IASR/ASR MULTI

MOLDINO
The Edge To Innovation

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COMPLETE METALWORKING SOLUTIONS
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Innovative Indexable Multi-Flute Mills for High-Efficiency Machining

MODULAR STYLE

SHANK STYLE

FEATURES

Extraordinary metal removal and feed rates

Mill and inserts are designed for maximum cutting rigidity

One size insert fits all diameters 3/8” to 2.5” (16mm to 66mm)

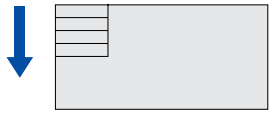
FEATURES

1. Small Inserts Increase Breakage Resistance and Feed Rates

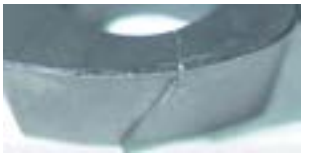
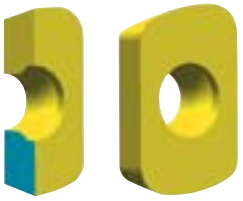
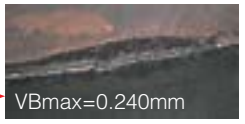
Even though the inserts for the IASR/ASR-Mutli are smaller than conventional tools, breakage resistance has been greatly improved. This allows for feed rates as high as 1.5mm per tooth (0.059” per tooth).

Cutting Conditions

Material: S50C (AISI 1049)
Cutting Tool: Ø50mm (1.969”) Single Insert
Vc = 200m/min (656sfm) at 1,300RPM
fz = 1.0mm/tooth (0.039”/tooth)
Vf = 1300mm/min (51ipm)
Dry OH = 210mm (8.268”)



Shoulder plunge milling

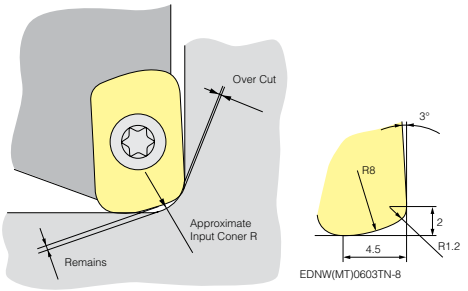
Shape	Cutting Length
Conventional 	15m(11.5min) Heat cracks occur, and the insert breaks.  Limit:fz≦0.6mm/tooth
New Products 	75m(60min) Normal Wear  Limit:fz≦1.5mm/tooth (doc=0.3mm fz≦3.6mm/tooth) 

2. Programming Information

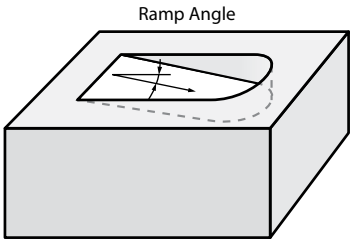
When programming insert shape, please refer to the approximate R in the diagram below.

Programming Information

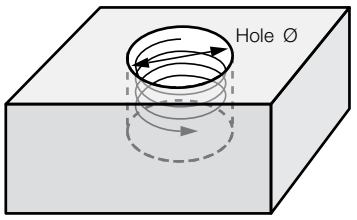
	Approximate Input Corner R		Over Cut		Remains	
	mm	inch	mm	inch	mm	inch
EPNW(MT) 0603TN-8	2.0	0.0787	0.000	0.0000	0.497	0.0196



3. Direct Milling



Slant Milling



Helical Milling

Tool Diameter	16mm or 0.625”	20mm or 0.750”	25mm or 1.00”	30mm	32mm or 1.25”	4.00mm or 1.50”
Ramp Angle	4.0°	3.0°	2.0°	2.0°	2.0°	1.5°
Helical Hole Diameter	22 - 30mm	30 - 38mm	40 - 48mm	50 - 58mm	54 - 62mm	70 - 78mm
Helical Hole Diameter	0.87 - 1.18”	1.18 - 1.42”	1.57 - 1.89”	2.00 - 2.28”	2.12 - 2.43”	2.60 - 2.91”

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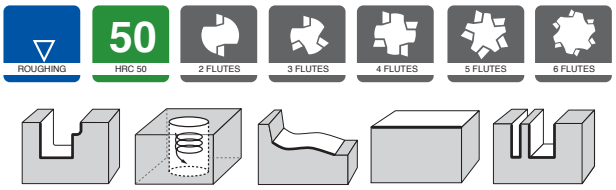
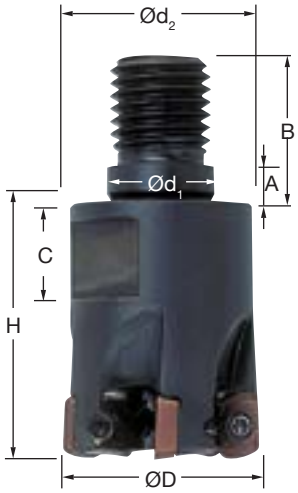
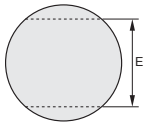
Modular Style







D	0/-0.2

ASRM - METRIC

Part No.	Flutes	ØD	H	Ød1	M	Ød2	A	B	C	E	Insert
ASRM2016R-2	2	**16**	25	8.5	M8	12.8	5.5	17	8	10	**EPNW0603TN-8, EPMT0603TN-8**
ASRM2020R-3	3	**20**	30	10.5	M10	17.8	5.5	19	10	15	**EPNW0603TN-8, EPMT0603TN-8**
ASRM2025R-4	4	**25**	35	12.5	M12	20.8	5.5	22	10	17	**EPNW0603TN-8, EPMT0603TN-8**
ASRM2030R-4	4	**30**	40	17.0	M16	28.8	6.0	23	12	22	**EPNW0603TN-8, EPMT0603TN-8**
ASRM2032R-5	5	**32**	40	17.0	M16	28.8	6.0	23	12	22	**EPNW0603TN-8, EPMT0603TN-8**
ASRM2040R-6	6	**40**	40	17.0	M16	28.8	6.0	23	12	22	**EPNW0603TN-8, EPMT0603TN-8**

