



High Performance Aluminum End Mills



Milling

HIGH PERFORMANCE ALUMINUM END MILLS	SERIES	DESCRIPTION	PAGE
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S-Carb® (2 Flute)	47	2 Flute Non-Ferrous Square End Fractional	157
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	47B	2 Flute Non-Ferrous Ball End Fractional	158
	47MB	2 Flute Non-Ferrous Ball End Metric	162
	47L	2 Flute Non-Ferrous Square End Long Reach Fractional	157
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Speed & Feed Recommendations listed after each series

FRESAS DE ALTO RENDIMIENTO PARA ALUMINIO	SERIE	DESCRIPCIÓN	PÁGINA
S-Carb APR® y APF®	43APR	3 filos, productividad avanzada, desbastador, fraccional	123
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	43APF	4 filos, productividad avanzada, acabador, fraccional	125
	43MAPF	4 filos, productividad avanzada, acabador, métrico	132
S-Carb® (3 filos)	43	3 filos, no férrico, punta cuadrada, fraccional	134
	43M	3 filos, no férrico, punta cuadrada, métrico (filos no pulidos)	147
	43M	3 filos, no férrico, punta cuadrada, métrico (filos pulidos)	147
	43CR	3 filos, no férrico, radio angulado, fraccional	135
	43MCR	3 filos, no férrico, radio angulado, métrico (filos no pulidos)	148
	43MCR	3 filos, no férrico, radio angulado, métrico (filos pulidos)	149
	43MCR	3 filos, no férrico, radio angulado 4xD, métrico (filos pulidos)	150
	43LC	3 filos, no férricos, largo alcance, radio angulado, fraccional	139
	43MLC	3 filos, no férrico, largo alcance, radio angulado, métrico (filos no pulidos)	152
	43MLC	3 filos, no férrico, largo alcance, radio angulado, métrico (filos pulidos)	153
	43L	3 filos, no férrico, punta cuadrada, largo alcance, fraccional	138
	43ML	3 filos, no férrico, punta cuadrada, largo alcance, métrico	151
	43EC	3 filos, no férrico, punta cuadrada, alcance extralargo, fraccional	141
	43B	3 filos, no férrico, punta esférica, fraccional	142
	43MB	3 filos, no férrico, punta esférica, métrico (filos pulidos)	154
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Desbastador S-Carb® (3 filos)	43CB	3 filos, desbastador, no férrico, rompevirutas, fraccional	144
	43MCB	3 filos, desbastador, no férrico, rompevirutas, métrico	155
	43LCB	3 filos, desbastador, no férrico, rompevirutas, largo alcance, fraccional	145
S-Carb® (2 filos)	47	2 filos, no férrico, punta cuadrada, fraccional	157
	47M	2 filos, no férrico, punta cuadrada, métrico	160
	47B	2 filos, no férrico, punta esférica, fraccional	158
	47MB	2 filos, no férrico, punta esférica, métrico	162
	47L	2 filos, no férrico, punta cuadrada, largo alcance, fraccional	157
	47ML	2 filos, no férrico, punta cuadrada, largo alcance, métrico	161
	47LB	2 filos, no férrico, punta esférica, largo alcance, fraccional	158
	47MLB	2 filos, no férrico, punta esférica, largo alcance, métrico	162
Ski-Carb	44	2 filos, materiales no férricos, punta cuadrada, fraccional	164
	44M	2 filos, materiales no férricos, punta cuadrada, métrico	166
	45	2 filos, materiales no férricos, largo alcance, radio angulado, fraccional	168

Recomendaciones de velocidades y avances mostradas tras cada serie

FRAISE HAUTE PERFORMANCE POUR ALUMINIUM	SÉRIES	DESCRIPTION	PAGE
S-Carb APR®/APF®	43APR	3 dents productivité avancée d'ébauche (fractionnel)	123
	43APR-3	3 dents productivité avancée d'ébauche (métrique)	129
	43APR-4	4 dents productivité avancée d'ébauche (métrique)	130
	43MAPR	3 dents productivité avancée d'ébauche (métrique)	127
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	43MAPF	4 dents productivité avancée de finition (métrique)	132
S-Carb® (3 dents)	43	3 dents non-ferreux non rayonné (fractionnel)	134
	43M	3 dents non-ferreux non rayonné (métrique) (goujures non polies)	147
	43M	3 dents non-ferreux non rayonné (métrique) (goujures polies)	147
	43CR	3 dents non-ferreux rayonné (fractionnel)	135
	43MCR	3 dents matériaux non-ferreux rayonné (métrique) (goujures non polies)	148
	43MCR	3 dents matériaux non-ferreux rayonné (métrique) (goujures polies)	149
	43MCR	3 dents matériaux non-ferreux rayonné 4xD (métrique) (goujures polies)	150
	43LC	3 dents non-ferreux longue portée rayonné (fractionnel)	139
	43MLC	3 dents non-ferreux longue portée rayonné (métrique) (goujures non polies)	152
	43MLC	3 dents non-ferreux longue portée rayonné (métrique) (goujures polies)	153
	43L	3 dents non-ferreux non rayonné longue portée (fractionnel)	138
	43ML	3 dents non-ferreux non rayonné longue portée (métrique)	151
	43EC	3 dents non-ferreux non rayonné portée extra-longue (fractionnel)	141
	43B	3 dents non-ferreux à bout hémisphérique (fractionnel)	142
	43MB	3 dents non-ferreux à bout hémisphérique (métrique) (goujures polies)	154
	43LB	3 dents non-ferreux à bout hémisphérique longue portée (fractionnel)	143
	43EB	3 dents non-ferreux à bout hémisphérique portée extra-longue (fractionnel)	143
S-Carb® d'ébauche (3 dents)	43CB	3 dents d'ébauche non-ferreux brise-copeaux (fractionnel)	144
	43MCB	3 dents d'ébauche non-ferreux brise-copeaux (métrique)	155
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S-Carb® (2 dents)	47	2 dents non-ferreux non rayonné (fractionnel)	157
	47M	2 dents non-ferreux non rayonné (métrique)	160
	47B	2 dents non-ferreux à bout hémisphérique (fractionnel)	158
	47MB	2 dents non-ferreux à bout hémisphérique (métrique)	162
	47L	2 dents non-ferreux non rayonné longue portée (fractionnel)	157
	47ML	2 dents non-ferreux non rayonné longue portée (métrique)	161
	47LB	2 dents non-ferreux à bout hémisphérique longue portée (fractionnel)	158
	47MLB	2 dents non-ferreux à bout hémisphérique longue portée (métrique)	162
Ski-Carb	44	2 dents matériaux non-ferreux non rayonné (fractionnel)	164
	44M	2 dents matériaux non-ferreux non rayonné (métrique)	166
	45	2 dents matériaux non-ferreux longue portée rayonné (fractionnel)	168

Recommandations de vitesse et avance indiquées après chaque série

HOCHLEISTUNGSSCHAFTFRÄSER FÜR ALUMINIUM	SERIE	BESCHREIBUNG	SEITE
S-Carb APR® & APF®	43APR	Zölliger Hochleistungs-Schrupfräser mit 3 Schneiden	123
	43APR-3	Hochleistungs-Schrupfräser mit 3 Schneiden (Erweiterung)	129
	43APR-4	Hochleistungs-Schrupfräser mit 4 Schneiden	130
	43MAPR	Hochleistungs-Stirnschrupfräser mit 3 Schneiden	127
	43APF	Zölliger Hochleistungs-Schlichtfräser mit 4 Schneiden	125
	43MAPF	Hochleistungs-Schlichtfräser mit 4 Schneiden	132
S-Carb® (3 Schneiden)	43	Zölliger NE-Schaftfräser mit 3 Schneiden ohne Eckenradien	134
	43M	NE-Schaftfräser mit 3 unpolierten Schneiden ohne Eckenradien	147
	43M	NE-Schaftfräser mit 3 polierten Schneiden ohne Eckenradien	147
	43CR	Zölliger NE-Fräser mit 3 Schneiden und Eckenradien	135
	43MCR	NE-Fräser mit 3 unpolierten Schneiden und Eckenradien	148
	43MCR	NE-Fräser mit 3 polierten Schneiden und Eckenradien	149
	43MCR	NE-Fräser 4xD mit 3 polierten Schneiden und Eckenradien	150
	43LC	Zölliger Langlochfräser mit 3 Schneiden und Eckenradien	139
	43MLC	NE-Langlochfräser mit 3 unpolierten Schneiden und Eckenradien	152
	43MLC	NE-Langlochfräser mit 3 polierten Schneiden und Eckenradien	153
	43L	Zölliger NE-Langloch-Schaftfräser mit 3 Schneiden ohne Eckenradien	138
	43ML	NE-Langloch-Schaftfräser mit 3 Schneiden ohne Eckenradien	151
	43EC	Zölliger NE-Superlangloch-Schaftfräser mit 3 Schneiden ohne Eckenradien	141
	43B	Zölliger NE-Radiusschaftfräser mit 3 Schneiden	142
	43MB	NE-Radiusschaftfräser mit 3 polierten Schneiden	154
	43LB	Zölliger NE-Langloch-Radiusschaftfräser mit 3 Schneiden	143
	43EB	Zölliger NE-Superlangloch-Radiusschaftfräser mit 3 Schneiden	143
	43CB	Zölliger NE-Schrupfräser mit 3 Schneiden und Spanbrechern	144
	43MCB	NE-Schrupfräser mit 3 Schneiden und Spanbrechern	155
	43LCB	Zölliger NE-Langloch-Schrupfräser mit 3 Spanteilernuten	145
S-Carb® Schrupfräser (3 Schneiden)	47	Zölliger NE-Schaftfräser mit 2 Schneiden ohne Eckenradien	157
	47M	NE-Schaftfräser mit 2 Schneiden ohne Eckenradien	160
	47B	Zölliger NE-Radiusschaftfräser mit 2 Schneiden	158
	47MB	NE-Radiusschaftfräser mit 2 Schneiden	162
	47L	Zölliger NE-Langloch-Schaftfräser mit 2 Schneiden ohne Eckenradien	157
	47ML	NE-Langloch-Schaftfräser mit 2 Schneiden ohne Eckenradien	161
	47LB	Zölliger NE-Langloch-Radiusschaftfräser mit 2 Schneiden	158
	47MLB	NE-Langloch-Radiusschaftfräser mit 2 Schneiden	162
Ski-Carb	44	Zölliger NE-Schaftfräser mit 2 Schneiden ohne Eckenradien	164
	44M	NE-Schaftfräser mit 2 Schneiden ohne Eckenradien	166
	45	Zölliger Langlochfräser mit 2 Schneidenn und Eckenradien für Nichteisenmetalle	168

Empfehlungen für Drehzahl & Vorschub im Anhang zu jeder Serie



TOLERANCES (inch)

3/4–1 DIAMETER

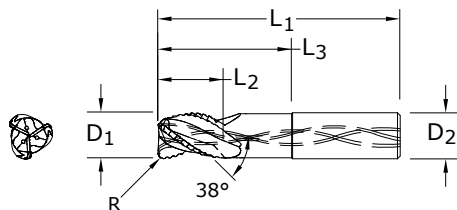
$D_1 = +0.00040/-0.0020$

$D_2 = h_6$

$R = +0.0000/-0.0012$

NON-FERROUS

For patent
information visit
www.ksptpatents.com



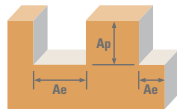
43APR
FRACTIONAL SERIES

inch						EDP NO.
CUTTING DIAMETER D_1	LENGTH OF CUT L_2	OVERALL LENGTH L_1	SHANK DIAMETER D_2	REACH L_3	CORNER RADIUS R	Ti-NAMITE-B (TiB ₂)
3/4	1-3/8	4-1/4	3/4	2-3/8	.030	34000
3/4	1-3/8	4-1/4	3/4	2-3/8	.060	34001
3/4	1-3/8	4-1/4	3/4	2-3/8	.090	34002
3/4	1-3/8	4-1/4	3/4	2-3/8	.120	34003
3/4	1-1/4	4-7/8	3/4	3	.030	34004
3/4	1-1/4	4-7/8	3/4	3	.060	34005
3/4	1-1/4	4-7/8	3/4	3	.090	34006
3/4	1-1/4	4-7/8	3/4	3	.120	34007
1	1-3/4	4-1/2	1	2-1/2	.030	34008
1	1-3/4	4-1/2	1	2-1/2	.060	34009
1	1-3/4	4-1/2	1	2-1/2	.090	34010
1	1-3/4	4-1/2	1	2-1/2	.120	34011
1	1-1/2	5-1/4	1	3-1/4	.030	34012
1	1-1/2	5-1/4	1	3-1/4	.060	34013
1	1-1/2	5-1/4	1	3-1/4	.090	34014
1	1-1/2	5-1/4	1	3-1/4	.120	34015

- Ultra high-productivity rougher for Aluminum alloys, specifically for aircraft components
- Designed for machine tools with capability of 600 in³ per minute material removal rates
- Symmetrical end gashing for excellent balance at high speeds and aggressive plunging capability
- Open fluting for deep slotting and profiling
- Polished flutes maximize chip evacuation and provides enhanced finish
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)

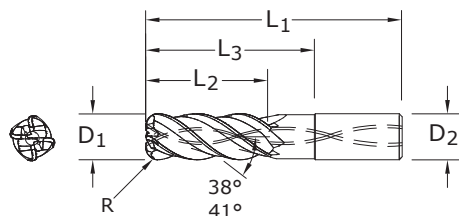
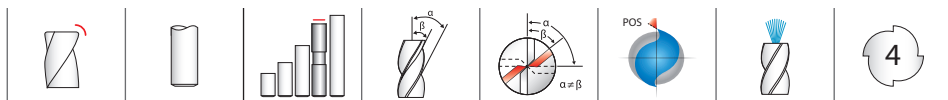
Available on request: • JetStream Technology • Side exit coolant holes

FRACTIONAL S-Carb APR®



Series 43APR Fractional		Hardness			Vc (sfm)	Diameter (D ₁) (inch)			
			Ae x D ₁	Ap x D ₁		3/4	1		
N	ALUMINUM ALLOYS 2024, 5052, 5086, 6061, 6063, 7075	≤ 150 Bhn or ≤ 7 HRc		1	≤ 1	4920	RPM	25059	18794
						(3936-5904)	Fz	0.0060	0.0070
				≤ 0.5	≤ 1.5	6560	RPM	33412	25059
		(5248-7872)				Fz	0.0060	0.0070	
						Feed (in/min)	451	395	
		ALUMINUM ALLOYS (LITHIUM)* 2090, 2091, 2099, 2195, 2199, 2297, 8090	≤ 150 Bhn or ≤ 7 HRc		1	≤ 1	3940	RPM	20068
	(3152-4728)						Fz	0.0045	0.0053
				≤ 0.5	≤ 1.5	4920	RPM	25059	18794
			(3936-5904)			Fz	0.0045	0.0053	
						Feed (in/min)	338	299	

Bhn (Brinell) HRc (Rockwell C)
 surface speed is dependent on machine spindle and fixturing
 balancing is recommended at ultra high surface speeds
 tool life may be reduced when machining Lithium Alloys
 $rpm = Vc \times 3.82 / D_1$
 $ipm = Fz \times 3 \times rpm$
 maximum recommended depths shown
 reduce speed and feed for materials harder than listed
 ramp angle = 15° (feed rate = 50%)
 plunge depth = 1 x D₁ (feed rate = 30%)
 refer to the KYOCERA SGS Tool Wizard® for complete technical information (www.kyocera-sgstool.com)



TOLERANCES (inch)

1/2–3/4 DIAMETER

$D_1 = +0.00040/-0.0020$

$D_2 = h_6$

$R = +0.0000/-0.0012$

NON-FERROUS

For patent
information visit
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43APF

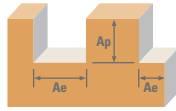
FRACTIONAL SERIES

inch						EDP NO.
CUTTING DIAMETER D_1	LENGTH OF CUT L_2	OVERALL LENGTH L_1	SHANK DIAMETER D_2	REACH L_3	CORNER RADIUS R	Ti-NAMITE-B (TiB ₂)
1/2	1-1/4	3-1/4	1/2	1-5/8	.030	34016
1/2	1-1/4	3-1/4	1/2	1-5/8	.060	34017
1/2	1-1/4	3-1/4	1/2	1-5/8	.090	34018
1/2	1-1/4	3-1/4	1/2	1-5/8	.120	34019
1/2	2	4	1/2	2-3/8	.030	34020
1/2	2	4	1/2	2-3/8	.060	34021
1/2	2	4	1/2	2-3/8	.090	34022
1/2	2	4	1/2	2-3/8	.120	34023
3/4	1-7/8	4-1/4	3/4	2-3/8	.030	34024
3/4	1-7/8	4-1/4	3/4	2-3/8	.060	34025
3/4	1-7/8	4-1/4	3/4	2-3/8	.090	34026
3/4	1-7/8	4-1/4	3/4	2-3/8	.120	34027
3/4	3	5-3/8	3/4	3-1/2	.030	34028
3/4	3	5-3/8	3/4	3-1/2	.060	34029
3/4	3	5-3/8	3/4	3-1/2	.090	34030
3/4	3	5-3/8	3/4	3-1/2	.120	34031

Available on request: • JetStream Technology

- Ultra high-productivity finisher for Aluminum alloys, specifically for aircraft components
- Two levels of chatter suppression: variable helix and indexing
- Designed for single axial pass semi-finishing and finishing
- Polished flutes maximize chip evacuation and provides enhanced finish
- Recommended for materials ≤ 150 Bhn (≤ 7 HRc)

FRACTIONAL S-Carb APF®



Series 43APF Fractional		Hardness			Vc (sfm)	Diameter (D ₁) (inch)			
			Ae x D ₁	Ap x D ₁		1/2	3/4		
N	ALUMINUM ALLOYS 2024, 5052, 5086, 6061, 6063, 7075	≤ 150 Bhn or ≤ 7 HRc		≤ 0.1	≤ 2.5	2625	RPM	20055	13370
						(2100-3150)	Fz	0.0030	0.0050
							Feed (in/min)	241	267
			≤ 0.1	≤ 4	2625	RPM	20055	13370	
					(2100-3150)	Fz	0.0020	0.0040	
						Feed (in/min)	160	214	
	ALUMINUM ALLOYS (LITHIUM)* 2090, 2091, 2099, 2195, 2199, 2297, 8090	≤ 150 Bhn or ≤ 7 HRc		≤ 0.1	≤ 2.5	1970	RPM	15051	10034
						(1576-2364)	Fz	0.0030	0.0050
							Feed (in/min)	181	201
			≤ 0.1	≤ 4	1970	RPM	15051	10034	
					(1576-2364)	Fz	0.0020	0.0040	
						Feed (in/min)	120	161	

Bhn (Brinell) HRC (Rockwell C)
 surface speed is dependent on machine spindle and fixturing
 balancing is recommended at ultra high surface speeds
 tool life may be reduced when machining Lithium Alloys
 $rpm = Vc \times 3.82 / D_1$
 $ipm = Fz \times 4 \times rpm$
 maximum recommended depths shown
 reduce speed and feed for materials harder than listed
 finish cuts typically require reduced feed and cutting depths of 0.02 X D₁ maximum
 ramp angle = 6° (feed rate = 50%)
 plunging not recommended
 refer to the KYOCERA SGS Tool Wizard® for complete technical information (www.kyocera-sgstool.com)



TOLERANCES (mm)

12–25 DIAMETER

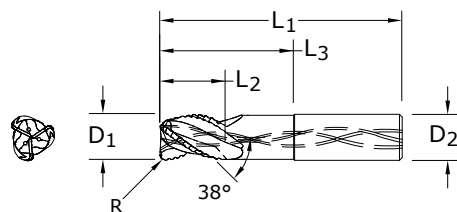
$D_1 = +0,010/-0,050$

$D_2 = h_6$

$R = +0,000/-0,030$

NON-FERROUS

For patent
information visit
www.ksptpatents.com

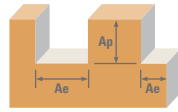


43MAPR
METRIC SERIES

mm						EDP NO.
CUTTING DIAMETER D_1	LENGTH OF CUT L_2	OVERALL LENGTH L_1	SHANK DIAMETER D_2	REACH L_3	CORNER RADIUS R	Ti-NAMITE-B (TiB ₂)
12,0	18,0	83,0	12,0	38,0	—	44650
12,0	18,0	83,0	12,0	38,0	2,0	44685
12,0	18,0	83,0	12,0	38,0	3,0	44686
12,0	18,0	83,0	12,0	38,0	4,0	44687
16,0	24,0	92,0	16,0	51,0	—	44652
16,0	24,0	92,0	16,0	51,0	2,0	44688
16,0	24,0	92,0	16,0	51,0	3,0	44689
16,0	24,0	92,0	16,0	51,0	4,0	44690
20,0	30,0	86,0	20,0	45,0	—	44646
20,0	30,0	86,0	20,0	45,0	3,0	44647
20,0	30,0	86,0	20,0	45,0	4,0	44648
20,0	30,0	86,0	20,0	45,0	5,0	44649
20,0	35,0	104,0	20,0	64,0	—	44653
20,0	35,0	104,0	20,0	64,0	3,0	44691
20,0	35,0	104,0	20,0	64,0	4,0	44692
20,0	35,0	104,0	20,0	64,0	5,0	44693
25,0	35,0	108,0	25,0	55,0	3,0	44809
25,0	35,0	108,0	25,0	55,0	4,0	44810
25,0	35,0	108,0	25,0	55,0	5,0	44811
25,0	35,0	140,0	25,0	80,0	—	44654
25,0	35,0	140,0	25,0	80,0	3,0	44694
25,0	35,0	140,0	25,0	80,0	4,0	44695
25,0	35,0	140,0	25,0	80,0	5,0	44696
25,0	35,0	140,0	25,0	90,0	3,0	44645

