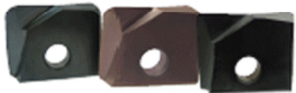


SELECTION GUIDE

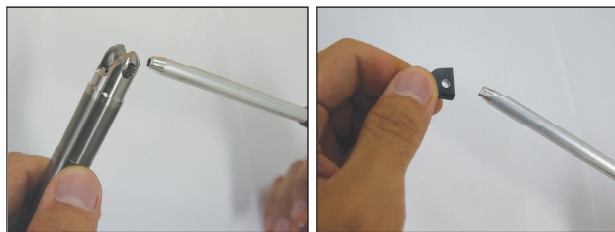
i-Xmill END MILLS

● : Excellent ○ : Good

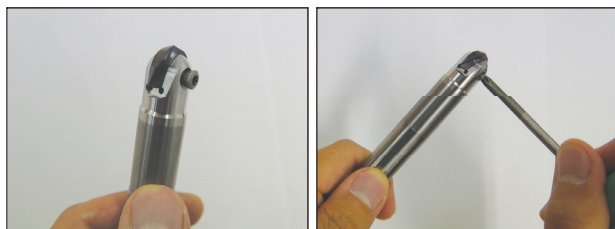
ITEM	MODEL	DESCRIPTION	Carbon Steels		Alloy Steels		Tool Steels		Cast Iron	Hardened Steels	Stainless Steels	Aluminum	Graphite	
			~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc50~	~HRc28	~HRc8		
INCH														
XB1A		i-Xmill BALL INSERT FOR GENERAL PURPOSE												
XB2C		i-Xmill BALL INSERT FOR HARDENED STEEL												
XB1D		i-Xmill BALL INSERT FOR GRAPHITE												
ZBT / ZBS		i-Xmill BALL HOLDERS - STEEL												
ZBC		i-Xmill BALL HOLDERS - CARBIDE												
XR1A		i-Xmill CORNER RADIUS INSERTS FOR GENERAL PURPOSE												
XR2A		i-Xmill CORNER RADIUS INSERTS FOR HARDENED STEEL												
XR1D		i-Xmill CORNER RADIUS INSERTS FOR GRAPHITE												
ZRT / ZRS		i-Xmill CORNER RADIUS HOLDERS - STEEL												

METRIC

i-XmII												
XB1N		i-XmII BALL INSERT FOR GENERAL PURPOSE										
XB2N		i-XmII BALL INSERT FOR HARDENED STEEL										
XBAD		i-XmII BALL INSERT FOR GRAPHITE										
ZBT / ZBS		i-XmII BALL HOLDERS - STEEL										
ZBC		i-XmII BALL HOLDERS - CARBIDE										
XRAA		i-XmII CORNER RADIUS INSERTS FOR GENERAL PURPOSE										
XRBA		i-XmII CORNER RADIUS INSERTS FOR HARDENED STEEL										
XRAD		i-XmII CORNER RADIUS INSERTS FOR GRAPHITE										
ZRT / ZRS		i-XmII CORNER RADIUS HOLDERS - STEEL										

ASSEMBLY OF i-Xmill


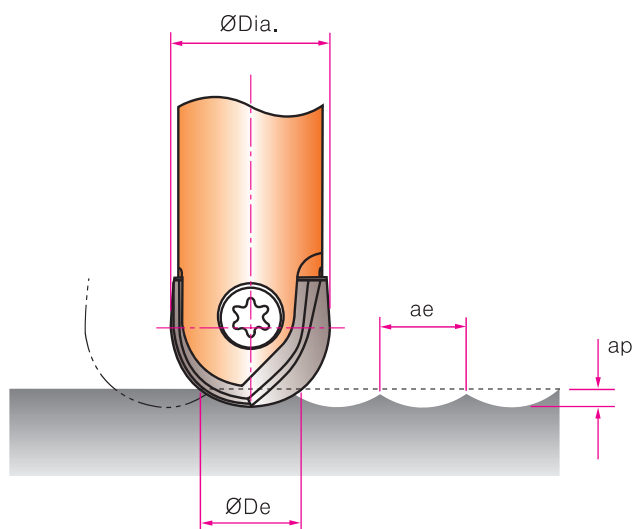
◀ Make sure to clean the insert and insert seat.