Modular Shanks on p. 163

Inserts p. 95

Part No.	Clamp Screw	Wrench
ALL SIZES	250-141	104-T8

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Shank Style
Regular Length

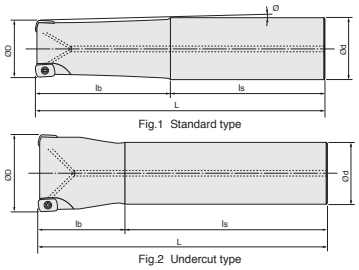

Fig.1 Standard type

Fig.2 Undercut type

D	0/-0.2

IASRS-Inch

Part No.	Flutes	ØD	L	Ød	lb	ls	Shape	Insert
IASRS2010R-2	2	**0.625**	4.0	0.625	1.25	2.75	Fig. 1	**EPNW0603TN-8, EPMT0603TN-8**
IASRS2012R-3	3	**0.750**	5.0	0.750	2.00	3.00	Fig. 1	**EPNW0603TN-8, EPMT0603TN-8**
IASRS2016R-4	4	**1.000**	5.5	1.000	2.50	3.00	Fig. 1	**EPNW0603TN-8, EPMT0603TN-8**
IASRS2020R-5	5	**1.250**	6.0	1.250	2.75	3.25	Fig. 1	**EPNW0603TN-8, EPMT0603TN-8**
IASRS2024R-6	6	**1.500**	6.0	1.500	1.75	4.25	Fig. 2	**EPNW0603TN-8, EPMT0603TN-8**

ASRS-Metric

Part No.	Flutes	ØD	L	Ød	lb	ls	Shape	Insert
ASRS2016R-2	2	**16**	100	16	30	70	Fig. 1	**EPNW0603TN-8, EPMT0603TN-8**
ASRS2020R-3	3	**20**	130	20	50	80	Fig. 1	**EPNW0603TN-8, EPMT0603TN-8**
ASRS2025R-4	4	**25**	140	25	60	80	Fig. 1	**EPNW0603TN-8, EPMT0603TN-8**
ASRS2030R-4	4	**30**	150	32	70	80	Fig. 1	**EPNW0603TN-8, EPMT0603TN-8**
ASRS2032R-5	5	**32**	150	32	70	80	Fig. 1	**EPNW0603TN-8, EPMT0603TN-8**
ASRS2040R-6	6	**40**	150	32	45	105	Fig. 2	**EPNW0603TN-8, EPMT0603TN-8**

Inserts p. 95

	Part No. Clamp Screw	Wrench
ALL SIZES	250-141	104-T8

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Shank Style
Long Length

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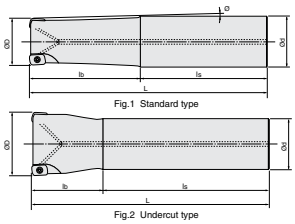

D	0/-0.2

IASRL-Inch

Part No.	Flutes	ØD	L	Ød	lb	ls	Shape	Insert
IASRL2010R-2	2	**0.625**	6.00	0.625	2.00	4.00	Fig. 1	**EPNW0603TN-8, EPMT0603TN-8**
IASRL2012R-3	3	**0.750**	6.25	0.750	3.25	3.00	Fig. 1	**EPNW0603TN-8, EPMT0603TN-8**
IASRL2016R-4	4	**1.000**	7.00	1.000	4.00	3.00	Fig. 1	**EPNW0603TN-8, EPMT0603TN-8**
IASRL2020R-5	5	**1.250**	8.00	1.250	5.00	3.00	Fig. 1	**EPNW0603TN-8, EPMT0603TN-8**
IASRL2024R-6	6	**1.500**	9.00	1.500	1.75	7.25	Fig. 1	**EPNW0603TN-8, EPMT0603TN-8**

ASRL-Metric

Part No.	Flutes	ØD	L	Ød	lb	ls	Shape	Insert
ASRL2016R-2	2	**16**	150	16	50	100	Fig. 1	**EPNW0603TN-8, EPMT0603TN-8**
ASRL2020R-3	3	**20**	160	20	80	80	Fig. 1	**EPNW0603TN-8, EPMT0603TN-8**
ASRL2025R-4	4	**25**	180	25	100	80	Fig. 1	**EPNW0603TN-8, EPMT0603TN-8**
ASRL2030R-4	4	**30**	200	32	120	80	Fig. 1	**EPNW0603TN-8, EPMT0603TN-8**
ASRL2032R-5	5	**32**	200	32	120	80	Fig. 1	**EPNW0603TN-8, EPMT0603TN-8**
ASRL2040R-6	6	**40**	220	32	45	175	Fig. 2	**EPNW0603TN-8, EPMT0603TN-8**

Inserts p. 95

Part No.	Clamp Screw	Wrench
ALL SIZES	250-141	104-T8

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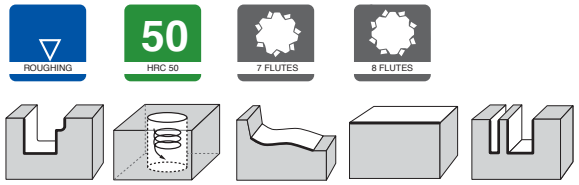
Face Mill Style



D	0/-0.2

IASR Face Mill Style-Inch

Part No.	Flutes	ØD	H	E	A	B	Ød	Insert
IASR2032R-7	7	**2.0**	2	0.75	0.315	0.197	0.75	**EPNW0603TN-8, EPMT0603TN-8**
IASR2040R-8	8	**2.5**	2	0.75	0.315	0.197	0.75	**EPNW0603TN-8, EPMT0603TN-8**

ASR Face Mill Style-Metric

Part No.	Flutes	ØD	H	E	A	B	Ød	Insert
ASR2052RS-7	7	**52**	50	19	8.4	5	19.05	**EPNW0603TN-8, EPMT0603TN-8**
ASR2066RS-8	8	**66**	50	19	8.4	5	19.05	**EPNW0603TN-8, EPMT0603TN-8**

Inserts p. 95

Part No.	Clamp Screw	Wrench
ALL SIZES	250-141	104-T8

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Inserts

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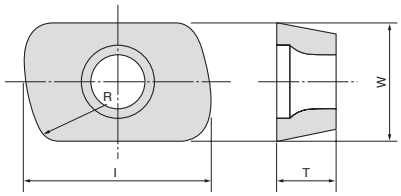

Type A

Standard Insert

Type B

Insert with Chip Breaker

Type C

Spiral Shape
(low cutting force)

Part No.	JP4020	JS4045	JS4060	JM4060	R (mm)	I (mm)	T (mm)	W (mm)	Type
EPNW0603TN-8	•	•	•	•	8.0	10.0	3.18	6.35	A
EPMT0603TN-8	•	•	•	•	8.0	10.0	3.18	6.35	B
EPMT0603EN-8LF				•	8.0	10.0	3.18	6.35	C

