

2-SCREW INDEXABLE MILLS FOR DEEP DEPTH OF CUT AND HIGH METAL REMOVAL!

90° Router Series (Depth of Cut)

15X1W / 5X6W (.61")

15X1X / 5X6X (.82")

15X1Z / 5X6Z (.99")

90° Finisher Series (Depth of Cut)

15J1H (.95")

Chamfer Series (Angles)

15_1H (15°, 30°, 45°, 60°, 75°)

Diameter Range:

0.750 - 5.000"

20.0 - 80.0 mm

90° Router Insert Series:

XPET14, XEET24, XFEB33

Finisher / Chamfer Insert Series

BEHW25

Corners:

.020", .031", .062", .079", .093", .125",
.157", .197", .250" R

90° Router Materials:

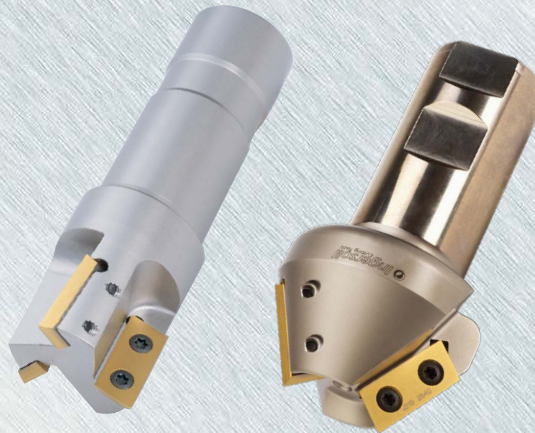
Non-Ferrous

Finisher / Chamfer Materials:

Steel, SS, Iron, Non-Ferrous



90° Aluminum Routers



90° Finish & Chamfer Mills

Overview:

Ingersoll is the originator of the 2-Screw 90° Router for medium & large platform machines in the Aerospace industry. Designed for the utmost insert seating security, the RoughAir line boasts accelerated feed rates for maximum productivity. It is an excellent choice for all HPC (High Performance Cutting) applications.

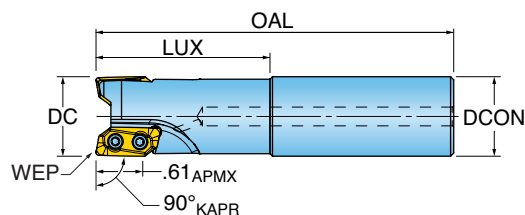
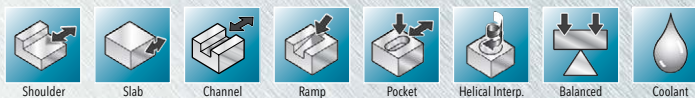
Features and Benefits

- Strong & durable clamping with 2-Screw design
- Long depth of cut allows blending between passes
- Router insert shape accommodates aggressive ramping and interpolation
- Router inserts with positive rake face offer efficiency for medium platform machines
- Router inserts with flat face for heavy duty roughing
- Cutters balanced for high RPM applications
- Common precision ground insert interchanges with finish & chamfer mills



SERIES 15X1W

90° ALUMINUM ROUTER END MILL, CYLINDRICAL



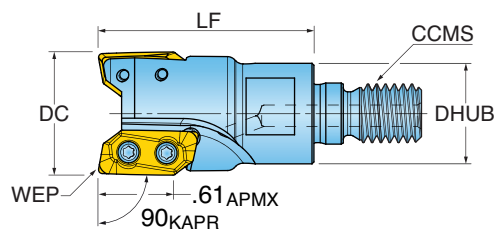
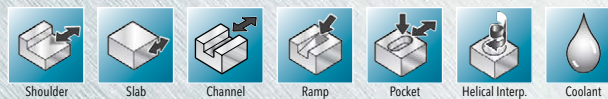
WEP - See insert drawing for wiper options.

Part Number	DC Cutting Dia.	LUX Usable Length Max.	OAL Overall Length	ZEFF Effective Teeth	DCON Bore Diameter	RPMX RPM Max.
15X1W-07020S1R01	0.750	2.25	5.00	1	1.0000	50,000
15X1W-10020S1R01	1.000	2.20	4.50	2	1.0000	38,000
15X1W-12020S9R01	1.250	2.20	4.50	3	1.2500	30,000
15X1W-15040S5R01	1.500	4.06	6.75	3	1.5000	25,000

Max RPM applies to a properly balanced assembly to G2.5 (toolholder, cutter & inserts). *OAL length measured with R.031 insert; see page 23 for insert radii offsets.

SERIES 15X1W

90° ALUMINUM ROUTER END MILL, TOP-ON



WEP - See insert drawing for wiper options.

INCH

Part Number	DC Cutting Dia.	LF Functional Length	ZEFF Effective Teeth	CCMS Connection Code Machine Side	DHUB Hub Diameter
15X1W-07013X6R01	0.750	1.38	1	TopOn M10	0.69
15X1W-10017X7R01	1.000	1.75	2	TopOn M12	0.81
15X1W-12017X8R01	1.250	1.75	3	TopOn M16	1.13
15X1W-15017X8R01	1.500	1.75	3	TopOn M16	1.13

METRIC

Part Number	DC Cutting Dia.	LF Functional Length	ZEFF Effective Teeth	CCMS Connection Code Machine Side	DHUB Hub Diameter
15X1W020035X6R00	20.00 mm	35.0 mm	2	TopOn M10	18.0 mm
15X1W025043X7R00	25.00 mm	43.0 mm	2	TopOn M12	23.0 mm
15X1W032043X8R00	32.00 mm	43.0 mm	3	TopOn M16	30.0 mm
15X1W040053X8R00	40.00 mm	53.0 mm	3	TopOn M16	30.0 mm

*LF length measured with R.031 insert; see page 23 for insert radii offsets.

SERIES 5X6W

90° ALUMINUM ROUTER FACE MILL



Shoulder



Slab



Channel



Ramp



Pocket



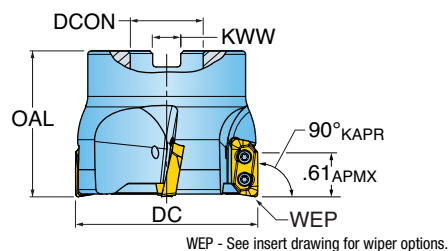
Helical Interp.



Balanced



Coolant



INCH

Part Number	DC Cutting Dia.	OAL Overall Length	ZEFF Effective Teeth	DCON Bore Diameter	KWW Keyway	RPMX RPM Max.
5X6W-20R01	2.000	2.000	4	0.7500	0.312	19,000
5X6W-25R01	2.500	2.000	4	1.0000	0.375	15,000
5X6W-30R01	3.000	2.000	5	1.0000	0.375	12,500

METRIC

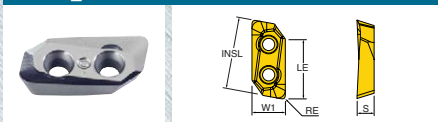
Part Number	DC Cutting Dia.	OAL Overall Length	ZEFF Effective Teeth	DCON Bore Diameter	KWW Keyway	RPMX RPM Max.
5X6W050R00	50.00 mm	50.00 mm	4	22.00 mm	10.40 mm	19,000
5X6W052R00	52.00 mm	50.00 mm	4	22.00 mm	10.40 mm	18,000
5X6W063R00	63.00 mm	50.00 mm	5	27.00 mm	12.40 mm	15,000

Max RPM applies to a properly balanced assembly to G2.5 (toolholder, cutter & inserts).

