

## High Performance Aluminum End Mills



# Milling

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	43CR	3 Flute Non-Ferrous Corner Radius Fractional	144	156	
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S-Carb® (2 Flute)	47	2 Flute Non-Ferrous Square End Fractional	166	169	
	47L	2 Flute Non-Ferrous Square End Long Reach Fractional	167	169	
	47B	2 Flute Non-Ferrous Ball End Fractional	168	169	
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	47M	2 Flute Non-Ferrous Square End Metric	170	172	
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*Speed & Feed Recommendations listed after each series*

# Fresado

FRESAS DE ALTO RENDIMIENTO PARA ALUMINIO	SERIE	DESCRIPCIÓN	PÁGINA	S&F PÁGINA	
S-Carb APR® y APF®	43APR-3	3 filos, productividad avanzada, desbastador, fraccional	133	134	
	43APR-3	3 filos, productividad avanzada, desbastador, métrico	135	137	
	43APR-4	4 filos, productividad avanzada, desbastador, métrico	136	137	
	43APF	4 filos, productividad avanzada, acabador, fraccional	138	139	
	43MAPF	4 filos, productividad avanzada, acabador, métrico	140	141	
S-Carb APF-B®	43APF-B	Fresa Cónica Circular Multi-Filos tipo Barril, métrica	142	143	
S-Carb® (3 filos)	43	3 filos, no férrico, punta cuadrada, fraccional	144	156	
	43CR	3 filos, no férrico, radio angulado, fraccional	144	156	
	43L	3 filos, no férrico, punta cuadrada, largo alcance, fraccional	148	156	
	43LC	3 filos, no férricos, largo alcance, radio angulado, fraccional	148	156	
	43EC	3 filos, no férrico, punta cuadrada, alcance extralargo, fraccional	151	156	
	43B	3 filos, no férrico, punta esférica, fraccional	152	156	
	43LB	3 filos, no férrico, punta esférica, largo alcance, fraccional	153	156	
	43EB	3 filos, no férrico, punta esférica, alcance extralargo, fraccional	153	156	
	43M	3 filos, no férrico, punta cuadrada, métrico (filos no pulidos)	157	165	
	43M	3 filos, no férrico, punta cuadrada, métrico (filos pulidos)	157	165	
	43MCR	3 filos, no férrico, radio angulado, métrico (filos no pulidos)	157	165	
	43MCR	3 filos, no férrico, radio angulado, métrico (filos pulidos)	157	165	
	43MCR	3 filos, no férrico, radio angulado 4xD, métrico (filos pulidos)	157	165	
	43ML	3 filos, no férrico, punta cuadrada, largo alcance, métrico	160	165	
	43MLC	3 filos, no férrico, largo alcance, radio angulado, métrico (filos no pulidos)	160	165	
	43MLC	3 filos, no férrico, largo alcance, radio angulado, métrico (filos pulidos)	160	165	
	43MB	3 filos, no férrico, punta esférica, métrico (filos pulidos)	162	165	
	Desbastador S-Carb® (3 filos)	43CB	3 filos, desbastador, no férrico, rompevirutas, fraccional	154	156
		43LCB	3 filos, desbastador, no férrico, rompevirutas, largo alcance, fraccional	155	156
43MCB		3 filos, desbastador, no férrico, rompevirutas, métrico	164	165	
S-Carb® (2 filos)	47	2 filos, no férrico, punta cuadrada, fraccional	166	169	
	47L	2 filos, no férrico, punta cuadrada, largo alcance, fraccional	167	169	
	47B	2 filos, no férrico, punta esférica, fraccional	168	169	
	47LB	2 filos, no férrico, punta esférica, largo alcance, fraccional	168	169	
	47M	2 filos, no férrico, punta cuadrada, métrico	170	172	
	47ML	2 filos, no férrico, punta cuadrada, largo alcance, métrico	170	172	
	47MB	2 filos, no férrico, punta esférica, métrico	171	172	
Ski-Carb	44	2 filos, materiales no férricos, punta cuadrada, fraccional	173	174	
	44M	2 filos, materiales no férricos, punta cuadrada, métrico	173	174	
	45	2 filos, materiales no férricos, largo alcance, radio angulado, fraccional	176	177	

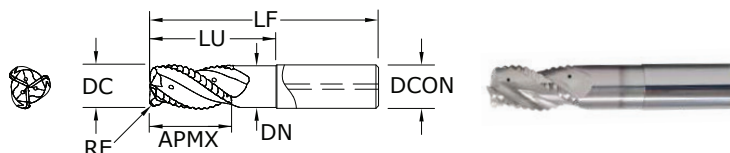
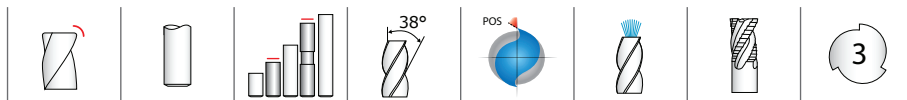
*Recomendaciones de velocidades y avances mostradas tras cada serie*

<b>FRAISE HAUTE PERFORMANCE POUR ALUMINIUM</b>	<b>SÉRIES</b>	<b>DESCRIPTION</b>	<b>PAGE</b>	<b>S&amp;F PAGE</b>	
<b>S-Carb APR®/APF®</b>	<b>43APR-3</b>	<b>3 dents productivité avancée d'ébauche (fractionnel)</b>	<b>133</b>	<b>134</b>	
	<b>43APR-3</b>	<b>3 dents productivité avancée d'ébauche (métrique)</b>	<b>135</b>	<b>137</b>	
	<b>43APR-4</b>	<b>4 dents productivité avancée d'ébauche (métrique)</b>	<b>136</b>	<b>137</b>	
	<b>43APF</b>	<b>4 dents productivité avancée de finition (fractionnel)</b>	<b>138</b>	<b>139</b>	
	<b>43MAPF</b>	<b>4 dents productivité avancée de finition (métrique)</b>	<b>140</b>	<b>141</b>	
<b>S-Carb APF-B®</b>	<b>43APF-B</b>	<b>Fraise multi dents finition pour productivité avancée cotes (métrique)</b>	<b>142</b>	<b>143</b>	
<b>S-Carb® (3 dents)</b>	<b>43</b>	<b>3 dents non-ferreux non rayonné (fractionnel)</b>	<b>144</b>	<b>156</b>	
	<b>43CR</b>	<b>3 dents non-ferreux rayonné (fractionnel)</b>	<b>144</b>	<b>156</b>	
	<b>43L</b>	<b>3 dents non-ferreux non rayonné longue portée (fractionnel)</b>	<b>148</b>	<b>156</b>	
	<b>43LC</b>	<b>3 dents non-ferreux longue portée rayonné (fractionnel)</b>	<b>148</b>	<b>156</b>	
	<b>43EC</b>	<b>3 dents non-ferreux non rayonné portée extra-longue (fractionnel)</b>	<b>151</b>	<b>156</b>	
	<b>43B</b>	<b>3 dents non-ferreux à bout hémisphérique (fractionnel)</b>	<b>152</b>	<b>156</b>	
	<b>43LB</b>	<b>3 dents non-ferreux à bout hémisphérique longue portée (fractionnel)</b>	<b>153</b>	<b>156</b>	
	<b>43EB</b>	<b>3 dents non-ferreux à bout hémisphérique portée extra-longue (fractionnel)</b>	<b>153</b>	<b>156</b>	
	<b>43M</b>	<b>3 dents non-ferreux non rayonné (métrique) (goujures non polies)</b>	<b>157</b>	<b>165</b>	
	<b>43M</b>	<b>3 dents non-ferreux non rayonné (métrique) (goujures polies)</b>	<b>157</b>	<b>165</b>	
	<b>43MCR</b>	<b>3 dents matériaux non-ferreux rayonné (métrique) (goujures non polies)</b>	<b>157</b>	<b>165</b>	
	<b>43MCR</b>	<b>3 dents matériaux non-ferreux rayonné (métrique) (goujures polies)</b>	<b>157</b>	<b>165</b>	
	<b>43MCR</b>	<b>3 dents matériaux non-ferreux rayonné 4xD (métrique) (goujures polies)</b>	<b>157</b>	<b>165</b>	
	<b>43MLC</b>	<b>3 dents non-ferreux longue portée rayonné (métrique) (goujures non polies)</b>	<b>160</b>	<b>165</b>	
	<b>43MLC</b>	<b>3 dents non-ferreux longue portée rayonné (métrique) (goujures polies)</b>	<b>160</b>	<b>165</b>	
	<b>43ML</b>	<b>3 dents non-ferreux non rayonné longue portée (métrique)</b>	<b>160</b>	<b>165</b>	
	<b>43MB</b>	<b>3 dents non-ferreux à bout hémisphérique (métrique) (goujures polies)</b>	<b>162</b>	<b>165</b>	
	<b>S-Carb® d'ébauche (3 dents)</b>	<b>43CB</b>	<b>3 dents d'ébauche non-ferreux brise-copeaux (fractionnel)</b>	<b>154</b>	<b>156</b>
		<b>43LCB</b>	<b>3 dents d'ébauche non-ferreux brise-copeaux longue portée (fractionnel)</b>	<b>155</b>	<b>156</b>
		<b>43MCB</b>	<b>3 dents d'ébauche non-ferreux brise-copeaux (métrique)</b>	<b>164</b>	<b>165</b>
	<b>S-Carb® (2 dents)</b>	<b>47</b>	<b>2 dents non-ferreux non rayonné (fractionnel)</b>	<b>166</b>	<b>169</b>
<b>47L</b>		<b>2 dents non-ferreux non rayonné longue portée (fractionnel)</b>	<b>167</b>	<b>169</b>	
<b>47B</b>		<b>2 dents non-ferreux à bout hémisphérique (fractionnel)</b>	<b>168</b>	<b>169</b>	
<b>47LB</b>		<b>2 dents non-ferreux à bout hémisphérique longue portée (fractionnel)</b>	<b>168</b>	<b>169</b>	
<b>47M</b>		<b>2 dents non-ferreux non rayonné (métrique)</b>	<b>170</b>	<b>172</b>	
<b>47ML</b>		<b>2 dents non-ferreux non rayonné longue portée (métrique)</b>	<b>170</b>	<b>172</b>	
<b>47MB</b>		<b>2 dents non-ferreux à bout hémisphérique (métrique)</b>	<b>171</b>	<b>172</b>	
<b>47MLB</b>		<b>2 dents non-ferreux à bout hémisphérique longue portée (métrique)</b>	<b>171</b>	<b>172</b>	
<b>Ski-Carb</b>	<b>44</b>	<b>2 dents matériaux non-ferreux non rayonné (fractionnel)</b>	<b>173</b>	<b>174</b>	
	<b>44M</b>	<b>2 dents matériaux non-ferreux non rayonné (métrique)</b>	<b>173</b>	<b>174</b>	
	<b>45</b>	<b>2 dents matériaux non-ferreux longue portée rayonné (fractionnel)</b>	<b>176</b>	<b>177</b>	