All Inserts have two effective cutting edges

COATING MATERIALS FOR INSERTS

Material name ISO Classification	Coating Name Coating Type	Application	Features
JP4020 P10-M10-K10	**JP Coating** PVD	For pre-hardened steel (40-50HRC)	Uses coating with excellent shock resistance, making it superior for cutting prehardened steel.
JS4045 P30-K30	**JS Coating** PVD	General purpose for steel	Uses rough grain substrate and JS coating. Suitble for general steel cutting
JS4060 P40	**JS Coating** PVD	For wet general purpose cutting of steel	Uses coating with excellent heat resistance and lubrication characteristics; has a wide range cutting
JM4060 P40-M40	**JM Coating** PVD	For wet general cutting of steel, stainless steel	Newly developed PVD technology improves adhesion of membranes to reduce peeling of membranes due to welding

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Modular and Shank Style
Cutting Conditions
Inch

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		Ø	16mm or 5/8"					20mm or 3/4"				
		No. of Flutes	2					3				
			<3D					<3D				
			General	Hi-Speed	3D-5D	5D-7D	>7D	General	Hi-Speed	3D-5D	5D-7D	>7D
Carbonsteel Alloy Steel <30HRC		N(rpm)	2980	3580	2580	2580	1790	2380	2860	2070	2070	1430
		Vc(sfm)	492	591	427	427	295	492	591	427	427	295
		Vf(in/min)	187	394	162	122	56	225	473	195	146	67
		fz(in/t)	0.031	0.055	0.031	0.024	0.016	0.031	0.055	0.031	0.024	0.016
		doc(in)	0.031	0.024	0.024	0.020	0.012	0.031	0.024	0.024	0.020	0.012
JS4060		woc(in)	0.512	0.512	0.512	0.512	0.512	0.630	0.630	0.630	0.630	0.630
JS4045		Q(in³/min)	2.97	4.84	1.99	1.25	0.34	4.39	7.15	2.95	1.84	0.51
Tool Steel Alloy Steel 30-40HRC		N(rpm)	2580	3580	2580	2580	1790	2070	2860	2070	2070	1430
		Vc(sfm)	427	591	427	427	295	427	591	427	427	295
		Vf(in/min)	162	394	162	122	56	195	473	195	146	67
		fz(in/t)	0.031	0.055	0.031	0.024	0.016	0.031	0.055	0.031	0.024	0.016
JP4020		doc(in)	0.031	0.020	0.024	0.020	0.012	0.039	0.020	0.031	0.020	0.012
JS4045		woc(in)	0.512	0.512	0.512	0.512	0.512	0.630	0.630	0.630	0.630	0.630
JS4060		Q(in³/min)	2.57	4.03	1.99	1.25	0.34	4.79	5.96	3.81	1.84	0.51
Tool Steel Pre-hard-ened 40-50HRC		N(rpm)	1790	2580	1790	1790	1790	1430	2070	1430	1430	1430
		Vc(sfm)	295	427	295	295	295	295	427	295	295	295
		Vf(in/min)	84	244	84	84	56	101	293	101	101	67
		fz(in/t)	0.024	0.047	0.024	0.024	0.016	0.024	0.047	0.024	0.024	0.016
		doc(in)	0.020	0.014	0.020	0.016	0.012	0.024	0.014	0.020	0.016	0.012
		woc(in)	0.512	0.512	0.512	0.512	0.512	0.630	0.630	0.630	0.630	0.630
JP4020		Q(in³/min)	0.86	1.75	0.86	0.69	0.34	1.53	2.58	1.27	1.02	0.51
Tool Steel Pre-hard-ened 50-55HRC		N(rpm)	990	1390	990	990	990	790	1110	790	790	790
		Vc(sfm)	164	230	164	164	164	164	230	164	164	164
		Vf(in/min)	15	22	15	15	15	19	26	19	19	19
		fz(in/t)	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
		doc(in)	0.016	0.016	0.014	0.010	0.006	0.016	0.016	0.014	0.010	0.006
		woc(in)	0.512	0.512	0.512	0.512	0.512	0.630	0.630	0.630	0.630	0.630
JP4020		Q(in³/min)	0.12	0.18	0.11	0.08	0.05	0.19	0.26	0.17	0.12	0.07
Stainless Steel		N(rpm)	2580	3580	2980	1790	1790	2070	2860	2380	1430	1430
		Vc(sfm)	427	591	492	295	295	427	591	492	295	295
		Vf(in/min)	102	282	117	70	56	122	338	141	84	67
		fz(in/t)	0.020	0.039	0.020	0.020	0.016	0.020	0.039	0.020	0.020	0.016
		doc(in)	0.031	0.024	0.024	0.020	0.012	0.039	0.020	0.031	0.020	0.016
		woc(in)	0.512	0.512	0.512	0.512	0.512	0.630	0.630	0.630	0.630	0.630
JM4060		Q(in³/min)	1.62	3.47	1.44	0.72	0.34	3.00	4.26	2.75	1.06	0.68
Cast Iron		N(rpm)	2980	3580	2580	2580	1790	2380	2860	2070	2070	1430
		Vc(sfm)	492	591	427	427	295	492	591	427	427	295
		Vf(in/min)	281	451	244	244	141	337	540	293	293	169
		fz(in/t)	0.047	0.063	0.047	0.047	0.039	0.047	0.063	0.047	0.047	0.039
		doc(in)	0.039	0.031	0.031	0.024	0.020	0.049	0.039	0.031	0.024	0.016
JS4045		woc(in)	0.512	0.512	0.512	0.512	0.512	0.630	0.630	0.630	0.630	0.630
JP4020		Q(in³/min)	5.61	7.16	3.87	3.00	1.44	10.40	13.27	5.72	4.43	1.70
Maxmum fz(mm/tooth)			<0.071in/tooth (General use: fz<0.039in/tooth)					<0.071in/tooth (General use: fz<0.039in/tooth)				
Maxmum doc(mm)			<0.049in (General use: doc<0.039in)					<0.049in (General use: doc<0.039in)				