Available on request: • JetStream Technology • Side exit coolant holes

- Ultra high-productivity rougher for Aluminum alloys, specifically for aircraft components
- Designed for machine tools with capability of 9.83 l³ per minute material removal rates
- Symmetrical end gashing for excellent balance at high speeds and aggressive plunging capability
- Open fluting for deep slotting and profiling
- Polished flutes maximize chip evacuation and provides enhanced finish
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)



Series 43MAPR Metric		Hardness			Vc (m/min)	Diameter (D ₁) (mm)				
			Ae x D ₁	Ap x D ₁		12	16	20	25	
N	ALUMINUM ALLOYS 2024, 5052, 5086, 6061, 6063, 7075	Slot 	1	≤ 1	1500	RPM	39788	29841	23873	19098
					(1200-1800)	Fz	0.080	0.110	0.150	0.180
						Feed (mm/min)	9549	9848	10743	10313
		Profile 	≤ 0.5	≤ 1.5	2000	RPM	53050	39788	31830	25464
					(1600-2400)	Fz	0.080	0.110	0.150	0.180
						Feed (mm/min)	12732	13130	14324	13751
	ALUMINUM ALLOYS (LITHIUM)* 2090, 2091, 2099, 2195, 2199, 2297, 8090	Slot 	1	≤ 1	1200	RPM	31830	23873	19098	15278
					(960-1440)	Fz	0.060	0.083	0.110	0.140
						Feed (mm/min)	11459	5944	6302	6417
		Profile 	≤ 0.5	≤ 1.5	1500	RPM	39788	29841	23873	19098
					(1200-1800)	Fz	0.060	0.083	0.110	0.140
						Feed (mm/min)	7162	7430	7878	8021

Bhn (Brinell) HRc (Rockwell C)

surface speed is dependent on machine spindle and fixturing

balancing is recommended at ultra high surface speeds

tool life may be reduced when machining Lithium Alloys

rpm = (Vc x 1000) / (D₁ x 3.14)

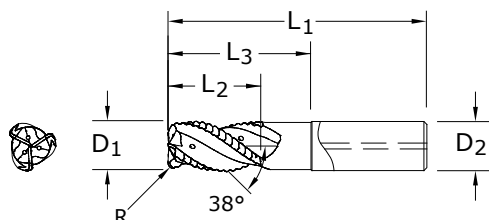
mm/min = Fz x 3 x rpm

maximum recommended depths shown

reduce speed and feed for materials harder than listed

ramp angle = 15° (feed rate = 50%)

plunge depth = 1 x D₁ (feed rate = 30%)refer to the KYOCERA SGS Tool Wizard[®] for complete technical information (www.kyocera-sgstool.com)



TOLERANCES (mm)

20–25 DIAMETER

$D_1 = -0,01/-0,10$

$D_2 = h_6$

$R = +/-0,05$

NON-FERROUS

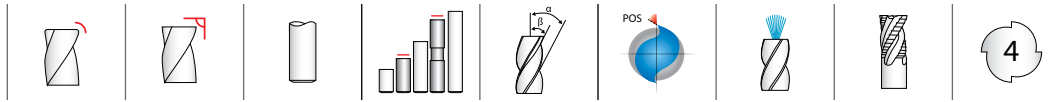
For patent
information visit
www.ksptpatents.com

43APR-3

METRIC SERIES

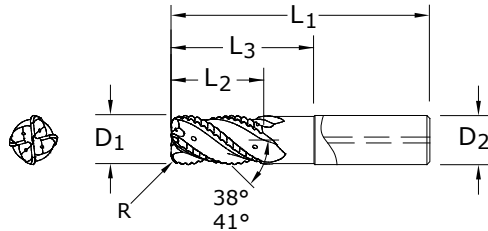
inch						EDP NO.
CUTTING DIAMETER D_1	LENGTH OF CUT L_2	OVERALL LENGTH L_1	SHANK DIAMETER D_2	REACH L_3	CORNER RADIUS R	Ti-NAMITE-B (TiB ₂)
20,0	35,0	86,0	20,0	—	—	44990
20,0	35,0	86,0	20,0	45,0	3,0	44991
20,0	35,0	86,0	20,0	45,0	4,0	44992
20,0	35,0	106,0	20,0	—	—	44993
20,0	35,0	106,0	20,0	65,0	2,0	44994
20,0	35,0	106,0	20,0	65,0	3,0	44995
20,0	35,0	106,0	20,0	65,0	4,0	44996
20,0	35,0	106,0	20,0	65,0	5,0	44997
25,0	43,0	108,0	25,0	—	—	44998
25,0	43,0	108,0	25,0	60,0	2,0	44999
25,0	43,0	108,0	25,0	60,0	3,0	45000
25,0	43,0	108,0	25,0	60,0	4,0	45001
25,0	35,0	140,0	25,0	—	—	45002
25,0	35,0	140,0	25,0	80,0	3,0	45003
25,0	35,0	140,0	25,0	90,0	3,0	45004

- Ultra high-productivity rougher for Aluminum alloys, specifically for aircraft components
- Designed for machine tools with capability of 12 IP per minute material removal rates
- New 3 flute variable geometry with side exit coolant holes
- Open fluting for deep slotting and profiling
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)



43APR-4

METRIC SERIES



- Ultra high-productivity rougher for Aluminum alloys, specifically for aircraft components
- Designed for machine tools with capability of 12 l³ per minute material removal rates
- New 4 flute variable geometry with side exit coolant holes
- Open fluting for deep slotting and profiling
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)

inch						EDP NO.
CUTTING DIAMETER D ₁	LENGTH OF CUT L ₂	OVERALL LENGTH L ₁	SHANK DIAMETER D ₂	REACH L ₃	CORNER RADIUS R	Ti-NAMITE-B (TiB ₂)
20,0	35,0	86,0	20,0	—	—	45005
20,0	35,0	86,0	20,0	45,0	3,0	45006
20,0	35,0	86,0	20,0	45,0	4,0	45007
20,0	35,0	106,0	20,0	—	—	45008
20,0	35,0	106,0	20,0	65,0	2,0	45009
20,0	35,0	106,0	20,0	65,0	3,0	45010
20,0	35,0	106,0	20,0	65,0	4,0	45011
20,0	35,0	106,0	20,0	65,0	5,0	45012
25,0	43,0	108,0	25,0	—	—	45013
25,0	43,0	108,0	25,0	60,0	2,0	45014
25,0	43,0	108,0	25,0	60,0	3,0	45015
25,0	43,0	108,0	25,0	60,0	4,0	45016
25,0	35,0	140,0	25,0	—	—	45017
25,0	35,0	140,0	25,0	80,0	3,0	45018
25,0	35,0	140,0	25,0	90,0	3,0	45019

TOLERANCES (mm)

20–25 DIAMETER

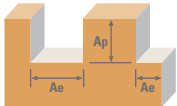
D₁ = -0,01/-0,10

D₂ = h₆

R = +/-0,05

NON-FERROUS

For patent information visit
www.ksptpatents.com

Series 43APR-3 43APR-4 Metric		 Ae x D ₁ Ap x D ₁		Vc (m/min)	Diameter (D ₁) (mm)			
					APR-3		APR-4	
					20	25	20	25
N	ALUMINIUM ALLOYS 6068, 7075	Slot 	1	≤ 1	1600	RPM	25461	20369
					(300-2100)	Fz	0.12	0.12
						Feed (mm/min)	9166	7333
		Profile 	≤ 0.5	≤ 1.5	1800	RPM	28644	22915
					(300-2100)	Fz	0.15	0.15
						Feed (mm/min)	12890	10312
		HSM 	≤ 0.1	≤ 2	2100	RPM	33418	26735
					(300-2100)	Fz	0.18	0.18
						Feed (mm/min)	18046	14437
							24061	19249

For best results use the peak power of the specific machine torque chart.

Typically 10kw is required to remove 1 litre of material (MMR).

Eg. >> (Ae x Ap x Feed) / 1000000 >> Therefore Full slotting Ø25: 25 x 25 x 7333 = 4.58 Litres so it needs a min of 46Kw.

Larger cuts and chip load consume more power.

Review the power chart of each machine to determine MAX power for ultimate performance.

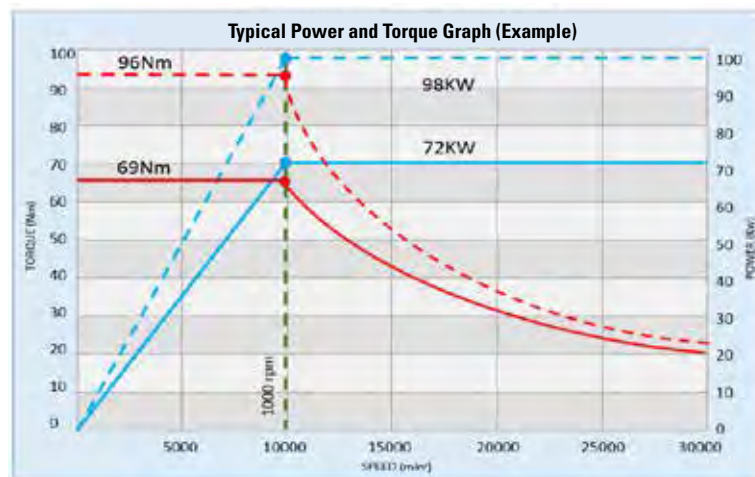
Example below shows peak power @ 10,000 rpm.

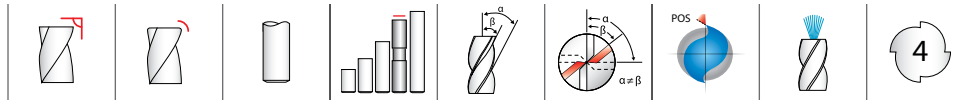
The APR-4 design is for ultimate metal removal but typically requires more power, and is also better suited to horizontal machines.

The new coolant supply is designed for MQL as well as normal emulsion coolant on the same data.

Ensure max MQL flow prior to cutting.

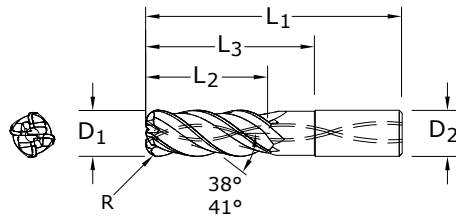
Refer to the KYOCERA SGS Tool Wizard® for complete technical information (www.kyocera-sgstool.com).





43MAPF

METRIC SERIES



- Ultra high-productivity finisher for Aluminum alloys, specifically for aircraft components
- Two levels of chatter suppression: variable helix and indexing
- Designed for single axial pass semi-finishing and finishing
- Polished flutes maximize chip evacuation and provides enhanced finish
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)

mm						EDP NO.
CUTTING DIAMETER D_1	LENGTH OF CUT L_2	OVERALL LENGTH L_1	SHANK DIAMETER D_2	REACH L_3	CORNER RADIUS R	Ti-NAMITE-B (TiB ₂)
6,0	24,0	58,0	6,0	30,0	—	44627
8,0	32,0	64,0	8,0	40,0	—	44628
10,0	40,0	80,0	10,0	50,0	—	44629
12,0	30,0	83,0	12,0	40,0	—	44630
12,0	30,0	83,0	12,0	40,0	2,0	44745
12,0	30,0	83,0	12,0	40,0	3,0	44746
12,0	30,0	83,0	12,0	40,0	4,0	44747
12,0	30,0	83,0	12,0	50,0	0,5	44641
12,0	30,0	83,0	12,0	50,0	5,0	44642
12,0	48,0	100,0	12,0	62,0	—	44631
12,0	48,0	100,0	12,0	62,0	2,0	44748
12,0	48,0	100,0	12,0	62,0	3,0	44749
12,0	48,0	100,0	12,0	62,0	4,0	44750
16,0	42,0	93,0	16,0	51,0	5,0	44643
16,0	40,0	92,0	16,0	51,0	—	44634
16,0	40,0	92,0	16,0	51,0	2,0	44751
16,0	40,0	92,0	16,0	51,0	3,0	44752
16,0	40,0	92,0	16,0	51,0	4,0	44753
16,0	64,0	125,0	16,0	82,0	—	44635
16,0	64,0	125,0	16,0	82,0	2,0	44754
16,0	64,0	125,0	16,0	82,0	3,0	44755
16,0	64,0	125,0	16,0	82,0	4,0	44756
20,0	50,0	108,0	20,0	63,0	—	44636
20,0	50,0	108,0	20,0	63,0	3,0	44757
20,0	50,0	108,0	20,0	63,0	4,0	44758
20,0	50,0	108,0	20,0	63,0	5,0	44759
20,0	80,0	150,0	20,0	102,0	—	44637
20,0	80,0	150,0	20,0	102,0	3,0	44760
20,0	80,0	150,0	20,0	102,0	4,0	44761
20,0	80,0	150,0	20,0	102,0	5,0	44762
25,0	63,0	130,0	25,0	79,0	—	44638
25,0	63,0	130,0	25,0	79,0	3,0	44763
25,0	63,0	130,0	25,0	79,0	4,0	44764
25,0	63,0	130,0	25,0	79,0	5,0	44765
25,0	100,0	175,0	25,0	120,0	—	44639
25,0	100,0	175,0	25,0	120,0	3,0	44766
25,0	100,0	175,0	25,0	120,0	4,0	44767
25,0	100,0	175,0	25,0	120,0	5,0	44768

Available on request: • JetStream Technology

TOLERANCES (mm)

6–25 DIAMETER

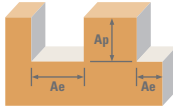
$D_1 = +0,010/-0,050$

$D_2 = h_6$

$R = +0,000/-0,030$

NON-FERROUS

For patent information visit
www.ksptpatents.com

Series 43MAPF Metric	Hardness				Vc (m/min)	Diameter (D ₁) (mm)							
			Ae x D ₁	Ap x D ₁		6	8	10	12	16	20	25	
N	ALUMINUM ALLOYS 2024, 5052, 5086, 6061, 6063, 7075		≤ 0.1	≤ 2.5	800	RPM	42440	31830	25464	21220	15915	12732	10186
					(640-960)	Fz	0.050	0.055	0.060	0.070	0.100	0.140	0.170
						Feed (mm/min)	8488	7003	6111	5942	6366	7130	6926
			≤ 0.1	≤ 4	800	RPM	42440	31830	25464	21220	15915	12732	10186
					(640-960)	Fz	0.040	0.045	0.050	0.050	0.070	0.100	0.120
						Feed (mm/min)	6790	5729	5093	4244	4456	5093	4889
	ALUMINUM ALLOYS (LITHIUM)* 2090, 2091, 2099, 2195, 2199, 2297, 8090		≤ 0.1	≤ 2.5	600	RPM	31830	23873	19098	15915	11936	9549	7639
					(480-720)	Fz	0.050	0.055	0.060	0.070	0.100	0.140	0.170
						Feed (mm/min)	6366	5252	4584	4456	4774	5347	5195
			≤ 0.1	≤ 4	600	RPM	31830	23873	19098	15915	11936	9549	7639
					(480-720)	Fz	0.040	0.045	0.050	0.050	0.070	0.100	0.120
						Feed (mm/min)	5093	4297	3820	3183	3342	3820	3667

Bhn (Brinell) HRC (Rockwell C)

surface speed is dependent on machine spindle and fixturing

balancing is recommended at ultra high surface speeds

*tool life may be reduced when machining Lithium Alloys

$rpm = (Vc \times 1000) / (D_1 \times 3.14)$

$mm/min = Fz \times 4 \times rpm$

maximum recommended depths shown

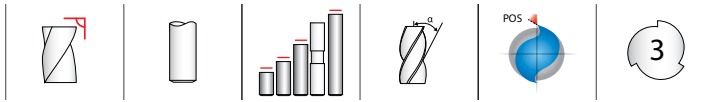
reduce speed and feed for materials harder than listed

finish cuts typically require reduced feed and cutting depths of 0.02 X D₁ maximum

ramp angle = 6° (feed rate = 50%)

plunging not recommended

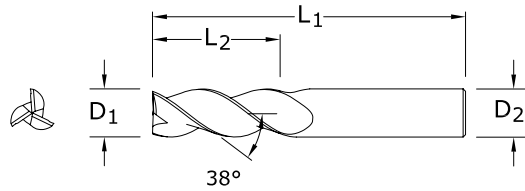
refer to the KYOCERA SGS Tool Wizard® for complete technical information (www.kyocera-sgstool.com)



43

FRACTIONAL SERIES

- Circular land allows for increased control at various speed and feed rates and reduces chatter
- Symmetrical end gashing for excellent balance at high speeds and aggressive plunging capability
- Open fluting for deep slotting and profiling
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)



CUTTING DIAMETER D ₁	inch			EDP NO.	
	LENGTH OF CUT L ₂	OVERALL LENGTH L ₁	SHANK DIAMETER D ₂	UNCOATED	Ti-NAMITE-B (TiB ₂)
1/8	3/8	1-1/2	1/8	34701	34728
3/16	5/16	2-1/2	3/16	34822	34857
3/16	9/16	2	3/16	34702	34729
3/16	3/4	2-1/2	3/16	34823	34858
1/4	3/8	2	1/4	34703	34730
1/4	1/2	2-1/2	1/4	34824	34859
1/4	3/4	2-1/2	1/4	34704	34731
1/4	1	3	1/4	34825	34860
1/4	1-1/4	3-1/2	1/4	34705	34732
1/4	1-3/4	4	1/4	34826	34861
5/16	7/16	2	5/16	34706	34733
5/16	5/8	2-1/2	5/16	34707	34734
5/16	1-1/4	4	5/16	34708	34735
3/8	1/2	2	3/8	34709	34736
3/8	1	2-1/2	3/8	34710	34737
3/8	1-1/4	3-1/2	3/8	34827	34862
3/8	1-1/2	3-1/2	3/8	34711	34738
3/8	2	4	3/8	34828	34863
1/2	5/8	2-1/2	1/2	34712	34739
1/2	1	3	1/2	34830	34865
1/2	1-1/4	3-1/4	1/2	34713	34740
1/2	1-5/8	4	1/2	34831	34866
1/2	2-1/2	5	1/2	34832	34867
1/2	2	4	1/2	34714	34741
1/2	3-1/8	6	1/2	34715	34742
5/8	3/4	3	5/8	34716	34743
5/8	1-5/8	3-3/4	5/8	34717	34744
5/8	2-1/8	4	5/8	34833	34868
5/8	2-1/2	5	5/8	34718	34745
5/8	3-1/4	6	5/8	34834	34869
5/8	3-3/4	6	5/8	34719	34746
3/4	1	3	3/4	34720	34747
3/4	1-5/8	4	3/4	34721	34748
3/4	2-1/4	5	3/4	34722	34749
3/4	3-1/4	6	3/4	34723	34750
1	1-1/4	4	1	34724	34751
1	2	4-1/2	1	34725	34752
1	2-5/8	6	1	34726	34753
1	3-1/4	6	1	34727	34754
1	4-1/8	7	1	34835	34870

TOLERANCES (inch)

1/8–3/16 DIAMETER

D₁ = +0.0000/–0.00032

D₂ = h₆

1/4–3/8 DIAMETER

D₁ = +0.0000/–0.00035

D₂ = h₆

1/2–5/8 DIAMETER

D₁ = +0.0000/–0.00043

D₂ = h₆

3/4–1 DIAMETER

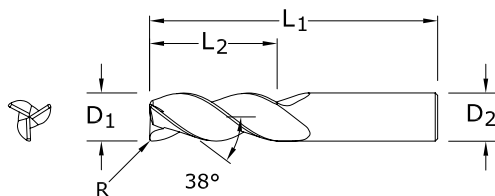
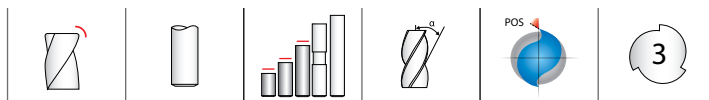
D₁ = +0.0000/–0.00051

D₂ = h₆

NON-FERROUS

PLASTICS/COMPOSITES

For patent
information visit
www.ksptpatents.com



TOLERANCES (inch)

1/8–3/16 DIAMETER

$D_1 = +0.0000/-0.00032$

$D_2 = h_6$

$R = +0.0000/-0.0020$

1/4–3/8 DIAMETER

$D_1 = +0.0000/-0.00035$

$D_2 = h_6$

$R = +0.0000/-0.0020$

1/2–5/8 DIAMETER

$D_1 = +0.0000/-0.00043$

$D_2 = h_6$

$R = +0.0000/-0.0020$

3/4–1 DIAMETER

$D_1 = +0.0000/-0.00051$

$D_2 = h_6$

$R = +0.0000/-0.0020$

NON-FERROUS

PLASTICS/COMPOSITES

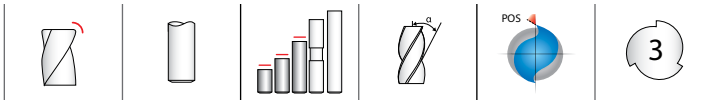
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information visit
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43CR
FRACTIONAL SERIES