*Recommandations de vitesse et avance indiquées après chaque série*

HOCHLEISTUNGSSCHAFTFRÄSER FÜR ALUMINIUM	SERIE	BESCHREIBUNG	SEITE	S&F SEITE	
S-Carb APR® & APF®	43APR-3	Hochleistungs-Schrupfräser mit 3 Schneiden	133	134	
	43APR-3	Hochleistungs-Schrupfräser mit 3 Schneiden (Erweiterung)	135	137	
	43APR-4	Hochleistungs-Schrupfräser mit 4 Schneiden	136	137	
	43APF	Zölliger Hochleistungs-Schlichtfräser mit 4 Schneiden	138	139	
	43MAPF	Hochleistungs-Schlichtfräser mit 4 Schneiden	140	141	
S-Carb APF-B®	43APF-B	Metrischer mehrschneidiger Hochleistungsschlichtfräser	142	143	
S-Carb® (3 Schneiden)	43	Zölliger NE-Schaftfräser mit 3 Schneiden ohne Eckenradien	144	156	
	43CR	Zölliger NE-Fräser mit 3 Schneiden und Eckenradien	144	156	
	43L	Zölliger NE-Langloch-Schaftfräser mit 3 Schneiden ohne Eckenradien	148	156	
	43LC	Zölliger Langlochfräser mit 3 Schneiden und Eckenradien	148	156	
	43EC	Zölliger NE-Superlangloch-Schaftfräser mit 3 Schneiden ohne Eckenradien	151	156	
	43B	Zölliger NE-Radiuschaftfräser mit 3 Schneiden	152	156	
	43LB	Zölliger NE-Langloch-Radiuschaftfräser mit 3 Schneiden	153	156	
	43EB	Zölliger NE-Superlangloch-Radiuschaftfräser mit 3 Schneiden	153	156	
	43M	NE-Schaftfräser mit 3 unpolierten Schneiden ohne Eckenradien	157	165	
	43M	NE-Schaftfräser mit 3 polierten Schneiden ohne Eckenradien	157	165	
	43MCR	NE-Fräser mit 3 unpolierten Schneiden und Eckenradien	157	165	
	43MCR	NE-Fräser mit 3 polierten Schneiden und Eckenradien	157	165	
	43MCR	NE-Fräser 4xD mit 3 polierten Schneiden und Eckenradien	157	165	
	43ML	NE-Langloch-Schaftfräser mit 3 Schneiden ohne Eckenradien	160	165	
	43MLC	NE-Langlochfräser mit 3 unpolierten Schneiden und Eckenradien	160	165	
	43MLC	NE-Langlochfräser mit 3 polierten Schneiden und Eckenradien	160	165	
	43MB	NE-Radiuschaftfräser mit 3 polierten Schneiden	162	165	
	S-Carb® Schrupfräser (3 Schneiden)	43CB	Zölliger NE-Schrupfräser mit 3 Schneiden und Spanbrechern	154	156
		43LCB	Zölliger NE-Langloch-Schrupfräser mit 3 Spanteilernuten	155	156
		43MCB	NE-Schrupfräser mit 3 Schneiden und Spanbrechern	164	165
S-Carb® (2 Schneiden)	47	Zölliger NE-Schaftfräser mit 2 Schneiden ohne Eckenradien	166	169	
	47L	Zölliger NE-Langloch-Schaftfräser mit 2 Schneiden ohne Eckenradien	167	169	
	47B	Zölliger NE-Radiuschaftfräser mit 2 Schneiden	168	169	
	47LB	Zölliger NE-Langloch-Radiuschaftfräser mit 2 Schneiden	168	169	
	47M	NE-Schaftfräser mit 2 Schneiden ohne Eckenradien	170	172	
	47ML	NE-Langloch-Schaftfräser mit 2 Schneiden ohne Eckenradien	170	172	
	47MB	NE-Radiuschaftfräser mit 2 Schneiden	171	172	
	47MLB	NE-Langloch-Radiuschaftfräser mit 2 Schneiden	171	172	
Ski-Carb	44	Zölliger NE-Schaftfräser mit 2 Schneiden ohne Eckenradien	173	174	
	44M	NE-Schaftfräser mit 2 Schneiden ohne Eckenradien	173	174	
	45	Zölliger Langlochfräser mit 2 Schneidenn und Eckenradien für Nichteisenmetalle	176	177	

*Empfehlungen für Drehzahl & Vorschub im Anhang zu jeder Serie*



## 43APR-3 FRACTIONAL SERIES

### TOLERANCES (inch)

#### 1/2-1 DIAMETER

DC = -0.0004/-0.004

DCON = h<sub>6</sub>

RE = +/-0.002

NON-FERROUS

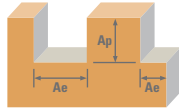
For patent information visit [www.ksptpatents.com](http://www.ksptpatents.com)

inch							EDP NO.
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	REACH LU	NECK DIAMETER DN	CORNER RADIUS RE	Ti-NAMITE®-B (TiB <sub>2</sub> )
1/2	1	3-1/4	1/2	1-1/2	.474	.030	34100
1/2	1	3-1/4	1/2	1-1/2	.474	.060	34101
1/2	1	3-1/4	1/2	1-1/2	.474	.090	34102
1/2	1	3-1/4	1/2	1-1/2	.474	.120	34103
5/8	1-3/8	3-5/8	5/8	2	.594	.030	34104*
5/8	1-3/8	3-5/8	5/8	2	.594	.060	34105*
5/8	1-3/8	3-5/8	5/8	2	.594	.090	34106*
5/8	1-3/8	3-5/8	5/8	2	.594	.120	34107*
5/8	1-3/8	4-1/4	5/8	2-5/8	.594	.030	34108*
5/8	1-3/8	4-1/4	5/8	2-5/8	.594	.060	34109*
5/8	1-3/8	4-1/4	5/8	2-5/8	.594	.090	34110*
5/8	1-3/8	4-1/4	5/8	2-5/8	.594	.120	34111*
3/4	1-3/8	3-5/8	3/4	1-3/4	.713	.030	34112
3/4	1-3/8	3-5/8	3/4	1-3/4	.713	.060	34113
3/4	1-3/8	3-5/8	3/4	1-3/4	.713	.090	34114
3/4	1-3/8	3-5/8	3/4	1-3/4	.713	.120	34115
3/4	1-3/8	4-3/8	3/4	2-1/2	.713	.030	34116*
3/4	1-3/8	4-3/8	3/4	2-1/2	.713	.060	34117*
3/4	1-3/8	4-3/8	3/4	2-1/2	.713	.090	34118*
3/4	1-3/8	4-3/8	3/4	2-1/2	.713	.120	34119*
3/4	1-3/8	5-1/8	3/4	3-1/4	.713	.030	34120*
3/4	1-3/8	5-1/8	3/4	3-1/4	.713	.060	34121*
3/4	1-3/8	5-1/8	3/4	3-1/4	.713	.090	34122*
3/4	1-3/8	5-1/8	3/4	3-1/4	.713	.120	34123*
1	1-3/4	4-1/2	1	2-1/2	.949	.030	34124
1	1-3/4	4-1/2	1	2-1/2	.949	.060	34125
1	1-3/4	4-1/2	1	2-1/2	.949	.090	34126
1	1-3/4	4-1/2	1	2-1/2	.949	.120	34127
1	1-3/8	5-1/4	1	3-1/4	.949	.030	34128*
1	1-3/8	5-1/4	1	3-1/4	.949	.060	34129*
1	1-3/8	5-1/4	1	3-1/4	.949	.090	34130*
1	1-3/8	5-1/4	1	3-1/4	.949	.120	34131*
1	1-3/8	6-1/4	1	4-1/4	.949	.030	34132*
1	1-3/8	6-1/4	1	4-1/4	.949	.060	34133*
1	1-3/8	6-1/4	1	4-1/4	.949	.090	34134*
1	1-3/8	6-1/4	1	4-1/4	.949	.120	34135*