		Ø	25mm or 1"					30mm				
		No. of Flutes	4					4				
			<3D					<3D				
			General	Hi-Speed	3D-5D	5D-7D	>7D	General	Hi-Speed	3D-5D	5D-7D	>7D
Carbon Steel Alloy Steel <30HRC		N(rpm)	1910	2290	1650	1650	1140	1590	1910	1380	1380	950
		Vc(sfm)	492	591	427	427	295	492	591	427	427	295
		Vf(in/min)	301	577	260	208	72	250	481	217	174	60
		fz(in/t)	0.039	0.063	0.039	0.031	0.016	0.039	0.063	0.039	0.031	0.016
		doc(in)	0.039	0.028	0.031	0.020	0.016	0.039	0.028	0.031	0.020	0.016
JS4060 JS4045		woc(in)	0.787	0.787	0.787	0.787	0.787	0.984	0.984	0.984	0.984	0.984
		Q(in³/min)	9.24	12.71	6.34	3.27	0.91	9.59	13.25	6.62	3.42	0.94
Tool Steel Alloy Steel 30-40HRC		N(rpm)	1650	2290	1650	1650	1140	1380	1910	1380	1380	950
		Vc(sfm)	427	591	427	427	295	427	591	427	427	295
		Vf(in/min)	260	577	260	156	72	217	481	217	130	60
		fz(in/t)	0.039	0.063	0.039	0.024	0.016	0.039	0.063	0.039	0.024	0.016
JP4020		doc(in)	0.039	0.020	0.031	0.020	0.016	0.039	0.020	0.031	0.020	0.016
JS4045 JS4060		woc(in)	0.787	0.787	0.787	0.787	0.787	0.984	0.984	0.984	0.984	0.984
		Q(in³/min)	7.98	9.08	6.34	2.46	0.91	8.33	9.47	6.62	2.56	0.94
Tool Steel Pre-hardened 40-50HRC		N(rpm)	1140	1650	1140	1140	1140	950	1380	950	950	950
		Vc(sfm)	295	427	295	295	295	295	427	295	295	295
		Vf(in/min)	107	312	107	107	72	90	261	90	90	60
		fz(in/t)	0.024	0.047	0.024	0.024	0.016	0.024	0.047	0.024	0.024	0.016
		doc(in)	0.024	0.016	0.020	0.016	0.012	0.024	0.016	0.020	0.016	0.012
		woc(in)	0.787	0.787	0.787	0.787	0.787	0.984	0.984	0.984	0.984	0.984
JP4020		Q(in³/min)	2.02	3.93	1.68	1.35	0.68	2.13	4.11	1.77	1.42	0.71
Tool Steel Pre-hardened 50-55HRC		N(rpm)	630	890	630	630	630	530	740	530	530	530
		Vc(sfm)	164	230	164	164	164	164	230	164	164	164
		Vf(in/min)	20	28	20	20	20	17	23	17	17	17
		fz(in/t)	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
		doc(in)	0.016	0.016	0.014	0.010	0.006	0.016	0.016	0.014	0.010	0.006
		woc(in)	0.787	0.787	0.787	0.787	0.787	0.984	0.984	0.984	0.984	0.984
JP4020		Q(in³/min)	0.25	0.35	0.22	0.16	0.09	0.27	0.36	0.23	0.17	0.10
Stainless Steel		N(rpm)	1650	2290	1910	1140	1140	1380	1910	1590	950	950
		Vc(sfm)	427	591	492	295	295	427	591	492	295	295
		Vf(in/min)	130	361	150	90	72	109	301	125	75	60
		fz(in/t)	0.020	0.039	0.020	0.020	0.016	0.020	0.039	0.020	0.020	0.016
		doc(in)	0.039	0.020	0.031	0.020	0.016	0.039	0.020	0.031	0.020	0.016
		woc(in)	0.787	0.787	0.787	0.787	0.787	0.984	0.984	0.984	0.984	0.984
JM4060		Q(in³/min)	3.99	5.68	3.66	1.42	0.91	4.18	5.92	3.81	1.48	0.94
Cast Iron		N(rpm)	1910	2290	1650	1650	1140	1590	1910	1380	1380	950
		Vc(sfm)	492	591	427	427	295	492	591	427	427	295
		Vf(in/min)	421	649	364	208	72	350	541	304	174	60
		fz(in/t)	0.055	0.071	0.055	0.031	0.016	0.055	0.071	0.055	0.031	0.016
		doc(in)	0.049	0.039	0.031	0.024	0.016	0.049	0.039	0.031	0.024	0.016
JS4045 JP4020		woc(in)	0.787	0.787	0.787	0.787	0.787	0.984	0.984	0.984	0.984	0.984
		Q(in³/min)	16.24	19.92	8.88	3.93	0.91	16.88	20.76	9.27	4.11	0.94
Maxmum fz(mm/tooth)			<0.071in/tooth (General use: fz<0.039in/tooth)					<0.071in/tooth (General use: fz<0.039in/tooth)				
Maxmum doc(mm)			<0.059in (General use: doc<0.039in)					<0.059in (General use: doc<0.039in)				