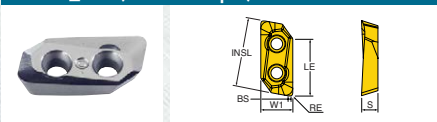
*OAL length measured with R.031 insert; see page 23 for insert radii offsets.

14MM INSERTS

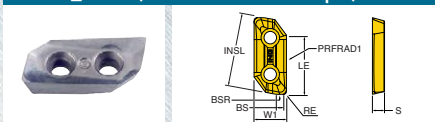
XPET14_FR-P



XPET14_FR-P (Flat Face Wiper)



XPET14_FR-PW (Crowned Face & OD Wiper)



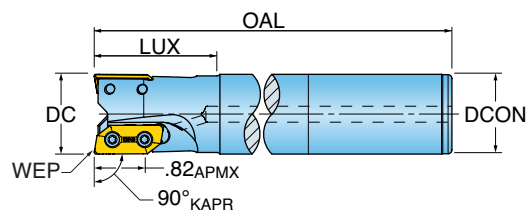
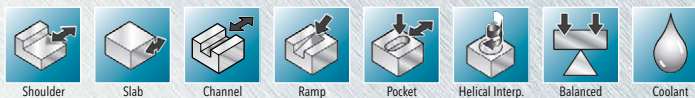
Part Number	Application	RE Corner Radius	W1 Insert Width	BS Wiper Length	BSR Wiper Radius	PRFRAD1 Profile Radius 1	LE Cutting Edge Eff. Length	INSL Insert Length	S Thickness	NOI Number of Indexes	IH Insert Hand	Grade	IN15K
XPET140416FR-P	Grd/Pol for Al	0.062 R	0.362	-	-	-	0.620	0.751	0.185	2	Right		•
XPET140420FR-P	Grd/Pol for Al	0.079 R	0.362	-	-	-	0.620	0.751	0.185	2	Right		•
XPET140424FR-P	Grd/Pol for Al	0.093 R	0.362	-	-	-	0.620	0.751	0.182	2	Right		•
XPET140432FR-P	Grd/Pol for Al	0.125 R	0.362	-	-	-	0.620	0.751	0.180	2	Right		•
XPET140440FR-P	Grd/Pol for Al	0.157 R	0.362	-	-	-	0.620	0.751	0.180	2	Right		•
XPET140405FR-P	Flat Wiper	0.020 R	0.362	0.019	-	-	0.620	0.751	0.186	2	Right		•
XPET140408FR-P	Flat Wiper	0.031 R	0.362	0.008	-	-	0.620	0.751	0.186	2	Right		•
XPET140408FR-PW	Crowned Wiper	0.031 R	0.362	0.130	1.969	13.834	0.620	0.751	0.186	2	Right		•

14MM HARDWARE

	Insert Screw	T Handle Torx Driver	Wrench	Retention Bolt	Retention Bolt w/Coolant	Torque Driver Handle	Torque Driver Bit	Preset Torque Bit
15X1W-07020S1R01	SM30-065-00	DS-T09W	-	-	-	DS-A00-.25-S	DS-T09B	DT-18-.25
15X1W-10020S1R01	SM30-065-00	DS-T09W	-	-	-	DS-A00-.25-S	DS-T09B	DT-18-.25
15X1W-12020S9R01	SM30-082-00	DS-T09W	-	-	-	DS-A00-.25-S	DS-T09B	DT-18-.25
15X1W-15040S5R01	SM30-082-00	DS-T09W	-	-	-	DS-A00-.25-S	DS-T09B	DT-18-.25
15X1W-07013X6R01	SM30-065-00	DS-T09W	615 MM	-	-	DS-A00-.25-S	DS-T09B	DT-18-.25
15X1W-10017X7R01	SM30-065-00	DS-T09W	617 MM	-	-	DS-A00-.25-S	DS-T09B	DT-18-.25
15X1W-12017X8R01	SM30-082-00	DS-T09W	622 MM	-	-	DS-A00-.25-S	DS-T09B	DT-18-.25
15X1W-15017X8R01	SM30-082-00	DS-T09W	622 MM	-	-	DS-A00-.25-S	DS-T09B	DT-18-.25
15X1W020035X6R00	SM30-065-00	DS-T09W	615 MM	-	-	DS-A00-.25-S	DS-T09B	DT-18-.25
15X1W025043X7R00	SM30-065-00	DS-T09W	617 MM	-	-	DS-A00-.25-S	DS-T09B	DT-18-.25
15X1W032043X8R00	SM30-065-00	DS-T09W	622 MM	-	-	DS-A00-.25-S	DS-T09B	DT-18-.25
15X1W040053X8R00	SM30-065-00	DS-T09W	622 MM	-	-	DS-A00-.25-S	DS-T09B	DT-18-.25
5X6W-20R01	SM30-082-00	DS-T09W	-	SD-06-46	SD-06-89	DS-A00-.25-S	DS-T09B	DT-18-.25
5X6W-25R01	SM30-082-00	DS-T09W	-	SD-08-46	SD-08-92	DS-A00-.25-S	DS-T09B	DT-18-.25
5X6W-30R01	SM30-082-00	DS-T09W	-	SD-08-46	SD-08-92	DS-A00-.25-S	DS-T09B	DT-18-.25
5X6W050R00	SM30-082-00	DS-T09W	-	ISO4762M10X25-12.9	-	DS-A00-.25-S	DS-T09B	DT-18-.25
5X6W052R00	SM30-082-00	DS-T09W	-	ISO4762M10X25-12.9	-	DS-A00-.25-S	DS-T09B	DT-18-.25
5X6W063R00	SM30-082-00	DS-T09W	-	ISO4762M12X35-12.9	-	DS-A00-.25-S	DS-T09B	DT-18-.25

SERIES 15X1X

90° ALUMINUM ROUTER END MILL, CYLINDRICAL



WEP - See insert drawing for wiper options.

Part Number	DC Cutting Dia.	LUX Usable Length Max.	OAL Overall Length	ZEFF Effective Teeth	DCON Bore Diameter	RPMX RPM Max.
15X1X-10020S1R01*	1.000	2.00	8.00	2	1.0000	38,000
15X1X-12020S9R01	1.250	2.00	8.00	2	1.2500	30,000
15X1X-15040S9R02	1.500	4.00	10.00	3	1.2500	25,000

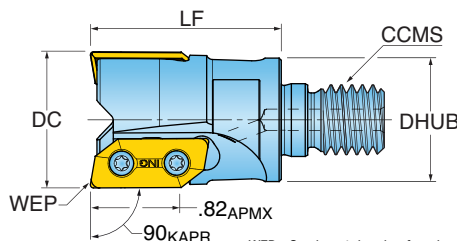
Max RPM applies to a properly balanced assembly to G2.5 (toolholder, cutter & inserts).