\*Variable Helix

- Ultra high-productivity rougher for Aluminum alloys, specifically for aircraft components
- Designed for machine tools with capability of 12 L<sup>3</sup> 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)

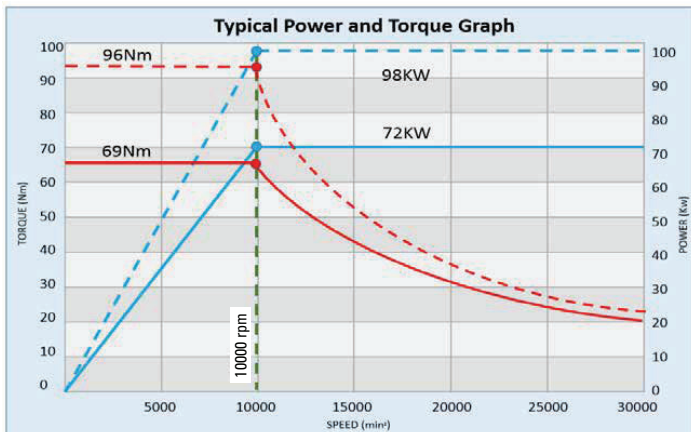
# FRACTIONAL S-Carb APR®

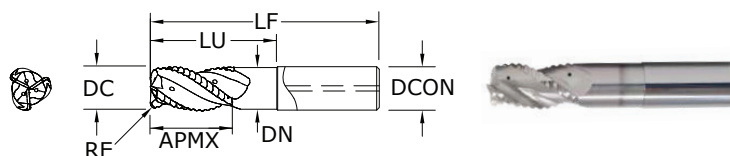
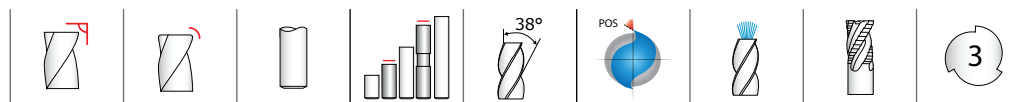


Series 43APR-3 Fractional	Ae x DC	Ap x DC	Vc (sfm)	DC • inch			
				APR-3			
				0.75	1		
N ALUMINIUM ALLOYS 6068, 7075	Slot 	1	≤ 1	5250	RPM	26740	20055
				(980-6900)	Fz	0.0055	0.0059
					Feed (ipm)	441	355
	Profile 	≤ 0.5	≤ 1.5	5900	RPM	30051	22538
				(980-6900)	Fz	0.0063	0.0067
					Feed (ipm)	568	453
	HSM 	≤ 0.1	≤ 2	6900	RPM	35144	26358
				(980-6900)	Fz	0.0075	0.0079
					Feed (ipm)	791	625

Series 43APR-3L Fractional	Ae x DC	Ap x DC	Vc (sfm)	DC • inch					
				APR-3 LONG					
				0.5	0.625	0.75	1		
N ALUMINIUM ALLOYS 6068, 7075	Slot 	1	≤ 1	3280	RPM	25059	20047	16706	12530
				(980-6900)	Fz	0.0039	0.0043	0.0047	0.0051
					Feed (ipm)	293	259	236	192
	Profile 	≤ 0.5	≤ 1.5	3950	RPM	30178	24142	20119	15089
				(980-6900)	Fz	0.0047	0.0051	0.0055	0.0059
					Feed (ipm)	426	369	332	267
	HSM 	≤ 0.1	≤ 2	4600	RPM	35144	28115	23429	17572
				(980-6900)	Fz	0.0055	0.0059	0.0063	0.0067
					Feed (ipm)	580	498	443	353

RPM stated may be outside of most machine tools in the smaller sizes, adjust the surface speed but maintain the Fz  
 For best results use the peak power of the specific machine torque chart.  
 Typically 10hp is required to remove 45 cubic inches of material (MRR).  
 Eg. >> (Ae x Ap x Feed) >> Therefore Full slotting 1" dia: 1 x 1 x 355 = 355 cubic inches, so it needs a min of 78hp.  
 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 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 SGS Tool Wizard® for complete technical information ([www.kyocera-sgstool.com](http://www.kyocera-sgstool.com))





**43APR-3**  
METRIC SERIES

**TOLERANCES (mm)**

**12–25 DIAMETER**

DC = -0,010/-0,100

DCON = h<sub>6</sub>

RE = +/-0,05

NON-FERROUS

For patent information visit  
[www.ksptpatents.com](http://www.ksptpatents.com)

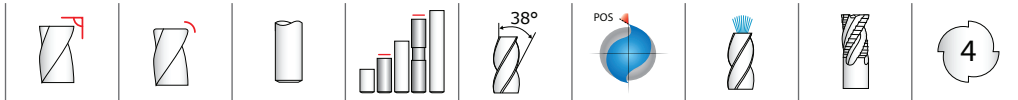
mm							EDP NO.
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	REACH LU	NECK DIAMETER DN	CORNER RADIUS RE	Ti-NAMITE®-B (TiB <sub>2</sub> )
12,0	26,0	83,0	12,0	39,0	11,40	1,0	44976*
12,0	26,0	83,0	12,0	39,0	11,40	2,0	44977*
12,0	26,0	83,0	12,0	39,0	11,40	3,0	44978*
12,0	26,0	83,0	12,0	39,0	11,40	4,0	44979*
12,0	26,0	95,0	12,0	—	—	—	44975*
16,0	35,0	92,0	16,0	—	—	—	44980*
16,0	35,0	92,0	16,0	51,0	15,20	2,0	44981*
16,0	35,0	92,0	16,0	51,0	15,20	3,0	44982*
16,0	35,0	92,0	16,0	51,0	15,20	4,0	44983*
16,0	35,0	108,0	16,0	67,0	15,20	2,0	44985*
16,0	35,0	108,0	16,0	67,0	15,20	3,0	44986*
16,0	35,0	108,0	16,0	67,0	15,20	4,0	44987*
16,0	35,0	124,0	16,0	—	—	—	44984*
20,0	35,0	86,0	20,0	—	—	—	44990
20,0	35,0	86,0	20,0	45,0	19,00	3,0	44991
20,0	35,0	86,0	20,0	45,0	19,00	4,0	44992
20,0	35,0	106,0	20,0	—	—	—	44993*
20,0	35,0	106,0	20,0	65,0	19,00	2,0	44994*
20,0	35,0	106,0	20,0	65,0	19,00	3,0	44995*
20,0	35,0	106,0	20,0	65,0	19,00	4,0	44996*
20,0	35,0	106,0	20,0	65,0	19,00	5,0	44997*
20,0	35,0	145,0	20,0	—	—	—	45020*
20,0	35,0	125,0	20,0	84,0	19,00	2,0	45021*
20,0	35,0	125,0	20,0	84,0	19,00	3,0	45022*
20,0	35,0	125,0	20,0	84,0	19,00	4,0	45023*
25,0	43,0	108,0	25,0	—	—	—	44998
25,0	43,0	108,0	25,0	60,0	23,75	2,0	44999
25,0	43,0	108,0	25,0	60,0	23,75	3,0	45000
25,0	43,0	108,0	25,0	60,0	23,75	4,0	45001
25,0	35,0	140,0	25,0	—	—	—	45002*
25,0	35,0	140,0	25,0	80,0	23,75	3,0	45003*
25,0	35,0	140,0	25,0	90,0	23,75	3,0	45004*
25,0	35,0	151,0	25,0	105,0	23,75	3,0	45025*
25,0	35,0	176,0	25,0	—	—	—	45024*

- Ultra high-productivity rougher for Aluminum alloys, specifically for aircraft components
- Designed for machine tools with capability of 12 L<sup>3</sup> 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)

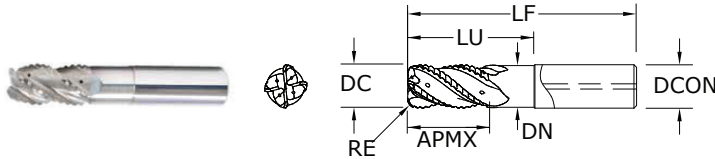
\*Variable Helix



# METRIC S-Carb APR<sup>®</sup>



## 43APR-4 METRIC SERIES



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

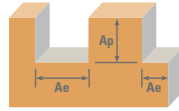
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	mm				CORNER RADIUS RE	EDP NO.
			SHANK DIAMETER DCON	REACH LU	NECK DIAMETER DN	Ti-NAMITE <sup>®</sup> -B (TiB <sub>2</sub> )		
20,0	35,0	86,0	20,0	—	19,00	—	45005	
20,0	35,0	86,0	20,0	45,0	19,00	3,0	45006	
20,0	35,0	86,0	20,0	45,0	19,00	4,0	45007	
20,0	35,0	106,0	20,0	—	19,00	—	45008	
20,0	35,0	106,0	20,0	65,0	19,00	2,0	45009	
20,0	35,0	106,0	20,0	65,0	19,00	3,0	45010	
20,0	35,0	106,0	20,0	65,0	19,00	4,0	45011	
20,0	35,0	106,0	20,0	65,0	19,00	5,0	45012	
25,0	43,0	108,0	25,0	—	23,75	—	45013	
25,0	43,0	108,0	25,0	60,0	23,75	2,0	45014	
25,0	43,0	108,0	25,0	60,0	23,75	3,0	45015	
25,0	43,0	108,0	25,0	60,0	23,75	4,0	45016	
25,0	35,0	140,0	25,0	—	23,75	—	45017	
25,0	35,0	140,0	25,0	80,0	23,75	3,0	45018	
25,0	35,0	140,0	25,0	90,0	23,75	3,0	45019	