IASR/ASR MULTI

Modular and Shank Style
Cutting Conditions
Inch

	Ø	32mm or 1.25"					40mm or 1.5"				
	No. of Flutes	5					6				
		<3D					<3D				
		General	Hi-Speed	3D-5D	5D-7D	>7D	General	Hi-Speed	3D-5D	5D-7D	>7D
Carbon Steel	N(rpm)	1490	1790	1290	1290	890	1190	1430	1030	1030	710
Alloy Steel	Vc(sfm)	492	591	427	427	295	492	591	427	427	295
<30HRC	Vf(in/min)	293	564	254	203	70	281	540	243	194	67
	fz(in/t)	0.039	0.063	0.039	0.031	0.016	0.039	0.063	0.039	0.031	0.016
	doc(in)	0.039	0.028	0.031	0.020	0.016	0.039	0.028	0.031	0.020	0.016
JS4060	woc(in)	0.984	0.984	0.984	0.984	0.984	1.260	1.260	1.260	1.260	1.260
JS4045	Q(in^3/min)	11.24	15.54	7.75	4.00	1.10	13.81	19.05	9.49	4.89	1.35
Tool Steel	N(rpm)	1290	1790	1290	1290	890	1030	1430	1030	1030	710
Alloy Steel	Vc(sfm)	427	591	427	427	295	427	591	427	427	295
30-40HRC	Vf(in/min)	254	564	254	152	70	243	540	243	146	67
	fz(in/t)	0.039	0.063	0.039	0.024	0.016	0.039	0.063	0.039	0.024	0.016
JP4020	doc(in)	0.039	0.020	0.031	0.020	0.016	0.039	0.020	0.031	0.020	0.016
JS4045	woc(in)	0.984	0.984	0.984	0.984	0.984	1.260	1.260	1.260	1.260	1.260
JS4060	Q(in^3/min)	9.75	11.10	7.75	2.99	1.10	11.94	13.61	9.49	3.68	1.35
Tool Steel	N(rpm)	890	1290	890	890	890	710	1030	710	710	710
Pre-hardened	Vc(sfm)	295	427	295	295	295	295	427	295	295	295
40-50HRC	Vf(in/min)	105	305	105	105	70	100	292	100	100	67
	fz(in/t)	0.024	0.047	0.024	0.024	0.016	0.024	0.047	0.024	0.024	0.016
	doc(in)	0.024	0.016	0.020	0.016	0.012	0.024	0.016	0.020	0.016	0.012
	woc(in)	0.984	0.984	0.984	0.984	0.984	1.260	1.260	1.260	1.260	1.260
JP4020	Q(in^3/min)	2.48	4.80	2.07	1.65	0.83	3.02	5.89	2.52	2.02	1.01
Tool Steel	N(rpm)	490	690	490	490	490	390	550	390	390	390
Pre-hardened	Vc(sfm)	164	230	164	164	164	164	230	164	164	164
50-55HRC	Vf(in/min)	19	27	19	19	19	18	26	18	18	18
	fz(in/t)	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
	doc(in)	0.016	0.016	0.014	0.010	0.006	0.016	0.016	0.014	0.010	0.006
	woc(in)	0.984	0.984	0.984	0.984	0.984	1.260	1.260	1.260	1.260	1.260
JP4020	Q(in^3/min)	0.30	0.43	0.26	0.19	0.11	0.36	0.52	0.32	0.23	0.14
Stainless Steel	N(rpm)	1290	1790	1490	890	890	1030	1430	1190	710	710
	Vc(sfm)	427	591	492	295	295	427	591	492	295	295
	Vf(in/min)	127	352	146	87	70	122	338	141	84	67
	fz(in/t)	0.020	0.039	0.020	0.020	0.016	0.020	0.039	0.020	0.020	0.016
	doc(in)	0.039	0.020	0.031	0.020	0.016	0.039	0.020	0.031	0.020	0.016
	woc(in)	0.984	0.984	0.984	0.984	0.984	1.260	1.260	1.260	1.260	1.260
JM4060	Q(in^3/min)	4.87	6.93	4.45	1.71	1.10	6.00	8.52	5.51	2.12	1.35
Cast Iron	N(rpm)	1490	1790	1290	1290	890	1190	1430	1030	1030	710
	Vc(sfm)	492	591	427	427	295	492	591	427	427	295
	Vf(in/min)	411	634	356	203	70	393	608	341	194	67
	fz(in/t)	0.055	0.071	0.055	0.031	0.016	0.055	0.071	0.055	0.031	0.016
	doc(in)	0.049	0.039	0.031	0.024	0.016	0.049	0.039	0.031	0.024	0.016
JS4045	woc(in)	0.984	0.984	0.984	0.984	0.984	1.260	1.260	1.260	1.260	1.260
JP4020	Q(in^3/min)	19.82	24.33	10.86	4.79	1.10	24.26	29.88	13.32	5.87	1.35
Maxmum fz(mm/tooth)		<0.071in/tooth (General use: fz<0.039in/tooth)					<0.071in/tooth (General use: fz<0.039in/tooth)				
Maxmum doc(mm)		<0.059in (General use: doc<0.039in)					<0.059in (General use: doc<0.039in)				

IASR/ASR MULTI

Modular and Shank Style
Cutting Conditions
Inch

MOLDINO
The Edge To Innovation

		Ø	52mm or 2"					66mm or 2"				
		No. of Flutes	7					8				
			<3D		3D-5D	5D-7D	>7D	<3D		3D-5D	5D-7D	>7D
			General	Hi-Speed				General	Hi-Speed			
Carbon Steel Alloy Steel <30HRC		N(rpm)	910	1100	790	790	550	720	860	620	620	430
		Vc(sfm)	492	591	427	427	295	492	591	427	427	295
		Vf(in/min)	251	485	218	174	61	227	433	195	156	54
		fz(in/t)	0.039	0.063	0.039	0.031	0.016	0.039	0.063	0.039	0.031	0.016
		doc(in)	0.039	0.028	0.031	0.020	0.016	0.039	0.028	0.031	0.020	0.016
JS4060		woc(in)	1.575	1.575	1.575	1.575	1.575	1.969	1.969	1.969	1.969	1.969
JS4045		Q(in3/min)	15.42	21.39	10.64	5.48	1.54	17.43	23.87	11.90	6.14	1.70
Tool Steel Alloy Steel 30-40HRC		N(rpm)	790	1100	790	790	550	620	860	620	620	430
		Vc(sfm)	427	591	427	427	295	427	591	427	427	295
		Vf(in/min)	218	485	218	130	61	195	433	195	117	54
		fz(in/t)	0.039	0.063	0.039	0.024	0.016	0.039	0.063	0.039	0.024	0.016
JP4020		doc(in)	0.039	0.020	0.031	0.020	0.016	0.039	0.020	0.031	0.020	0.016
JS4045		woc(in)	1.575	1.575	1.575	1.575	1.575	1.969	1.969	1.969	1.969	1.969
JS4060		Q(in3/min)	13.39	15.28	10.64	4.10	1.54	14.97	17.05	11.90	4.61	1.70
Tool Steel Pre-hard-ened 40-50HRC		N(rpm)	550	790	550	550	550	430	620	430	430	430
		Vc(sfm)	295	427	295	295	295	295	427	295	295	295
		Vf(in/min)	91	261	91	91	61	81	234	81	81	54
		fz(in/t)	0.024	0.047	0.024	0.024	0.016	0.024	0.047	0.024	0.024	0.016
		doc(in)	0.024	0.016	0.020	0.016	0.012	0.024	0.016	0.020	0.016	0.012
		woc(in)	1.575	1.575	1.575	1.575	1.575	1.969	1.969	1.969	1.969	1.969
JP4020		Q(in3/min)	3.44	6.58	2.87	2.29	1.15	3.83	7.37	3.19	2.55	1.28
Tool Steel Pre-hard-ened 50-55HRC		N(rpm)	300	420	300	300	300	240	330	240	240	240
		Vc(sfm)	164	230	164	164	164	164	230	164	164	164
		Vf(in/min)	17	23	17	17	17	15	20	15	15	15
		fz(in/t)	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
		doc(in)	0.016	0.016	0.014	0.010	0.006	0.016	0.016	0.014	0.010	0.006
		woc(in)	1.575	1.575	1.575	1.575	1.575	1.969	1.969	1.969	1.969	1.969
JP4020		Q(in3/min)	0.43	0.58	0.37	0.27	0.16	0.47	0.63	0.41	0.30	0.18
Stainless Steel		N(rpm)	790	1100	910	550	550	620	860	720	430	430
		Vc(sfm)	427	591	492	295	295	427	591	492	295	295
		Vf(in/min)	109	303	125	76	61	98	271	113	68	54
		fz(in/t)	0.020	0.039	0.020	0.020	0.016	0.020	0.039	0.020	0.020	0.016
		doc(in)	0.039	0.020	0.031	0.020	0.016	0.039	0.020	0.031	0.020	0.016
		woc(in)	1.575	1.575	1.575	1.575	1.575	1.969	1.969	1.969	1.969	1.969
JM4060		Q(in3/min)	6.70	9.54	6.10	2.39	1.54	7.53	10.67	6.90	2.68	1.70
Cast Iron		N(rpm)	910	1100	790	790	550	720	860	620	620	430
		Vc(sfm)	492	591	427	427	295	492	591	427	427	295
		Vf(in/min)	351	546	305	174	61	317	487	273	156	54
		fz(in/t)	0.055	0.071	0.055	0.031	0.016	0.055	0.071	0.055	0.031	0.016
		doc(in)	0.049	0.039	0.031	0.024	0.016	0.049	0.039	0.031	0.024	0.016
JS4045		woc(in)	1.575	1.575	1.575	1.575	1.575	1.969	1.969	1.969	1.969	1.969
JP4020		Q(in3/min)	27.09	33.54	14.89	6.58	1.54	30.58	37.40	16.66	7.37	1.70
Maxmum fz(mm/tooth)			<0.071in/tooth (General use: fz<0.039in/tooth)					<0.071in/tooth (General use: fz<0.039in/tooth)				
Maxmum doc(mm)			<0.059in (General use: doc<0.039in)					<0.059in (General use: doc<0.039in)				