*15X1X-10020S1R01 uses XEET25040XR-P only.

*OAL length measured with R.031 insert; see page 23 for insert radii offsets.

SERIES 15X1X

90° ALUMINUM ROUTER END MILL, TOP-ON



WEP - See insert drawing for wiper options.

INCH

Part Number	DC Cutting Dia.	LF Functional Length	ZEFF Effective Teeth	CCMS Connection Code Machine Side	DHUB Hub Diameter
15X1X-12017X8R01	1.250	1.75	2	TopOn M16	1.13
15X1X-15018X8R01	1.500	1.88	2	TopOn M16	1.13

METRIC

Part Number	DC Cutting Dia.	LF Functional Length	ZEFF Effective Teeth	CCMS Connection Code Machine Side	DHUB Hub Diameter
15X1X025043X7R00	25.00 mm	43.0 mm	1	TopOn M12	24.0 mm
15X1X032043X8R00	32.00 mm	43.0 mm	2	TopOn M16	31.2 mm
15X1X042053X8R00	42.00 mm	53.0 mm	3	TopOn M16	40.8 mm

*LF length measured with R.031 insert; see page 23 for insert radii offsets.

SERIES 5X6X

90° ALUMINUM ROUTER FACE MILL



Shoulder



Slab



Channel



Ramp



Pocket



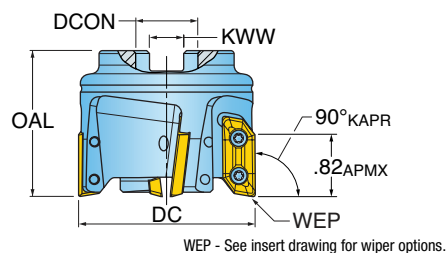
Helical Interp.



Balanced



Coolant



INCH

Part Number	DC Cutting Dia.	OAL Overall Length	ZEFF Effective Teeth	DCON Bore Diameter	KWW Keyway	RPMX RPM Max.
5X6X-20R01	2.000	2.000	3	0.7500	0.312	19,000
5X6X-30R01	3.000	2.375	5	1.0000	0.375	12,500
5X6X-40R01	4.000	2.375	5	1.5000	0.625	9,000

METRIC

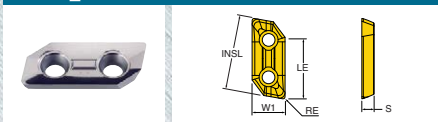
Part Number	DC Cutting Dia.	OAL Overall Length	ZEFF Effective Teeth	DCON Bore Diameter	KWW Keyway	RPMX RPM Max.
5X6X050R00	50.00 mm	50.00 mm	3	22.00 mm	10.40 mm	19,000
5X6X052R00	52.00 mm	50.00 mm	3	22.00 mm	10.40 mm	18,000
5X6X066R00	66.00 mm	50.00 mm	4	27.00 mm	12.40 mm	14,500
5X6X080R00	80.00 mm	50.00 mm	5	27.00 mm	12.40 mm	12,000

Max RPM applies to a properly balanced assembly to G2.5 (toolholder, cutter & inserts).

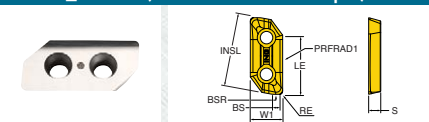
*OAL length measured with R.031 insert; see page 23 for insert radii offsets.

25MM INSERTS

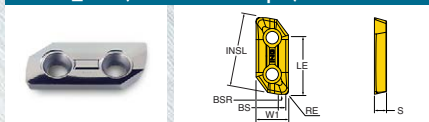
XEET25_P



XEET25_PWRWK (Crowned Face & OD Wiper)



XEET25_PW2 (Crowned Face Wiper)



Part Number	Application	RE Corner Radius	W1 Insert Width	BS Wiper Length	BSR Wiper Radius	PRFRAD1 Profile Radius 1	LE Cutting Edge Eff. Length	INSL Insert Length	S Thickness	NOI Number of Indexes	IH Insert Hand	Grade	IN15K
XEET250408R-P	Grd/Pol for Al	0.031 R	0.452	-	-	-	0.800	1.015	0.165	2	Right	•	
XEET250416R-P	Grd/Pol for Al	0.062 R	0.452	-	-	-	0.800	1.015	0.165	2	Right	•	
XEET250420R-P	Grd/Pol for Al	0.079 R	0.452	-	-	-	0.800	1.015	0.165	2	Right	•	
XEET250424R-P	Grd/Pol for Al	0.093 R	0.452	-	-	-	0.800	1.015	0.165	2	Right	•	
XEET250432R-P	Grd/Pol for Al	0.125 R	0.452	-	-	-	0.800	1.015	0.165	2	Right	•	
XEET250450R-P	Grd/Pol for Al	0.197 R	0.452	-	-	-	0.800	1.015	0.165	2	Right	•	
XEET250408R-PWRWK	Crowned Wiper	0.031 R	0.445	0.130	1.500	73.000	0.800	1.054	0.165	2	Right	•	
XEET250432R-PW2	Crowned Wiper	0.125 R	0.445	0.170	4.000	-	0.800	1.022	0.165	2	Right	•	
XEET25040XR-P*	Grd/Pol for Al	0.031 R	0.394	-	-	-	0.800	0.994	0.150	2	Right	•	

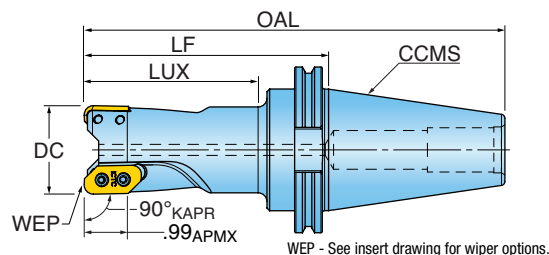
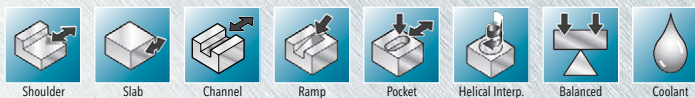
*XEET25040XR-P used with 15X1X-10020S1R01 only