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

SIZE	CLAMPING TORQUE
ØD	[in · lbs]
Ø5/16 [Ø8]	9.0
Ø3/8 [Ø10]	13.5
Ø1/2 [Ø12~Ø13]	22.5
Ø5/8 [Ø16~Ø17]	31.5
Ø3/4 [Ø20~Ø21]	44.5
Ø1 [Ø25~Ø26]	53.0
Ø1-1/4 [Ø30~Ø32]	58.0

- * 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)

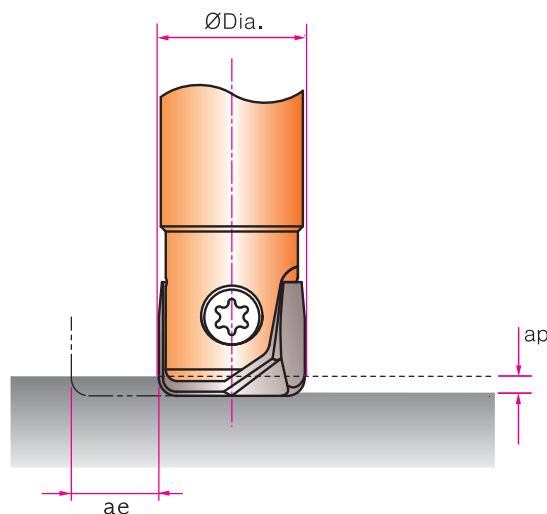
IPR = feed rate (inch/rev)

IPM = inch per minute penetration rate

De = effective tool diameter (inch)

ap = axial depth of cut (inch)

ae = radial depth of cut (inch)



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

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

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

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

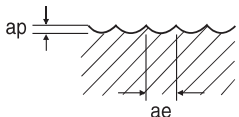
CARBIDE

HSS


**i-Xmill
END MILLS**
RECOMMENDED CUTTING CONDITIONS
CBN
END MILLi-Xmill
END MILLX5070
END MILLS4G MILLS
END MILLSX-SPEED
ROUGHER
END MILLSX-POWER
END MILLSJET-POWER
END MILLSV7 Mill STEEL
END MILLSV7 Mill INOX
END MILLSALU-POWER
END MILLSD-POWER
END MILLSSTANDARD
CARBIDE
END MILLSTANK-POWER
END MILLSSTANDARD
COBALT
& HSS
END MILLSTECHNICAL
DATA
i-Xmill BALL INSERTS
XB1A, XB2C, XB1N, XB2N SERIES

WORK MATERIAL		NON-ALLOYED STEELS ALLOY STEELS CAST IRON				ALLOY STEELS HEAT RESISTANT STEELS			
HARDNESS	HB	~280				280~380			
	HRc	~30				30~40			
STRENGTH	N/mm ²	~1000				1000~1250			
i-Xmill TYPE		XB1A, XB1N				XB1A, XB1N			
CUTTING CONDITION Roughing~Finishing		RPM [rev/min]	Feed (IPM) [inch/min]	Vc(SFM) [ft/min]	fz [inch/t]	RPM [rev/min]	Feed (IPM) [inch/min]	Vc(SFM) [ft/min]	fz [inch/t]
Ø5/16(Ø8)		6370~12730	100~200	525~1050	.008~.008	4770~11140	80~180	394~919	.008~.008
Ø3/8(Ø10)		5090~11460	80~180	525~1181	.008~.008	3820~9550	60~150	394~984	.008~.008
Ø1/2(Ø12, Ø13)		4240~10080	70~160	525~1247	.008~.008	3180~9280	50~150	394~1148	.008~.008
Ø5/8(Ø16, Ø17)		3180~9550	60~230	525~1575	.010~.012	2390~7560	50~180	394~1247	.010~.012
Ø3/4(Ø20, Ø21)		2550~9230	50~290	525~1903	.010~.016	1910~6680	40~210	394~1378	.010~.016
Ø1(Ø25, Ø26)		2040~7640	40~300	525~1969	.010~.020	1530~6110	30~240	394~1575	.010~.020
Ø1-1/4(Ø30, Ø32)		1700~7430	30~350	525~2297	.010~.024	1270~5840	30~280	394~1804	.010~.024

DIE TOOL STEELS PRE-HARDENED				HARDENED STEELS				Graphite			
380~480				480~740							
40~50				50~65							
1250~1500				1500~							
XB1A, XB1N XB2C, XB2N				XB2C, XB2N				XB1D, XBAD			
RPM [rev/min]	Feed (IPM) [inch/min]	Vc(SFM) [ft/min]	fz [inch/t]	RPM [rev/min]	Feed (IPM) [inch/min]	Vc(SFM) [ft/min]	fz [inch/t]	RPM [rev/min]	Feed (IPM) [inch/min]	Vc(SFM) [ft/min]	fz [inch/t]
3980~8750	50~140	328~722	.006~.008	3180~7160	30~110	262~591	.004~.008	11940~15920	190~250	984~1312	.008~.008
3180~8280	40~130	328~853	.006~.008	2550~6370	20~100	262~656	.004~.008	9550~12730	150~200	984~1312	.008~.008
2650~7430	30~120	328~919	.006~.008	2120~5840	20~90	262~722	.004~.008	7960~10610	130~170	984~1312	.008~.008
1990~6960	30~160	328~1148	.008~.012	1590~5170	20~120	262~853	.006~.012	5970~7960	120~190	984~1312	.010~.012
1590~6370	30~200	328~1312	.008~.016	1270~5090	20~160	262~1050	.006~.016	4770~7640	110~210	984~1575	.012~.014
1270~5730	20~230	328~1476	.008~.020	1020~4580	10~180	262~1181	.006~.020	3820~7130	110~220	984~1837	.014~.016
1060~5310	20~250	328~1640	.008~.024	850~4240	10~200	262~1312	.006~.024	3180~6900	100~270	984~2133	.016~.020



ae : Roughing - 0.1 x D
 Finishing - Under Ø1/2 : 0.01
 Under Ø3/4 : 0.012
 From Ø3/4 : 0.016

ap : Roughing - Under Ø5/8 : 0.025 x D
 From Ø5/8 : 0.05 x D
 Finishing - 0.004

► Recommend to reduce the feed rate to 70 ~ 85% when you use long (long & intermediate Type Holder)