IASR/ASR MULTI

Modular and Shank Style
Cutting Conditions
Metric

		Ø	16mm or 5/8"				20mm or 3/4"				
		No. of Flutes	2				3				
			<3D				<3D				
			General	Hi-Speed	3D-5D	5D-7D	>7D	General	Hi-Speed	3D-5D	5D-7D	>7D
Carbonsteel Alloy Steel <30HRC		N(rpm)	2980	3580	2580	2580	1790	2380	2860	2070	2070	1430
		Vc(m/min)	150	180	130	130	90	150	180	130	130	90
		Vf(mm/min)	4760	10020	4120	3090	1430	5710	12010	4960	3720	1710
		fz(mm/t)	0.80	1.40	0.80	0.60	0.40	0.80	1.40	0.80	0.60	0.40
		doc(mm)	0.8	0.6	0.6	0.5	0.3	0.8	0.6	0.6	0.5	0.3
JS4060		woc(mm)	13	13	13	13	13	16	16	16	16	16
JS4045		Q(cm³/min)	50	78	32	20	6	73	115	48	30	8
Tool Steel Alloy Steel 30-40HRC		N(rpm)	2580	3580	2580	2580	1790	2070	2860	2070	2070	1430
		Vc(m/min)	130	180	130	130	90	130	180	130	130	90
		Vf(mm/min)	4120	10020	4120	3090	1430	4960	12010	4960	3720	1710
		fz(mm/t)	0.80	1.40	0.80	0.60	0.40	0.80	1.40	0.80	0.60	0.40
JP4020		doc(mm)	0.8	0.5	0.6	0.5	0.3	1	0.5	0.8	0.5	0.3
JS4045		woc(mm)	13	13	13	13	13	16	16	16	16	16
JS4060		Q(cm³/min)	43	65	32	20	6	79	96	63	30	8
Tool Steel Pre-hard-ened 40-50HRC		N(rpm)	1790	2580	1790	1790	1790	1430	2070	1430	1430	1430
		Vc(m/min)	90	130	90	90	90	90	130	90	90	90
		Vf(mm/min)	2140	6190	2140	2140	1430	2570	7450	2570	2570	1710
		fz(mm/t)	0.60	1.20	0.60	0.60	0.40	0.60	1.20	0.60	0.60	0.40
		doc(mm)	0.5	0.35	0.5	0.4	0.3	0.6	0.35	0.5	0.4	0.3
		woc(mm)	13	13	13	13	13	16	16	16	16	16
JP4020		Q(cm³/min)	14	28	14	11	6	25	42	21	16	8
Tool Steel Pre-hard-ened 50-55HRC		N(rpm)	990	1390	990	990	990	790	1110	790	790	790
		Vc(m/min)	50	70	50	50	50	50	70	50	50	50
		Vf(mm/min)	390	550	390	390	390	470	660	470	470	470
		fz(mm/t)	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
		doc(mm)	0.4	0.4	0.35	0.25	0.15	0.4	0.4	0.35	0.25	0.15
		woc(mm)	13	13	13	13	13	16	16	16	16	16
JP4020		Q(cm³/min)	2	3	2	1	1	3	4	3	2	1
Stainless Steel		N(rpm)	2580	3580	2980	1790	1790	2070	2860	2380	1430	1430
		Vc(m/min)	130	180	150	90	90	130	180	150	90	90
		Vf(mm/min)	2580	7160	2980	1790	1430	3100	8580	3570	2140	1710
		fz(mm/t)	0.50	1.00	0.50	0.50	0.40	0.50	1.00	0.50	0.50	0.40
		doc(mm)	0.8	0.6	0.6	0.5	0.3	1	0.5	0.8	0.5	0.4
		woc(mm)	13	13	13	13	13	16	16	16	16	16
JM4060		Q(cm³/min)	27	56	23	12	6	50	69	46	17	11
Cast Iron		N(rpm)	2980	3580	2580	2580	1790	2380	2860	2070	2070	1430
		Vc(m/min)	150	180	130	130	90	150	180	130	130	90
		Vf(mm/min)	7150	11450	6190	6190	3580	8560	13720	7450	7450	4290
		fz(mm/t)	1.20	1.60	1.20	1.20	1.00	1.20	1.60	1.20	1.20	1.00
		doc(mm)	1	0.8	0.8	0.6	0.5	1.25	1	0.8	0.6	0.4
JS4045		woc(mm)	13	13	13	13	13	16	16	16	16	16
JP4020		Q(cm³/min)	93	119	64	48	23	171	220	95	72	27
Maxmum fz(mm/tooth)			< 1.8mm/tooth (General use: fz<1.0mm/tooth)					< 1.8mm/tooth (General use: fz<1.0mm/tooth)				
Maxmum doc(mm)			<1.25mm (General use: ap<1.0mm)					<1.25mm (General use: ap<1.0mm)				