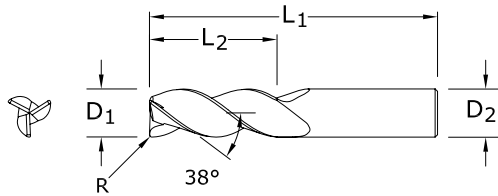
CUTTING DIAMETER D_1	LENGTH OF CUT L_2	inch			EDP NO.	
		OVERALL LENGTH L_1	SHANK DIAMETER D_2	CORNER RADIUS R	UNCOATED	TI-NAMITE-B (TiB ₂)
1/8	3/8	1-1/2	1/8	.010	34771	34793
3/16	9/16	2	3/16	.010	34772	34794
1/4	3/8	2-1/2	1/4	.010	35575	35665
1/4	3/8	2-1/2	1/4	.015	35576	35666
1/4	3/8	2-1/2	1/4	.030	35577	35667
1/4	3/8	2-1/2	1/4	.060	35578	35668
1/4	3/4	2-1/2	1/4	.010	34773	34795
1/4	3/4	2-1/2	1/4	.015	35579	35669
1/4	3/4	2-1/2	1/4	.030	34774	34796
1/4	3/4	2-1/2	1/4	.060	35580	35670
1/4	1	3	1/4	.010	35581	35671
1/4	1	3	1/4	.015	35582	35672
1/4	1	3	1/4	.030	35583	35673
1/4	1	3	1/4	.060	35584	35674
5/16	5/8	2-1/2	5/16	.030	34775	34797
3/8	1/2	3	3/8	.010	35585	35675
3/8	1/2	3	3/8	.015	35586	35676
3/8	1/2	3	3/8	.030	35587	35677
3/8	1/2	3	3/8	.060	35588	35678
3/8	1/2	3	3/8	.090	35589	35679
3/8	1	2-1/2	3/8	.010	34776	34798
3/8	1	2-1/2	3/8	.030	34777	34799
3/8	1	2-1/2	3/8	.060	32761	32825
3/8	1	3	3/8	.015	35590	35680
3/8	1	3	3/8	.090	35591	35681
3/8	1-1/2	4	3/8	.010	35592	35682
3/8	1-1/2	4	3/8	.015	35593	35683
3/8	1-1/2	4	3/8	.030	35594	35684
3/8	1-1/2	4	3/8	.060	35595	35685
3/8	1-1/2	4	3/8	.090	35596	35686
1/2	5/8	3	1/2	.010	35597	35687
1/2	5/8	3	1/2	.015	35598	35688
1/2	5/8	3	1/2	.030	35599	35689
1/2	5/8	3	1/2	.060	35600	35690
1/2	5/8	3	1/2	.090	35601	35691
1/2	5/8	3	1/2	.120	35602	35692

- Circular land allows for increased control at various speed and feed rates and reduces chatter
- Symmetrical end gashing for excellent balance at high speeds and aggressive plunging capability
- Open fluting for deep slotting and profiling
- Enhanced corner geometry with tight tolerance corner radii
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)

continued on next page



43CR
FRACTIONAL SERIES



CONTINUED

CUTTING DIAMETER D ₁	LENGTH OF CUT L ₂	inch			EDP NO.	
		OVERALL LENGTH L ₁	SHANK DIAMETER D ₂	CORNER RADIUS R	UNCOATED	Ti-NAMITE-B (TiB ₂)
1/2	1	3	1/2	.010	35603	35693
1/2	1	3	1/2	.015	35604	35694
1/2	1	3	1/2	.030	35605	35695
1/2	1	3	1/2	.060	35606	35696
1/2	1	3	1/2	.090	35607	35697
1/2	1	3	1/2	.120	35608	35698
1/2	1-1/4	3	1/2	.015	35609	35699
1/2	1-1/4	3-1/4	1/2	.010	34778	34800
1/2	1-1/4	3-1/4	1/2	.030	34779	34801
1/2	1-1/4	3-1/4	1/2	.060	34780	34802
1/2	1-1/4	3-1/4	1/2	.090	34781	34803
1/2	1-1/4	3-1/4	1/2	.120	32766	32830
1/2	1-5/8	4	1/2	.010	35610	35700
1/2	1-5/8	4	1/2	.015	35611	35701
1/2	1-5/8	4	1/2	.030	35612	35702
1/2	1-5/8	4	1/2	.060	35613	35703
1/2	1-5/8	4	1/2	.090	35614	35704
1/2	1-5/8	4	1/2	.120	35615	35705
1/2	2	4	1/2	.010	35616	35706
1/2	2	4	1/2	.015	35617	35707
1/2	2	4	1/2	.030	35618	35708
1/2	2	4	1/2	.060	35619	35709
1/2	2	4	1/2	.090	35620	35710
1/2	2	4	1/2	.120	35621	35711
5/8	3/4	3-1/2	5/8	.030	35622	35712
5/8	3/4	3-1/2	5/8	.060	35623	35713
5/8	3/4	3-1/2	5/8	.090	35624	35714
5/8	3/4	3-1/2	5/8	.120	35625	35715
5/8	1-5/8	3-3/4	5/8	.030	34782	34804
5/8	1-5/8	3-3/4	5/8	.060	34783	34805
5/8	1-5/8	3-3/4	5/8	.090	34784	34806
5/8	1-5/8	3-3/4	5/8	.120	35626	35716
3/4	1	4	3/4	.030	35627	35717
3/4	1	4	3/4	.060	35628	35718
3/4	1	4	3/4	.090	35629	35719
3/4	1	4	3/4	.120	35630	35720

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TOLERANCES (inch)

1/8–3/16 DIAMETER

D₁ = +0.0000/–0.00032

D₂ = h₆

R = +0.0000/–0.0020

1/4–3/8 DIAMETER

D₁ = +0.0000/–0.00035

D₂ = h₆

R = +0.0000/–0.0020

1/2–5/8 DIAMETER

D₁ = +0.0000/–0.00043

D₂ = h₆

R = +0.0000/–0.0020

3/4–1 DIAMETER

D₁ = +0.0000/–0.00051

D₂ = h₆

R = +0.0000/–0.0020

NON-FERROUS

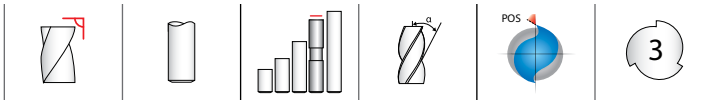
PLASTICS/COMPOSITES

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43CR
FRACTIONAL SERIES

CONTINUED

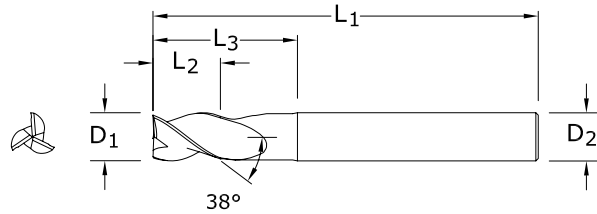
CUTTING DIAMETER D ₁	LENGTH OF CUT L ₂	inch			EDP NO.	
		OVERALL LENGTH L ₁	SHANK DIAMETER D ₂	CORNER RADIUS R	UNCOATED	Ti-NAMITE-B (TiB ₂)
3/4	1	4	3/4	.190	35631	35721
3/4	1	4	3/4	.250	35632	35722
3/4	1-5/8	4	3/4	.030	34785	34807
3/4	1-5/8	4	3/4	.060	34786	34808
3/4	1-5/8	4	3/4	.090	34787	34809
3/4	1-5/8	4	3/4	.120	34815	34817
3/4	1-5/8	4	3/4	.190	35633	35723
3/4	1-5/8	4	3/4	.250	35634	35724
3/4	2-1/4	5	3/4	.030	35635	35725
3/4	2-1/4	5	3/4	.060	35636	35726
3/4	2-1/4	5	3/4	.090	35637	35727
3/4	2-1/4	5	3/4	.120	35638	35728
3/4	2-1/4	5	3/4	.190	35639	35729
3/4	2-1/4	5	3/4	.250	35640	35730
1	1-1/4	5	1	.030	35641	35731
1	1-1/4	5	1	.060	35642	35732
1	1-1/4	5	1	.090	35643	35733
1	1-1/4	5	1	.120	35644	35734
1	1-1/4	5	1	.190	35645	35735
1	1-1/4	5	1	.250	35646	35736
1	2	5	1	.190	35647	35737
1	2	5	1	.250	35648	35738
1	2	4-1/2	1	.030	34789	34811
1	2	4-1/2	1	.060	34790	34812
1	2	4-1/2	1	.090	34791	34813
1	2	4-1/2	1	.120	34816	34818
1	3-1/4	6	1	.030	35649	35739
1	3-1/4	6	1	.060	35650	35740
1	3-1/4	6	1	.090	35651	35741
1	3-1/4	6	1	.120	35652	35742
1	3-1/4	6	1	.190	35653	35743
1	3-1/4	6	1	.250	35654	35744



43L

FRACTIONAL SERIES

- Circular land allows for increased control at various speed and feed rates and reduces chatter
- Symmetrical end gashing for excellent balance at high speeds and aggressive plunging capability
- Open fluting for deep slotting and profiling
- Necked design with blended diameter transitions provide clearance to reach
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)



CUTTING DIAMETER D ₁	LENGTH OF CUT L ₂	inch			EDP NO.	
		OVERALL LENGTH L ₁	SHANK DIAMETER D ₂	REACH L ₃	UNCOATED	Ti-NAMITE-B (TiB ₂)
1/8	5/32	3	1/8	1/2	32700	32725
1/8	5/32	3	1/8	3/4	32691	34888
3/16	7/32	3	3/16	1/2	32701	32726
3/16	7/32	3	3/16	3/4	32692	34889
1/4	3/8	4	1/4	3/4	32702	32727
1/4	3/8	4	1/4	1-1/2	32703	32728
1/4	3/8	4	1/4	2-1/8	32704	32729
5/16	7/16	4	5/16	1-1/8	32705	32730
5/16	7/16	4	5/16	2-1/8	32706	32731
3/8	1/2	4	3/8	1-1/8	32707	32732
3/8	1/2	4	3/8	2-1/8	32708	32733
1/2	5/8	4	1/2	1-3/8	32709	32734
1/2	5/8	6	1/2	2-1/8	32710	32735
1/2	5/8	6	1/2	3-3/8	32711	32736
1/2	5/8	6	1/2	4-1/4	32697	34894
5/8	3/4	4	5/8	1-3/4	32712	32737
5/8	3/4	4	5/8	2-3/8	32713	32738
5/8	3/4	6	5/8	3-3/8	32714	32739
5/8	3/4	6	5/8	4-3/8	32698	34895
3/4	1	4	3/4	1-3/4	32715	32740
3/4	1	6	3/4	2-3/8	32716	32741
3/4	1	6	3/4	3-3/8	32717	32742
3/4	1	6	3/4	4-3/8	32699	34896
1	1-1/4	6	1	2-3/8	32718	32743
1	1-1/4	6	1	3-3/8	32719	32744
1	1-1/4	7	1	4-3/8	32720	32745

TOLERANCES (inch)

1/8–3/16 DIAMETER

D₁ = +0.0000/–0.00032

D₂ = h₆

1/4–3/8 DIAMETER

D₁ = +0.0000/–0.00035

D₂ = h₆

1/2–5/8 DIAMETER

D₁ = +0.0000/–0.00043

D₂ = h₆

3/4–1 DIAMETER

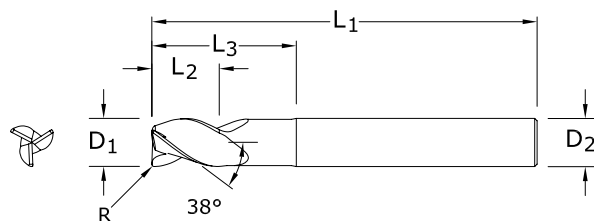
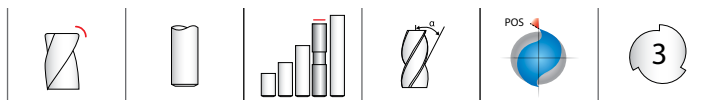
D₁ = +0.0000/–0.00051

D₂ = h₆

NON-FERROUS

PLASTICS/COMPOSITES

For patent
information visit
www.ksptpatents.com



TOLERANCES (inch)

1/8–3/16 DIAMETER

D₁ = +0.0000/–0.00032

D₂ = h₆

R = +0.0000/–0.0020

1/4–3/8 DIAMETER

D₁ = +0.0000/–0.00035

D₂ = h₆

R = +0.0000/–0.0020

1/2–5/8 DIAMETER

D₁ = +0.0000/–0.00043

D₂ = h₆

R = +0.0000/–0.0020

3/4–1 DIAMETER

D₁ = +0.0000/–0.00051

D₂ = h₆

R = +0.0000/–0.0020

NON-FERROUS

PLASTICS/COMPOSITES

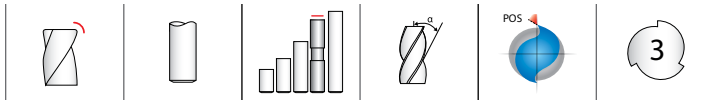
For patent
information visit
www.ksptpatents.com

43LC
FRACTIONAL SERIES

inch						EDP NO.	
CUTTING DIAMETER D ₁	LENGTH OF CUT L ₂	OVERALL LENGTH L ₁	SHANK DIAMETER D ₂	REACH L ₃	CORNER RADIUS R	UNCOATED	Ti-NAMITE-B (TiB ₂)
1/8	5/32	3	1/8	1/2	.010	32751	32815
3/16	7/32	3	3/16	1/2	.010	32752	32816
1/4	3/8	2-1/2	1/4	3/4	.015	35787	36235
1/4	3/8	2-1/2	1/4	3/4	.060	35788	36236
1/4	3/8	4	1/4	3/4	.010	32753	32817
1/4	3/8	4	1/4	3/4	.030	32754	32818
1/4	3/8	4	1/4	1-1/2	.010	32755	32819
1/4	3/8	4	1/4	1-1/2	.030	32756	32820
1/4	3/8	4	1/4	2-1/8	.010	32757	32821
1/4	3/8	4	1/4	2-1/8	.030	32758	32822
5/16	7/16	4	5/16	1-1/8	.030	32759	32823
5/16	7/16	4	5/16	2-1/8	.030	32760	32824
3/8	1/2	3	3/8	1-1/8	.015	35791	36239
3/8	1/2	3	3/8	1-1/8	.090	35792	36240
3/8	1/2	4	3/8	1-1/8	.030	32762	32826
3/8	1/2	4	3/8	1-1/8	.060	32763	32827
3/8	1/2	4	3/8	2-1/8	.030	32764	32828
3/8	1/2	4	3/8	2-1/8	.060	32765	32829
1/2	5/8	3	1/2	1-3/8	.015	35795	36243
1/2	5/8	4	1/2	1-3/8	.030	32767	32831
1/2	5/8	4	1/2	1-3/8	.060	32768	32832
1/2	5/8	4	1/2	1-3/8	.090	32769	32833
1/2	5/8	4	1/2	1-3/8	.120	32770	32834
1/2	5/8	4	1/2	2-1/4	.015	35796	36244
1/2	5/8	6	1/2	2-1/8	.030	32771	32835
1/2	5/8	6	1/2	2-1/8	.060	32772	32836
1/2	5/8	6	1/2	2-1/8	.090	32773	32837
1/2	5/8	6	1/2	2-1/8	.120	32774	32838
1/2	5/8	6	1/2	3-3/8	.030	32775	32839
1/2	5/8	6	1/2	3-3/8	.060	32776	32840
1/2	5/8	6	1/2	3-3/8	.090	32777	32841
1/2	5/8	6	1/2	3-3/8	.120	32778	32842
5/8	3/4	4	5/8	1-3/4	.030	32779	32843
5/8	3/4	4	5/8	1-3/4	.060	32780	32844
5/8	3/4	4	5/8	1-3/4	.090	32781	32845
5/8	3/4	4	5/8	1-3/4	.120	32782	32846
5/8	3/4	4	5/8	2-3/8	.030	32783	32847
5/8	3/4	4	5/8	2-3/8	.060	32784	32848

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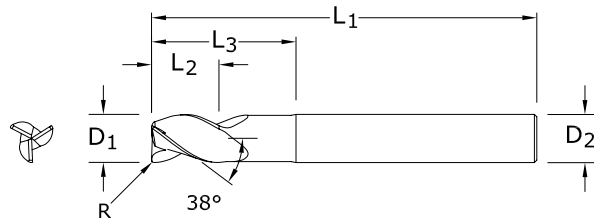
- Circular land allows for increased control at various speed and feed rates and reduces chatter
- Symmetrical end gashing for excellent balance at high speeds and aggressive plunging capability
- Open fluting for deep slotting and profiling
- Necked design with blended diameter transitions provide clearance to reach
- Enhanced corner geometry with tight tolerance corner radii
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)



43LC

FRACTIONAL SERIES

CONTINUED



CUTTING DIAMETER D ₁	LENGTH OF CUT L ₂	OVERALL LENGTH L ₁	inch			EDP NO.	
			SHANK DIAMETER D ₂	REACH L ₃	CORNER RADIUS R	UNCOATED	Ti-NAMITE-B (TiB ₂)
5/8	3/4	4	5/8	2-3/8	.090	32785	32849
5/8	3/4	4	5/8	2-3/8	.120	32786	32850
5/8	3/4	6	5/8	3-3/8	.030	32787	32851
5/8	3/4	6	5/8	3-3/8	.060	32788	32852
5/8	3/4	6	5/8	3-3/8	.090	32789	32853
5/8	3/4	6	5/8	3-3/8	.120	32790	32854
3/4	1	4	3/4	1-3/4	.030	32791	32855
3/4	1	4	3/4	1-3/4	.060	32792	32856
3/4	1	4	3/4	1-3/4	.090	32793	32857
3/4	1	4	3/4	1-3/4	.120	32794	32858
3/4	1	4	3/4	2	.190	35803	36251
3/4	1	4	3/4	2	.250	35804	36252
3/4	1	6	3/4	2-3/8	.030	32795	32859
3/4	1	6	3/4	2-3/8	.060	32796	32860
3/4	1	6	3/4	2-3/8	.090	32797	32861
3/4	1	6	3/4	2-3/8	.120	32798	32862
3/4	1	6	3/4	3-3/8	.030	32799	32863
3/4	1	6	3/4	3-3/8	.060	32800	32864
3/4	1	6	3/4	3-3/8	.090	32801	32865
3/4	1	6	3/4	3-3/8	.120	32802	32866
1	1-1/4	5	1	2-5/8	.190	35809	36257
1	1-1/4	5	1	2-5/8	.250	35810	36258
1	1-1/4	6	1	2-3/8	.030	32803	32867
1	1-1/4	6	1	2-3/8	.060	32804	32868
1	1-1/4	6	1	2-3/8	.090	32805	32869
1	1-1/4	6	1	2-3/8	.120	32806	32870
1	1-1/4	6	1	3-3/8	.030	32807	32871
1	1-1/4	6	1	3-3/8	.060	32808	32872
1	1-1/4	6	1	3-3/8	.090	32809	32873
1	1-1/4	6	1	3-3/8	.120	32810	32874
1	1-1/4	6	1	3-3/8	.190	35811	36259
1	1-1/4	6	1	3-3/8	.250	35812	36260

TOLERANCES (inch)

1/8–3/16 DIAMETER

D₁ = +0.0000/–0.00032

D₂ = h₆

R = +0.0000/–0.0020

1/4–3/8 DIAMETER

D₁ = +0.0000/–0.00035

D₂ = h₆

R = +0.0000/–0.0020

1/2–5/8 DIAMETER

D₁ = +0.0000/–0.00043

D₂ = h₆

R = +0.0000/–0.0020

3/4–1 DIAMETER

D₁ = +0.0000/–0.00051

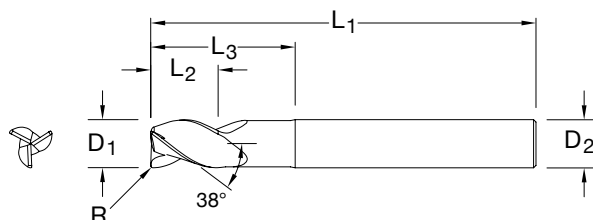
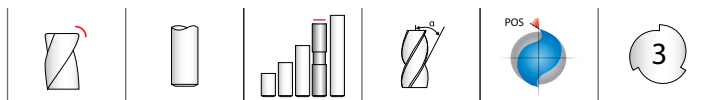
D₂ = h₆

R = +0.0000/–0.0020

NON-FERROUS

PLASTICS/COMPOSITES

For patent
information visit
www.ksptpatents.com



TOLERANCES (inch)