25MM HARDWARE

										
	Insert Screw	Driver Handle	Torx Driver Blade	T Handle Torx Driver	Wrench	Retention Bolt	Retention Bolt w/Coolant	Torque Driver Handle	Torque Driver Bit	Preset Torque Bit
15X1X-10020S1R01	SM40-090-00	DS-A00T	DS-T156B	DS-T15T	-	-	-	DS-A00-.25-T	DS-T15B1	DT-35-.25
15X1X-12020S9R01	SM40-090-00	DS-A00T	DS-T156B	DS-T15T	-	-	-	DS-A00-.25-T	DS-T15B1	DT-35-.25
15X1X-15040S5R01	SM40-090-00	DS-A00T	DS-T156B	DS-T15T	-	-	-	DS-A00-.25-T	DS-T15B1	DT-35-.25
15X1X-15040S9R02	SM40-090-00	DS-A00T	DS-T156B	DS-T15T	-	-	-	DS-A00-.25-T	DS-T15B1	DT-35-.25
15X1X-20040S2R01	SM40-090-00	DS-A00T	DS-T156B	DS-T15T	-	-	-	DS-A00-.25-T	DS-T15B1	DT-35-.25
15X1X-12017X8R01	SM40-090-00	DS-A00T	DS-T156B	DS-T15T	622 MM	-	-	DS-A00-.25-T	DS-T15B1	DT-35-.25
15X1X-15018X8R01	SM40-090-00	DS-A00T	DS-T156B	DS-T15T	622 MM	-	-	DS-A00-.25-T	DS-T15B1	DT-35-.25
5X6X-20R01	SM40-090-00	DS-A00T	DS-T156B	DS-T15T	-	SD-06-47	SD-06-A6	DS-A00-.25-T	DS-T15B1	DT-35-.25
5X6X-30R01	SM40-090-00	DS-A00T	DS-T156B	DS-T15T	-	SD-08-48	-	DS-A00-.25-T	DS-T15B1	DT-35-.25
5X6X-40R01	SM40-090-00	DS-A00T	DS-T156B	DS-T15T	-	SD-12-82	SD-12-99	DS-A00-.25-T	DS-T15B1	DT-35-.25

SERIES 15X1Z

V-FLANGE STYLE



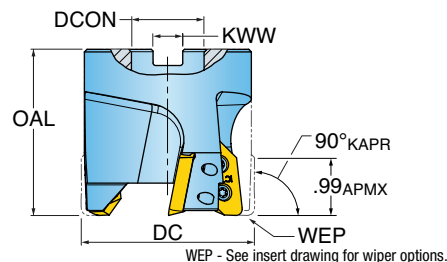
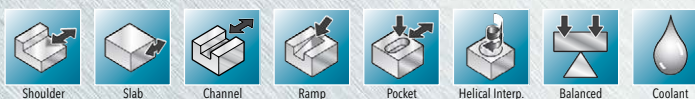
Part Number	DC Cutting Dia.	LUX Usable Length Max.	LF Functional Length	OAL Overall Length	ZEFF Effective Teeth	CCMS Connection Code Machine Side	RPMX RPM Max.
15X1Z-2005548R01	2.000	3.851	5.500	9.500	2	ICTC #50 .125 Draw	19,000

Max RPM applies to a properly balanced assembly to G2.5 (toolholder, cutter & inserts).

*OAL length measured with R.031 insert; see page 23 for insert radii offsets.

SERIES 5X6Z

90° HIGH-SPEED ALUMINUM ROUTER FACE MILL



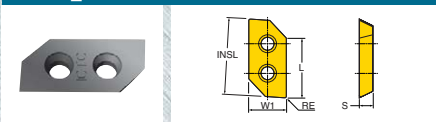
Part Number	DC Cutting Dia.	OAL Overall Length	ZEFF Effective Teeth	DCON Shank Diameter	KWW Keyway	RPMX RPM Max.
5X6Z-30R01	3.000	2.875	3	1.250	0.500	12,500
5X6Z-40R01	4.000	2.875	3	1.500	0.625	9,000

Max RPM applies to a properly balanced assembly to G2.5 (toolholder, cutter & inserts).

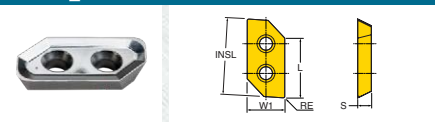
*OAL length measured with R.031 insert; see page 23 for insert radii offsets.

33MM INSERTS

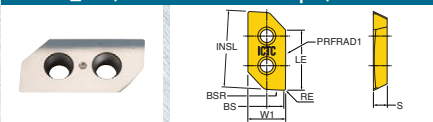
XFEB33_P



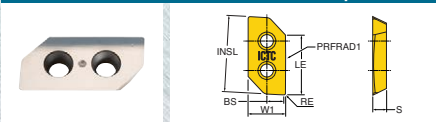
XFEB33_P2



XFEB33_PW (Crowned Face & OD Wiper)



XFEB33_PW1 (Flat Face & Crowned OD Wiper)



Part Number	Application	RE Corner Radius	W1 Insert Width	BS Wiper Length	BSR Wiper Radius	PRFRAD1 Profile Radius 1	LE Cutting Edge Eff. Length	INSL Insert Length	S Thickness	NOI Number of Indexes	IH Insert Hand	Grade	INT5K	IN05S
XFEB330508R-P*	Flat Top for Al	0.031	0.635	-	-	-	0.990	1.300	0.230	2	Right		•	
XFEB330516R-P*	Flat Top for Al	0.062	0.635	-	-	-	0.980	1.300	0.230	2	Right		•	
XFEB330532R-P*	Flat Top for Al	0.125	0.635	-	-	-	0.970	1.300	0.230	2	Right		•	
XFEB330532R-P2	High Pos for Al	0.125	0.635	-	-	-	0.970	1.300	0.230	2	Right			•
XFEB330564R-P*	Flat Top for Al	0.250	0.635	-	-	-	0.950	1.300	0.230	2	Right		•	
XFEB330508R-PW	Crowned Wiper	0.031	0.635	0.310	6.000	40.000	0.990	1.324	0.230	2	Right		•	
XFEB330532R-PW1	Flat Wiper	0.125	0.625	0.318	-	30.000	0.970	1.293	0.230	2	Right			•

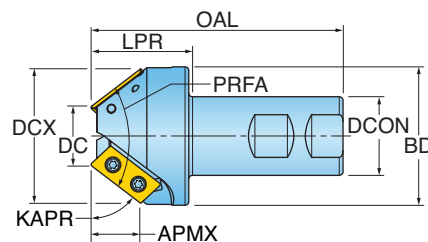
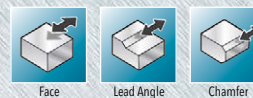
*Offered with Sharp edge (S) for finishing and Honed edge (Y) for roughing

33MM HARDWARE

								
	Insert Screw	Driver Handle	Torx Driver Blade	T Handle Torx Driver	Retention Bolt w/Coolant	Torque Driver Handle	Torque Driver Bit	Preset Torque Bit
15X1Z-2005548R01	SM50-100-10	DS-A00T	DS-T206B	DS-T20T	-	DS-A00-.25-T	DS-T20B1	DT-44-.25
5X6Z-40R01	SM50-100-10	DS-A00T	DS-T206B	DS-T20T	SD12-89	DS-A00-.25-T	DS-T20B1	DT-44-.25
5X6Z-50R01	SM50-100-10	DS-A00T	DS-T206B	DS-T20T	SD12-89	DS-A00-.25-T	DS-T20B1	DT-44-.25

