IASRF

Radius Mill with Highly-Efficient Four-Corner Inserts

FACE MILL STYLE

FEATURES

Economical four-corner inserts.

Mill and inserts are designed for maximum cutting rigidity.

New GX2030 insert coating provides up to 1.5 times longer tool life than previous generation coating

IASRF

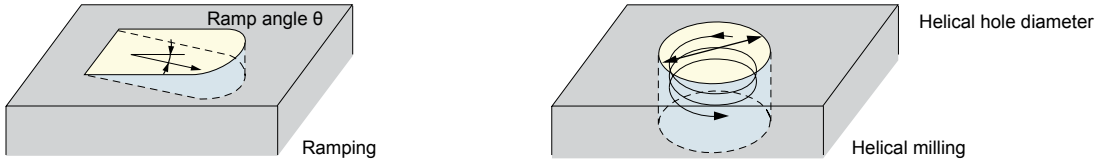
FEATURES

1. Four Corner Design Maximes Productivity and Cost Efficiency

The new four corner design has an insert shape that is almost identical to the conventional IASR two corner design. This new shape has the rigidity and productivity of the previous insert and the four usable corners creates greater cost-efficiency.

2. Direct Milling

Since the cutting flutes do not extend to the center, there are limitations on the ramp angle and hole diameter. As shown below, processing by direct milling without a pilot hole is possible for both ramping and helical milling.



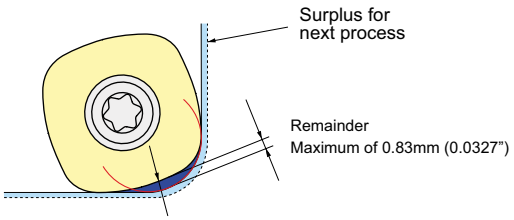
Tool Diameter	1.25	1.50	2.00
Ramp angle	7.0°	4.5°	3.0°
Helical Hole Diameter	1.72 - 2.34	2.22 - 2.84	3.22 - 3.84

【Note】 1. The ramp angle θ should be set within the ranges listed above. Use at ramp angles of 1° or less is recommended.
2. For hole diameters outside the ranges listed above, a pilot hole should be drilled before milling.

3. Programming Information

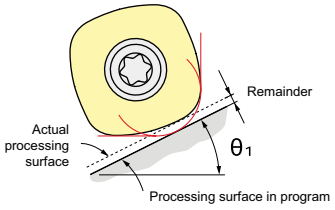
For rough milling, please create a program with corner radius values close to the reference values shown below.

When the corner radius is set to R4.5mm (R0.177"):



	R4.5mm (0.0177")
Remainder	Less than 0.83mm (R0.0327") [θ_1=22.1°]
Overcutting	None

Normally, you should create a program with an input corner radius of approximately R4.5 (R0.177"). At an approximate corner radius of R4.5 (R0.177"), there is no overcutting.



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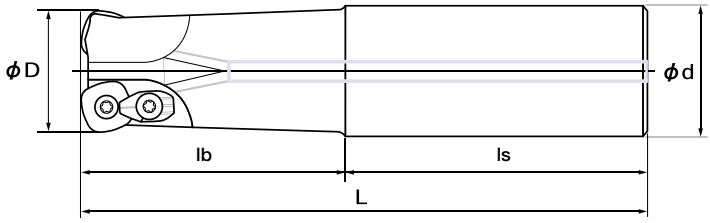
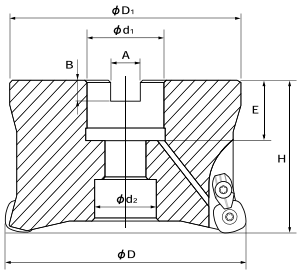
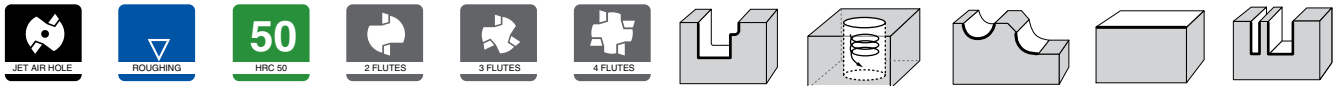
Shank + Face Mill Style Inch







D	0/-0.2

Shank Style Inch

Part No.	Flutes	ØD	L	Ød	lb	ls	Insert
IASRFS4020R	2	**1.25**	6	1.25	2.75	3.25	SDNW12/SDMT12
IASRFS4024R	3	**1.50**	6	1.50	1.75	4.25	SDNW12/SDMT12

Face Mill Style Inch

Part No.	Flutes	ØD	$ØD_1$	H	E	A	B	$Ød_1$	$Ød_2$	Insert
IASRF4032-4	4	**2.00**	1.85	1.969	0.748	0.315	0.197	0.75	0.630	SDNW12/SDMT12
IASRF4048-5	5	**3.00**	2.99	2.480	1.378	0.374	0.236	1.00	0.827	SDNW12/SDMT12
IASRF4064-6	6	**4.00**	3.78	2.756	1.378	0.626	0.394	1.50	1.236	SDNW12/SDMT12

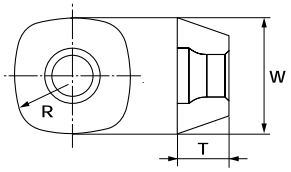
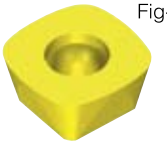


Fig-1



Standard Insert

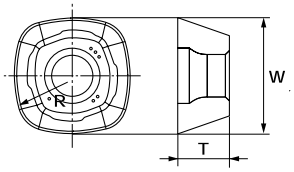
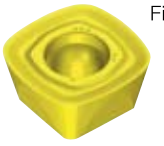