1/4–3/8 DIAMETER

$D_1 = +0.0000/-0.00035$

$D_2 = h_6$

$R = +0.0000/-0.0020$

1/2–5/8 DIAMETER

$D_1 = +0.0000/-0.00043$

$D_2 = h_6$

$R = +0.0000/-0.0020$

3/4–1 DIAMETER

$D_1 = +0.0000/-0.00051$

$D_2 = h_6$

$R = +0.0000/-0.0020$

NON-FERROUS

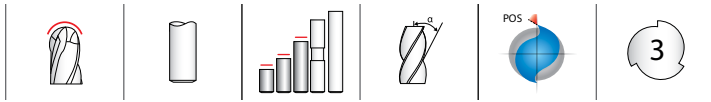
PLASTICS/COMPOSITES

For patent
information visit
www.ksptpatents.com

43EC
FRACTIONAL SERIES

CUTTING DIAMETER D_1	LENGTH OF CUT L_2	OVERALL LENGTH L_1	inch			EDP NO.	
			SHANK DIAMETER D_2	REACH L_3	CORNER RADIUS R	UNCOATED	Ti-NAMITE-B (TiB ₂)
1/4	3/8	3	1/4	1-1/8	.015	35789	36237
1/4	3/8	3	1/4	1-1/8	.060	35790	36238
3/8	1/2	4	3/8	2-1/8	.015	35793	36241
3/8	1/2	4	3/8	2-1/8	.090	35794	36242
1/2	5/8	5	1/2	3-3/8	.015	35797	36245
1/2	5/8	6	1/2	4-1/4	.015	35798	36246
1/2	5/8	6	1/2	4-1/4	.030	35799	36247
1/2	5/8	6	1/2	4-1/4	.060	35800	36248
1/2	5/8	6	1/2	4-1/4	.090	35801	36249
1/2	5/8	6	1/2	4-1/4	.120	35802	36250
3/4	1	6	3/4	3-3/8	.190	35805	36253
3/4	1	6	3/4	3-3/8	.250	35806	36254
1	1-1/4	7	1	4-3/8	.030	35813	36261
1	1-1/4	7	1	4-3/8	.060	35814	36262
1	1-1/4	7	1	4-3/8	.090	35815	36263
1	1-1/4	7	1	4-3/8	.120	35816	36264
1	1-1/4	7	1	4-3/8	.190	35817	36265
1	1-1/4	7	1	4-3/8	.250	35818	36266

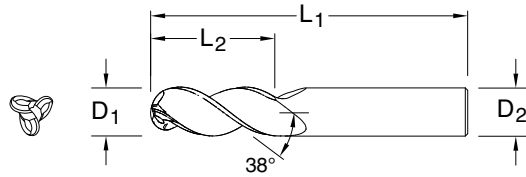
- Circular land allows for increased control at various speed and feed rates and reduces chatter
- Symmetrical end gashing for excellent balance at high speeds and aggressive plunging capability
- Open fluting for deep slotting and profiling
- Necked design with blended diameter transitions provide clearance to reach
- Enhanced corner geometry with tight tolerance corner radii
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)



43B

FRACTIONAL SERIES

- Circular land allows for increased control at various speed and feed rates and reduces chatter
- Open fluting for deep slotting and profiling
- Ball nose design ideal for finishing operations in complex workpieces
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)



CUTTING DIAMETER D_1	LENGTH OF CUT L_2	OVERALL LENGTH L_1	SHANK DIAMETER D_2	EDP NO.	
				UNCOATED	Ti-NAMITE-B (TiB ₂)
1/4	3/8	2	1/4	34916	34972
1/4	3/4	2-1/2	1/4	34917	34973
1/4	1	3	1/4	34918	34974
3/8	1/2	2	3/8	34919	34975
3/8	1	2-1/2	3/8	34920	34976
3/8	1-1/2	3-1/2	3/8	34921	34977
1/2	5/8	2-1/2	1/2	34922	34978
1/2	1	3	1/2	34923	34979
1/2	1-1/4	3	1/2	34924	34980
1/2	1-5/8	4	1/2	34925	34981
1/2	2	4	1/2	34926	34982
5/8	3/4	3	5/8	34927	34983
5/8	1-5/8	4	5/8	34928	34984
3/4	1	3	3/4	34929	34985
3/4	1-5/8	4	3/4	34930	34986
3/4	2-1/4	5	3/4	34931	34987
1	1-1/4	4	1	34932	34988
1	2	5	1	34933	34989
1	3-1/4	6	1	34934	34990

TOLERANCES (inch)

1/4–3/8 DIAMETER

$D_1 = +0.0000/-0.00035$

$D_2 = h_6$

BALL RADIUS

$+0.0005/-0.0005$

1/2–5/8 DIAMETER

$D_1 = +0.0000/-0.00043$

$D_2 = h_6$

BALL RADIUS

$+0.0005/-0.0005$

3/4–1 DIAMETER

$D_1 = +0.0000/-0.00051$

$D_2 = h_6$

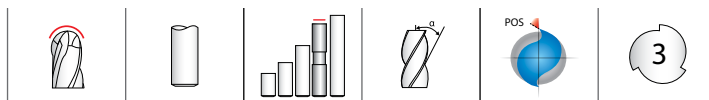
BALL RADIUS

$+0.0005/-0.0005$

NON-FERROUS

PLASTICS/COMPOSITES

For patent
information visit
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TOLERANCES (inch)

1/4–3/8 DIAMETER

$D_1 = +0.0000/-0.00035$

$D_2 = h_6$

BALL RADIUS

$+0.0005/-0.0005$

1/2–5/8 DIAMETER

$D_1 = +0.0000/-0.00043$

$D_2 = h_6$

BALL RADIUS

$+0.0005/-0.0005$

3/4–1 DIAMETER

$D_1 = +0.0000/-0.00051$

$D_2 = h_6$

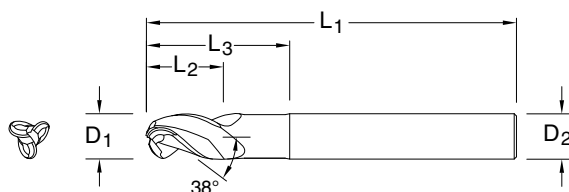
BALL RADIUS

$+0.0005/-0.0005$

NON-FERROUS

PLASTICS/COMPOSITES

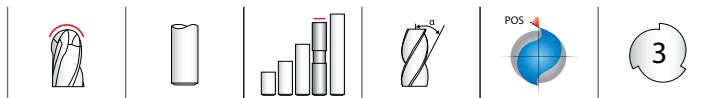
For patent
information visit
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CUTTING DIAMETER D_1	LENGTH OF CUT L_2	OVERALL LENGTH L_1	SHANK DIAMETER D_2	REACH L_3	EDP NO.	
					UNCOATED	TI-NAMITE-B (TiB ₂)
1/4	3/8	2-1/2	1/4	3/4	34941	35005
3/8	1/2	3	3/8	1-1/8	34943	35007
1/2	5/8	3	1/2	1-3/8	34945	35009
1/2	5/8	4	1/2	2-1/4	34946	35010
5/8	3/4	4	5/8	1-5/8	34949	35013
3/4	1	4	3/4	2	34951	35015
1	1-1/4	5	1	2-5/8	34954	35018
1	1-1/4	6	1	3-3/8	34955	35019

43LB
FRACTIONAL SERIES

- Circular land allows for increased control at various speed and feed rates and reduces chatter
- Open fluting for deep slotting and profiling
- Necked design with blended diameter transitions provide clearance to reach
- Ball nose design ideal for finishing operations in complex workpieces
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)



TOLERANCES (inch)

1/4–3/8 DIAMETER

$D_1 = +0.0000/-0.00035$

$D_2 = h_6$

BALL RADIUS

$+0.0005/-0.0005$

1/2–5/8 DIAMETER

$D_1 = +0.0000/-0.00043$

$D_2 = h_6$

BALL RADIUS

$+0.0005/-0.0005$

3/4–1 DIAMETER

$D_1 = +0.0000/-0.00051$

$D_2 = h_6$

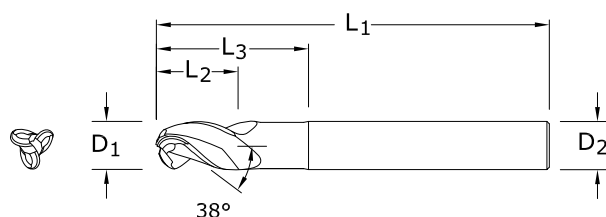
BALL RADIUS

$+0.0005/-0.0005$

NON-FERROUS

PLASTICS/COMPOSITES

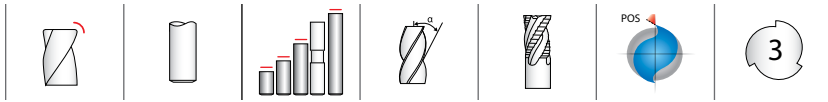
For patent
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CUTTING DIAMETER D_1	LENGTH OF CUT L_2	OVERALL LENGTH L_1	SHANK DIAMETER D_2	REACH L_3	EDP NO.	
					UNCOATED	TI-NAMITE-B (TiB ₂)
1/4	3/8	3	1/4	1-1/8	34942	35006
3/8	1/2	4	3/8	2-1/8	34944	35008
1/2	5/8	5	1/2	3-3/8	34947	35011
1/2	5/8	6	1/2	4-1/4	34948	35012
5/8	3/4	6	5/8	3-3/8	34950	35014
3/4	1	6	3/4	3-3/8	34952	35016
1	1-1/4	7	1	4-3/8	34956	35020

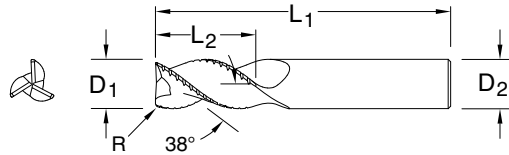
43EB
FRACTIONAL SERIES

- Circular land allows for increased control at various speed and feed rates and reduces chatter
- Open fluting for deep slotting and profiling
- Necked design with blended diameter transitions provide clearance to reach
- Ball nose design ideal for finishing operations in complex workpieces
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)



43CB

FRACTIONAL SERIES



- Circular land allows for increased control at various speed and feed rates and reduces chatter
- Symmetrical end gashing for excellent balance at high speeds and aggressive plunging capability
- Chip breakers reduce machine loads up to 15% for increased roughing feed rate capability
- Open fluting for deep slotting and profiling
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)

CUTTING DIAMETER D_1	LENGTH OF CUT L_2	inch			EDP NO.	
		OVERALL LENGTH L_1	SHANK DIAMETER D_2	CORNER RADIUS R	UNCOATED	Ti-NAMITE-B (TiB ₂)
1/4	3/8	2-1/2	1/4	.020	33390	33450
1/4	1/2	2-1/2	1/4	.020	33391	33451
1/4	3/4	2-1/2	1/4	.020	33392	33452
1/4	1	3	1/4	.020	33393	33453
1/4	1-1/4	3-1/2	1/4	.020	33394	33454
1/4	1-3/4	4	1/4	.020	33395	33455
5/16	7/16	2-1/2	5/16	.020	33396	33456
5/16	11/16	2-1/2	5/16	.020	33397	33457
5/16	1	3	5/16	.020	33398	33458
5/16	2-1/8	4	5/16	.020	33400	33460
3/8	1/2	3	3/8	.020	33401	33461
3/8	1	2-1/2	3/8	.020	33402	33462
3/8	1-1/4	3-1/2	3/8	.020	33403	33463
3/8	1-1/2	4	3/8	.020	33404	33464
3/8	2	4	3/8	.020	33406	33466
1/2	5/8	3	1/2	.030	33407	33467
1/2	1	3	1/2	.030	33408	33468
1/2	1-1/4	3-1/4	1/2	.030	33409	33469
1/2	1-5/8	4	1/2	.030	33410	33470
1/2	2	4	1/2	.030	33411	33471
1/2	2-1/2	5	1/2	.030	33412	33472
1/2	3-1/8	6	1/2	.030	33413	33473
5/8	3/4	3-1/2	5/8	.030	33415	33475
5/8	1-5/8	3-3/4	5/8	.030	33416	33476
5/8	2-1/8	4	5/8	.030	33417	33477
5/8	3-1/4	6	5/8	.030	33418	33478
5/8	3-3/4	6	5/8	.030	33419	33479
3/4	1	4	3/4	.030	33420	33480
3/4	1-5/8	4	3/4	.030	33421	33481
3/4	2-1/4	4	3/4	.030	33422	33482
3/4	3-1/4	6	3/4	.030	33423	33483
3/4	4	6	3/4	.030	33424	33484
1	1-1/4	5	1	.030	33425	33485
1	2	4-1/2	1	.030	33426	33486
1	2-5/8	6	1	.030	33427	33487
1	3-1/4	6	1	.030	33428	33488
1	4-1/8	7	1	.030	33429	33489

TOLERANCES (inch)

1/4–3/8 DIAMETER

$D_1 = +0.0000/-0.00035$

$D_2 = h_6$

$R = +0.0000/-0.0020$

1/2–5/8 DIAMETER

$D_1 = +0.0000/-0.00043$

$D_2 = h_6$

$R = +0.0000/-0.0020$

3/4–1 DIAMETER

$D_1 = +0.0000/-0.00051$

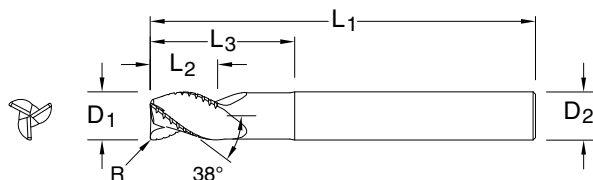
$D_2 = h_6$

$R = +0.0000/-0.0020$

NON-FERROUS

PLASTICS/COMPOSITES

For patent
information visit
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R = +0.0000/-0.0020

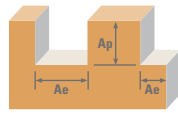
PLASTICS/COMPOSITES

43LCB

FRACTIONAL SERIES

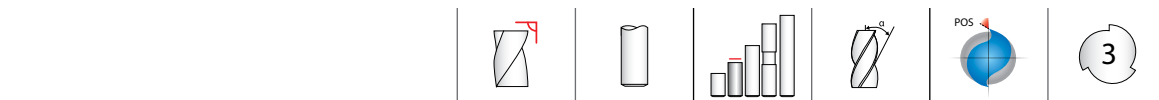
- Circular land allows for increased control at various speed and feed rates and reduces chatter
- Symmetrical end gashing for excellent balance at high speeds and aggressive plunging capability
- Chip breakers reduce machine loads up to 15% for increased roughing feed rate capability
- Open fluting for deep slotting and profiling
- Necked design with blended diameter transitions provide clearance to reach
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)

Series
43CR, 43CB, 43LC,
43, 43L, 43LCB, 43B,
43LB, 43ELB, 43EC
Fractional



43CR, 43CB, 43LC, 43, 43L, 43LCB, 43B, 43LB, 43ELB, 43EC Fractional					Hardness				Vc (sfm)	Diameter (D1) (inch)						
		Ae x D1	Ap x D1			1/8	1/4	3/8		1/2	5/8	3/4	1			
N	ALUMINUM ALLOYS 2024, 5052, 5086, 6061, 6073, 7075		1	≤ 1	1600	RPM	48896	24448	16299	12224	9779	8149	6112			
					(1280-1920)	Fz	0.0009	0.0025	0.0045	0.0060	0.0065	0.0070	0.0085			
						Feed (ipm)	132	183	220	220	191	171	156			
			≤ 0.5	≤ 1.5	2000	RPM	61120	30560	20373	15280	12224	10187	7640			
					(1600-2400)	Fz	0.0009	0.0025	0.0045	0.0060	0.0065	0.0070	0.0085			
						Feed (ipm)	165	229	275	275	238	214	195			
			≤ 0.05	≤ 2	3300	RPM	100848	50424	33616	25212	20170	16808	12606			
					(2640-3960)	Fz	0.0021	0.0055	0.0105	0.0140	0.0150	0.0165	0.0195			
						Feed (ipm)	635	832	1059	1059	908	832	737			
	ALUMINUM DIE CAST ALLOYS (HIGH SILICONE) A-390, A-392, B- 390		1	≤ 1	600	RPM	18336	9168	6112	4584	3667	3056	2292			
					(480-720)	Fz	0.0009	0.0025	0.0045	0.0060	0.0065	0.0070	0.0085			
						Feed (ipm)	50	69	83	83	72	64	58			
			≤ 0.5	≤ 1.5	750	RPM	22920	11460	7640	5730	4584	3820	2865			
					(600-900)	Fz	0.0009	0.0025	0.0045	0.0060	0.0065	0.0070	0.0085			
						Feed (ipm)	62	86	103	103	89	80	73			
			≤ 0.05	≤ 2	1240	RPM	37894	18947	12631	9474	7579	6316	4737			
					(992-1488)	Fz	0.0021	0.0055	0.0105	0.0140	0.0150	0.0165	0.0195			
						Feed (ipm)	239	313	398	398	341	313	277			
	COPPER ALLOYS Aluminum Bronze Brass Naval Brass Red Brass		1	≤ 1	865	RPM	26434	13217	8811	6609	5287	4406	3304			
					(692-1038)	Fz	0.0008	0.0020	0.0040	0.0050	0.0055	0.0060	0.0070			
						Feed (ipm)	63	79	106	99	87	79	69			
			≤ 0.5	≤ 1.5	1080	RPM	33005	16502	11002	8251	6601	5501	4126			
					(864-1296)	Fz	0.0008	0.0020	0.0040	0.0050	0.0055	0.0060	0.0070			
						Feed (ipm)	79	99	132	124	109	99	87			
			≤ 0.05	≤ 2	1780	RPM	54397	27198	18132	13599	10879	9066	6800			
					(1424-2136)	Fz	0.0017	0.0045	0.0085	0.0115	0.0125	0.0140	0.0160			
						Feed (ipm)	277	367	462	469	408	381	326			
COPPER ALLOYS Beryllium Copper C110, Malleable Bronze, Tin Bronze		1	≤ 1	345	RPM	10543	5272	3514	2636	2109	1757	1318				
				(276-414)	Fz	0.0008	0.0020	0.0040	0.0050	0.0055	0.0060	0.0070				
					Feed (ipm)	25	32	42	40	35	32	28				
		≤ 0.5	≤ 1.5	430	RPM	13141	6570	4380	3285	2628	2190	1643				
				(344-516)	Fz	0.0008	0.0020	0.0040	0.0050	0.0055	0.0060	0.0070				
					Feed (ipm)	32	39	53	49	43	39	34				
		≤ 0.05	≤ 2	710	RPM	21698	10849	7233	5424	4340	3616	2712				
				(568-852)	Fz	0.0017	0.0045	0.0085	0.0115	0.0125	0.0140	0.0160				
					Feed (ipm)	111	146	184	187	163	152	130				
PLASTICS ABS, Polycarbonate, PVC, Polypropylene		1	≤ 1	1600	RPM	48896	24448	16299	12224	9779	8149	6112				
				(1280-1920)	Fz	0.0015	0.0040	0.0075	0.0100	0.0110	0.0120	0.0140				
					Feed (ipm)	220	293	367	367	323	293	257				
		≤ 0.5	≤ 1.5	2000	RPM	61120	30560	20373	15280	12224	10187	7640				
				(1600-2400)	Fz	0.0015	0.0040	0.0075	0.0100	0.0110	0.0120	0.0140				
					Feed (ipm)	275	367	458	458	403	367	321				
		≤ 0.05	≤ 2	3300	RPM	100848	50424	33616	25212	20170	16808	12606				
				(2640-3960)	Fz	0.0034	0.0090	0.0170	0.0230	0.0250	0.0275	0.0320				
					Feed (ipm)	1029	1361	1714	1740	1513	1387	1210				

Bhn (Brinell) HRC (Rockwell C) HRB (Rockwell B) HSM (High Speed Machining)
 $rpm = Vc \times 3.82 / D_1$
 $ipm = Fz \times 3 \times rpm$
 reduce speed and feed for materials harder than listed
 reduce cut depth and feed by 50% for long flute and long reach tools
 reduce feed and Ae when finish milling (.02 x D₁ maximum)
 refer to the KYOCERA SGS Tool Wizard® for complete technical information (www.kyocera-sgstool.com)



TOLERANCES (mm)

6 DIAMETER

D₁ = +0,000/-0,008

$$\mathbf{D}_2 = \mathbf{h}_6$$

>6-10 DIAMETER

D₁ = +0.000/-0.009

$$\mathbf{D}_2 = \mathbf{h}_6$$

>10-18 DIAMETER

D₁ = +0,000/-0,011

$$D_2 = h_6$$

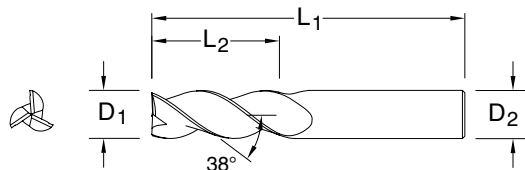
>18-25 DIAMETER

$$D_1 = +0,000/-0,013$$
$$\mathbf{D}_2 = \mathbf{h}_6$$

NON-FERROUS

PLASTICS/COMPOSITES

For patent
information visit
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mm				EDP NO.	
CUTTING DIAMETER D ₁	LENGTH OF CUT L ₂	OVERALL LENGTH L ₁	SHANK DIAMETER D ₂	UNCOATED	Ti-NAMITE-B (TiB ₂)
6,0	13,0	57,0	6,0	44701	44715
6,0	13,0	72,0	6,0	44702	44716
8,0	19,0	63,0	8,0	44703	44717
10,0	22,0	72,0	10,0	44705	44719
12,0	26,0	83,0	12,0	44708	44722
16,0	32,0	92,0	16,0	44711	44725
20,0	38,0	104,0	20,0	44714	44728
25,0	50,0	125,0	25,0	—	44731

43M
METRIC SERIES

- Circular land allows for increased control at various speed and feed rates and reduces chatter
- Symmetrical end gashing for excellent balance at high speeds and aggressive plunging capability
- Open fluting for deep slotting and profiling
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)

TOLERANCES (mm)