### TOLERANCES (mm)

**20–25 DIAMETER**  
 DC = -0,010/-0,100  
 DCON = h<sub>6</sub>  
 RE = ±0,050

**NON-FERROUS**

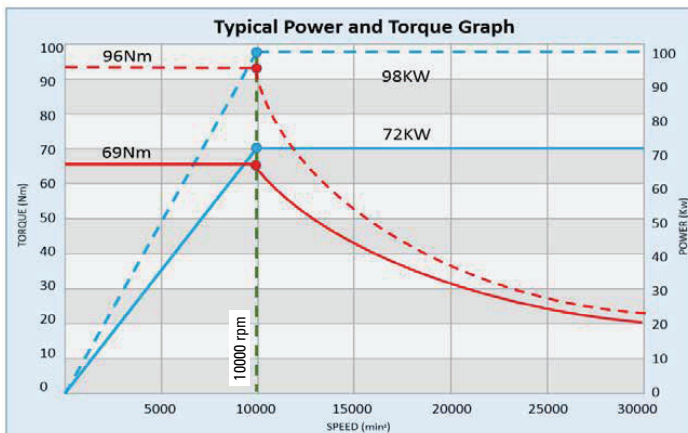
For patent information visit [www.ksptpatents.com](http://www.ksptpatents.com)



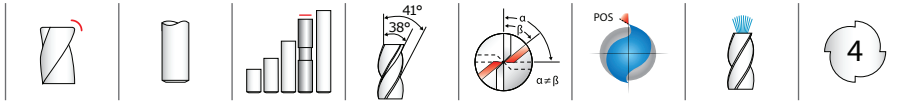
Series 43APR-3 43APR-4 Metric	Ae x DC	Ap x DC	Vc (m/min)	DC • mm					
				APR-3		APR-4			
				20	25	20	25		
N ALUMINIUM ALLOYS 6068, 7075	Slot 	1	≤ 1	1600	RPM	25461	20369	25461	20369
				(300-2100)	Fz	0.14	0.15	0.12	0.13
				Feed (mm/min)	10694	9166	12222	10592	
	Profile 	≤ 0.5	≤ 1.5	1800	RPM	28644	22915	28644	22915
				(300-2100)	Fz	0.16	0.17	0.14	0.15
				Feed (mm/min)	13749	11687	16041	13749	
	HSM 	≤ 0.25	≤ 2	2100	RPM	33418	26735	33418	26735
				(300-2100)	Fz	0.19	0.20	0.16	0.17
				Feed (mm/min)	19048	16041	21388	18180	

Series 43APR-3 43APR-4 Metric	Ae x DC	Ap x DC	Vc (m/min)	DC • mm					
				APR-3 LONG					
				12	16	20	25		
N ALUMINIUM ALLOYS 6068, 7075	Slot 	1	≤ 1	1600	RPM	26522	19892	15913	12731
				(300-2100)	Fz	0.10	0.11	0.12	0.13
				Feed (mm/min)	7957	6564	5729	4965	
	Profile 	≤ 0.5	≤ 1.5	1800	RPM	31827	23870	19096	15277
				(300-2100)	Fz	0.12	0.13	0.14	0.15
				Feed (mm/min)	11458	9309	8020	6875	
	HSM 	≤ 0.25	≤ 2	2100	RPM	37131	27849	22279	17823
				(300-2100)	Fz	0.14	0.15	0.16	0.17
				Feed (mm/min)	15595	12532	10694	9090	

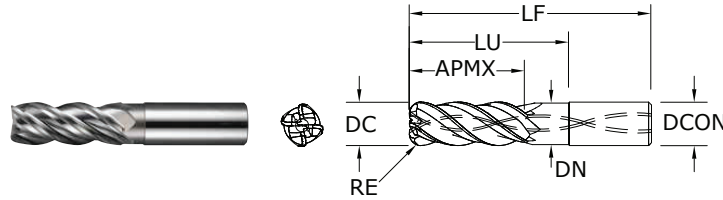
RPM stated may be outside of most machine tools in the smaller sizes, adjust the surface speed but maintain the Fz  
 For best results use the peak power of the specific machine torque chart.  
 Typically 10kw is required to remove 1 litre of material (MMR).  
 Eg. >> (Ae x Ap x Feed) / 1000000 >> Therefore 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 SGS Tool Wizard® for complete technical information ([www.kyocera-sgstool.com](http://www.kyocera-sgstool.com))



# FRACTIONAL S-Carb APF®



## 43APF FRACTIONAL 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  $\leq 150$  Bhn ( $\leq 7$  HRc)

CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	inch				EDP NO.
			SHANK DIAMETER DCON	REACH LU	NECK DIAMETER DN	CORNER RADIUS RE	Ti-NAMITE®-B (TiB <sub>2</sub> )
1/2	1-1/4	3-1/4	1/2	1-5/8	.478	.030	34016
1/2	1-1/4	3-1/4	1/2	1-5/8	.478	.060	34017
1/2	1-1/4	3-1/4	1/2	1-5/8	.478	.090	34018
1/2	1-1/4	3-1/4	1/2	1-5/8	.478	.120	34019
1/2	2	4	1/2	2-3/8	.478	.030	34020
1/2	2	4	1/2	2-3/8	.478	.060	34021
1/2	2	4	1/2	2-3/8	.478	.090	34022
1/2	2	4	1/2	2-3/8	.478	.120	34023
3/4	1-7/8	4-1/4	3/4	2-3/8	.728	.030	34024
3/4	1-7/8	4-1/4	3/4	2-3/8	.728	.060	34025
3/4	1-7/8	4-1/4	3/4	2-3/8	.728	.090	34026
3/4	1-7/8	4-1/4	3/4	2-3/8	.728	.120	34027
3/4	3	5-3/8	3/4	3-1/2	.728	.030	34028
3/4	3	5-3/8	3/4	3-1/2	.728	.060	34029
3/4	3	5-3/8	3/4	3-1/2	.728	.090	34030
3/4	3	5-3/8	3/4	3-1/2	.728	.120	34031

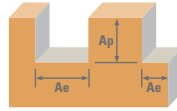
Available on request: • JetStream Technology

### TOLERANCES (inch)

**1/2–3/4 DIAMETER**  
 DC =  $-0.0004/-0.0020$   
 DCON =  $h_6$   
 RE =  $+0.0012/-0.0012$

**NON-FERROUS**

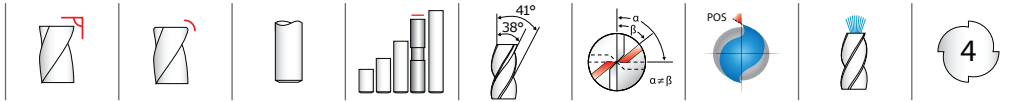
For patent information visit  
[www.ksptpatents.com](http://www.ksptpatents.com)



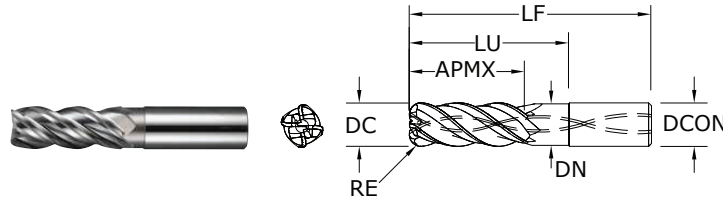
Series 43APF Fractional	Hardness	Ae x DC	Ap x DC	Vc (sfm)	DC • in				
					1/2	3/4			
<b>N</b>	ALUMINUM ALLOYS 2024, 5052, 5086, 6061, 6063, 7075	≤ 150 Bhn or ≤ 88 HRb	Profile	≤ 0.1	≤ 2.5	2625	RPM	20055	13370
				≤ 0.1	≤ 2.5	(2100-3150)	Fz	0.0030	0.0050
				≤ 0.1	≤ 2.5	(2100-3150)	Feed (in/min)	241	267
	ALUMINUM ALLOYS (LITHIUM)* 2090, 2091, 2099, 2195, 2199, 2297, 8090	≤ 150 Bhn or ≤ 88 HRb	Profile	≤ 0.1	≤ 4	2625	RPM	20055	13370
				≤ 0.1	≤ 4	(2100-3150)	Fz	0.0020	0.0040
				≤ 0.1	≤ 4	(2100-3150)	Feed (in/min)	160	214
ALUMINUM ALLOYS (LITHIUM)* 2090, 2091, 2099, 2195, 2199, 2297, 8090	≤ 150 Bhn or ≤ 88 HRb	Profile	≤ 0.1	≤ 2.5	1970	RPM	15051	10034	
			≤ 0.1	≤ 2.5	(1576-2364)	Fz	0.0030	0.0050	
			≤ 0.1	≤ 2.5	(1576-2364)	Feed (in/min)	181	201	
ALUMINUM ALLOYS (LITHIUM)* 2090, 2091, 2099, 2195, 2199, 2297, 8090	≤ 150 Bhn or ≤ 88 HRb	Profile	≤ 0.1	≤ 4	1970	RPM	15051	10034	
			≤ 0.1	≤ 4	(1576-2364)	Fz	0.0020	0.0040	
			≤ 0.1	≤ 4	(1576-2364)	Feed (in/min)	120	161	