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



i-Xmill CORNER RADIUS INSERTS

 CBN
END MILL

 i-Xmill
END MILL

 X5070
END MILLS

 4G MILLS
END MILLS

 X-SPEED
ROUGHER
END MILLS

 X-POWER
END MILLS

 JET-POWER
END MILLS

 V7 Mill STEEL
END MILLS

 V7 Mill INOX
END MILLS

 ALU-POWER
END MILLS

 D-POWER
END MILLS

 STANDARD
CARBIDE
END MILLS

 TANK-POWER
END MILLS

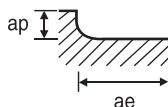
 STANDARD
COBALT
& HSS
END MILLS

 TECHNICAL
DATA

XR1A, XR2A, XRAA, XRBA SERIES

WORK MATERIAL		NON-ALLOYED STEELS ALLOY STEELS CAST IRON				ALLOY STEELS HEAT RESISTANT STEELS			
HARDNESS	HB	~280				280~380			
	HRC	~30				30~40			
STRENGTH	N/mm²	~1000				1000~1250			
i-Xmill TYPE		XR1A, XRAA				XR1A, XRAA			
CUTTING CONDITION Roughing~Finishing		RPM [rev/min]	Feed (IPM) [inch/min]	Vc(SFM) [ft/min]	fz [inch/t]	RPM [rev/min]	Feed (IPM) [inch/min]	Vc(SFM) [ft/min]	fz [inch/t]
Ø5/16(Ø8)		6370~11940	100~140	525~984	.008~.006	4770~11140	80~130	394~919	.008~.006
Ø3/8(Ø10)		5090~9550	80~110	525~984	.008~.006	3820~8910	60~110	394~919	.008~.006
Ø1/2(Ø12, Ø13)		4240~7960	70~90	525~984	.008~.006	3180~7430	50~90	394~919	.008~.006
Ø5/8(Ø16, Ø17)		3180~5970	60~90	525~984	.010~.008	2390~5570	50~90	394~919	.010~.008
Ø3/4(Ø20, Ø21)		2550~4770	50~80	525~984	.010~.008	1910~4460	40~70	394~919	.010~.008
Ø1(Ø25, Ø26)		2040~3820	40~60	525~984	.010~.008	1530~3570	30~60	394~919	.010~.008
Ø1-1/4(Ø30, Ø32)		1700~3180	30~50	525~984	.010~.008	1270~2970	30~50	394~919	.010~.008

DIE TOOL STEELS PRE-HARDENED				HARDENED STEELS				Graphite			
380~480				480~740							
40~50				50~65							
1250~1500				1500~							
XR1A, XRAA XR2A, XRBA				XR2A, XRBA				XR1D, XRAD			
RPM [rev/min]	Feed (IPM) [inch/min]	Vc(SFM) [ft/min]	fz [inch/t]	RPM [rev/min]	Feed (IPM) [inch/min]	Vc(SFM) [ft/min]	fz [inch/t]	RPM [rev/min]	Feed (IPM) [inch/min]	Vc(SFM) [ft/min]	fz [inch/t]
3980~11140	40~52	328~919	.005~.002	3180~7160	25~34	262~722	.004~.002	11940~15920	190~250	984~1312	.008~.008
3180~8910	30~42	328~919	.005~.002	2550~6370	20~28	262~722	.004~.002	9550~12730	150~200	984~1312	.008~.008
2650~7430	25~35	328~919	.005~.002	2120~5840	18~24	262~722	.004~.002	7960~10610	130~170	984~1312	.008~.008
1990~5570	24~34	328~919	.006~.003	1590~5170	18~22	262~722	.006~.002	5970~7960	90~130	984~1312	.008~.008
1590~4460	20~26	328~919	.006~.003	1270~5090	15~18	262~722	.006~.002	4770~6370	90~130	984~1312	.010~.010
1270~3570	15~20	328~919	.006~.003	1020~4580	12~14	262~722	.006~.002	3820~5090	80~100	984~1312	.010~.010
1060~2970	14~18	328~919	.006~.003	850~4240	10~12	262~722	.006~.002	3180~4240	60~80	984~1312	.010~.010


 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
From Ø5/8 : 0.008

► Recommend to reduce the feed rate to 70 ~ 85% when you use long (long & intermediate Type Holder)

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