		Ø	25mm or 1"					30mm				
		No. of Flutes	4					4				
			<3D					<3D				
			General	Hi-Speed	3D-5D	5D-7D	>7D	General	Hi-Speed	3D-5D	5D-7D	>7D
Carbonsteel Alloy Steel <30HRC		N(rpm)	1910	2290	1650	1650	1140	1590	1910	1380	1380	950
		Vc(m/min)	150	180	130	130	90	150	180	130	130	90
		Vf(mm/min)	7640	14650	6600	5280	1820	6360	12220	5520	4410	1520
		fz(mm/t)	1.00	1.60	1.00	0.80	0.40	1.00	1.60	1.00	0.80	0.40
		doc(mm)	1	0.7	0.8	0.5	0.4	1	0.7	0.8	0.5	0.4
JS4060		woc(mm)	20	20	20	20	20	25	25	25	25	25
JS4045		Q(cm³/min)	153	205	106	53	15	159	214	110	55	15
Tool Steel Alloy Steel 30-40HRC		N(rpm)	1650	2290	1650	1650	1140	1380	1910	1380	1380	950
		Vc(m/min)	130	180	130	130	90	130	180	130	130	90
		Vf(mm/min)	6600	14650	6600	3960	1820	5520	12220	5520	3310	1520
		fz(mm/t)	1.00	1.60	1.00	0.60	0.40	1.00	1.60	1.00	0.60	0.40
JP4020		doc(mm)	1	0.5	0.8	0.5	0.4	1	0.5	0.8	0.5	0.4
JS4045		woc(mm)	20	20	20	20	20	25	25	25	25	25
JS4060		Q(cm³/min)	132	147	106	40	15	138	153	110	41	15
Tool Steel Pre-hard-ened 40-50HRC		N(rpm)	1140	1650	1140	1140	1140	950	1380	950	950	950
		Vc(m/min)	90	130	90	90	90	90	130	90	90	90
		Vf(mm/min)	2730	7920	2730	2730	1820	2280	6620	2280	2280	1520
		fz(mm/t)	0.60	1.20	0.60	0.60	0.40	0.60	1.20	0.60	0.60	0.40
		doc(mm)	0.6	0.4	0.5	0.4	0.3	0.6	0.4	0.5	0.4	0.3
		woc(mm)	20	20	20	20	20	25	25	25	25	25
JP4020		Q(cm³/min)	33	63	27	22	11	34	66	29	23	11
Tool Steel Pre-hard-ened 50-55HRC		N(rpm)	630	890	630	630	630	530	740	530	530	530
		Vc(m/min)	50	70	50	50	50	50	70	50	50	50
		Vf(mm/min)	500	710	500	500	500	420	590	420	420	420
		fz(mm/t)	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
		doc(mm)	0.4	0.4	0.35	0.25	0.15	0.4	0.4	0.35	0.25	0.15
		woc(mm)	20	20	20	20	20	25	25	25	25	25
JP4020		Q(cm³/min)	4	6	4	3	2	4	6	4	3	2
Stainless Steel		N(rpm)	1650	2290	1910	1140	1140	1380	1910	1590	950	950
		Vc(m/min)	130	180	150	90	90	130	180	150	90	90
		Vf(mm/min)	3300	9160	3820	2280	1820	2760	7640	3180	1900	1520
		fz(mm/t)	0.50	1.00	0.50	0.50	0.40	0.50	1.00	0.50	0.50	0.40
		doc(mm)	1	0.5	0.8	0.5	0.4	1	0.5	0.8	0.5	0.4
		woc(mm)	20	20	20	20	20	25	25	25	25	25
JM4060		Q(cm³/min)	66	92	61	23	15	69	96	64	24	15
Cast Iron		N(rpm)	1910	2290	1650	1650	1140	1590	1910	1380	1380	950
		Vc(m/min)	150	180	130	130	90	150	180	130	130	90
		Vf(mm/min)	10690	16480	9240	5280	1820	8900	13750	7720	4410	1520
		fz(mm/t)	1.40	1.80	1.40	0.80	0.40	1.40	1.80	1.40	0.80	0.40
		doc(mm)	1.25	1	0.8	0.6	0.4	1.25	1	0.8	0.6	0.4
JS4045		woc(mm)	20	20	20	20	20	25	25	25	25	25
JP4020		Q(cm³/min)	267	330	148	63	15	278	344	154	66	15
Maxmum fz(mm/tooth)			< 1.8mm/tooth (General use: fz<1.0mm/tooth)					< 1.8mm/tooth (General use: fz<1.0mm/tooth)				
Maxmum doc(mm)			<1.5mm (General use: ap<1.0mm)					<1.5mm (General use: ap<1.0mm)				

IASR/ASR MULTI

Face Mill Style
Cutting Conditions
Metric

		Ø										
		No. of Flutes					5					6
			<3D					<3D				
			General	Hi-Speed	3D-5D	5D-7D	>7D	General	Hi-Speed	3D-5D	5D-7D	>7D
Carbonsteel Alloy Steel <30HRC		N(rpm)	1490	1790	1290	1290	890	1190	1430	1030	1030	710
		Vc(m/min)	150	180	130	130	90	150	180	130	130	90
		Vf(mm/min)	7450	14320	6450	5160	1780	7140	13720	6180	4940	1700
		fz(mm/t)	1.00	1.60	1.00	0.80	0.40	1.00	1.60	1.00	0.80	0.40
		doc(mm)	1	0.7	0.8	0.5	0.4	1	0.7	0.8	0.5	0.4
JS4060		woc(mm)	25	25	25	25	25	32	32	32	32	32
JS4045		Q(cm³/min)	186	251	129	65	18	228	307	158	79	22
Tool Steel Alloy Steel 30-40HRC		N(rpm)	1290	1790	1290	1290	890	1030	1430	1030	1030	710
		Vc(m/min)	130	180	130	130	90	130	180	130	130	90
		Vf(mm/min)	6450	14320	6450	3870	1780	6180	13720	6180	3700	1700
		fz(mm/t)	1.00	1.60	1.00	0.60	0.40	1.00	1.60	1.00	0.60	0.40
JP4020		doc(mm)	1	0.5	0.8	0.5	0.4	1	0.5	0.8	0.5	0.4
JS4045		woc(mm)	25	25	25	25	25	32	32	32	32	32
JS4060		Q(cm³/min)	161	179	129	48	18	198	220	158	59	22
Tool Steel Pre-hardened 40-50HRC		N(rpm)	890	1290	890	890	890	710	1030	710	710	710
		Vc(m/min)	90	130	90	90	90	90	130	90	90	90
		Vf(mm/min)	2670	7740	2670	2670	1780	2550	7410	2550	2550	1700
		fz(mm/t)	0.60	1.20	0.60	0.60	0.40	0.60	1.20	0.60	0.60	0.40
		doc(mm)	0.6	0.4	0.5	0.4	0.3	0.6	0.4	0.5	0.4	0.3
		woc(mm)	25	25	25	25	25	32	32	32	32	32
JP4020		Q(cm³/min)	40	77	33	27	13	49	95	41	33	16
Tool Steel Pre-hardened 50-55HRC		N(rpm)	490	690	490	490	490	390	550	390	390	390
		Vc(m/min)	50	70	50	50	50	50	70	50	50	50
		Vf(mm/min)	490	690	490	490	490	460	660	460	460	460
		fz(mm/t)	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
		doc(mm)	0.4	0.4	0.35	0.25	0.15	0.4	0.4	0.35	0.25	0.15
		woc(mm)	25	25	25	25	25	32	32	32	32	32
JP4020		Q(cm³/min)	5	7	4	3	2	6	8	5	4	2
Stainless Steel		N(rpm)	1290	1790	1490	890	890	1030	1430	1190	710	710
		Vc(m/min)	130	180	150	90	90	130	180	150	90	90
		Vf(mm/min)	3220	8950	3720	2220	1780	3090	8580	3570	2130	1700
		fz(mm/t)	0.50	1.00	0.50	0.50	0.40	0.50	1.00	0.50	0.50	0.40
		doc(mm)	1	0.5	0.8	0.5	0.4	1	0.5	0.8	0.5	0.4
		woc(mm)	25	25	25	25	25	32	32	32	32	32
JM4060		Q(cm³/min)	81	112	74	28	18	99	137	91	34	22
Cast Iron		N(rpm)	1490	1790	1290	1290	890	1190	1430	1030	1030	710
		Vc(m/min)	150	180	130	130	90	150	180	130	130	90
		Vf(mm/min)	10430	16110	9030	5160	1780	9990	15440	8650	4940	1700
		fz(mm/t)	1.40	1.80	1.40	0.80	0.40	1.40	1.80	1.40	0.80	0.40
		doc(mm)	1.25	1	0.8	0.6	0.4	1.25	1	0.8	0.6	0.4
JS4045		woc(mm)	25	25	25	25	25	32	32	32	32	32
JP4020		Q(cm³/min)	326	403	181	77	18	400	494	221	95	22
Maxmum fz(mm/tooth)			< 1.8mm/tooth (General use: fz<1.0mm/tooth)					< 1.8mm/tooth (General use: fz<1.0mm/tooth)				
Maxmum doc(mm)			<1.5mm (General use: ap<1.0mm)					<1.5mm (General use: ap<1.0mm)				