Bhn (Brinell)      HRb (Rockwell B)  
 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  
 $rpm = Vc \times 3.82 / DC$   
 $ipm = Fz \times 4 \times rpm$   
 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 DC maximum  
 ramp angle = 6° (feed rate = 50%)  
 plunging not recommended  
 refer to the SGS Tool Wizard® for complete technical information ([www.kyocera-sgstool.com](http://www.kyocera-sgstool.com))

# METRIC S-Carb APF®



## 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  $\leq 150$  Bhn ( $\leq 7$  HRc)

CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	mm				CORNER RADIUS RE	EDP NO. Ti-NAMITE®-B (TiB <sub>2</sub> )
			SHANK DIAMETER DCON	REACH LU	NECK DIAMETER DN			
6,0	24,0	58,0	6,0	30,0	5,70	—	44627	
8,0	32,0	64,0	8,0	40,0	7,60	—	44628	
10,0	40,0	80,0	10,0	50,0	9,50	—	44629	
12,0	30,0	83,0	12,0	40,0	11,40	—	44630	
12,0	30,0	83,0	12,0	40,0	11,40	2,0	44745	
12,0	30,0	83,0	12,0	40,0	11,40	3,0	44746	
12,0	30,0	83,0	12,0	40,0	11,40	4,0	44747	
12,0	30,0	83,0	12,0	50,0	11,40	0,5	44641	
12,0	30,0	83,0	12,0	50,0	11,40	5,0	44642	
12,0	48,0	100,0	12,0	62,0	11,40	—	44631	
12,0	48,0	100,0	12,0	62,0	11,40	2,0	44748	
12,0	48,0	100,0	12,0	62,0	11,40	3,0	44749	
12,0	48,0	100,0	12,0	62,0	11,40	4,0	44750	
16,0	40,0	92,0	16,0	51,0	15,20	—	44634	
16,0	40,0	92,0	16,0	51,0	15,20	2,0	44751	
16,0	40,0	92,0	16,0	51,0	15,20	3,0	44752	
16,0	40,0	92,0	16,0	51,0	15,20	4,0	44753	
16,0	42,0	93,0	16,0	51,0	15,20	5,0	44643	
16,0	64,0	125,0	16,0	82,0	15,20	—	44635	
16,0	64,0	125,0	16,0	82,0	15,20	2,0	44754	
16,0	64,0	125,0	16,0	82,0	15,20	3,0	44755	
16,0	64,0	125,0	16,0	82,0	15,20	4,0	44756	
20,0	50,0	108,0	20,0	63,0	19,00	—	44636	
20,0	50,0	108,0	20,0	63,0	19,00	3,0	44757	
20,0	50,0	108,0	20,0	63,0	19,00	4,0	44758	
20,0	50,0	108,0	20,0	63,0	19,00	5,0	44759	
20,0	80,0	150,0	20,0	102,0	19,00	—	44637	
20,0	80,0	150,0	20,0	102,0	19,00	3,0	44760	
20,0	80,0	150,0	20,0	102,0	19,00	4,0	44761	
20,0	80,0	150,0	20,0	102,0	19,00	5,0	44762	
25,0	63,0	130,0	25,0	79,0	23,75	—	44638	
25,0	63,0	130,0	25,0	79,0	23,75	3,0	44763	
25,0	63,0	130,0	25,0	79,0	23,75	4,0	44764	
25,0	63,0	130,0	25,0	79,0	23,75	5,0	44765	
25,0	100,0	175,0	25,0	120,0	23,75	—	44639	
25,0	100,0	175,0	25,0	120,0	23,75	3,0	44766	
25,0	100,0	175,0	25,0	120,0	23,75	4,0	44767	
25,0	100,0	175,0	25,0	120,0	23,75	5,0	44768	

Available on request: • JetStream Technology

### TOLERANCES (mm)

#### 6–25 DIAMETER

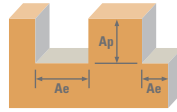
DC =  $-0,010/-0,050$

DCON =  $h_6$

RE =  $+0,03/-0,03$

NON-FERROUS

For patent information visit  
[www.kspatents.com](http://www.kspatents.com)



Series 43MAPF Metric	Hardness	Profile	Ae x DC	Ap x DC	Vc (m/min)	DC • mm								
						6	8	10	12	16	20	25		
N  ALUMINUM ALLOYS 2024, 5052, 5086, 6061, 6063, 7075	≤ 150 Bhn or ≤ 88 HRb	Profile 	≤ 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		
		Profile 	≤ 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	≤ 150 Bhn or ≤ 88 HRb	Profile 	≤ 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	
			Profile 	≤ 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) HRb (Rockwell B)

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

$$\text{rpm} = (\text{Vc} \times 1000) / (\text{DC} \times 3.14)$$

$$\text{mm/min} = \text{Fz} \times 4 \times \text{rpm}$$

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 DC maximum

ramp angle = 6° (feed rate = 50%)

plunging not recommended

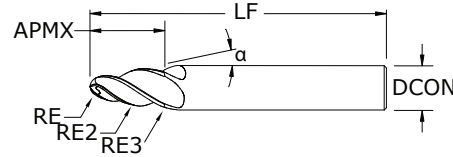
refer to the SGS Tool Wizard® for complete technical information ([www.kyocera-sgstool.com](http://www.kyocera-sgstool.com))

METRIC

# S-Carb APF-B®



## APF-B METRIC SERIES



- Designed to significantly improve traditional ball end applications
- Highly efficient at finishing and semi-finishing profiling
- Main application areas include profiling and pocket milling
- Especially suited to machining deep pockets and hard-to-reach areas without using long-reach tools
- Their versatility also allows for machining profiles and blends with one tool
- Recommended for materials  $\leq 150$  Bhn ( $\leq 7$  HRc)

SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	CENTERLINE ANGLE $\alpha$	mm			NO. OF FLUTES	EDP NO. Ti-NAMITE®-B (TiB <sub>2</sub> )
				TIP RADIUS RE	TAPERED RADIUS RE2	BLENDED RADIUS RE3		
6,0	9,5	58,0	17.5°	1,0	250,0	3,0	3	45718
6,0	8,0	58,0	17.5°	1,5	250,0	3,0	3	45719
8,0	10,5	80,0	20°	1,5	250,0	4,0	3	45720
8,0	9,5	80,0	20°	2,0	250,0	4,0	3	45721
10,0	12,5	89,0	20°	2,0	250,0	5,0	3	45722
10,0	11,5	89,0	20°	2,5	250,0	5,0	3	45723
12,0	13,5	100,0	20°	3,0	250,0	6,0	4	45724
12,0	14,4	100,0	20°	2,5	250,0	6,0	4	45725
12,0	20,0	100,0	14°	2,0	60,0	6,0	4	45726
16,0	31,0	109,0	12.5°	2,0	1000,0	5,0	4	45727
16,0	27,5	109,0	12.5°	3,0	1000,0	5,0	4	45728
16,0	24,0	109,0	12.5°	4,0	1000,0	5,0	4	45729
16,0	21,0	109,0	15°	4,0	1000,0	5,0	4	45730
16,0	18,5	109,0	20°	4,0	1500,0	8,0	4	45731
16,0	28,5	109,0	10°	4,0	1000,0	5,0	4	45732
16,0	19,0	109,0	20°	3,0	750,0	5,0	4	45733
16,0	15,0	109,0	30°	2,0	750,0	3,0	4	45734
16,0	18,5	109,0	20°	3,0	60,0	5,0	4	45735

### TOLERANCES (mm)

DCON = h<sub>6</sub>  
RE = -0,010/-0,010

**NON-FERROUS**

For patent information visit [www.ksptpatents.com](http://www.ksptpatents.com)

			DCON	6		8		10		12		16	
			Ae max	0,20	0,45	0,25	0,55	0,30	0,60	0,35	0,65	0,40	0,70
			Diameter	3,0	6,0	4,0	8,0	5,0	10,0	6,0	12,0	8,0	16,0
Metric	Hardness (HRb)	Vc (m/min)	Cut Zone	RE	RE2	RE	RE2	RE	RE2	RE	RE2	RE	RE2
N Aluminum	≤88 (388-632)	510	RPM	54111	27056	40583	20292	32467	16233	27056	13528	20292	10146
			Fz	0,017	0,040	0,021	0,050	0,025	0,060	0,033	0,080	0,042	0,100
			Feed (mm/min)	2706	3247	2536	3044	2435	2922	3607	4329	3382	4058
	≥88 (284-376)	330	RPM	35013	17507	26260	13130	21008	10504	17507	8753	13130	6565
			Fz	0,013	0,030	0,017	0,040	0,021	0,050	0,025	0,060	0,033	0,080
			Feed (mm/min)	1313	1576	1313	1576	1313	1576	1751	2101	1751	2101

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

$Feed = Fz \times \text{No. of flutes} \times rpm$

Adjust speed and feed cutting

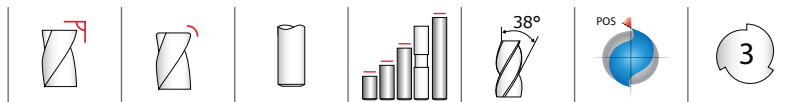
Adjust rates according to cutting area of tool being used

Avoid using tip of the tool where possible due to reduced chip space

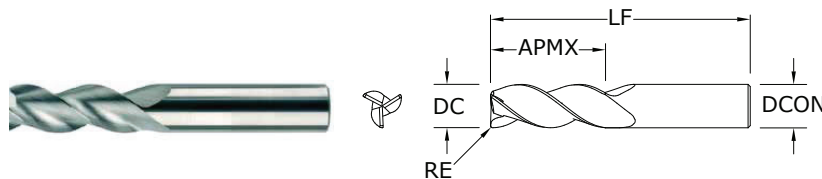
Be aware of max cut Ae, especially on the lower portion of the tool

refer to the SGS Tool Wizard® for complete technical information ([www.kyocera-sgstool.com](http://www.kyocera-sgstool.com))