3 DIAMETER

D₁ = +0.000/−0.006

$$\mathbf{D}_2 = \mathbf{h}_6$$

>3-6 DIAMETER

$$D_1 = +0,000/-0,008$$
$$\mathbf{D}_2 = \mathbf{h}_6$$

>6-10 DIAMETER

$$D_1 = +0,000/-0,009$$
$$\mathbf{D}_2 = \mathbf{h}_6$$

>10-18 DIAMETER

D₁ = +0,000/-0,011

$$\mathbf{D}_2 = \mathbf{h}_6$$

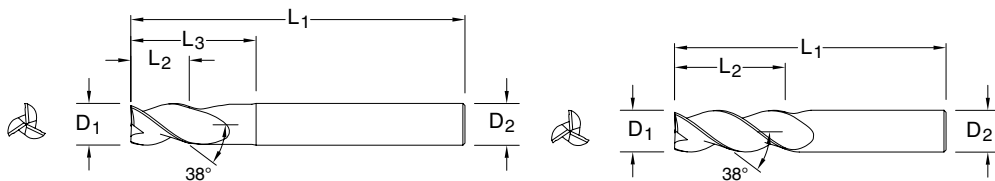
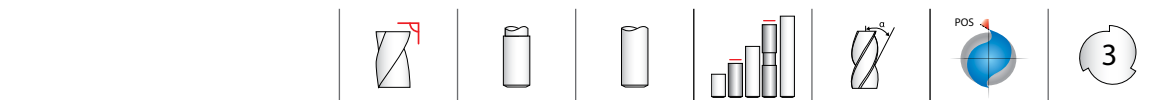
>18-20 DIAMETER

$$D_1 = +0,000/-0,013$$
$$\mathbf{D}_2 = \mathbf{h}_6$$

NON-FERROUS

PLASTICS/COMPOSITES

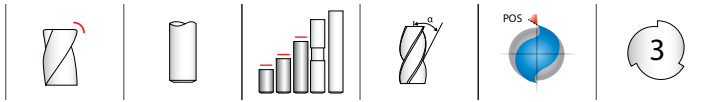
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information visit
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mm						EDP NO.
CUTTING DIAMETER D ₁	LENGTH OF CUT L ₂	OVERALL LENGTH L ₁	SHANK DIAMETER D ₂	REACH L ₃	POLISHED FLUTE	Ti-NAMITE-B (TiB ₂)
3,0	8,0	52,0	6,0	—	•	44890
4,0	11,0	55,0	6,0	—	•	44891
5,0	13,0	57,0	6,0	—	•	44892
6,0	24,0	75,0	6,0	—	•	44893
8,0	32,0	75,0	8,0	—	•	44895
10,0	40,0	100,0	10,0	—	•	44896
12,0	48,0	100,0	12,0	—	•	44897
14,0	30,0	89,0	14,0	—	•	44898
14,0	18,0	125,0	14,0	45,0	•	44899
16,0	64,0	125,0	16,0	—	•	44900
20,0	80,0	150,0	20,0	—	•	44901

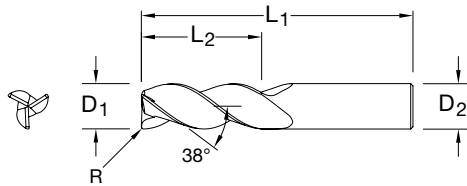
43M
METRIC SERIES

- Circular land allows for increased control at various speed and feed rates and reduces chatter
- Symmetrical end gashing for excellent balance at high speeds and aggressive plunging capability
- Open fluting for deep slotting and profiling
- Polished flutes maximize chip evacuation and provides enhanced finish
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)



43MCR

METRIC SERIES



- Circular land allows for increased control at various speed and feed rates and reduces chatter
- Symmetrical end gashing for excellent balance at high speeds and aggressive plunging capability
- Open fluting for deep slotting and profiling
- Enhanced corner geometry with tight tolerance corner radii
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)

CUTTING DIAMETER D_1	LENGTH OF CUT L_2	mm			EDP NO.	
		OVERALL LENGTH L_1	SHANK DIAMETER D_2	CORNER RADIUS R	UNCOATED	Ti-NAMITE-B (TiB ₂)
6,0	13,0	57,0	6,0	1,5	—	44732
12,0	26,0	83,0	12,0	1,5	44814	44733
12,0	26,0	83,0	12,0	2,0	44815	44826
12,0	26,0	83,0	12,0	2,5	44816	44827
12,0	26,0	83,0	12,0	3,0	44817	44734
16,0	32,0	92,0	16,0	1,5	44818	44735
16,0	32,0	92,0	16,0	2,0	44819	44828
16,0	32,0	92,0	16,0	2,5	44820	44829
16,0	32,0	92,0	16,0	3,0	44821	44736
20,0	38,0	104,0	20,0	2,0	44822	44830
20,0	38,0	104,0	20,0	2,5	44823	44831
20,0	38,0	104,0	20,0	3,0	44824	44737

TOLERANCES (mm)

6 DIAMETER

$D_1 = +0,000/-0,008$

$D_2 = h_6$

$R = +0,00/-0,05$

>6-10 DIAMETER

$D_1 = +0,000/-0,009$

$D_2 = h_6$

$R = +0,00/-0,05$

>10-18 DIAMETER

$D_1 = +0,000/-0,011$

$D_2 = h_6$

$R = +0,00/-0,05$

>18-20 DIAMETER

$D_1 = +0,000/-0,013$

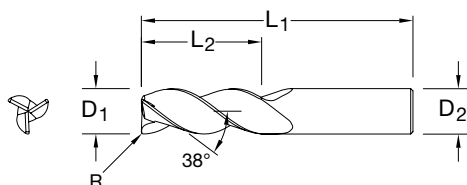
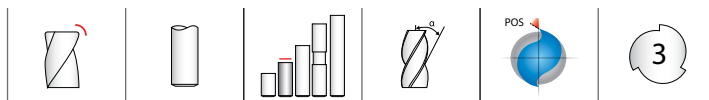
$D_2 = h_6$

$R = +0,00/-0,05$

NON-FERROUS

PLASTICS/COMPOSITES

For patent
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TOLERANCES (mm)

6 DIAMETER

$D_1 = +0,000/-0,008$

$D_2 = h_6$

$R = +0,00/-0,05$

>6-10 DIAMETER

$D_1 = +0,000/-0,009$

$D_2 = h_6$

$R = +0,00/-0,05$

>10-18 DIAMETER

$D_1 = +0,000/-0,011$

$D_2 = h_6$

$R = +0,00/-0,05$

>18-20 DIAMETER

$D_1 = +0,000/-0,013$

$D_2 = h_6$

$R = +0,00/-0,05$

NON-FERROUS

PLASTICS/COMPOSITES

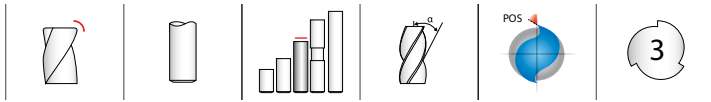
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43MCR

METRIC SERIES

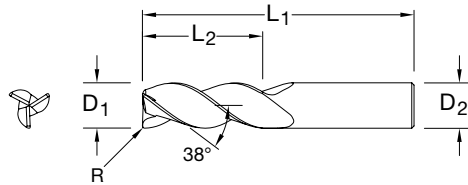
mm						EDP NO.
CUTTING DIAMETER D_1	LENGTH OF CUT L_2	OVERALL LENGTH L_1	SHANK DIAMETER D_2	CORNER RADIUS R	POLISHED FLUTE	Ti-NAMITE-B (TiB ₂)
6,0	13,0	57,0	6,0	0,5	•	44902
6,0	13,0	57,0	6,0	1,0	•	44894
6,0	13,0	72,0	6,0	0,8	•	44842
6,0	13,0	72,0	6,0	1,2	•	44843
8,0	19,0	63,0	8,0	0,3	•	44846
8,0	19,0	63,0	8,0	0,5	•	44847
8,0	19,0	63,0	8,0	1,0	•	44848
8,0	19,0	63,0	8,0	1,5	•	44849
10,0	22,0	72,0	10,0	0,3	•	44854
10,0	22,0	72,0	10,0	0,5	•	44855
10,0	22,0	72,0	10,0	1,0	•	44856
10,0	22,0	72,0	10,0	1,5	•	44857
14,0	30,0	89,0	14,0	1,0	•	44868
14,0	30,0	89,0	14,0	2,0	•	44869
14,0	30,0	89,0	14,0	3,0	•	44870
16,0	32,0	92,0	16,0	4,0	•	44871
20,0	38,0	104,0	20,0	4,0	•	44879

- Circular land allows for increased control at various speed and feed rates and reduces chatter
- Symmetrical end gashing for excellent balance at high speeds and aggressive plunging capability
- Open fluting for deep slotting and profiling
- Polished flutes maximize chip evacuation and provides enhanced finish
- Enhanced corner geometry with tight tolerance corner radii
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)



43MCR 4xD

METRIC SERIES



- Circular land allows for increased control at various speed and feed rates and reduces chatter
- Symmetrical end gashing for excellent balance at high speeds and aggressive plunging capability
- Open fluting for deep slotting and profiling
- Polished flutes maximize chip evacuation and provides enhanced finish
- Enhanced corner geometry with tight tolerance corner radii
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)

mm						EDP NO.
CUTTING DIAMETER D ₁	LENGTH OF CUT L ₂	OVERALL LENGTH L ₁	SHANK DIAMETER D ₂	CORNER RADIUS R	POLISHED FLUTE	Ti-NAMITE-B (TiB ₂)
6,0	24,0	75,0	6,0	0,5	•	44844
6,0	24,0	75,0	6,0	1,0	•	44845
8,0	32,0	75,0	8,0	0,5	•	44850
8,0	32,0	75,0	8,0	1,0	•	44851
8,0	32,0	75,0	8,0	1,5	•	44852
8,0	32,0	75,0	8,0	2,0	•	44853
10,0	40,0	100,0	10,0	0,5	•	44858
10,0	40,0	100,0	10,0	1,0	•	44859
10,0	40,0	100,0	10,0	1,5	•	44860
10,0	40,0	100,0	10,0	2,0	•	44861
12,0	48,0	100,0	12,0	0,5	•	44862
12,0	48,0	100,0	12,0	1,0	•	44863
12,0	48,0	100,0	12,0	1,5	•	44864
12,0	48,0	100,0	12,0	2,0	•	44865
12,0	48,0	100,0	12,0	2,5	•	44866
12,0	48,0	100,0	12,0	3,0	•	44867
16,0	64,0	125,0	16,0	0,5	•	44872
16,0	64,0	125,0	16,0	1,0	•	44873
16,0	64,0	125,0	16,0	1,5	•	44874
16,0	64,0	125,0	16,0	2,0	•	44875
16,0	64,0	125,0	16,0	2,5	•	44876
16,0	64,0	125,0	16,0	3,0	•	44877
16,0	64,0	125,0	16,0	4,0	•	44878
20,0	80,0	150,0	20,0	0,5	•	44880
20,0	80,0	150,0	20,0	1,0	•	44881
20,0	80,0	150,0	20,0	1,5	•	44882
20,0	80,0	150,0	20,0	2,0	•	44883
20,0	80,0	150,0	20,0	2,5	•	44884
20,0	80,0	150,0	20,0	3,0	•	44885
20,0	80,0	150,0	20,0	4,0	•	44886

TOLERANCES (mm)

6 DIAMETER

D₁ = +0,000/-0,008

D₂ = h₆

R = +0,00/-0,05

>6-10 DIAMETER

D₁ = +0,000/-0,009

D₂ = h₆

R = +0,00/-0,05

>10-18 DIAMETER

D₁ = +0,000/-0,011

D₂ = h₆

R = +0,00/-0,05

>18-20 DIAMETER

D₁ = +0,000/-0,013

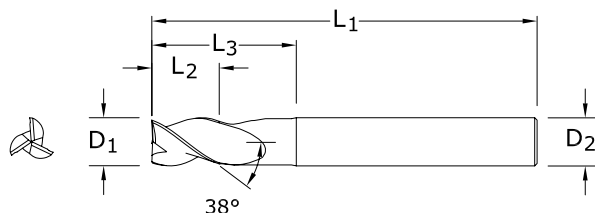
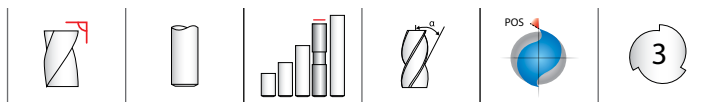
D₂ = h₆

R = +0,00/-0,05

NON-FERROUS

PLASTICS/COMPOSITES

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43ML

METRIC SERIES

TOLERANCES (mm)

6 DIAMETER

$D_1 = +0,000/-0,008$

$D_2 = h_6$

>6-10 DIAMETER

$D_1 = +0,000/-0,009$

$D_2 = h_6$

>10-18 DIAMETER

$D_1 = +0,000/-0,011$

$D_2 = h_6$

>18-20 DIAMETER

$D_1 = +0,000/-0,013$

$D_2 = h_6$

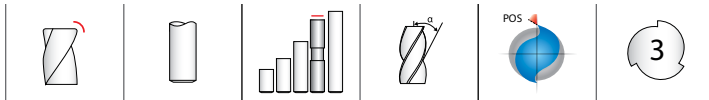
NON-FERROUS

PLASTICS/COMPOSITES

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information visit
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mm					EDP NO.
CUTTING DIAMETER D_1	LENGTH OF CUT L_2	OVERALL LENGTH L_1	SHANK DIAMETER D_2	REACH L_3	Ti-NAMITE-B (TiB ₂)
6,0	10,0	75,0	6,0	20,0	42706
8,0	12,0	75,0	8,0	25,0	42707
10,0	14,0	100,0	10,0	35,0	42708
12,0	16,0	100,0	12,0	40,0	42709
16,0	20,0	125,0	16,0	50,0	42710
20,0	25,0	150,0	20,0	65,0	42711

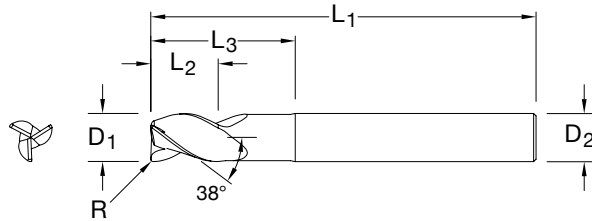
- Circular land allows for increased control at various speed and feed rates and reduces chatter
- Symmetrical end gashing for excellent balance at high speeds and aggressive plunging capability
- Open fluting for deep slotting and profiling
- Necked design with blended diameter transitions provide clearance to reach
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)



43MLC

METRIC SERIES

- Circular land allows for increased control at various speed and feed rates and reduces chatter
- Symmetrical end gashing for excellent balance at high speeds and aggressive plunging capability
- Open fluting for deep slotting and profiling
- Necked design with blended diameter transitions provide clearance to reach
- Enhanced corner geometry with tight tolerance corner radii
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)



mm						EDP NO.	
CUTTING DIAMETER D ₁	LENGTH OF CUT L ₂	OVERALL LENGTH L ₁	SHANK DIAMETER D ₂	REACH L ₃	CORNER RADIUS R	UNCOATED	Ti-NAMITE-B (TiB ₂)
6,0	10,0	63,0	6,0	20,0	0,5	44769	44789
6,0	10,0	63,0	6,0	20,0	1,0	44770	44790
6,0	13,0	72,0	6,0	30,0	0,5	44771	44791
6,0	13,0	72,0	6,0	30,0	1,0	44772	44792
8,0	12,0	75,0	8,0	25,0	0,3	44773	44793
8,0	12,0	75,0	8,0	25,0	0,5	44774	44794
8,0	12,0	75,0	8,0	25,0	1,0	44775	44795
8,0	12,0	75,0	8,0	25,0	1,5	44776	44796
10,0	14,0	100,0	10,0	35,0	0,3	44777	44797
10,0	14,0	100,0	10,0	35,0	0,5	44778	44798
10,0	14,0	100,0	10,0	35,0	1,0	44779	44799
10,0	14,0	100,0	10,0	35,0	1,5	44780	44800
12,0	16,0	100,0	12,0	40,0	0,5	44781	44801
12,0	16,0	100,0	12,0	40,0	1,0	44782	44802
12,0	16,0	100,0	12,0	40,0	1,5	44783	44803
12,0	16,0	100,0	12,0	40,0	2,0	44784	44804
12,0	16,0	100,0	12,0	40,0	2,5	44832	44839
12,0	16,0	100,0	12,0	40,0	3,0	44833	44738
12,0	16,0	100,0	12,0	40,0	4,0	44834	44741
16,0	20,0	125,0	16,0	50,0	2,0	44785	44805
16,0	20,0	125,0	16,0	50,0	2,5	44835	44840
16,0	20,0	125,0	16,0	50,0	3,0	44836	44739
16,0	20,0	125,0	16,0	50,0	4,0	44786	44806
20,0	25,0	150,0	20,0	65,0	2,0	44787	44807
20,0	25,0	150,0	20,0	65,0	2,5	44837	44841
20,0	25,0	150,0	20,0	65,0	3,0	44838	44740
20,0	25,0	150,0	20,0	65,0	4,0	44788	44808

TOLERANCES (mm)

>6–10 DIAMETER

D₁ = +0,000/–0,009

D₂ = h₆

R = +0,00/–0,05

>10–18 DIAMETER

D₁ = +0,000/–0,011

D₂ = h₆

R = +0,00/–0,05

>18–20 DIAMETER

D₁ = +0,000/–0,013

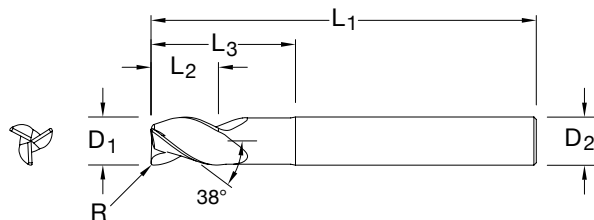
D₂ = h₆

R = +0,00/–0,05

NON-FERROUS

PLASTICS/COMPOSITES

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43MLC Aero Radius Range

METRIC SERIES

TOLERANCES (mm)

>6–10 DIAMETER

$D_1 = +0,000/-0,009$

$D_2 = h_6$

$R = +0,00/-0,05$

>10–18 DIAMETER

$D_1 = +0,000/-0,011$

$D_2 = h_6$

$R = +0,00/-0,05$

>18–20 DIAMETER

$D_1 = +0,000/-0,013$

$D_2 = h_6$

$R = +0,00/-0,05$

$D_1 = +0,000/-0,013$

$D_2 = h_6$

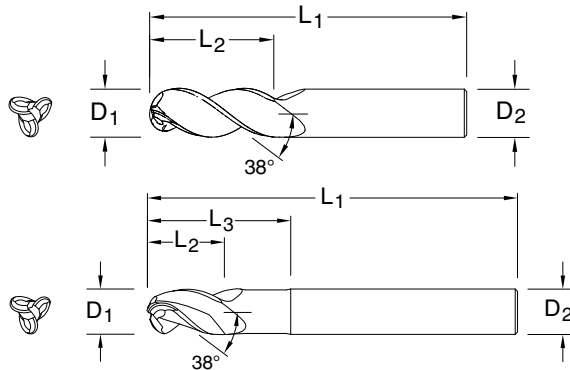
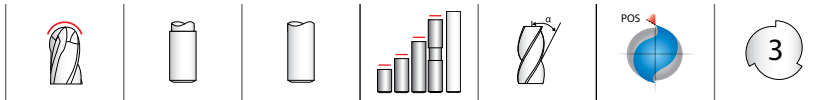
NON-FERROUS

PLASTICS/COMPOSITES

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CUTTING DIAMETER D_1	LENGTH OF CUT L_2	OVERALL LENGTH L_1	mm				CORNER RADIUS R	POLISHED FLUTE	EDP NO. Ti-NAMITE-B (TiB ₂)
			SHANK DIAMETER D_2	REACH L_3					
8,0	12,0	75,0	8,0	25,0			0,8	•	44950
8,0	12,0	75,0	8,0	25,0			1,2	•	44951
8,0	12,0	75,0	8,0	25,0			1,6	•	44952
10,0	14,0	100,0	10,0	35,0			0,8	•	44953
10,0	14,0	100,0	10,0	35,0			1,2	•	44954
10,0	14,0	100,0	10,0	35,0			1,6	•	44955
10,0	14,0	100,0	10,0	35,0			2,4	•	44956
12,0	16,0	100,0	12,0	40,0			0,8	•	44957
12,0	16,0	100,0	12,0	40,0			1,2	•	44958
12,0	16,0	100,0	12,0	40,0			1,6	•	44959
12,0	16,0	100,0	12,0	40,0			2,4	•	44960
14,0	18,0	125,0	14,0	45,0			1,0	•	44961
14,0	18,0	125,0	14,0	45,0			2,0	•	44962
14,0	18,0	125,0	14,0	45,0			3,0	•	44963
14,0	18,0	125,0	14,0	45,0			4,0	•	44964
16,0	20,0	125,0	16,0	50,0			0,8	•	44965
16,0	20,0	125,0	16,0	50,0			1,2	•	44966
16,0	20,0	125,0	16,0	50,0			1,6	•	44967
16,0	20,0	125,0	16,0	50,0			2,4	•	44968
16,0	20,0	125,0	16,0	50,0			3,2	•	44969
20,0	25,0	150,0	20,0	65,0			0,8	•	44970
20,0	25,0	150,0	20,0	65,0			1,2	•	44971
20,0	25,0	150,0	20,0	65,0			1,6	•	44972
20,0	25,0	150,0	20,0	65,0			2,4	•	44973
20,0	25,0	150,0	20,0	65,0			3,2	•	44974

- Circular land allows for increased control at various speed and feed rates and reduces chatter
- Symmetrical end gashing for excellent balance at high speeds and aggressive plunging capability
- Open fluting for deep slotting and profiling
- Polished flutes maximize chip evacuation and provides enhanced finish
- Necked design with blended diameter transitions provide clearance to reach
- Enhanced corner geometry with tight tolerance corner radii
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)