Fig-2



Insert with Chip Breaker

Part No.	JX1015	JX1045	CY250	GX2030	R (mm)	T (mm)	W (mm)	Shape
SDNW1205ZDTN-R15	•	•	•		**15**	5.56	12.7	Fig-1
SDMT1205ZDTN-R15	•	•	•	•	**15**	5.56	12.7	Fig-2

All Inserts have four effective cutting edges

	Clamp Screw	Clamp Piece Set	Wrench
ALL SIZES	262-142	CM4-141	105-T15

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Cutting Conditions
Inch + Metric

Advanced Engineering Hitachi Tool

INCH

Material		Ø	1.25	1.5	2	3	4
		Number of flute	2	3	4	5	6
Mild Steel <200HB		N(rpm)	1800	1500	1120	750	560
		Vc(sfm)	591	591	591	591	591
		Vf(in/min)	213	266	265	221	198
JX1045 JX1015 GX2030 CY250		fz(in/t)	0.059	0.059	0.059	0.059	0.059
		ap(in)	0.039	0.039	0.059	0.059	0.059
		ae(in)	0.866	1.024	1.378	2.087	2.756
Carbon Steel Alloy Steel <30HRC		N(rpm)	1500	1250	940	620	470
		Vc(sfm)	492	492	492	492	492
		Vf(in/min)	177	221	222	183	167
JX1045 JX1015 GX2030 CY250		fz(in/t)	0.059	0.059	0.059	0.059	0.059
		ap(in)	0.039	0.039	0.059	0.059	0.059
		ae(in)	0.866	1.024	1.378	2.087	2.756
Carbon Steel Alloy Steel 30-45HRC		N(rpm)	1200	1000	750	500	370
		Vc(sfm)	394	394	394	394	394
		Vf(in/min)	76	94	94	79	70
JX1045 JX1015 CY250		fz(in/t)	0.031	0.031	0.031	0.031	0.031
		ap(in)	0.039	0.039	0.059	0.059	0.059
		ae(in)	0.866	1.024	1.378	2.087	2.756
Carbon Steel Alloy Steel 45-50HRC		N(rpm)	800	660	500	330	250
		Vc(sfm)	262	262	262	262	262
		Vf(in/min)	25	31	31	26	24
		fz(in/t)	0.016	0.016	0.016	0.016	0.016
		ap(in)	0.039	0.039	0.039	0.039	0.039
JX1015		ae(in)	0.866	1.024	1.378	2.087	2.756
Cast Iron		N(rpm)	1800	1500	1120	750	560
		Vc(sfm)	591	591	591	591	591
		Vf(in/min)	283	354	353	295	265
JX1045 JX1015 CY250		fz(in/t)	0.079	0.079	0.079	0.079	0.079
		ap(in)	0.079	0.079	0.079	0.079	0.079
		ae(in)	0.866	1.024	1.378	2.087	2.756

METRIC

Material		Ø	31.75	38.1	50.8	76.2	101.6
		Number of flute	2	3	4	5	6
Mild Steel <200HB		N(rpm)	1800	1500	1120	750	560
		Vc(m/min)	180	180	180	180	180
		Vf(mm/min)	5400	6750	6720	5625	5040
JX1045 JX1015 GX2030 CY250		fz(mm/t	1.50	1.50	1.50	1.50	1.50
		ap(mm)	1	1	1.5	1.5	1.5
		ae(mm)	22	26	35	53	70
Carbon Steel Alloy Steel <30HRC		N(rpm)	1500	1250	940	620	470
		Vc(m/min)	150	150	150	150	150
		Vf(mm/min)	4500	5625	5640	4650	4230
JX1045 JX1015 GX2030 CY250		fz(mm/t	1.50	1.50	1.50	1.50	1.50
		ap(mm)	1	1	1.5	1.5	1.5
		ae(mm)	22	26	35	53	70
Carbon Steel Alloy Steel 30-45HRC		N(rpm)	1200	1000	750	500	370
		Vc(m/min)	120	120	120	120	120
		Vf(mm/min)	1920	2400	2400	2000	1776
JX1045 JX1015 CY250		fz(mm/t	0.80	0.80	0.80	0.80	0.80
		ap(mm)	1	1	1.5	1.5	1.5
		ae(mm)	22	26	35	53	70
Carbon Steel Alloy Steel 45-50HRC		N(rpm)	800	660	500	330	250
		Vc(m/min)	80	80	80	80	80
		Vf(mm/min)	640	792	800	660	600
		fz(mm/t	0.40	0.40	0.40	0.40	0.40
		ap(mm)	1	1	1	1	1
JX1015		ae(mm)	22	26	35	53	70
Cast Iron		N(rpm)	1800	1500	1120	750	560
		Vc(m/min)	180	180	180	180	180
		Vf(mm/min)	7200	9000	8960	7500	6720
JX1045 JX1015 CY250		fz(mm/t	2.00	2.00	2.00	2.00	2.00
		ap(mm)	2	2	2	2	2
		ae(mm)	22	26	35	53	70

COATING MATERIALS FOR INSERTS

Material Name ISO Classification	Coating Name Coating Type	Application	Features
JX1015 P20-M20-K20	**JX Coating** PVD	For cutting of prehardened steels	uses harder substrate Excellent for high speed machining
JX1045 P30-M30-K30	**JX Coating** PVD	General purpose for steel	Uses tougher substrate, Excellent for heavy interrupted machining and wet machining
CY250 P30-M30-K30	**CY Coating (TiAlN)** PVD	General purpose for steel	Uses TiAlN coating, has wide cutting range
GX2030 P40-M40	**GX Coating** CVD	General purpose for steel, for wet machining of stainless steel	Uses high-adhesion coating, excellent for strong interrupted cutting