**43 •  
43CR**  
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
- Enhanced corner geometry with tight tolerance corner radii
- Recommended for materials  $\leq 150$  Bhn ( $\leq 7$  HRC)

CUTTING DIAMETER DC	LENGTH OF CUT APMX	inch			EDP NO.	
		OVERALL LENGTH LF	SHANK DIAMETER DCON	CORNER RADIUS RE	UNCOATED	Ti-NAMITE®-B (TiB <sub>2</sub> )
1/8	3/8	1-1/2	1/8	—	34701	34728
1/8	3/8	1-1/2	1/8	.010	34771	34793
3/16	5/16	2-1/2	3/16	—	34822	34857
3/16	9/16	2	3/16	—	34702	34729
3/16	9/16	2	3/16	.010	34772	34794
3/16	3/4	2-1/2	3/16	—	34823	34858
1/4	3/8	2	1/4	—	34703	34730
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	1/2	2-1/2	1/4	—	34824	34859
1/4	3/4	2-1/2	1/4	—	34704	34731
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	—	34825	34860
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
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	5/8	2-1/2	5/16	.030	34775	34797
5/16	1-1/4	4	5/16	—	34708	34735
3/8	1/2	2	3/8	—	34709	34736
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	—	34710	34737
3/8	1	2-1/2	3/8	.010	34776	34798

**TOLERANCES (inch)**

**1/8–3/16 DIAMETER**

DC = +0.0000/–0.00032

DCON = h<sub>6</sub>

RE = +0.0000/–0.0020

**1/4–3/8 DIAMETER**

DC = +0.0000/–0.00035

DCON = h<sub>6</sub>

RE = +0.0000/–0.0020

**1/2–5/8 DIAMETER**

DC = +0.0000/–0.00043

DCON = h<sub>6</sub>

RE = +0.0000/–0.0020

**3/4–1 DIAMETER**

DC = +0.0000/–0.00051

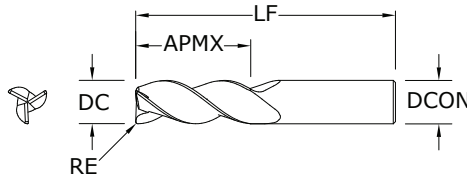
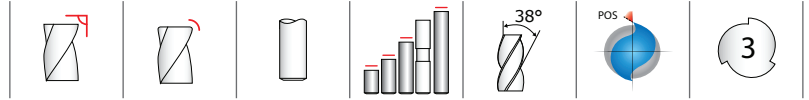
DCON = h<sub>6</sub>

RE = +0.0000/–0.0020

**NON-FERROUS**

For patent information visit  
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**43CR**  
FRACTIONAL SERIES

*CONTINUED*

**TOLERANCES (inch)**

**1/8–3/16 DIAMETER**

DC = +0.0000/–0.00032

DCON = h<sub>6</sub>

RE = +0.0000/–0.0020

**1/4–3/8 DIAMETER**

DC = +0.0000/–0.00035

DCON = h<sub>6</sub>

RE = +0.0000/–0.0020

**1/2–5/8 DIAMETER**

DC = +0.0000/–0.00043

DCON = h<sub>6</sub>

RE = +0.0000/–0.0020

**3/4–1 DIAMETER**

DC = +0.0000/–0.00051

DCON = h<sub>6</sub>

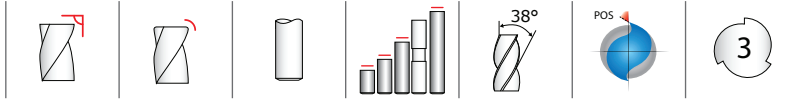
RE = +0.0000/–0.0020

**NON-FERROUS**

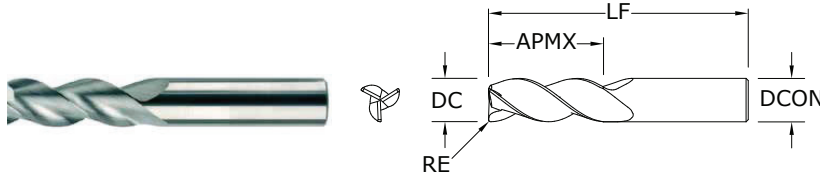
For patent information visit  
[www.ksptpatents.com](http://www.ksptpatents.com)

CUTTING DIAMETER DC	LENGTH OF CUT APMX	inch			EDP NO.	
		OVERALL LENGTH LF	SHANK DIAMETER DCON	CORNER RADIUS RE	UNCOATED	Ti-NAMITE®-B (TiB <sub>2</sub> )
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	1-1/4	3-1/2	3/8	–	34827	34862
3/8	1-1/2	3-1/2	3/8	–	34711	34738
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
3/8	2	4	3/8	–	34828	34863
1/2	5/8	2-1/2	1/2	–	34712	34739
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
1/2	1	3	1/2	–	34830	34865
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	–	34713	34740
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	–	34831	34866
1/2	1-5/8	4	1/2	.010	35610	35700
1/2	1-5/8	4	1/2	.015	35611	35701

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**43 •  
43CR**  
FRACTIONAL SERIES



CONTINUED

CUTTING DIAMETER DC	LENGTH OF CUT APMX	inch			EDP NO.	
		OVERALL LENGTH LF	SHANK DIAMETER DCON	CORNER RADIUS RE	UNCOATED	Ti-NAMITE®-B (TiB <sub>2</sub> )
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	—	34714	34741
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
1/2	2-1/2	5	1/2	—	34832	34867
1/2	3-1/8	6	1/2	—	34715	34742
5/8	3/4	3	5/8	—	34716	34743
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	—	34717	34744
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
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	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
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	—	34721	34748
3/4	1-5/8	4	3/4	.030	34785	34807

**TOLERANCES (inch)**

**1/8–3/16 DIAMETER**

DC = +0.0000/–0.00032

DCON = h<sub>6</sub>

RE = +0.0000/–0.0020

**1/4–3/8 DIAMETER**

DC = +0.0000/–0.00035

DCON = h<sub>6</sub>

RE = +0.0000/–0.0020

**1/2–5/8 DIAMETER**

DC = +0.0000/–0.00043

DCON = h<sub>6</sub>

RE = +0.0000/–0.0020

**3/4–1 DIAMETER**

DC = +0.0000/–0.00051

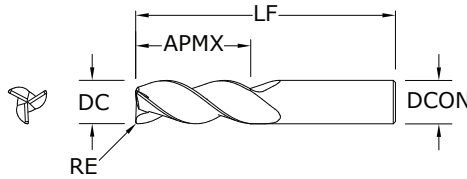
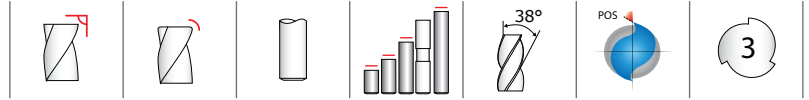
DCON = h<sub>6</sub>

RE = +0.0000/–0.0020

**NON-FERROUS**

For patent information visit  
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**43 •**  
**43CR**  
FRACTIONAL SERIES

*CONTINUED*

**TOLERANCES (inch)**

**1/8–3/16 DIAMETER**

DC = +0.0000/–0.00032

DCON = h<sub>6</sub>

RE = +0.0000/–0.0020

**1/4–3/8 DIAMETER**

DC = +0.0000/–0.00035

DCON = h<sub>6</sub>

RE = +0.0000/–0.0020

**1/2–5/8 DIAMETER**

DC = +0.0000/–0.00043

DCON = h<sub>6</sub>

RE = +0.0000/–0.0020

**3/4–1 DIAMETER**

DC = +0.0000/–0.00051

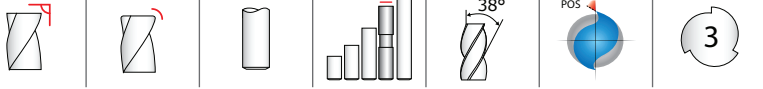
DCON = h<sub>6</sub>

RE = +0.0000/–0.0020

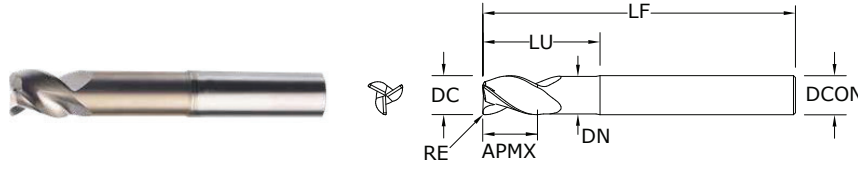
**NON-FERROUS**

For patent information visit [www.ksptpatents.com](http://www.ksptpatents.com)

CUTTING DIAMETER DC	LENGTH OF CUT APMX	inch			EDP NO.	
		OVERALL LENGTH LF	SHANK DIAMETER DCON	CORNER RADIUS RE	UNCOATED	Ti-NAMITE®-B (TiB <sub>2</sub> )
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	–	34722	34749
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
3/4	2-1/2	5	3/4	–	34758	34765
3/4	3-1/4	6	3/4	–	34723	34750
1	1-1/4	4	1	–	34724	34751
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	4-1/2	1	–	34725	34752
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	2	5	1	.190	35647	35737
1	2	5	1	.250	35648	35738
1	2-5/8	6	1	–	34726	34753
1	3-1/4	6	1	–	34727	34754
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
1	4-1/8	7	1	–	34835	34870