SERIES 15*1H

CHAMFER END MILL

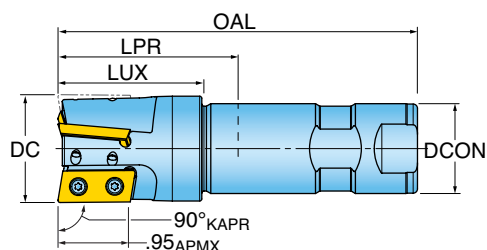


Part Number	DC Cutting Dia.	DCX Cutting Dia. Max.	KAPR Cutting Edge Angle	PRFA Profile Angle	APMX Depth of Cut Max.	LPR Projection Length	OAL Overall Length	ZEFF Effective Teeth	BD Body Diameter	DCON Bore Diameter
15N1H-0802286R01	0.875	2.270	45.0	90.0	0.690	2.250	4.910	2	2.630	1.500
15M1H-1001781R01	1.000	2.015	60.0	60.0	0.850	1.750	4.000	2	2.080	1.250

*OAL length measured with R.031 insert; see page 23 for insert radii offsets.

SERIES 15J1H

90° FINISHING END MILL

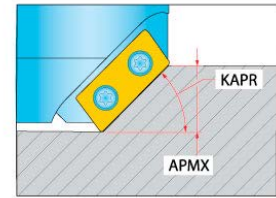
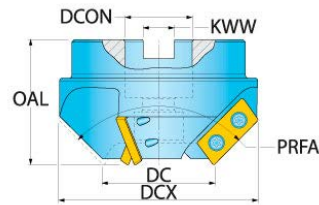


Part Number	DC Cutting Dia.	LUX Usable Length Max.	LPR Protruding Length	OAL Overall Length	ZEFF Effective Teeth	DCON Bore Diameter
15J1H-0702280R01	0.75	1.30	2.25	4.50	1	1.00
15J1H-1002281R01	1.00	1.40	1.50	4.50	1	1.25
15J1H-1202781R01	1.25	1.90	2.75	5.00	2	1.25
15J1H-1502781R01	1.50	2.00	2.00	5.00	3	1.25

*OAL length measured with R.031 insert; see page 23 for insert radii offsets.

SERIES 15_1H

CHAMFER FACE MILL

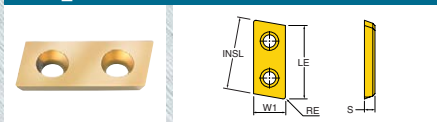


Part Number	DC Cutting Dia.	DCX Cutting Dia. Max.	KAPR Cutting Edge Angle	PRFA Profile Angle	APMX Depth of Cut Max.	OAL Overall Length	ZEFF Effective Teeth	DCON Bore Diameter	KWW Keyway
15L1H045050F1R00	45.00 mm	58.1 mm	75.00	30.00	24.40 mm	50.00 mm	3	22.000 mm	10.40 mm
15M1H045050F2R00	45.00 mm	70.3 mm	60.00	60.00	21.80 mm	50.00 mm	3	22.000 mm	10.40 mm
15N1H045050F2R00	45.00 mm	80.7 mm	45.00	90.00	17.80 mm	50.00 mm	3	27.000 mm	12.40 mm
15P1H045050F2R00	45.00 mm	88.5 mm	30.00	120.00	12.40 mm	50.00 mm	3	27.000 mm	12.40 mm
15Q1H045050F2R00	45.00 mm	93.4 mm	15.00	150.00	6.40 mm	50.00 mm	3	27.000 mm	12.40 mm

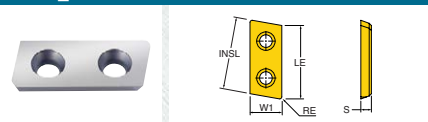
*OAL length measured with R.031 insert; see page 23 for insert radii offsets.

25MM INSERTS

BEHW_R



BEHW_R-P



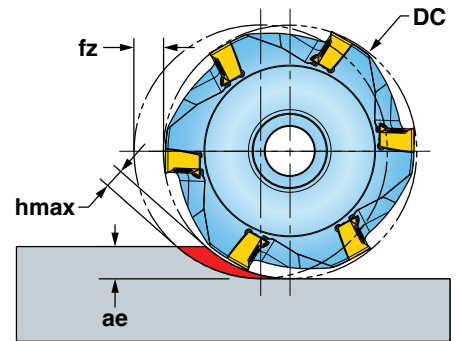
Part Number	Application	RE Corner Radius	W1 Insert Width	LE Cutting Edge Eff. Length	INSL Insert Length	S Thickness	NOI Number of Indexes	IH Insert Hand	Grade	IN15K	IN2540
BEHW250304R	Multi-Purpose	0.015 R	0.438	0.950	1.000	0.145	2	Right			•
BEHW250308R	Multi-Purpose	0.031 R	0.438	0.950	1.000	0.145	2	Right			•
BEHW250316R	Multi-Purpose	0.062 R	0.438	0.940	1.000	0.145	2	Right			•
BEHW250332R	Multi-Purpose	0.125 R	0.438	0.930	1.000	0.145	2	Right			•
BEHW250364R	Multi-Purpose	0.250 R	0.438	0.930	1.000	0.145	2	Right			•
BEHW250304R-P	Grd/Pol for Al	0.015 R	0.438	0.950	1.000	0.145	2	Right		•	
BEHW250308R-P	Grd/Pol for Al	0.031 R	0.438	0.950	1.000	0.145	2	Right		•	

25MM HARDWARE

								
	Insert Screw	Driver Handle	Torx Driver Blade	T Handle Torx Driver	Retention Bolt	Torque Driver Handle	Torque Driver Bit	Preset Torque Bit
15N1H-0802286R01	SE06-037-00	DS-A00T	DS-T156B	DS-T15T	-	DS-A00-.25-T	DS-T15B1	DT-35-.25
15M1H-1001781R01	SE06-037-00	DS-A00T	DS-T156B	DS-T15T	-	DS-A00-.25-T	DS-T15B1	DT-35-.25
15J1H-0702280R01	SE06-028-00	DS-A00T	DS-T156B	DS-T15T	-	DS-A00-.25-T	DS-T15B1	DT-35-.25
15J1H-1002281R01	SE06-028-00	DS-A00T	DS-T156B	DS-T15T	-	DS-A00-.25-T	DS-T15B1	DT-35-.25
15J1H-1202781R01	SE06-028-00	DS-A00T	DS-T156B	DS-T15T	-	DS-A00-.25-T	DS-T15B1	DT-35-.25
15J1H-1502781R01	SE06-028-00	DS-A00T	DS-T156B	DS-T15T	-	DS-A00-.25-T	DS-T15B1	DT-35-.25
15J1H-2002782R01	SE06-028-00	DS-A00T	DS-T156B	DS-T15T	-	DS-A00-.25-T	DS-T15B1	DT-35-.25
15L1H045050F1R00	SM35-089-00	DS-A00T	DS-T156B	DS-T15T	ISO4762M10X25-12.9	DS-A00-.25-T	DS-T15B	DT-35-.25
15M1H045050F2R00	SM35-089-00	DS-A00T	DS-T156B	DS-T15T	ISO4762M12X35-12.9	DS-A00-.25-T	DS-T15B	DT-35-.25
15N1H045050F2R00	SM35-089-00	DS-A00T	DS-T156B	DS-T15T	ISO4762M12X35-12.9	DS-A00-.25-T	DS-T15B	DT-35-.25
15P1H045050F2R00	SM35-089-00	DS-A00T	DS-T156B	DS-T15T	ISO4762M12X35-12.9	DS-A00-.25-T	DS-T15B	DT-35-.25
15Q1H045050F2R00	SM35-089-00	DS-A00T	DS-T156B	DS-T15T	ISO4762M12X35-12.9	DS-A00-.25-T	DS-T15B	DT-35-.25

