27	80	160	Regular	✻ TWB30	TX3030
	ZRS2300				100	220	Intermediate		
32	**ZRS1320**	32	31	28	80	160	Regular	✻ TWB30	TX3030
	ZRS2320				100	220	Intermediate		

✻ Need to use T-HANDLE (TWH600)

i-Xmill STEEL HOLDER ADVANTAGES

1. Premium alloy steel with excellent strength.
2. Precise shank tolerance (h6).
3. Black oxide treated, to prevent corrosion and improve lubricity.

ASSEMBLY OF i-Xmill



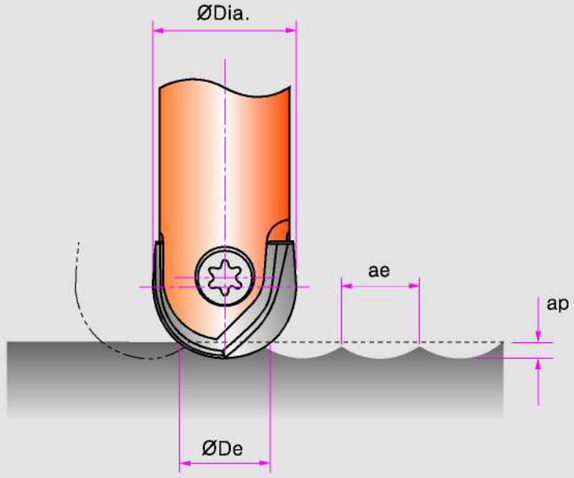
▲ Make sure to clean the insert and insert seat.

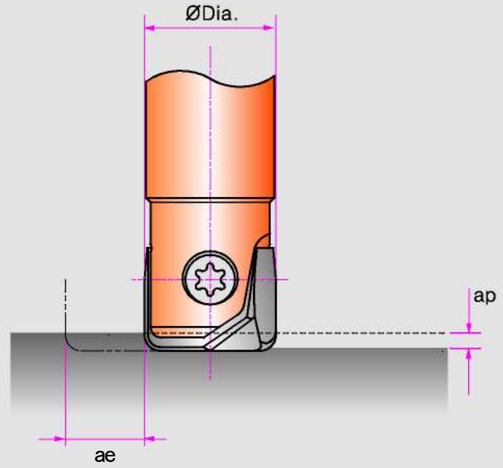
▲ Slide the insert into the slot of the holder.
Tighten the screw using anti-seize compound.

SIZE (ØD	CLAMPING TORQUE [lbs · ft]
Ø5/16″ (Ø8)	0.75
Ø3/8″ (Ø10)	1.10
Ø1/2″ (Ø12)	1.85
Ø5/8″ (Ø16)	2.60
Ø3/4″ (Ø20)	3.70
Ø1″ (Ø25)	4.40
Ø 1*1/4″ (Ø30, Ø32)	4.80

∗ When the screw is worn out, please change the new screw.
∗ Please tighten up the screw with recommended torque. (Please refer to the table)
∗ Don't press down the insert, when the screw is tightened.

CUTTING CONDITION





RPM = revolution per minute (rev/min)
SFM = surface feet per minute (ft/min)
Dia. = diameter of insert (inch)
IPR = feed rate (inch/rev)
IPM = inch per minute penetration rate
De = effective tool diameter (inch)
ap = axial depth of cut (inch)
ae = radial depth of cut (inch)

$$\text{SFM [ft/min]} = \frac{(\text{RPM}) \bullet (\pi) \bullet (\text{Dia.})}{12}$$

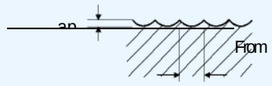
$$\text{IPM [inch/min]} = (\text{RPM}) \bullet \text{IPR}$$

$$\text{RPM [rev/min]} = \frac{\text{SFM} \bullet 12}{(\pi) \bullet \text{Dia.}}$$

$$\text{De [inch]} = \sqrt{2\,(\text{ap}) \bullet (\text{Dia.}-\text{ap})}$$

i-Xmill BALL (XB1A, XB2C, XBAA, XBBC Series)