43MB

METRIC SERIES

- Circular land allows for increased control at various speed and feed rates and reduces chatter
- Open fluting for deep slotting and profiling
- Polished flutes maximize chip evacuation and provides enhanced finish
- Ball nose design ideal for finishing operations in complex workpieces
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)

mm						EDP NO.
CUTTING DIAMETER D_1	LENGTH OF CUT L_2	OVERALL LENGTH L_1	SHANK DIAMETER D_2	REACH L_3	POLISHED FLUTE	Ti-NAMITE-B (TiB ₂)
3,0	4,5	57,0	6,0	—	•	44916
3,0	6,0	57,0	6,0	10,0	•	44917
3,0	9,0	57,0	6,0	16,0	•	44918
4,0	6,0	57,0	6,0	—	•	44919
4,0	8,0	57,0	6,0	13,0	•	44920
4,0	12,0	57,0	6,0	21,0	•	44921
5,0	7,5	57,0	6,0	—	•	44922
5,0	10,0	63,0	6,0	16,0	•	44923
5,0	15,0	63,0	6,0	26,0	•	44924
6,0	9,0	57,0	6,0	—	•	44925
6,0	12,0	63,0	6,0	19,0	•	44926
6,0	18,0	75,0	6,0	31,0	•	44927
8,0	12,0	63,0	8,0	—	•	44928
8,0	16,0	75,0	8,0	25,0	•	44929
8,0	24,0	83,0	8,0	41,0	•	44930
10,0	15,0	75,0	10,0	—	•	44931
10,0	20,0	83,0	10,0	31,0	•	44932
10,0	30,0	100,0	10,0	51,0	•	44933
12,0	18,0	83,0	12,0	—	•	44934
12,0	24,0	100,0	12,0	37,0	•	44935
12,0	36,0	130,0	12,0	61,0	•	44936
16,0	24,0	100,0	16,0	—	•	44937
16,0	32,0	130,0	16,0	49,0	•	44938
16,0	48,0	150,0	16,0	81,0	•	44939
20,0	30,0	108,0	20,0	—	•	44940
20,0	40,0	130,0	20,0	61,0	•	44941
20,0	60,0	150,0	20,0	101,0	•	44942
25,0	37,5	127,0	25,0	—	•	44943
25,0	50,0	152,0	25,0	76,0	•	44944
25,0	75,0	170,0	25,0	126,0	•	44945

TOLERANCES (mm)

3 DIAMETER

$D_1 = +0,000/-0,006$

$D_2 = h_6$

BALL RADIUS

$+0,0127/-0,0127$

>3–6 DIAMETER

$D_1 = +0,000/-0,008$

$D_2 = h_6$

BALL RADIUS

$+0,0127/-0,0127$

>6–10 DIAMETER

$D_1 = +0,000/-0,009$

$D_2 = h_6$

BALL RADIUS

$+0,0127/-0,0127$

>10–18 DIAMETER

$D_1 = +0,000/-0,011$

$D_2 = h_6$

BALL RADIUS

$+0,0127/-0,0127$

>18–25 DIAMETER

$D_1 = +0,000/-0,013$

$D_2 = h_6$

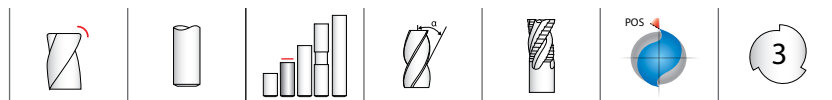
BALL RADIUS

$+0,0127/-0,0127$

NON-FERROUS

PLASTICS/COMPOSITES

For patent
information visit
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TOLERANCES (mm)

>6–10 DIAMETER

$D_1 = +0,000/-0,009$

$D_2 = h_6$

$R = +0,00/-0,05$

>10–18 DIAMETER

$D_1 = +0,000/-0,011$

$D_2 = h_6$

$R = +0,00/-0,05$

>18–20 DIAMETER

$D_1 = +0,000/-0,013$

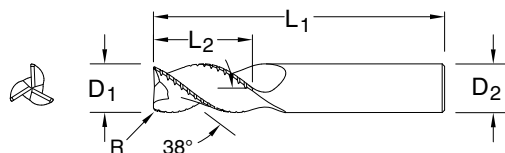
$D_2 = h_6$

$R = +0,00/-0,05$

NON-FERROUS

PLASTICS/COMPOSITES

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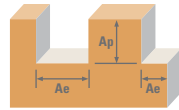
43MCB

METRIC SERIES

mm					EDP NO.	
CUTTING DIAMETER D_1	LENGTH OF CUT L_2	OVERALL LENGTH L_1	SHANK DIAMETER D_2	CORNER RADIUS R	UNCOATED	Ti-NAMITE-B (TiB ₂)
6,0	19,0	63,0	6,0	0,3	—	44299
8,0	19,0	63,0	8,0	0,3	44300	44305
10,0	22,0	72,0	10,0	0,3	44301	44306
12,0	26,0	83,0	12,0	1,0	44302	44307
16,0	32,0	92,0	16,0	1,0	44303	44308
20,0	38,0	104,0	20,0	1,0	44304	44309

- Circular land allows for increased control at various speed and feed rates and reduces chatter
- Symmetrical end gashing for excellent balance at high speeds and aggressive plunging capability
- Chip breakers reduce machine loads up to 15% for increased roughing feed rate capability
- Open fluting for deep slotting and profiling
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)

Series
43M, 43MB, 43MCR,
43ML, 43MLC,
43MCB
Metric



43M, 43MB, 43MCR, 43ML, 43MLC, 43MCB					Diameter (D ₁) (mm)												
Metric	Hardness			Vc (m/min)													
		Ae x D ₁	Ap x D ₁		3	6	10	12	16	20	25						
ALUMINUM ALLOYS 2024, 5052, 5086, 6061, 6073, 7075	≤ 150 Bhn or ≤ 7 HRc		1	≤ 1	490	RPM	52022	26011	15607	13005	9754	7803	6243				
					(392-588)	Fz	0.022	0.060	0.120	0.144	0.166	0.187	0.213				
					Feed (mm/min)	3371	4682	5618	5618	4869	4370	3980					
			≤ 0.5	≤ 1.5	610	RPM	64762	32381	19429	16190	12143	9714	7771				
					(488-732)	Fz	0.022	0.060	0.120	0.144	0.166	0.187	0.213				
					Feed (mm/min)	4196	5828	6994	6994	6061	5440	4955					
		≤ 0.05	≤ 2	1005	RPM	106698	53349	32009	26674	20006	16005	12804					
				(804-1206)	Fz	0.050	0.132	0.280	0.336	0.384	0.440	0.488					
				Feed (mm/min)	16131	21124	26888	26885	23046	21126	18726						
				ALUMINUM DIE CAST ALLOYS (HIGH SILICONE) A-390, A-392, B- 390	≤ 125 Bhn or ≤ 77 HRb		1	≤ 1	185	RPM	19641	9820	5892	4910	3683	2946	2357
									(148-222)	Fz	0.022	0.060	0.120	0.144	0.166	0.187	0.213
									Feed (mm/min)	1273	1768	2121	2121	1838	1650	1503	
	≤ 0.5	≤ 1.5	230			RPM	24418	12209	7326	6105	4578	3663	2930				
			(184-276)			Fz	0.022	0.060	0.120	0.144	0.166	0.187	0.213				
			Feed (mm/min)			1582	2197	2637	2637	2285	2051	1868					
	≤ 0.05	≤ 2	380	RPM	40343	20172	12103	10086	7564	6052	4841						
			(304-456)	Fz	0.050	0.132	0.280	0.336	0.384	0.440	0.488						
			Feed (mm/min)	6099	7987	10166	10166	8714	7988	7081							
COPPER ALLOYS Aluminum Bronze Brass Naval Brass Red Brass	≤ 140 Bhn or ≤ 3 HRc		1	≤ 1	265	RPM	28134	14067	8440	7034	5275	4220	3376				
					(212-318)	Fz	0.019	0.048	0.107	0.120	0.141	0.160	0.175				
					Feed (mm/min)	1620	2025	2701	2532	2228	2026	1773					
			≤ 0.5	≤ 1.5	330	RPM	35035	17518	10511	8759	6569	5255	4204				
					(264-396)	Fz	0.019	0.048	0.107	0.120	0.141	0.160	0.175				
					Feed (mm/min)	2018	2522	3363	3153	2775	2523	2207					
		≤ 0.05	≤ 2	545	RPM	57861	28930	17358	14465	10849	8679	6943					
				(436-654)	Fz	0.041	0.108	0.227	0.276	0.320	0.373	0.400					
				Feed (mm/min)	7082	9373	11804	11976	10415	9721	8332						
	COPPER ALLOYS Beryllium Copper C110, Manganese Bronze, Tin Bronze	≤ 200 Bhn or ≤ 23 HRc		1	≤ 1	105	RPM	11148	5574	3344	2787	2090	1672	1338			
						(84-126)	Fz	0.019	0.048	0.107	0.120	0.141	0.160	0.175			
						Feed (mm/min)	642	803	1070	1003	883	803	702				
			≤ 0.5	≤ 1.5	130	RPM	13802	6901	4141	3450	2588	2070	1656				
					(104-156)	Fz	0.019	0.048	0.107	0.120	0.141	0.160	0.175				
					Feed (mm/min)	795	994	1325	1242	1093	994	870					
		≤ 0.05	≤ 2	215	RPM	22826	11413	6848	5706	4280	3424	2739					
				(172-258)	Fz	0.041	0.108	0.227	0.276	0.320	0.373	0.400					
				Feed (mm/min)	2794	3697	4656	4725	4109	3835	3287						
PLASTICS ABS, Polycarbonate, PVC, Polypropylene				1	≤ 1	490	RPM	52022	26011	15607	13005	9754	7803	6243			
						(392-588)	Fz	0.036	0.096	0.200	0.240	0.282	0.320	0.350			
						Feed (mm/min)	5618	7490	9364	9363	8240	7491	6555				
			≤ 0.5	≤ 1.5	610	RPM	64762	32381	19429	16190	12143	9714	7771				
					(488-732)	Fz	0.036	0.096	0.200	0.240	0.282	0.320	0.350				
					Feed (mm/min)	6994	9325	11657	11656	10258	9326	8160					
		≤ 0.05	≤ 2	1005	RPM	106698	53349	32009	26674	20006	16005	12804					
				(804-1206)	Fz	0.082	0.216	0.453	0.552	0.640	0.733	0.800					
				Feed (mm/min)	26117	34567	43532	44169	38410	35210	30730						

Bhn (Brinell) HRc (Rockwell C) HRb (Rockwell B) HSM (High Speed Machining)

rpm = (Vc x 1000) / (D₁ x 3.14)

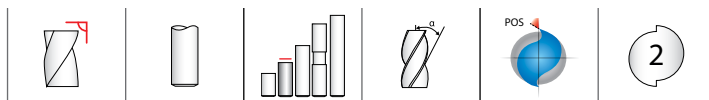
mm/min = Fz x 3 x rpm

reduce speed and feed for materials harder than listed

reduce cut depth and feed by 50% for long flute and long reach tools

reduce feed and Ae when finish milling (.02 x D₁ maximum)

refer to the KYOCERA SGS Tool Wizard® for complete technical information (www.kyocera-sgstool.com)



TOLERANCES (inch)

1/8–3/16 DIAMETER

$D_1 = +0.0000/-0.00032$

$D_2 = h_6$

1/4–3/8 DIAMETER

$D_1 = +0.0000/-0.00035$

$D_2 = h_6$

1/2–5/8 DIAMETER

$D_1 = +0.0000/-0.00043$

$D_2 = h_6$

3/4–1 DIAMETER

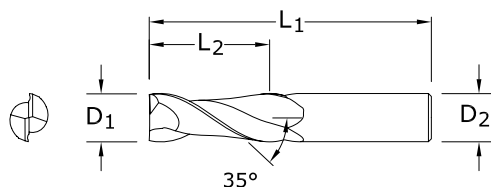
$D_1 = +0.0000/-0.00051$

$D_2 = h_6$

NON-FERROUS

PLASTICS/COMPOSITES

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inch				EDP NO.	
CUTTING DIAMETER D_1	LENGTH OF CUT L_2	OVERALL LENGTH L_1	SHANK DIAMETER D_2	UNCOATED	Ti-NAMITE-B (TiB ₂)
1/8	3/8	1-1/2	1/8	34620	34660
3/16	9/16	2	3/16	34621	34661
1/4	3/4	2-1/2	1/4	34622	34662
5/16	13/16	2-1/2	5/16	34623	34663
3/8	1	2-1/2	3/8	34624	34664
1/2	1-1/4	3-1/4	1/2	34625	34665
5/8	1-5/8	3-3/4	5/8	34626	34666
3/4	1-5/8	4	3/4	34627	34667
1	2	4-1/2	1	34628	34668

47
FRACTIONAL SERIES

- Circular land reduces edge aggressiveness for varied speed and feed rates
- 2 Flutes effectively manage the large size and volume of chips produced during the aggressive machining process
- Excellent balance at high speeds and aggressive plunging capability
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)

TOLERANCES (inch)

1/4–3/8 DIAMETER

$D_1 = +0.0000/-0.00035$

$D_2 = h_6$

1/2–5/8 DIAMETER

$D_1 = +0.0000/-0.00043$

$D_2 = h_6$

3/4–1 DIAMETER

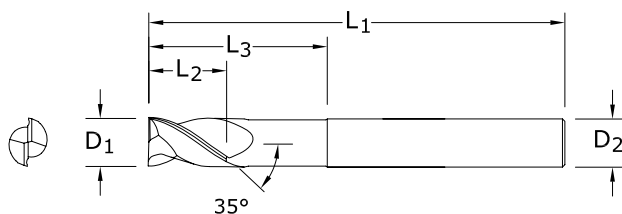
$D_1 = +0.0000/-0.00051$

$D_2 = h_6$

NON-FERROUS

PLASTICS/COMPOSITES

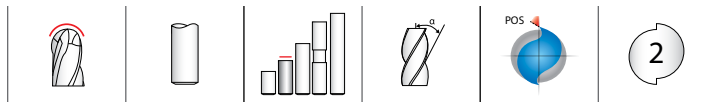
For patent
information visit
www.ksptpatents.com



inch					EDP NO.	
CUTTING DIAMETER D_1	LENGTH OF CUT L_2	OVERALL LENGTH L_1	SHANK DIAMETER D_2	REACH L_3	UNCOATED	Ti-NAMITE-B (TiB ₂)
1/4	3/8	4	1/4	2-1/8	34640	34678
3/8	1/2	4	3/8	2-1/8	34641	34679
1/2	5/8	6	1/2	2-1/8	34642	34680
1/2	5/8	6	1/2	3-3/8	34643	34681
5/8	3/4	6	5/8	2-3/8	34644	34682
5/8	3/4	6	5/8	3-3/8	34645	34683
3/4	1	6	3/4	2-1/2	34646	34684
3/4	1	6	3/4	3-3/8	34647	34685

47L
FRACTIONAL SERIES

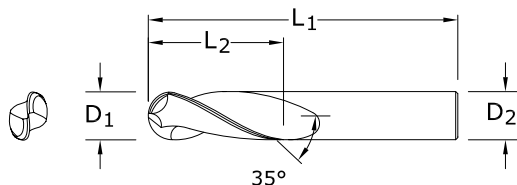
- Circular land reduces edge aggressiveness for varied speed and feed rates
- 2 Flutes effectively manage the large size and volume of chips produced during the aggressive machining process
- Excellent balance at high speeds and aggressive plunging capability
- Necked design with blended diameter transitions provide clearance to reach
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)



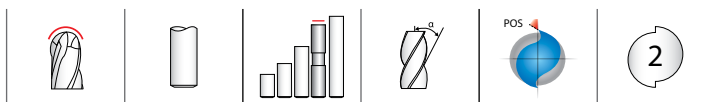
47B

FRACTIONAL SERIES

- Circular land reduces edge aggressiveness for varied speed and feed rates
- 2 Flutes effectively manage the large size and volume of chips produced during the aggressive machining process
- Excellent balance at high speeds and aggressive plunging capability
- Ball nose design ideal for finishing operations in complex workpieces
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)



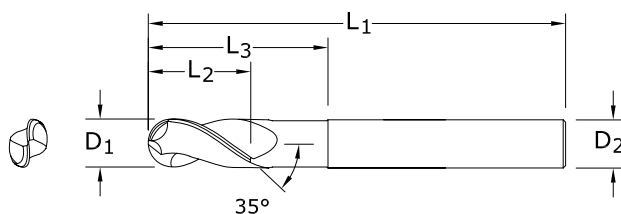
inch				EDP NO.	
CUTTING DIAMETER D_1	LENGTH OF CUT L_2	OVERALL LENGTH L_1	SHANK DIAMETER D_2	UNCOATED	Ti-NAMITE-B (TiB ₂)
1/8	3/8	1-1/2	1/8	34630	34669
3/16	9/16	2	3/16	34631	34670
1/4	3/4	2-1/2	1/4	34632	34671
5/16	13/16	2-1/2	5/16	34633	34672
3/8	1	2-1/2	3/8	34634	34673
1/2	1-1/4	3-1/4	1/2	34635	34674
5/8	1-5/8	3-3/4	5/8	34636	34675
3/4	1-5/8	4	3/4	34637	34676
1	2	4-1/2	1	34638	34677



47LB

FRACTIONAL SERIES

- Circular land reduces edge aggressiveness for varied speed and feed rates
- 2 Flutes effectively manage the large size and volume of chips produced during the aggressive machining process
- Excellent balance at high speeds and aggressive plunging capability
- Necked design with blended diameter transitions provide clearance to reach
- Ball nose design ideal for finishing operations in complex workpieces
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)



mm					EDP NO.	
CUTTING DIAMETER D_1	LENGTH OF CUT L_2	OVERALL LENGTH L_1	SHANK DIAMETER D_2	REACH L_3	UNCOATED	Ti-NAMITE-B (TiB ₂)
1/4	3/8	4	1/4	2-1/8	34650	34686
3/8	1/2	4	3/8	2-1/8	34651	34687
1/2	5/8	6	1/2	2-1/8	34652	34688
1/2	5/8	6	1/2	3-3/8	34653	34689
5/8	3/4	6	5/8	2-3/8	34655	34691
5/8	3/4	6	5/8	3-3/8	34654	34690
3/4	1	6	3/4	2-1/2	34656	34693
3/4	1	6	3/4	3-3/8	34657	34692

TOLERANCES (inch)

1/8–3/16 DIAMETER
 $D_1 = +0.0000/-0.00032$
 $D_2 = h_6$
BALL RADIUS
 $+0.0005/-0.0005$

1/4–3/8 DIAMETER
 $D_1 = +0.0000/-0.00035$
 $D_2 = h_6$
BALL RADIUS
 $+0.0005/-0.0005$

1/2–5/8 DIAMETER
 $D_1 = +0.0000/-0.00043$
 $D_2 = h_6$
BALL RADIUS
 $+0.0005/-0.0005$

3/4–1 DIAMETER
 $D_1 = +0.0000/-0.00051$
 $D_2 = h_6$
BALL RADIUS
 $+0.0005/-0.0005$

NON-FERROUS

PLASTICS/COMPOSITES

For patent information visit
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TOLERANCES (inch)

1/4–3/8 DIAMETER
 $D_1 = +0.0000/-0.00035$
 $D_2 = h_6$
BALL RADIUS
 $+0.0005/-0.0005$

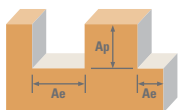
1/2–5/8 DIAMETER
 $D_1 = +0.0000/-0.00043$
 $D_2 = h_6$
BALL RADIUS
 $+0.0005/-0.0005$