IASR/ASR MULTI

Face Mill Style
Cutting Conditions
Metric

MOLDINO
The Edge To Innovation

		Ø	52mm or 2"					66mm or 2.5"				
		No. of Flutes	7					8				
			<3D		3D-5D	5D-7D	>7D	<3D		3D-5D	5D-7D	>7D
			General	Hi-Speed				General	Hi-Speed			
Carbon Steel Alloy Steel <30HRC		N(rpm)	910	1100	790	790	550	720	860	620	620	430
		Vc(m/min)	150	180	130	130	90	150	180	130	130	90
		Vf(mm/min)	6370	12320	5530	4420	1540	5760	11000	4960	3960	1370
		fz(mm/t)	1.00	1.60	1.00	0.80	0.40	1.00	1.60	1.00	0.80	0.40
		doc(mm)	1	0.7	0.8	0.5	0.4	1	0.7	0.8	0.5	0.4
JS4060		woc(mm)	40	40	40	40	40	50	50	50	50	50
JS4045		Q(cm³/min)	255	345	177	88	25	288	385	198	99	27
Tool Steel Alloy Steel 30-40HRC		N(rpm)	790	1100	790	790	550	620	860	620	620	430
		Vc(m/min)	130	180	130	130	90	130	180	130	130	90
		Vf(mm/min)	5530	12320	5530	3310	1540	4960	11000	4960	2970	1370
		fz(mm/t)	1.00	1.60	1.00	0.60	0.40	1.00	1.60	1.00	0.60	0.40
JP4020		doc(mm)	1	0.5	0.8	0.5	0.4	1	0.5	0.8	0.5	0.4
JS4045		woc(mm)	40	40	40	40	40	50	50	50	50	50
JS4060		Q(cm³/min)	221	246	177	66	25	248	275	198	74	27
Tool Steel Pre-hard-ened 40-50HRC		N(rpm)	550	790	550	550	550	430	620	430	430	430
		Vc(m/min)	90	130	90	90	90	90	130	90	90	90
		Vf(mm/min)	2310	6630	2310	2310	1540	2060	5950	2060	2060	1370
		fz(mm/t)	0.60	1.20	0.60	0.60	0.40	0.60	1.20	0.60	0.60	0.40
		doc(mm)	0.6	0.4	0.5	0.4	0.3	0.6	0.4	0.5	0.4	0.3
		woc(mm)	40	40	40	40	40	50	50	50	50	50
JP4020		Q(cm³/min)	55	106	46	37	18	62	119	52	41	21
Tool Steel Pre-hard-ened 50-55HRC		N(rpm)	300	420	300	300	300	240	330	240	240	240
		Vc(m/min)	50	70	50	50	50	50	70	50	50	50
		Vf(mm/min)	420	580	420	420	420	380	520	380	380	380
		fz(mm/t)	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
		doc(mm)	0.4	0.4	0.35	0.25	0.15	0.4	0.4	0.35	0.25	0.15
		woc(mm)	40	40	40	40	40	50	50	50	50	50
JP4020		Q(cm³/min)	7	9	6	4	3	8	10	7	5	3
Stainless Steel		N(rpm)	790	1100	910	550	550	620	860	720	430	430
		Vc(m/min)	130	180	150	90	90	130	180	150	90	90
		Vf(mm/min)	2760	7700	3180	1920	1540	2480	6880	2880	1720	1370
		fz(mm/t)	0.50	1.00	0.50	0.50	0.40	0.50	1.00	0.50	0.50	0.40
		doc(mm)	1	0.5	0.8	0.5	0.4	1	0.5	0.8	0.5	0.4
		woc(mm)	40	40	40	40	40	50	50	50	50	50
JM4060		Q(cm³/min)	110	154	102	38	25	124	172	115	43	27
Cast Iron		N(rpm)	910	1100	790	790	550	720	860	620	620	430
		Vc(m/min)	150	180	130	130	90	150	180	130	130	90
		Vf(mm/min)	8910	13860	7740	4420	1540	8060	12380	6940	3960	1370
		fz(mm/t)	1.40	1.80	1.40	0.80	0.40	1.40	1.80	1.40	0.80	0.40
		doc(mm)	1.25	1	0.8	0.6	0.4	1.25	1	0.8	0.6	0.4
JS4045		woc(mm)	40	40	40	40	40	50	50	50	50	50
JP4020		Q(cm³/min)	446	554	248	106	25	504	619	278	119	27
Maxmum fz(mm/tooth)			<0.071in/tooth (General use: fz<0.039in/tooth)					< 1.8mm/tooth (General use: fz<1.0mm/tooth)				
Maxmum doc(mm)			<0.059in (General use: doc<0.039in)					<1.5mm (General use: ap<1.0mm)				