**43L •  
43LC**  
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
- Enhanced corner geometry with tight tolerance corner radii
- Recommended for materials  $\leq 150$  Bhn ( $\leq 7$  HRc)

CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	inch				EDP NO.	
			SHANK DIAMETER DCON	REACH LU	NECK DIAMETER DN	CORNER RADIUS RE	UNCOATED	Ti-NAMITE®-B (TiB <sub>2</sub> )
1/8	5/32	3	1/8	1/2	.105	—	32700	32725
1/8	5/32	3	1/8	1/2	.105	.010	32751	32815
1/8	5/32	3	1/8	3/4	.105	—	32691	34888
3/16	7/32	3	3/16	1/2	.167	—	32701	32726
3/16	7/32	3	3/16	1/2	.167	.010	32752	32816
3/16	7/32	3	3/16	3/4	.167	—	32692	34889
1/4	3/8	2-1/2	1/4	3/4	.230	.015	35787	36235
1/4	3/8	2-1/2	1/4	3/4	.230	.060	35788	36236
1/4	3/8	4	1/4	3/4	.230	—	32702	32727
1/4	3/8	4	1/4	3/4	.230	.010	32753	32817
1/4	3/8	4	1/4	3/4	.230	.030	32754	32818
1/4	3/8	4	1/4	1-1/2	.230	—	32703	32728
1/4	3/8	4	1/4	1-1/2	.230	.010	32755	32819
1/4	3/8	4	1/4	1-1/2	.230	.030	32756	32820
1/4	3/8	4	1/4	2-1/8	.230	—	32704	32729
1/4	3/8	4	1/4	2-1/8	.230	.010	32757	32821
1/4	3/8	4	1/4	2-1/8	.230	.030	32758	32822
5/16	7/16	4	5/16	1-1/8	.292	—	32705	32730
5/16	7/16	4	5/16	1-1/8	.292	.030	32759	32823
5/16	7/16	4	5/16	2-1/8	.292	—	32706	32731
5/16	7/16	4	5/16	2-1/8	.292	.030	32760	32824
3/8	1/2	3	3/8	1-1/8	.355	.015	35791	36239
3/8	1/2	3	3/8	1-1/8	.355	.090	35792	36240
3/8	1/2	4	3/8	1-1/8	.355	—	32707	32732
3/8	1/2	4	3/8	1-1/8	.355	.030	32762	32826
3/8	1/2	4	3/8	1-1/8	.355	.060	32763	32827
3/8	1/2	4	3/8	2-1/8	.355	—	32708	32733
3/8	1/2	4	3/8	2-1/8	.355	.030	32764	32828
3/8	1/2	4	3/8	2-1/8	.355	.060	32765	32829
1/2	5/8	3	1/2	1-3/8	.480	.015	35795	36243
1/2	5/8	4	1/2	1-3/8	.480	—	32709	32734
1/2	5/8	4	1/2	1-3/8	.480	.030	32767	32831
1/2	5/8	4	1/2	1-3/8	.480	.060	32768	32832
1/2	5/8	4	1/2	1-3/8	.480	.090	32769	32833
1/2	5/8	4	1/2	1-3/8	.480	.120	32770	32834
1/2	5/8	4	1/2	2-1/4	.480	.015	35796	36244

**TOLERANCES (inch)**

**1/8–3/16 DIAMETER**

DC = +0.0000/-0.00032  
DCON = h<sub>6</sub>  
RE = +0.0000/-0.0020

**1/4–3/8 DIAMETER**

DC = +0.0000/-0.00035  
DCON = h<sub>6</sub>  
RE = +0.0000/-0.0020

**1/2–5/8 DIAMETER**

DC = +0.0000/-0.00043  
DCON = h<sub>6</sub>  
RE = +0.0000/-0.0020

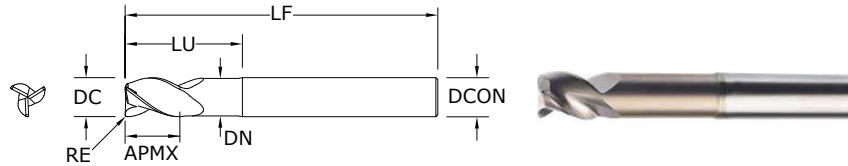
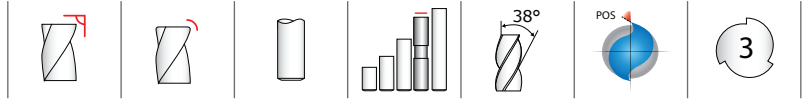
**3/4–1 DIAMETER**

DC = +0.0000/-0.00051  
DCON = h<sub>6</sub>  
RE = +0.0000/-0.0020

**NON-FERROUS**

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**43L •  
43LC**  
FRACTIONAL SERIES

CONTINUED

**TOLERANCES (inch)**

**1/8–3/16 DIAMETER**

DC = +0.0000/–0.00032

DCON = h<sub>6</sub>

RE = +0.0000/–0.0020

**1/4–3/8 DIAMETER**

DC = +0.0000/–0.00035

DCON = h<sub>6</sub>

RE = +0.0000/–0.0020

**1/2–5/8 DIAMETER**

DC = +0.0000/–0.00043

DCON = h<sub>6</sub>

RE = +0.0000/–0.0020

**3/4–1 DIAMETER**

DC = +0.0000/–0.00051

DCON = h<sub>6</sub>

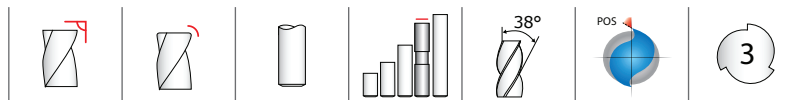
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**NON-FERROUS**

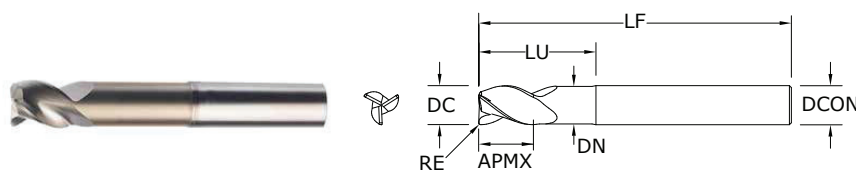
For patent information visit [www.ksptpatents.com](http://www.ksptpatents.com)

CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	inch				EDP NO.	
			SHANK DIAMETER DCON	REACH LU	NECK DIAMETER DN	CORNER RADIUS RE	UNCOATED	Ti-NAMITE®-B (TiB <sub>2</sub> )
1/2	5/8	6	1/2	2-1/8	.480	–	32710	32735
1/2	5/8	6	1/2	2-1/8	.480	.030	32771	32835
1/2	5/8	6	1/2	2-1/8	.480	.060	32772	32836
1/2	5/8	6	1/2	2-1/8	.480	.090	32773	32837
1/2	5/8	6	1/2	2-1/8	.480	.120	32774	32838
1/2	5/8	6	1/2	3-3/8	.480	–	32711	32736
1/2	5/8	6	1/2	3-3/8	.480	.030	32775	32839
1/2	5/8	6	1/2	3-3/8	.480	.060	32776	32840
1/2	5/8	6	1/2	3-3/8	.480	.090	32777	32841
1/2	5/8	6	1/2	3-3/8	.480	.120	32778	32842
1/2	5/8	6	1/2	4-1/4	.480	–	32697	34894
5/8	3/4	4	5/8	1-3/4	.605	–	32712	32737
5/8	3/4	4	5/8	1-3/4	.605	.030	32779	32843
5/8	3/4	4	5/8	1-3/4	.605	.060	32780	32844
5/8	3/4	4	5/8	1-3/4	.605	.090	32781	32845
5/8	3/4	4	5/8	1-3/4	.605	.120	32782	32846
5/8	3/4	4	5/8	2-3/8	.605	–	32713	32738
5/8	3/4	4	5/8	2-3/8	.605	.030	32783	32847
5/8	3/4	4	5/8	2-3/8	.605	.060	32784	32848
5/8	3/4	4	5/8	2-3/8	.605	.090	32785	32849
5/8	3/4	4	5/8	2-3/8	.605	.120	32786	32850
5/8	3/4	6	5/8	3-3/8	.605	–	32714	32739
5/8	3/4	6	5/8	3-3/8	.605	.030	32787	32851
5/8	3/4	6	5/8	3-3/8	.605	.060	32788	32852
5/8	3/4	6	5/8	3-3/8	.605	.090	32789	32853
5/8	3/4	6	5/8	3-3/8	.605	.120	32790	32854
5/8	3/4	6	5/8	4-3/8	.605	–	32698	34895
3/4	1	4	3/4	1-3/4	.730	–	32715	32740
3/4	1	4	3/4	1-3/4	.730	.030	32791	32855
3/4	1	4	3/4	1-3/4	.730	.060	32792	32856
3/4	1	4	3/4	1-3/4	.730	.090	32793	32857
3/4	1	4	3/4	1-3/4	.730	.120	32794	32858
3/4	1	4	3/4	2	.730	.190	35803	36251
3/4	1	4	3/4	2	.730	.250	35804	36252
3/4	1	6	3/4	2-3/8	.730	–	32716	32741
3/4	1	6	3/4	2-3/8	.730	.030	32795	32859