3/4–1 DIAMETER
 $D_1 = +0.0000/-0.00051$
 $D_2 = h_6$
BALL RADIUS
 $+0.0005/-0.0005$

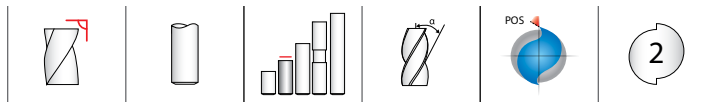
NON-FERROUS

PLASTICS/COMPOSITES

For patent information visit
www.ksptpatents.com

Series 47, 47B, 47L, 47LB Fractional	Hardness			Vc (sfm)	Diameter (D ₁) (inch)									
		Ae x D ₁	Ap x D ₁		1/8	1/4	3/8	1/2	5/8	3/4	1			
ALUMINUM ALLOYS 2024, 5052, 5086, 6061, 6073, 7075	≤ 150 Bhn or ≤ 7 HRc	 Slot	1	≤ 1	1600	RPM	48896	24448	16299	12224	9779	8149	6112	
					(1280-1920)	Fz	0.0009	0.0025	0.0045	0.0060	0.0065	0.0070	0.0085	
					Feed (ipm)	88	122	147	147	127	114	104		
		 Profile	≤ 0.5	≤ 1.5	2000	RPM	61120	30560	20373	15280	12224	10187	7640	
					(1600-2400)	Fz	0.0009	0.0025	0.0045	0.0060	0.0065	0.0070	0.0085	
					Feed (ipm)	110	153	183	183	159	143	130		
	 HSM	≤ 0.05	≤ 2	3300	RPM	100848	50424	33616	25212	20170	16808	12606		
				(2640-3960)	Fz	0.0021	0.0055	0.0105	0.0140	0.0150	0.0165	0.0195		
				Feed (ipm)	424	555	706	706	605	555	492			
	ALUMINUM DIE CAST ALLOYS (HIGH SILICONE) A-390, A-392, B-390	≤ 125 Bhn or ≤ 77 HRb	 Slot	1	≤ 1	600	RPM	18336	9168	6112	4584	3667	3056	2292
						(480-720)	Fz	0.0009	0.0025	0.0045	0.0060	0.0065	0.0070	0.0085
						Feed (ipm)	33	46	55	55	48	43	39	
 Profile			≤ 0.5	≤ 1.5	750	RPM	22920	11460	7640	5730	4584	3820	2865	
					(600-900)	Fz	0.0009	0.0025	0.0045	0.0060	0.0065	0.0070	0.0085	
					Feed (ipm)	41	57	69	69	60	53	49		
 HSM		≤ 0.05	≤ 2	1240	RPM	37894	18947	12631	9474	7579	6316	4737		
				(992-1488)	Fz	0.0021	0.0055	0.0105	0.0140	0.0150	0.0165	0.0195		
				Feed (ipm)	159	208	265	265	227	208	185			
COPPER ALLOYS Aluminum Bronze Brass Naval Brass Red Brass		≤ 140 Bhn or ≤ 3 HRc	 Slot	1	≤ 1	865	RPM	26434	13217	8811	6609	5287	4406	3304
						(692-1038)	Fz	0.0008	0.0020	0.0040	0.0050	0.0055	0.0060	0.0070
						Feed (ipm)	42	53	70	66	58	53	46	
	 Profile		≤ 0.5	≤ 1.5	1080	RPM	33005	16502	11002	8251	6601	5501	4126	
					(864-1296)	Fz	0.0008	0.0020	0.0040	0.0050	0.0055	0.0060	0.0070	
					Feed (ipm)	53	66	88	83	73	66	58		
	 HSM	≤ 0.05	≤ 2	1780	RPM	54397	27198	18132	13599	10879	9066	6800		
				(1424-2136)	Fz	0.0017	0.0045	0.0085	0.0115	0.0125	0.0140	0.0160		
				Feed (ipm)	185	245	308	313	272	254	218			
	COPPER ALLOYS Beryllium Copper C110, Manganese Bronze, Tin Bronze	≤ 200 Bhn or ≤ 23 HRc	 Slot	1	≤ 1	345	RPM	10543	5272	3514	2636	2109	1757	1318
						(276-414)	Fz	0.0008	0.0020	0.0040	0.0050	0.0055	0.0060	0.0070
						Feed (ipm)	17	21	28	26	23	21	18	
 Profile			≤ 0.5	≤ 1.5	430	RPM	13141	6570	4380	3285	2628	2190	1643	
					(344-516)	Fz	0.0008	0.0020	0.0040	0.0050	0.0055	0.0060	0.0070	
					Feed (ipm)	21	26	35	33	29	26	23		
 HSM		≤ 0.05	≤ 2	710	RPM	21698	10849	7233	5424	4340	3616	2712		
				(568-852)	Fz	0.0017	0.0045	0.0085	0.0115	0.0125	0.0140	0.0160		
				Feed (ipm)	74	98	123	125	108	101	87			
PLASTICS ABS, Polycarbonate, PVC, Polypropylene			 Slot	1	≤ 1	1600	RPM	48896	24448	16299	12224	9779	8149	6112
						(1280-1920)	Fz	0.0015	0.0040	0.0075	0.0100	0.0110	0.0120	0.0140
						Feed (ipm)	147	196	244	244	215	196	171	
	 Profile		≤ 0.5	≤ 1.5	2000	RPM	61120	30560	20373	15280	12224	10187	7640	
					(1600-2400)	Fz	0.0015	0.0040	0.0075	0.0100	0.0110	0.0120	0.0140	
					Feed (ipm)	183	244	306	306	269	244	214		
	HSM	≤ 0.05	≤ 2	3300	RPM	100848	50424	33616	25212	20170	16808	12606		
				(2640-3960)	Fz	0.0034	0.0090	0.0170	0.0230	0.0250	0.0275	0.0320		
				Feed (ipm)	686	908	1143	1160	1008	924	807			

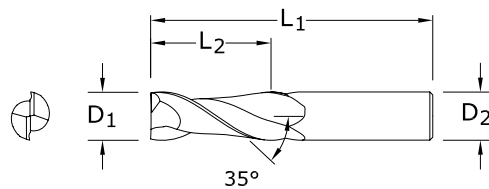
Bhn (Brinell) HRc (Rockwell C) HRb (Rockwell B) HSM (High Speed Machining)
 rpm = Vc x 3.82 / D₁
 ipm = Fz x 2 x rpm
 reduce speed and feed for materials harder than listed
 reduce cut depth and feed by 50% for long flute and long reach tools
 reduce feed and Ae when finish milling (.02 x D₁ maximum)
 refer to the KYOCERA SGS Tool Wizard® for complete technical information (www.kyocera-sgstool.com)



47M

METRIC SERIES

- Circular land reduces edge aggressiveness for varied speed and feed rates
- 2 Flutes effectively manage the large size and volume of chips produced during the aggressive machining process
- Excellent balance at high speeds and aggressive plunging capability
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)



mm				EDP NO.	
CUTTING DIAMETER D_1	LENGTH OF CUT L_2	OVERALL LENGTH L_1	SHANK DIAMETER D_2	UNCOATED	Ti-NAMITE-B (TiB ₂)
3,0	8,0	38,0	3,0	44550	44587
4,0	11,0	50,0	4,0	44551	44588
5,0	13,0	50,0	5,0	44552	44589
6,0	13,0	57,0	6,0	44553	44590
8,0	19,0	63,0	8,0	44554	44591
10,0	22,0	72,0	10,0	44555	44592
12,0	26,0	83,0	12,0	44556	44593
14,0	26,0	83,0	14,0	44557	44594
16,0	32,0	92,0	16,0	44558	44595
20,0	38,0	104,0	20,0	44559	44596
25,0	44,0	104,0	25,0	44560	44597

TOLERANCES (mm)

3 DIAMETER

$D_1 = +0,000/-0,006$

$D_2 = h_6$

>3-6 DIAMETER

$D_1 = +0,000/-0,008$

$D_2 = h_6$

>6-10 DIAMETER

$D_1 = +0,000/-0,009$

$D_2 = h_6$

>10-18 DIAMETER

$D_1 = +0,000/-0,012$

$D_2 = h_6$

>18-25 DIAMETER

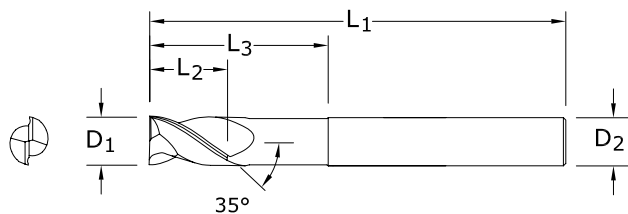
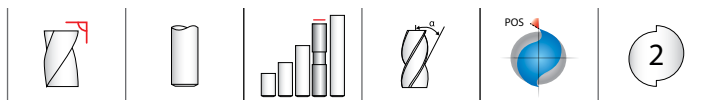
$D_1 = +0,000/-0,013$

$D_2 = h_6$

NON-FERROUS

PLASTICS/COMPOSITES

For patent
information visit
www.ksptpatents.com



TOLERANCES (mm)

6 DIAMETER

$D_1 = +0,000/-0,008$

$D_2 = h_6$

>6–10 DIAMETER

$D_1 = +0,000/-0,009$

$D_2 = h_6$

>10–18 DIAMETER

$D_1 = +0,000/-0,011$

$D_2 = h_6$

>18–20 DIAMETER

$D_1 = +0,000/-0,013$

$D_2 = h_6$

NON-FERROUS

PLASTICS/COMPOSITES

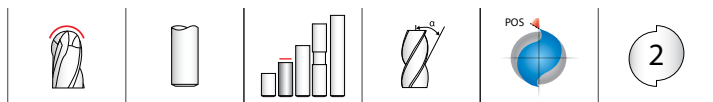
For patent
information visit
www.ksptpatents.com

47ML

METRIC SERIES

mm					EDP NO.	
CUTTING DIAMETER D_1	LENGTH OF CUT L_2	OVERALL LENGTH L_1	SHANK DIAMETER D_2	REACH L_3	UNCOATED	Ti-NAMITE-B (TiB ₂)
6,0	10,0	100,0	6,0	54,0	44561	44609
8,0	12,0	100,0	8,0	54,0	44562	44610
10,0	12,0	100,0	10,0	54,0	44563	44611
12,0	16,0	150,0	12,0	80,0	44564	44612
16,0	20,0	150,0	16,0	80,0	44565	44613
20,0	25,0	150,0	20,0	80,0	44566	44614

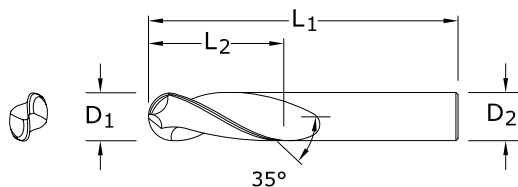
- Circular land reduces edge aggressiveness for varied speed and feed rates
- 2 Flutes effectively manage the large size and volume of chips produced during the aggressive machining process
- Excellent balance at high speeds and aggressive plunging capability
- Necked design with blended diameter transitions provide clearance to reach
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)



47MB

METRIC SERIES

- Circular land reduces edge aggressiveness for varied speed and feed rates
- 2 Flutes effectively manage the large size and volume of chips produced during the aggressive machining process
- Excellent balance at high speeds and aggressive plunging capability
- Ball nose design ideal for finishing operations in complex workpieces
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)



mm				EDP NO.	
CUTTING DIAMETER D_1	LENGTH OF CUT L_2	OVERALL LENGTH L_1	SHANK DIAMETER D_2	UNCOATED	TI-NAMITE-B (TiB ₂)
3,0	8,0	38,0	3,0	44570	44598
4,0	11,0	50,0	4,0	44571	44599
5,0	13,0	50,0	5,0	44572	44600
6,0	13,0	57,0	6,0	44573	44601
8,0	19,0	63,0	8,0	44574	44602
10,0	22,0	72,0	10,0	44575	44603
12,0	26,0	83,0	12,0	44576	44604
14,0	26,0	83,0	14,0	44577	44605
16,0	32,0	92,0	16,0	44578	44606
20,0	37,3	104,0	20,0	44579	44607
25,0	38,0	104,0	25,0	44580	44608

TOLERANCES (mm)

3 DIAMETER

$D_1 = +0,000/-0,006$

$D_2 = h_6$

BALL RADIUS

$+0,0127/-0,0127$

>3-6 DIAMETER

$D_1 = +0,000/-0,008$

$D_2 = h_6$

BALL RADIUS

$+0,0127/-0,0127$

>6-10 DIAMETER

$D_1 = +0,000/-0,009$

$D_2 = h_6$

BALL RADIUS

$+0,0127/-0,0127$

>10-18 DIAMETER

$D_1 = +0,000/-0,012$

$D_2 = h_6$

BALL RADIUS

$+0,0127/-0,0127$

>18-25 DIAMETER

$D_1 = +0,000/-0,013$

$D_2 = h_6$

BALL RADIUS

$+0,0127/-0,0127$

NON-FERROUS

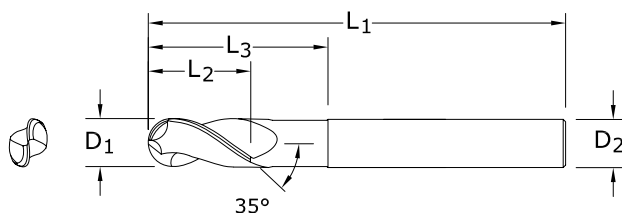
PLASTICS/COMPOSITES

For patent information visit
www.ksptpatents.com

47MLB

METRIC SERIES

- Circular land reduces edge aggressiveness for varied speed and feed rates
- 2 Flutes effectively manage the large size and volume of chips produced during the aggressive machining process
- Excellent balance at high speeds and aggressive plunging capability
- Necked design with blended diameter transitions provide clearance to reach
- Ball nose design ideal for finishing operations in complex workpieces
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)



mm					EDP NO.	
CUTTING DIAMETER D_1	LENGTH OF CUT L_2	OVERALL LENGTH L_1	SHANK DIAMETER D_2	REACH L_3	UNCOATED	TI-NAMITE-B (TiB ₂)
6,0	10,0	100,0	6,0	54,0	44581	44615
8,0	12,0	100,0	8,0	54,0	44582	44616
10,0	12,0	100,0	10,0	54,0	44583	44617
12,0	16,0	150,0	12,0	80,0	44584	44618
16,0	20,0	150,0	16,0	80,0	44585	44619
20,0	25,0	150,0	20,0	80,0	44586	44620

TOLERANCES (mm)

6 DIAMETER

$D_1 = +0,000/-0,008$

$D_2 = h_6$

BALL RADIUS

$+0,0127/-0,0127$

>6-10 DIAMETER

$D_1 = +0,000/-0,009$

$D_2 = h_6$

BALL RADIUS

$+0,0127/-0,0127$

>10-18 DIAMETER

$D_1 = +0,000/-0,011$

$D_2 = h_6$

BALL RADIUS

$+0,0127/-0,0127$

>18-20 DIAMETER

$D_1 = +0,000/-0,013$

$D_2 = h_6$

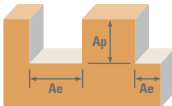
BALL RADIUS

$+0,0127/-0,0127$

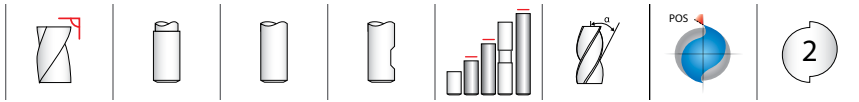
NON-FERROUS

PLASTICS/COMPOSITES

For patent information visit
www.ksptpatents.com

Series 47M, 47MB, 47ML, 47MLB Metric	Hardness			Vc (m/min)	Diameter (D ₁) (mm)								
		Ae x D ₁	Ap x D ₁		3	6	10	12	16	20	25		
ALUMINUM ALLOYS 2024, 5052, 5086, 6061, 6073, 7075	≤ 150 Bhn or ≤ 7 HRc	 Slot	1	≤ 1	490	RPM	52022	26011	15607	13005	9754	7803	6243
					(392-588)	Fz	0.022	0.060	0.120	0.144	0.166	0.187	0.213
						Feed (mm/min)	2247	3121	3746	3745	3246	2913	2653
		 Profile	≤ 0.5	≤ 1.5	610	RPM	64762	32381	19429	16190	12143	9714	7771
					(488-732)	Fz	0.022	0.060	0.120	0.144	0.166	0.187	0.213
						Feed (mm/min)	2797	3885	4663	4662	4041	3627	3303
		 HSM	≤ 0.05	≤ 2	1005	RPM	106698	53349	32009	26674	20006	16005	12804
					(804-1206)	Fz	0.050	0.132	0.280	0.336	0.384	0.440	0.488
						Feed (mm/min)	10754	14083	17925	17924	15364	14084	12484
ALUMINUM DIE CAST ALLOYS (HIGH SILICONE) A-390, A-392, B- 390	≤ 125 Bhn or ≤ 77 HRb	 Slot	1	≤ 1	185	RPM	19641	9820	5892	4910	3683	2946	2357
					(148-222)	Fz	0.022	0.060	0.120	0.144	0.166	0.187	0.213
						Feed (mm/min)	848	1178	1414	1414	1226	1100	1002
		 Profile	≤ 0.5	≤ 1.5	230	RPM	24418	12209	7326	6105	4578	3663	2930
					(184-276)	Fz	0.022	0.060	0.120	0.144	0.166	0.187	0.213
						Feed (mm/min)	1055	1465	1758	1758	1524	1367	1245
		 HSM	≤ 0.05	≤ 2	380	RPM	40343	20172	12103	10086	7564	6052	4841
					(304-456)	Fz	0.050	0.132	0.280	0.336	0.384	0.440	0.488
						Feed (mm/min)	4066	5325	6778	6777	5809	5325	4720
COPPER ALLOYS Aluminum Bronze Brass Naval Brass Red Brass	≤ 140 Bhn or ≤ 3 HRc	 Slot	1	≤ 1	265	RPM	28134	14067	8440	7034	5275	4220	3376
					(212-318)	Fz	0.019	0.048	0.107	0.120	0.141	0.160	0.175
						Feed (mm/min)	1080	1350	1801	1688	1485	1350	1182
		 Profile	≤ 0.5	≤ 1.5	330	RPM	35035	17518	10511	8759	6569	5255	4204
					(264-396)	Fz	0.019	0.048	0.107	0.120	0.141	0.160	0.175
						Feed (mm/min)	1345	1682	2242	2102	1850	1682	1472
		 HSM	≤ 0.05	≤ 2	545	RPM	57861	28930	17358	14465	10849	8679	6943
					(436-654)	Fz	0.041	0.108	0.227	0.276	0.320	0.373	0.400
						Feed (mm/min)	4721	6248	7869	7984	6943	6480	5555
COPPER ALLOYS Beryllium Copper C110, Manganese Bronze, Tin Bronze	≤ 200 Bhn or ≤ 23 HRc	 Slot	1	≤ 1	105	RPM	11148	5574	3344	2787	2090	1672	1338
					(84-126)	Fz	0.019	0.048	0.107	0.120	0.141	0.160	0.175
						Feed (mm/min)	428	535	713	669	589	535	468
		 Profile	≤ 0.5	≤ 1.5	130	RPM	13802	6901	4141	3450	2588	2070	1656
					(104-156)	Fz	0.019	0.048	0.107	0.120	0.141	0.160	0.175
						Feed (mm/min)	530	662	883	828	729	662	580
		 HSM	≤ 0.05	≤ 2	215	RPM	22826	11413	6848	5706	4280	3424	2739
					(172-258)	Fz	0.041	0.108	0.227	0.276	0.320	0.373	0.400
						Feed (mm/min)	1862	2465	3104	3150	2739	2556	2191
PLASTICS ABS, Polycarbonate, PVC, Polypropylene		 Slot	1	≤ 1	490	RPM	52022	26011	15607	13005	9754	7803	6243
					(392-588)	Fz	0.036	0.096	0.200	0.240	0.282	0.320	0.350
						Feed (mm/min)	3745	4994	6243	6242	5493	4994	4370
		 Profile	≤ 0.5	≤ 1.5	610	RPM	64762	32381	19429	16190	12143	9714	7771
					(488-732)	Fz	0.036	0.096	0.200	0.240	0.282	0.320	0.350
						Feed (mm/min)	4662	6217	7771	7771	6839	6217	5440
		 HSM	≤ 0.05	≤ 2	1005	RPM	106698	53349	32009	26674	20006	16005	12804
					(804-1206)	Fz	0.082	0.216	0.453	0.552	0.640	0.733	0.800
						Feed (mm/min)	17412	23045	29022	29446	25607	23473	20487

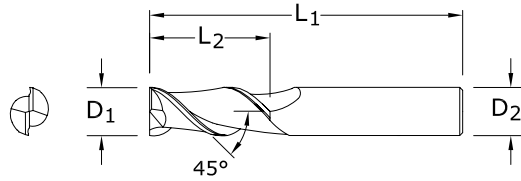
Bhn (Brinell) HRC (Rockwell C) HRB (Rockwell B) HSM (High Speed Machining)
 $\text{rpm} = (\text{Vc} \times 1000) / (D_1 \times 3.14)$
 $\text{mm/min} = \text{Fz} \times 2 \times \text{rpm}$
 reduce speed and feed for materials harder than listed
 reduce cut depth and feed by 50% for long flute and long reach tools
 reduce feed and Ae when finish milling (.02 x D₁ maximum)
 refer to the KYOCERA SGS Tool Wizard® for complete technical information (www.kyocera-sgstool.com)



44

FRACTIONAL SERIES

- Polished ski land with primary and secondary flute wall design minimizes chip interference by directing chips away from secondary flute
- Circular land allows for increased control at various speed and feed rates ultimately reducing chatter
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)



inch				EDP NO.			
CUTTING DIAMETER D_1	LENGTH OF CUT L_2	OVERALL LENGTH L_1	SHANK DIAMETER D_2	UNCOATED W/FLAT	Ti-NAMITE-B (TiB ₂) W/FLAT	UNCOATED	Ti-NAMITE-B (TiB ₂)
1/4	3/4	2-7/16	3/8	34501	34502	32033	32053
1/4	1-1/4	3-1/16	3/8	34503	34504	32034	32054
1/4	1-3/4	3-9/16	3/8	34505	34506	32035	32055
5/16	1-3/8	3-1/8	3/8	34507	34508	32036	32056
3/8	3/4	2-1/2	3/8	34509	34510	32037	32057
3/8	1-1/2	3-1/4	3/8	34511	34512	32038	32058
3/8	2-1/2	4-1/4	3/8	34513	34514	32039	32059
1/2	1-1/4	3-1/4	1/2	34515	34516	32040	32060
1/2	2	4	1/2	34517	34518	32041	32061
1/2	3	5	1/2	34519	34520	32042	32062
5/8	1-5/8	3-3/4	5/8	34521	34522	32043	32063
5/8	2-1/2	4-5/8	5/8	34523	34524	32044	32064
3/4	1-5/8	3-7/8	3/4	34525	34526	32045	32065
3/4	3	5-1/4	3/4	34527	34528	32046	32066
3/4	4	6-1/4	3/4	34529	34530	32047	32067
1	2	4-1/2	1	34531	34532	32048	32068
1	4	6-1/2	1	34533	34534	32049	32069

Contact your KSPT Sales Representative for more information on Corner Radius options.