WORK MATERIAL		NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		DIE TOOL STEELS PRE-HARDENED		HARDENED STEELS	
	HB	~280		280~380		380~480		480~740	
HARDNESS	HRc	~30		30~40		40~50		50~65	
STRENGTH	N/mm²	~1000		1000~1250		1250~1500		1500~	
i-Xmill TYPE		XB1A (XBAA)		XB1A (XBAA)		XB1A (XBAA) XB2C (XBBC)		XB2C (XBBC)	
CUTTING CONDITION Roughing-Finishing		RPM [rev/min]	Feed (IPM) [inch/min]	RPM [rev/min]	Feed (IPM) [inch/min]	RPM [rev/min]	Feed (IPM) [inch/min]	RPM [rev/min]	Feed (IPM) [inch/min]
Ø5/16˝ (Ø8)		6370-12730	100-200	4770-11140	80-180	3980-8750	50-140	3180-7160	30-110
Ø3/8˝ (Ø10)		5090-1 1460	80-180	3820-9550	60-150	3180-8280	40-130	2550-6370	20-100
Ø1/2˝ (Ø12)		4240-1 0080	70-160	3180-9280	50-150	2650-7430	30-120	2120-5840	20-90
Ø5/8˝ (Ø16)		3180-9550	60-230	2390-7560	50-180	1990-6960	30-160	1590-5170	20-120
Ø3/4˝ (Ø20)		2550-9230	50-290	191 0-6680	40-21 0	1 590-6370	30-200	1 270-5090	20-1 60
Ø1˝ (Ø25)		2040-7640	40-300	1 530-61 10	30-240	1 270-5730	20-230	1020-4580	1 0-1 80
Ø1 *1/4˝ (Ø30, Ø32)		1 700-7430	30-350	1 270-5840	30-280	1 060-531 0	20-250	850-4240	1 0-200



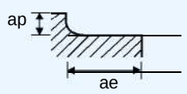
ae : Roughing - 0.1 x D
Finishing - Under Ø1/2 ″ : 0.01″
Ø1/2″ ~Ø5/8″ : 0.012″
Ø3/4 ″ : 0.016″
ap : Roughing - Under Ø5/8 ″ : 0.025 x D
Ø5/8 ″ : 0.05 x D
Finishing - 0.004″

▶ Recommend to reduce the feed rate to 70 - 85% when you use long tools.

RPM = rev./min.
FEED = inch/min.

i-Xmill CORNER RADIUS (XR1A, XR2A, XRAA, XRBA Series)

WORK MATERIAL		NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		DIE TOOL STEELS PRE-HARDENED		HARDENED STEELS	
	HB	~280		280~380		380~480		480~740	
HARDNESS	HRc	~30		30~40		40~50		50~65	
STRENGTH	N/mm²	~1000		1000~1250		1250~1500		1500~	
i-Xmill TYPE		XR1A (XRAA)		XR1A (XRAA)		XR1A (XRAA) XR2A (XRBA)		XR2A (XRBA)	
CUTTING CONDITION Roughing-Finishing		RPM [rev/min]	Feed (IPM) [inch/min]	RPM [rev/min]	Feed (IPM) [inch/min]	RPM [rev/min]	Feed (IPM) [inch/min]	RPM [rev/min]	Feed (IPM) [inch/min]
Ø5/16˝ (Ø8)		6370-11940	100-140	4770-11140	80-130	3980-11140	40-52	3180-7160	25-34
Ø3/8˝ (Ø10)		5090-9550	80-110	3820-8910	60-110	3180-8910	30-42	2550-6370	20-28
Ø1/2˝ (Ø12, Ø13)		4240-7960	70-90	31 80-7430	50-90	2650-7430	25-35	21 20-5840	1 8-24
Ø5/8˝ (Ø1 6, Ø17)		31 80-5970	60-90	2390-5570	50-90	1 990-5570	24-34	1 590-51 70	1 8-22
Ø3/4˝ (Ø20, Ø21)		2550-4770	50-80	191 0-4460	40-70	1 590-4460	20-26	1 270-5090	1 5-1 8
Ø1˝ (Ø25, Ø26)		2040-3820	40-60	1 530-3570	30-60	1 270-3570	1 5-20	1020-4580	1 2-14
Ø1*1/4″ (Ø30, Ø32)		1700-3180	30-50	1270-2970	30-50	1060-2970	14-18	850-4240	10-12



ae : Roughing - 0.1 x D
Finishing - 0.008″
ap : Roughing - Under Ø5/8 ″ : 0.025 x D
From Ø5/8 ″ : 0.05 x D
Finishing - Under Ø5/8 ″ : 0.004″
Ø5/8 ″ : 0.008″

▶ Recommend to reduce the feed rate to 70 - 85% when you use long tools.

RPM = rev./min.
FEED = inch/min.

MEMO

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