OPERATING GUIDELINES - 14MM INSERT

Chip Thinning



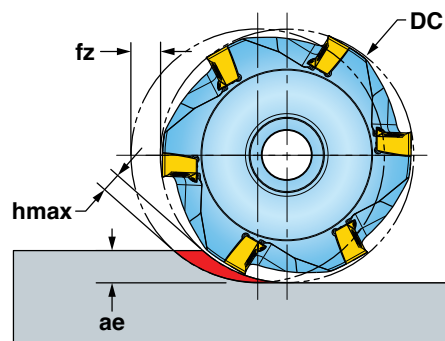
* When ae is less than 25% DC, recommend use of Chip Thinning Calculator to ensure hmax falls within fz range.

ISO	Mat'l Group	Materials		Vc Cutting Speed SFM	fz * Feed/Tooth (inch)	Grade	Coolant
		Type	Examples			IN15K	
N	21-30	Aluminum	7075, 6061	1000-10000	.008-.020	1	Yes

Note: Feed and speed recommendations are starting operating parameters. They are only guidelines from which further optimization should take place. Operating parameters are influenced by many machining variables. These variables may cause for reductions in feeds and speed or dramatic increases. Additionally, DOC and WOC may need to be revised to optimize the tools performance.

OPERATING GUIDELINES - 25MM INSERT (XEET)

Chip Thinning



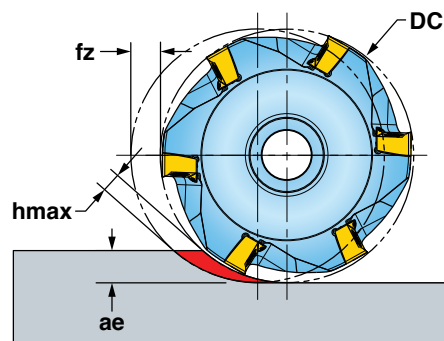
* When ae is less than 25% DC, recommend use of Chip Thinning Calculator to ensure hmax falls within fz range.

ISO	Mat'l Group	Materials		Vc Cutting Speed SFM	fz * Feed/Tooth (inch)	Grade	Coolant
		Type	Examples			IN15K	
N	21-30	Aluminum	7075, 6061	1000-10000	.008-.020	1	Yes

Note: Feed and speed recommendations are starting operating parameters. They are only guidelines from which further optimization should take place. Operating parameters are influenced by many machining variables. These variables may cause for reductions in feeds and speed or dramatic increases. Additionally, DOC and WOC may need to be revised to optimize the tools performance.

OPERATING GUIDELINES - 33MM INSERT

Chip Thinning



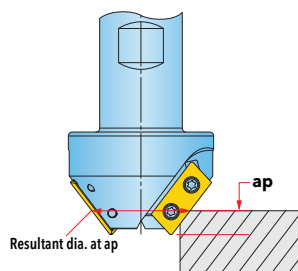
* When ae is less than 25% DC, recommend use of Chip Thinning Calculator to ensure hmax falls within fz range.

ISO	Mat'l Group	Materials		Vc Cutting Speed SFM	fz * Feed/Tooth (inch)	Grade	Coolant
		Type	Examples			IN15K	
N	21-30	Aluminum	7075, 6061	2000-15000	.008-.020	1	Yes

Note: Feed and speed recommendations are starting operating parameters. They are only guidelines from which further optimization should take place. Operating parameters are influenced by many machining variables. These variables may cause for reductions in feeds and speed or dramatic increases. Additionally, DOC and WOC may need to be revised to optimize the tools performance.

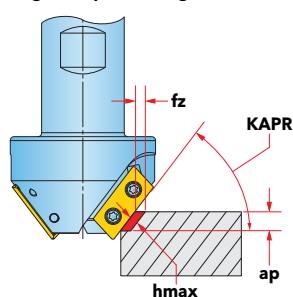
OPERATING GUIDELINES - 25MM INSERT (BEHW)

RPM Calculation



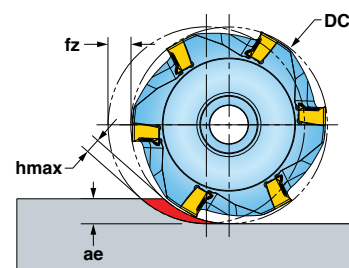
Calculation is to be made using the resultant diameter at ap

Lead Angle Chip Thinning



*Chip thinning calculator is recommended to ensure hmax falls within fz range

Chip Thinning

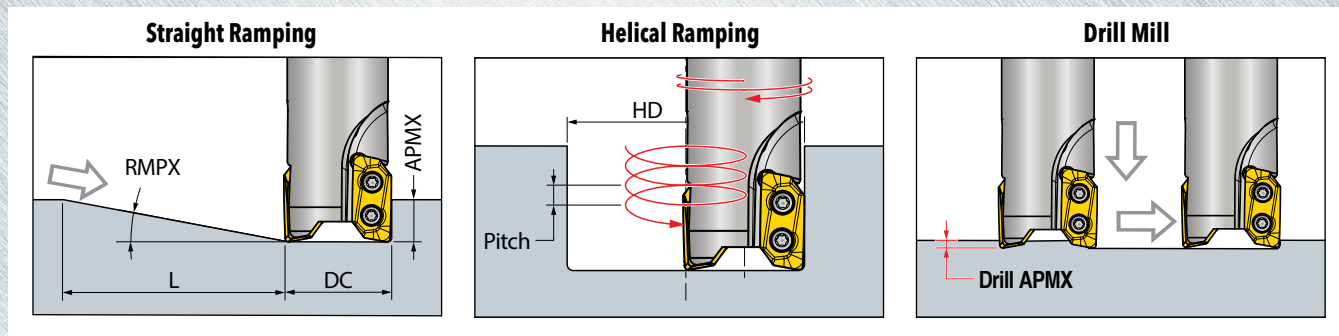


* When ap is less than 25% DC, recommend use of Chip Thinning Calculator to ensure hmax falls within fz range.