TOLERANCES (inch)

1/4–3/8 DIAMETER

$D_1 = +0.0000/-0.00035$

$D_2 = h_6$

1/2–5/8 DIAMETER

$D_1 = +0.0000/-0.00043$

$D_2 = h_6$

3/4–1 DIAMETER

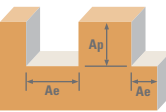
$D_1 = +0.0000/-0.00051$

$D_2 = h_6$

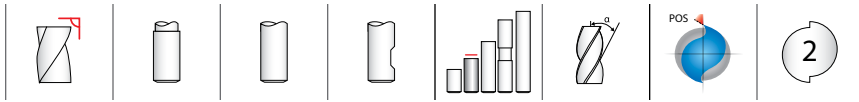
NON-FERROUS

PLASTICS/COMPOSITES

For patent
information visit
www.ksptpatents.com

Series 44 Fractional	Hardness			Vc (sfm)	Diameter (D ₁) (inch)								
		Ae x D ₁	Ap x D ₁		1/8	1/4	3/8	1/2	5/8	3/4	1		
ALUMINUM ALLOYS 2024, 5052, 5086, 6061, 6073, 7075	≤ 150 Bhn or ≤ 7 HRc		1	≤ 1	1600	RPM	48896	24448	16299	12224	9779	8149	6112
					(1280-1920)	Fz	0.0009	0.0025	0.0045	0.0060	0.0065	0.0070	0.0085
					Feed (ipm)	88	122	147	147	127	114	104	
			≤ 0.5	≤ 1.5	2000	RPM	61120	30560	20373	15280	12224	10187	7640
					(1600-2400)	Fz	0.0009	0.0025	0.0045	0.0060	0.0065	0.0070	0.0085
					Feed (ipm)	110	153	183	183	159	143	130	
		≤ 0.05	≤ 2	3300	RPM	100848	50424	33616	25212	20170	16808	12606	
				(2640-3960)	Fz	0.0021	0.0055	0.0105	0.0140	0.0150	0.0165	0.0195	
				Feed (ipm)	424	555	706	706	605	555	492		
ALUMINUM DIE CAST ALLOYS (HIGH SILICONE) A-390, A-392, B- 390	≤ 125 Bhn or ≤ 77 HRb		1	≤ 1	600	RPM	18336	9168	6112	4584	3667	3056	2292
					(480-720)	Fz	0.0009	0.0025	0.0045	0.0060	0.0065	0.0070	0.0085
					Feed (ipm)	33	46	55	55	48	43	39	
			≤ 0.5	≤ 1.5	750	RPM	22920	11460	7640	5730	4584	3820	2865
					(600-900)	Fz	0.0009	0.0025	0.0045	0.0060	0.0065	0.0070	0.0085
					Feed (ipm)	41	57	69	69	60	53	49	
		≤ 0.05	≤ 2	1240	RPM	37894	18947	12631	9474	7579	6316	4737	
				(992-1488)	Fz	0.0021	0.0055	0.0105	0.0140	0.0150	0.0165	0.0195	
				Feed (ipm)	159	208	265	265	227	208	185		
COPPER ALLOYS Aluminum Bronze Brass Naval Brass Red Brass	≤ 140 Bhn or ≤ 3 HRc		1	≤ 1	865	RPM	26434	13217	8811	6609	5287	4406	3304
					(692-1038)	Fz	0.0008	0.0020	0.0040	0.0050	0.0055	0.0060	0.0070
					Feed (ipm)	42	53	70	66	58	53	46	
			≤ 0.5	≤ 1.5	1080	RPM	33005	16502	11002	8251	6601	5501	4126
					(864-1296)	Fz	0.0008	0.0020	0.0040	0.0050	0.0055	0.0060	0.0070
					Feed (ipm)	53	66	88	83	73	66	58	
		≤ 0.05	≤ 2	1780	RPM	54397	27198	18132	13599	10879	9066	6800	
				(1424-2136)	Fz	0.0017	0.0045	0.0085	0.0115	0.0125	0.0140	0.0160	
				Feed (ipm)	185	245	308	313	272	254	218		
COPPER ALLOYS Beryllium Copper C110, Manganese Bronze, Tin Bronze	≤ 200 Bhn or ≤ 23 HRc		1	≤ 1	345	RPM	10543	5272	3514	2636	2109	1757	1318
					(276-414)	Fz	0.0008	0.0020	0.0040	0.0050	0.0055	0.0060	0.0070
					Feed (ipm)	17	21	28	26	23	21	18	
			≤ 0.5	≤ 1.5	430	RPM	13141	6570	4380	3285	2628	2190	1643
					(344-516)	Fz	0.0008	0.0020	0.0040	0.0050	0.0055	0.0060	0.0070
					Feed (ipm)	21	26	35	33	29	26	23	
		≤ 0.05	≤ 2	710	RPM	21698	10849	7233	5424	4340	3616	2712	
				(568-852)	Fz	0.0017	0.0045	0.0085	0.0115	0.0125	0.0140	0.0160	
				Feed (ipm)	74	98	123	125	108	101	87		
PLASTICS ABS, Polycarbonate, PVC, Polypropylene			1	≤ 1	1600	RPM	48896	24448	16299	12224	9779	8149	6112
					(1280-1920)	Fz	0.0015	0.0040	0.0075	0.0100	0.0110	0.0120	0.0140
					Feed (ipm)	147	196	244	244	215	196	171	
			≤ 0.5	≤ 1.5	2000	RPM	61120	30560	20373	15280	12224	10187	7640
					(1600-2400)	Fz	0.0015	0.0040	0.0075	0.0100	0.0110	0.0120	0.0140
					Feed (ipm)	183	244	306	306	269	244	214	
		≤ 0.05	≤ 2	3300	RPM	100848	50424	33616	25212	20170	16808	12606	
				(2640-3960)	Fz	0.0034	0.0090	0.0170	0.0230	0.0250	0.0275	0.0320	
				Feed (ipm)	686	908	1143	1160	1008	924	807		

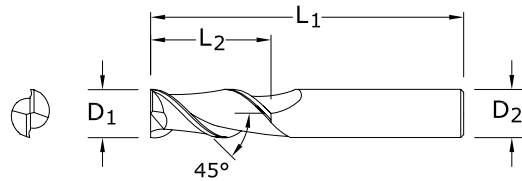
Bhn (Brinell) HRc (Rockwell C) HRb (Rockwell B) HSM (High Speed Machining)
 rpm = Vc x 3.82 / D₁
 ipm = Fz x 2 x rpm
 reduce speed and feed for materials harder than listed
 reduce cut depth and feed by 50% for long flute and long reach tools
 reduce feed and Ae when finish milling (.02 x D₁ maximum)
 refer to the KYOCERA SGS Tool Wizard® for complete technical information (www.kyocera-sgstool.com)



44M

METRIC SERIES

- Polished ski land with primary and secondary flute wall design minimizes chip interference by directing chips away from secondary flute
- Circular land allows for increased control at various speed and feed rates ultimately reducing chatter
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)



mm				EDP NO.			
CUTTING DIAMETER D_1	LENGTH OF CUT L_2	OVERALL LENGTH L_1	SHANK DIAMETER D_2	UNCOATED W/FLAT	UNCOATED	Ti-NAMITE-B (TiB ₂) W/FLAT	Ti-NAMITE-B (TiB ₂)
3,0	8,0	52,0	6,0	44505	49663	44506	49674
4,0	11,0	55,0	6,0	44509	49664	44510	49675
5,0	13,0	57,0	6,0	44513	49665	44514	49676
6,0	13,0	57,0	6,0	44517	49666	44518	49677
8,0	19,0	69,0	10,0	44521	49667	44522	49678
10,0	22,0	72,0	10,0	44525	49668	44526	49679
12,0	26,0	83,0	12,0	44529	49669	44530	49680
14,0	26,0	83,0	14,0	44533	49670	44534	49681
16,0	32,0	92,0	16,0	44537	49671	44538	49682
18,0	32,0	92,0	18,0	44541	49672	44542	49683
20,0	38,0	104,0	20,0	44545	49673	44546	49684

Contact your KSPT Sales Representative for more information on Corner Radius options.

TOLERANCES (mm)

≤ 3 DIAMETER

$D_1 = +0,000/-0,006$

$D_2 = h_6$

>3–6 DIAMETER

$D_1 = +0,000/-0,008$

$D_2 = h_6$

>6–10 DIAMETER

$D_1 = +0,000/-0,009$

$D_2 = h_6$

>10–18 DIAMETER

$D_1 = +0,000/-0,011$

$D_2 = h_6$

>18–20 DIAMETER

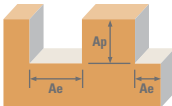
$D_1 = +0,000/-0,013$

$D_2 = h_6$

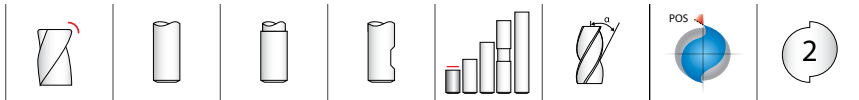
NON-FERROUS

PLASTICS/COMPOSITES

For patent
information visit
www.ksptpatents.com

Series 44M Metric	Hardness			Vc (m/min)	Diameter (D1) (mm)								
		Ae x D1	Ap x D1		3	6	10	12	16	20	25		
ALUMINUM ALLOYS 2024, 5052, 5086, 6061, 6073, 7075	≤ 150 Bhn or ≤ 7HRc		1	≤ 1	490	RPM	52022	26011	15607	13005	9754	7803	6243
					(392-588)	Fz	0.022	0.060	0.120	0.144	0.166	0.187	0.213
					Feed (mm/min)	2247	3121	3746	3745	3246	2913	2653	
			≤ 0.5	≤ 1.5	610	RPM	64762	32381	19429	16190	12143	9714	7771
					(488-732)	Fz	0.022	0.060	0.120	0.144	0.166	0.187	0.213
					Feed (mm/min)	2797	3885	4663	4662	4041	3627	3303	
			≤ 0.05	≤ 2	1005	RPM	106698	53349	32009	26674	20006	16005	12804
					(804-1206)	Fz	0.050	0.132	0.280	0.336	0.384	0.440	0.488
					Feed (mm/min)	10754	14083	17925	17924	15364	14084	12484	
ALUMINUM DIE CAST ALLOYS (HIGH SILICONE) A-390, A-392, B- 390	≤ 125 Bhn or ≤ 77 HRb		1	≤ 1	185	RPM	19641	9820	5892	4910	3683	2946	2357
					(148-222)	Fz	0.022	0.060	0.120	0.144	0.166	0.187	0.213
					Feed (mm/min)	848	1178	1414	1414	1226	1100	1002	
			≤ 0.5	≤ 1.5	230	RPM	24418	12209	7326	6105	4578	3663	2930
					(184-276)	Fz	0.022	0.060	0.120	0.144	0.166	0.187	0.213
					Feed (mm/min)	1055	1465	1758	1758	1524	1367	1245	
			≤ 0.05	≤ 2	380	RPM	40343	20172	12103	10086	7564	6052	4841
					(304-456)	Fz	0.050	0.132	0.280	0.336	0.384	0.440	0.488
					Feed (mm/min)	4066	5325	6778	6777	5809	5325	4720	
COPPER ALLOYS Aluminum Bronze Brass Naval Brass Red Brass	≤ 140 Bhn or ≤ 3 HRc		1	≤ 1	265	RPM	28134	14067	8440	7034	5275	4220	3376
					(212-318)	Fz	0.019	0.048	0.107	0.120	0.141	0.160	0.175
					Feed (mm/min)	1080	1350	1801	1688	1485	1350	1182	
			≤ 0.5	≤ 1.5	330	RPM	35035	17518	10511	8759	6569	5255	4204
					(264-396)	Fz	0.019	0.048	0.107	0.120	0.141	0.160	0.175
					Feed (mm/min)	1345	1682	2242	2102	1850	1682	1472	
			≤ 0.05	≤ 2	545	RPM	57861	28930	17358	14465	10849	8679	6943
					(436-654)	Fz	0.041	0.108	0.227	0.276	0.320	0.373	0.400
					Feed (mm/min)	4721	6248	7869	7984	6943	6480	5555	
COPPER ALLOYS Beryllium Copper C110, Manganese Bronze, Tin Bronze	≤ 200 Bhn or ≤ 23 HRc		1	≤ 1	105	RPM	11148	5574	3344	2787	2090	1672	1338
					(84-126)	Fz	0.019	0.048	0.107	0.120	0.141	0.160	0.175
					Feed (mm/min)	428	535	713	669	589	535	468	
			≤ 0.5	≤ 1.5	130	RPM	13802	6901	4141	3450	2588	2070	1656
					(104-156)	Fz	0.019	0.048	0.107	0.120	0.141	0.160	0.175
					Feed (mm/min)	530	662	883	828	729	662	580	
			≤ 0.05	≤ 2	215	RPM	22826	11413	6848	5706	4280	3424	2739
					(172-258)	Fz	0.041	0.108	0.227	0.276	0.320	0.373	0.400
					Feed (mm/min)	1862	2465	3104	3150	2739	2556	2191	
PLASTICS ABS, Polycarbonate, PVC, Polypropylene			1	≤ 1	490	RPM	52022	26011	15607	13005	9754	7803	6243
					(392-588)	Fz	0.036	0.096	0.200	0.240	0.282	0.320	0.350
					Feed (mm/min)	3745	4994	6243	6242	5493	4994	4370	
			≤ 0.5	≤ 1.5	610	RPM	64762	32381	19429	16190	12143	9714	7771
					(488-732)	Fz	0.036	0.096	0.200	0.240	0.282	0.320	0.350
					Feed (mm/min)	4662	6217	7771	7771	6839	6217	5440	
			≤ 0.05	≤ 2	1005	RPM	106698	53349	32009	26674	20006	16005	12804
					(804-1206)	Fz	0.082	0.216	0.453	0.552	0.640	0.733	0.800
					Feed (mm/min)	17412	23045	29022	29446	25607	23473	20487	

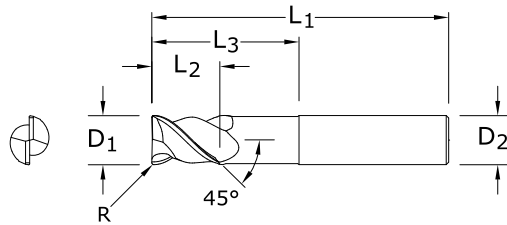
Bhn (Brinell) HRc (Rockwell C) HRb (Rockwell B) HSM (High Speed Machining)
 $\text{rpm} = (\text{Vc} \times 1000) / (\text{D}_1 \times 3.14)$
 $\text{mm/min} = \text{Fz} \times 2 \times \text{rpm}$
 reduce speed and feed for materials harder than listed
 reduce cut depth and feed by 50% for long flute and long reach tools
 reduce feed and Ae when finish milling (.02 x D1 maximum)
 refer to the KYOCERA SGS Tool Wizard® for complete technical information (www.kyocera-sgstool.com)



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FRACTIONAL SERIES

- Polished ski land with primary and secondary flute wall design minimizes chip interference by directing chips away from secondary flute
- Circular land allows for increased control at various speed and feed rates ultimately reducing chatter
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)



inch						EDP NO.			
CUTTING DIAMETER D ₁	LENGTH OF CUT L ₂	OVERALL LENGTH L ₁	SHANK DIAMETER D ₂	REACH* L ₃	CORNER RADIUS R	UNCOATED W/FLAT	UNCOATED	Ti-NAMITE-B (TiB ₂) W/FLAT	Ti-NAMITE-B (TiB ₂)
1/4	3/8	2-1/2	3/8	1	.010	91257	91250	91242	91235
5/16	7/16	2-1/2	3/8	1-1/8	.012	91258	91251	91243	91236
3/8	9/16	2-1/2	3/8	1-1/8	.015	91259	91252	91244	91237
1/2	3/4	3	1/2	1-1/2	.020	91260	91253	91245	91238
5/8	7/8	3-1/2	5/8	1-3/4	.025	91261	91254	91246	91239
3/4	1	4	3/4	2	.030	91262	91255	91247	91240
1	1-1/4	4	1	2-1/8	.040	91263	91256	91248	91241

*Reach (Optional)

TOLERANCES (inch)

1/4–3/8 DIAMETER

D₁ = +0.0000/–0.00035

D₂ = h₆

R = +0.0000/–0.0020

1/2–5/8 DIAMETER

D₁ = +0.0000/–0.00043

D₂ = h₆

R = +0.0000/–0.0020

3/4–1 DIAMETER

D₁ = +0.0000/–0.00051

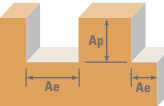
D₂ = h₆

R = +0.0000/–0.0020

NON-FERROUS

PLASTICS/COMPOSITES

For patent
information visit
www.ksptpatents.com

Series 45 Fractional	Hardness			Vc (sfm)	Diameter (D ₁) (inch)							
		Ae x D ₁	Ap x D ₁		1/4	3/8	1/2	5/8	3/4	1		
ALUMINUM ALLOYS 2024, 5052, 5086, 6061, 6073, 7075	≤ 150 Bhn or ≤ 7 HRc		1	≤ 1	1600	RPM	24448	16299	12224	9779	8149	6112
					(1280-1920)	Fz	0.0025	0.0045	0.0060	0.0065	0.0070	0.0085
					Feed (ipm)	122	147	147	127	114	104	
			≤ 0.5	≤ 1.5	2000	RPM	30560	20373	15280	12224	10187	7640
					(1600-2400)	Fz	0.0025	0.0045	0.0060	0.0065	0.0070	0.0085
					Feed (ipm)	153	183	183	159	143	130	
			≤ 0.05	≤ 2	3300	RPM	50424	33616	25212	20170	16808	12606
					(2640-3960)	Fz	0.0055	0.0105	0.0140	0.0150	0.0165	0.0195
					Feed (ipm)	555	706	706	605	555	492	
ALUMINUM DIE CAST ALLOYS (HIGH SILICONE) A-390, A-392, B- 390	≤ 125 Bhn or ≤ 77 HRb		1	≤ 1	600	RPM	9168	6112	4584	3667	3056	2292
					(480-720)	Fz	0.0025	0.0045	0.0060	0.0065	0.0070	0.0085
					Feed (ipm)	46	55	55	48	43	39	
			≤ 0.5	≤ 1.5	750	RPM	11460	7640	5730	4584	3820	2865
					(600-900)	Fz	0.0025	0.0045	0.0060	0.0065	0.0070	0.0085
					Feed (ipm)	57	69	69	60	53	49	
			≤ 0.05	≤ 2	1240	RPM	18947	12631	9474	7579	6316	4737
					(992-1488)	Fz	0.0055	0.0105	0.0140	0.0150	0.0165	0.0195
					Feed (ipm)	208	265	265	227	208	185	
COPPER ALLOYS Aluminum Bronze Brass Naval Brass Red Brass	≤ 140 Bhn or ≤ 3 HRc		1	≤ 1	865	RPM	13217	8811	6609	5287	4406	3304
					(692-1038)	Fz	0.0020	0.0040	0.0050	0.0055	0.0060	0.0070
					Feed (ipm)	53	70	66	58	53	46	
			≤ 0.5	≤ 1.5	1080	RPM	16502	11002	8251	6601	5501	4126
					(864-1296)	Fz	0.0020	0.0040	0.0050	0.0055	0.0060	0.0070
					Feed (ipm)	66	88	83	73	66	58	
			≤ 0.05	≤ 2	1780	RPM	27198	18132	13599	10879	9066	6800
					(1424-2136)	Fz	0.0045	0.0085	0.0115	0.0125	0.0140	0.0160
					Feed (ipm)	245	308	313	272	254	218	
COPPER ALLOYS Beryllium Copper C110, Manganese Bronze, Tin Bronze	≤ 200 Bhn or ≤ 23 HRc		1	≤ 1	345	RPM	5272	3514	2636	2109	1757	1318
					(276-414)	Fz	0.0020	0.0040	0.0050	0.0055	0.0060	0.0070
					Feed (ipm)	21	28	26	23	21	18	
			≤ 0.5	≤ 1.5	430	RPM	6570	4380	3285	2628	2190	1643
					(344-516)	Fz	0.0020	0.0040	0.0050	0.0055	0.0060	0.0070
					Feed (ipm)	26	35	33	29	26	23	
			≤ 0.05	≤ 2	710	RPM	10849	7233	5424	4340	3616	2712
					(568-852)	Fz	0.0045	0.0085	0.0115	0.0125	0.0140	0.0160
					Feed (ipm)	98	123	125	108	101	87	
PLASTICS ABS, Polycarbonate, PVC, Polypropylene			1	≤ 1	1600	RPM	24448	16299	12224	9779	8149	6112
					(1280-1920)	Fz	0.0040	0.0075	0.0100	0.0110	0.0120	0.0140
					Feed (ipm)	196	244	244	215	196	171	
			≤ 0.5	≤ 1.5	2000	RPM	30560	20373	15280	12224	10187	7640
					(1600-2400)	Fz	0.0040	0.0075	0.0100	0.0110	0.0120	0.0140
					Feed (ipm)	244	306	306	269	244	214	
			≤ 0.05	≤ 2	3300	RPM	50424	33616	25212	20170	16808	12606
					(2640-3960)	Fz	0.0090	0.0170	0.0230	0.0250	0.0275	0.0320
					Feed (ipm)	908	1143	1160	1008	924	807	

Bhn (Brinell) HRc (Rockwell C) HRb (Rockwell B) HSM (High Speed Machining)
 rpm = Vc x 3.82 / D₁
 ipm = Fz x 2 x rpm
 reduce speed and feed for materials harder than listed
 reduce cut depth and feed by 50% for long flute and long reach tools
 reduce feed and Ae when finish milling (.02 x D₁ maximum)
 refer to the KYOCERA SGS Tool Wizard® for complete technical information (www.kyocera-sgstool.com)