Materials				Vc Cutting Speed SFM	fz * Feed/Tooth (inch)	Harder ← → Tougher		Coolant
ISO	Mat'l Group	Type	Examples			IN2540	IN15K	
P	1-5	Non-alloy Steel	1018, A36, 1045, A572, 1070	400-1000	.003-.006	1		No
	6-9	Low-alloy Steel	4140, 4340, P20, 8620, 300M	300-500				
	10-11	High-alloy Steel	H13, A2, D2, M2, T1	300-700				
M	12	Stainless Steel (ferritic & martensitic)	203, 303, 409	300-700	.003-.006	1		May not be required at high speeds
	13	Stainless Steel (martensitic)	410, 416, 440	400-900				
	14	Stainless Steel (austenitic)	304, 310, 13-8	200-400				Yes
K	15-16	Gray Cast Iron	CLS. 20, 30, 45	300-1000	.003-.006	1		No
	17-18	Nodular Cast Iron	60-40-18, 100-70-03	300-600				
N	21-30	Aluminum	7075, 6061	1000-8000	.003-.006		1	Yes

Note: Feed and speed recommendations are starting operating parameters. They are only guidelines from which further optimization should take place. Operating parameters are influenced by many machining variables. These variables may cause for reductions in feeds and speed or dramatic increases. Additionally, DOC and WOC may need to be revised to optimize the tools performance.

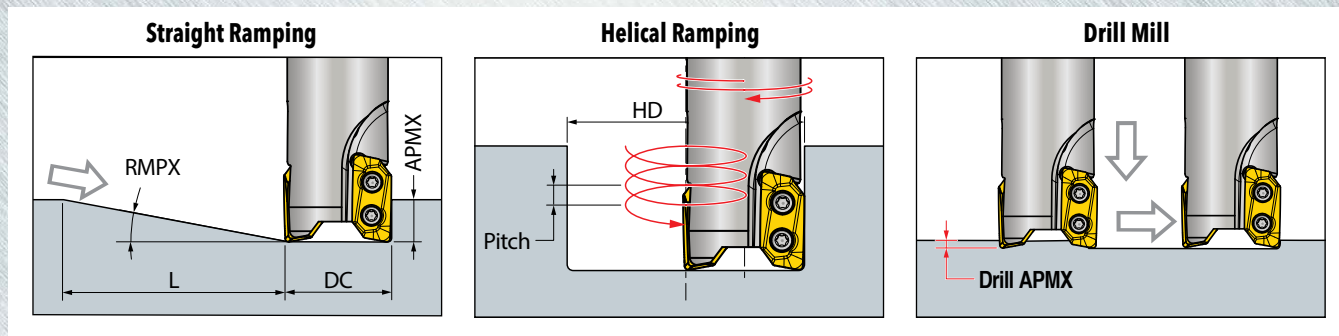
OPERATING GUIDELINES - 14MM RAMPING DATA



DC Cutter Diameter	Straight Ramp			Helical Ramp			Drill Mill
	RMPX Ramp Angle Max.	APMX Depth of Cut Max.	L Ramp Length Min.	HD Hole Dia. Min.	HD Hole Dia. Max.	Pitch Max.	Drill APMX Depth of Cut Max.
0.750	38.8	0.61	0.8	0.75	1.50	0.61	0.16
1.000	21.8	0.61	1.5	1.24	2.00	0.61	0.16
1.250	13.9	0.61	2.5	1.74	2.50	0.61	0.16
1.500	10.7	0.61	3.2	2.24	3.00	0.61	0.16
2.000	6.9	0.61	5.0	3.24	4.00	0.61	0.16
2.500	4.9	0.61	7.1	4.24	5.00	0.61	0.16
3.000	3.9	0.61	8.9	5.24	6.00	0.61	0.16
4.000	3.4	0.61	10.3	7.24	8.00	0.61	0.16
5.000	2.1	0.61	16.6	9.24	10.00	0.61	0.16
6.000	1.7	0.61	20.6	11.24	12.00	0.61	0.16

Ramp angles values were calculated using the -08, 0.031" corner radius insert and will work for general use.

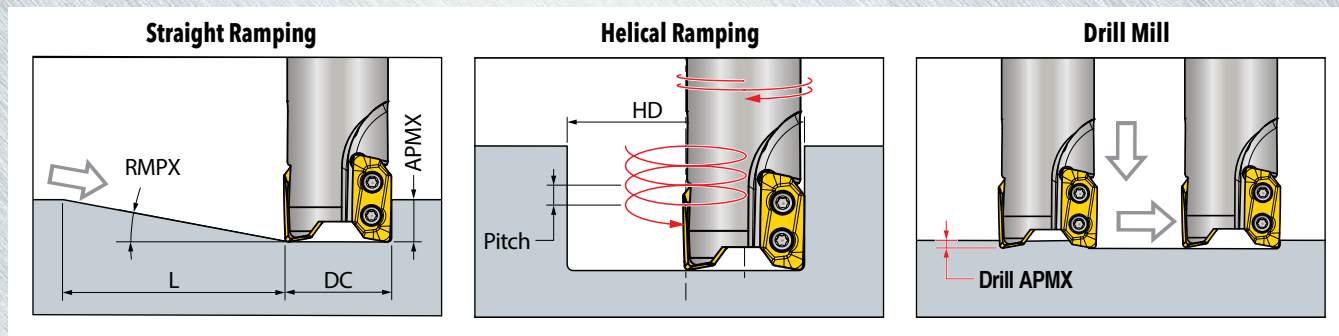
OPERATING GUIDELINES - 25MM RAMPING DATA



DC Cutter Diameter	Straight Ramp			Helical Ramp			Drill Mill
	RMPX Ramp Angle Max.	APMX Depth of Cut Max.	L Ramp Length Min.	HD Hole Dia. Min.	HD Hole Dia. Max.	Pitch Max.	Drill APMX Depth of Cut Max.
1.000	26.3	0.82	1.7	1.24	2.00	0.82	0.18
1.250	25.2	0.82	1.7	1.74	2.50	0.82	0.18
1.500	13.5	0.82	3.4	2.24	3.00	0.82	0.18
2.000	10.5	0.82	4.4	3.24	4.00	0.82	0.18
2.500	7.5	0.82	6.2	4.24	5.00	0.82	0.18
3.000	5.9	0.82	7.9	5.24	6.00	0.82	0.18
4.000	4.1	0.82	11.4	7.24	8.00	0.82	0.18
5.000	3.1	0.82	15.1	9.24	10.00	0.82	0.18
6.000	2.5	0.82	18.8	11.24	12.00	0.82	0.18

Ramp angles values were calculated using the -08, 0.031" corner radius insert and will work for general use.

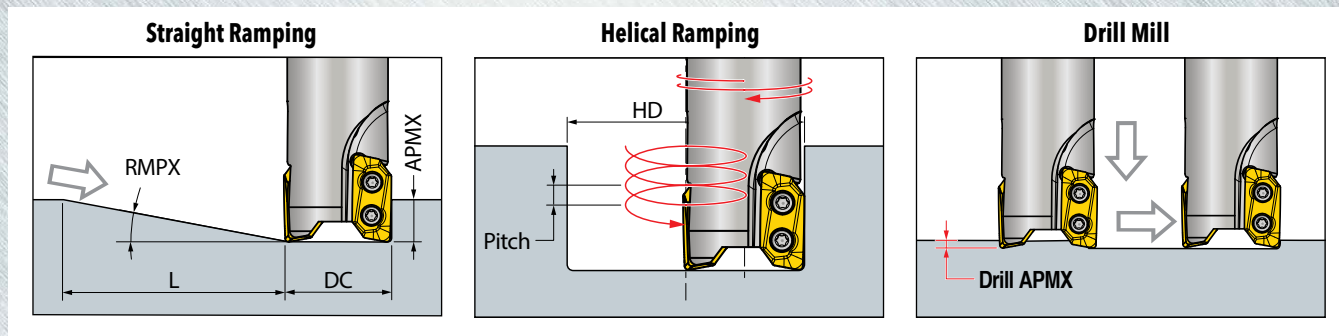
OPERATING GUIDELINES - 33MM RAMPING DATA



DC Cutter Diameter	Straight Ramp			Helical Ramp			Drill Mill
	RMPX Ramp Angle Max.	APMX Depth of Cut Max.	L Ramp Length Min.	HD Hole Dia. Min.	HD Hole Dia. Max.	Pitch Max.	Drill APMX Depth of Cut Max.
2.000	17.7	0.99	3.1	3.24	4.00	0.99	0.23
2.500	17.9	0.99	3.1	4.24	5.00	0.99	0.23
3.000	8.8	0.99	6.4	5.24	6.00	0.99	0.23
4.000	7.4	0.99	7.6	7.24	8.00	0.99	0.23
5.000	5.4	0.99	10.5	9.24	10.00	0.99	0.23
6.000	4.1	0.99	13.8	11.24	12.00	0.99	0.23
8.000	2.8	0.99	20.2	15.24	16.00	0.99	0.23
10.000	2.1	0.99	27.0	19.24	20.00	0.99	0.23

Ramp angles values were calculated using the -08, 0.031" corner radius insert and will work for general use.

OPERATING GUIDELINES - 25MM BEHW RAMPING DATA

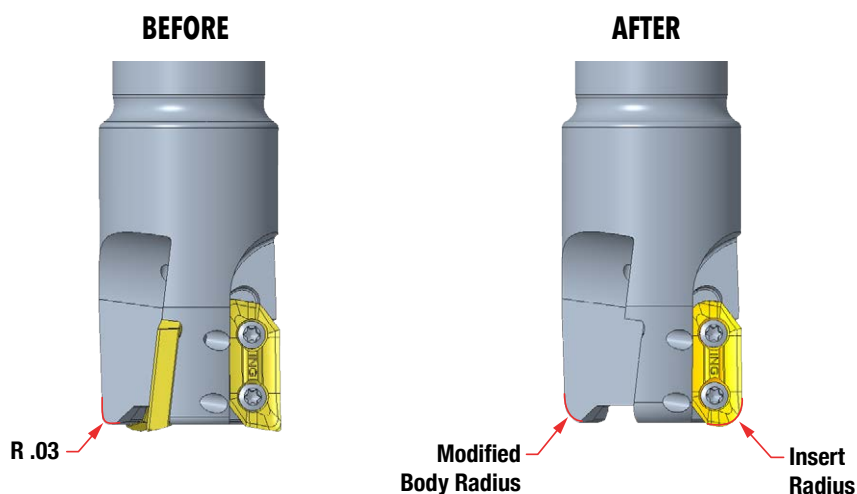


DC Cutter Diameter	Straight Ramp			Helical Ramp			Drill Mill
	RMPX Ramp Angle Max.	APMX Depth of Cut Max.	L Ramp Length Min.	HD Hole Dia. Min.	HD Hole Dia. Max.	Pitch Max.	Drill APMX Depth of Cut Max.
0.750	13.0	0.95	4.1	0.74	1.50	0.95	0.08
1.000	7.0	0.95	7.7	1.24	2.00	0.95	0.08
1.250	4.9	0.95	11.1	1.74	2.50	0.95	0.08
1.500	3.5	0.95	15.5	2.24	3.00	0.95	0.08
2.000	2.3	0.95	23.7	3.24	4.00	0.95	0.08

Ramp angles values were calculated using the -08, 0.031" corner radius insert and will work for general use.

CUTTER BODY MODIFICATION FOR LARGE RADIUS INSERTS

When using an insert radius larger than indicated per Insert IC, be sure the cutter body does not protrude beyond the trailing edge of the insert. If it does, the housing corner can be modified on a lathe or grinder by enlarging the corner radius.



Insert Size	Modify Cutter Body if Insert Radius Exceeds	Insert Radius	Modified Body Radius
14 MM	.062"	0.079	0.075
		0.093	0.090
		0.118	0.115
		0.125	0.120
		0.157	0.155

Insert Size	Modify Cutter Body if Insert Radius Exceeds	Insert Radius	Modified Body Radius
25 MM	.093"	0.125	0.100
		0.157	0.125
		0.197	0.175

Insert Size	Modify Cutter Body if Insert Radius Exceeds	Insert Radius	Modified Body Radius
33 MM	.125"	0.197	0.100
		0.250	0.125

TECHNICAL INFORMATION

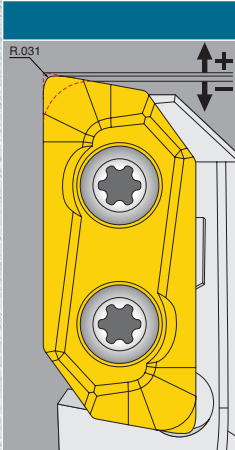


Insert Loading Instructions:

First lightly tighten both insert screws.
Next, completely tighten the bottom screw to specified torque.
Finally, tighten the top screw to specified torque.

Insert Size	Torque Specification
14 MM	17.7 in lb (2.0 Nm)
25 MM	35 in lb (4.0 Nm)
33 MM	44 in lb (5.0 Nm)

INSERT RADII OFFSET COMPARISON



Insert Part Number	Corner Radius	Offset
Insert -04	0.015	0.004
Insert -05	0.020	0.003
Insert -08	0.031	0.000
Insert -16	0.062	-0.007
Insert -20	0.079	-0.011
Insert -24	0.093	-0.014
Insert -30	0.118	-0.020
Insert -32	0.125	-0.022
Insert -40	0.157	-0.029
Insert -50	0.197	-0.039
Insert -64	0.250	-0.051

The lengths listed in the details of each cutter are created using the -08, 0.031" corner radius insert.

When using other inserts of different corner radii, use the above table to find the approximate linear offset, so as to adjust your machine offsets if needed.