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**43L • 43LC**  
FRACTIONAL SERIES



CONTINUED

CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	inch				EDP NO.	
			SHANK DIAMETER DCON	REACH LU	NECK DIAMETER DN	CORNER RADIUS RE	UNCOATED	Ti-NAMITE®-B (TiB <sub>2</sub> )
3/4	1	6	3/4	2-3/8	.730	.060	32796	32860
3/4	1	6	3/4	2-3/8	.730	.090	32797	32861
3/4	1	6	3/4	2-3/8	.730	.120	32798	32862
3/4	1	6	3/4	3-3/8	.730	—	32717	32742
3/4	1	6	3/4	3-3/8	.730	.030	32799	32863
3/4	1	6	3/4	3-3/8	.730	.060	32800	32864
3/4	1	6	3/4	3-3/8	.730	.090	32801	32865
3/4	1	6	3/4	3-3/8	.730	.120	32802	32866
3/4	1	6	3/4	4-3/8	.730	—	32699	34896
1	1-1/4	5	1	2-5/8	.980	.190	35809	36257
1	1-1/4	5	1	2-5/8	.980	.250	35810	36258
1	1-1/4	6	1	2-3/8	.980	—	32718	32743
1	1-1/4	6	1	2-3/8	.980	.030	32803	32867
1	1-1/4	6	1	2-3/8	.980	.060	32804	32868
1	1-1/4	6	1	2-3/8	.980	.090	32805	32869
1	1-1/4	6	1	2-3/8	.980	.120	32806	32870
1	1-1/4	6	1	3-3/8	.980	—	32719	32744
1	1-1/4	6	1	3-3/8	.980	.030	32807	32871
1	1-1/4	6	1	3-3/8	.980	.060	32808	32872
1	1-1/4	6	1	3-3/8	.980	.090	32809	32873
1	1-1/4	6	1	3-3/8	.980	.120	32810	32874
1	1-1/4	6	1	3-3/8	.980	.190	35811	36259
1	1-1/4	6	1	3-3/8	.980	.250	35812	36260
1	1-1/4	7	1	4-3/8	.980	—	32720	32745

TOLERANCES (inch)

**1/8–3/16 DIAMETER**

DC = +0.0000/–0.00032

DCON = h<sub>6</sub>

RE = +0.0000/–0.0020

**1/4–3/8 DIAMETER**

DC = +0.0000/–0.00035

DCON = h<sub>6</sub>

RE = +0.0000/–0.0020

**1/2–5/8 DIAMETER**

DC = +0.0000/–0.00043

DCON = h<sub>6</sub>

RE = +0.0000/–0.0020

**3/4–1 DIAMETER**

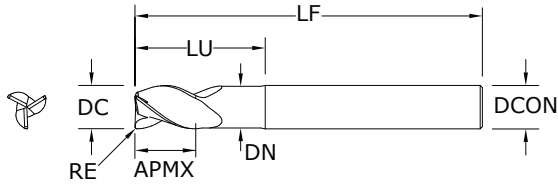
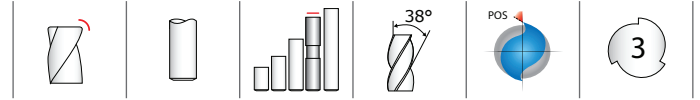
DC = +0.0000/–0.00051

DCON = h<sub>6</sub>

RE = +0.0000/–0.0020

NON-FERROUS

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**43EC**  
FRACTIONAL SERIES

**TOLERANCES (inch)**

**1/4–3/8 DIAMETER**

DC = +0.0000/–0.00035

DCON =  $h_6$

RE = +0.0000/–0.0020

**1/2–5/8 DIAMETER**

DC = +0.0000/–0.00043

DCON =  $h_6$

RE = +0.0000/–0.0020

**3/4–1 DIAMETER**

DC = +0.0000/–0.00051

DCON =  $h_6$

RE = +0.0000/–0.0020

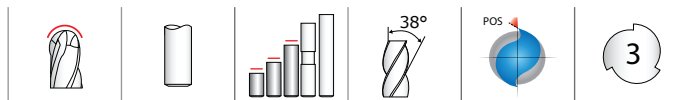
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For patent  
information visit  
[www.ksptpatents.com](http://www.ksptpatents.com)

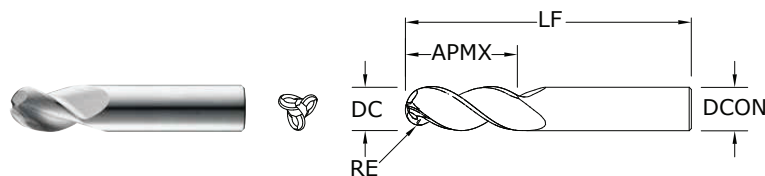
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	inch				EDP NO.	
			SHANK DIAMETER DCON	REACH LU	NECK DIAMETER DN	CORNER RADIUS RE	UNCOATED	Ti-NAMITE®-B (TiB <sub>2</sub> )
1/4	3/8	3	1/4	1-1/8	.230	.015	35789	36237
1/4	3/8	3	1/4	1-1/8	.230	.060	35790	36238
3/8	1/2	4	3/8	2-1/8	.355	.015	35793	36241
3/8	1/2	4	3/8	2-1/8	.355	.090	35794	36242
1/2	5/8	5	1/2	3-3/8	.480	.015	35797	36245
1/2	5/8	6	1/2	4-1/4	.480	.015	35798	36246
1/2	5/8	6	1/2	4-1/4	.480	.030	35799	36247
1/2	5/8	6	1/2	4-1/4	.480	.060	35800	36248
1/2	5/8	6	1/2	4-1/4	.480	.090	35801	36249
1/2	5/8	6	1/2	4-1/4	.480	.120	35802	36250
3/4	1	6	3/4	3-3/8	.730	.190	35805	36253
3/4	1	6	3/4	3-3/8	.730	.250	35806	36254
1	1-1/4	7	1	4-3/8	.980	.030	35813	36261
1	1-1/4	7	1	4-3/8	.980	.060	35814	36262
1	1-1/4	7	1	4-3/8	.980	.090	35815	36263
1	1-1/4	7	1	4-3/8	.980	.120	35816	36264
1	1-1/4	7	1	4-3/8	.980	.190	35817	36265
1	1-1/4	7	1	4-3/8	.980	.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 end design ideal for finishing operations in complex workpieces
- Recommended for materials  $\leq 150$  Bhn ( $\leq 7$  HRc)

CUTTING DIAMETER DC	inch			EDP NO.	
	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	UNCOATED	Ti-NAMITE®-B (TiB <sub>2</sub> )
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

RE = 1/2 Cutting Diameter (DC)

**TOLERANCES (inch)**

**1/4–3/8 DIAMETER**

DC = +0.0000/–0.00035

DCON = h<sub>6</sub>

RE = +0.0005/–0.0005

**1/2–5/8 DIAMETER**

DC = +0.0000/–0.00043

DCON = h<sub>6</sub>

RE = +0.0005/–0.0005

**3/4–1 DIAMETER**

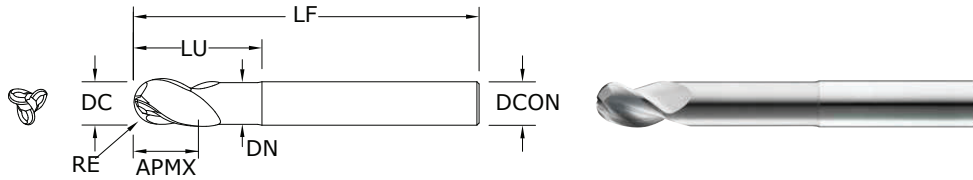
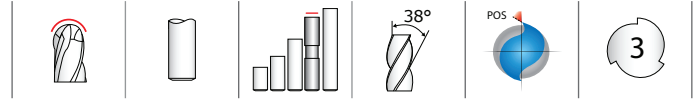
DC = +0.0000/–0.00051

DCON = h<sub>6</sub>

RE = +0.0005/–0.0005

**NON-FERROUS**

For patent information visit  
[www.ksptpatents.com](http://www.ksptpatents.com)



## 43LB FRACTIONAL SERIES

### TOLERANCES (inch)

#### 1/4–3/8 DIAMETER

DC = +0.0000/-0.00035

DCON =  $h_6$

RE = +0.0005/-0.0005

#### 1/2–5/8 DIAMETER

DC = +0.0000/-0.00043

DCON =  $h_6$

RE = +0.0005/-0.0005

#### 3/4–1 DIAMETER

DC = +0.0000/-0.00051

DCON =  $h_6$

RE = +0.0005/-0.0005

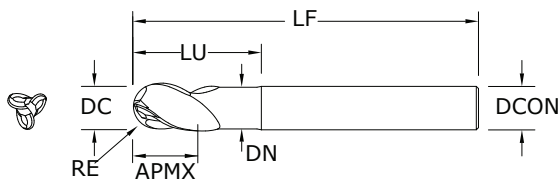
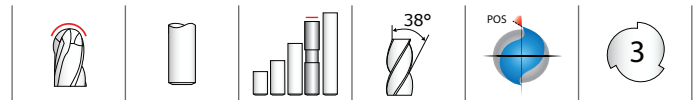
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	REACH LU	NECK DIAMETER DN	EDP NO.	
						UNCOATED	Ti-NAMITE®-B (TiB <sub>2</sub> )
1/4	3/8	2-1/2	1/4	3/4	.230	34941	35005
3/8	1/2	3	3/8	1-1/8	.355	34943	35007
1/2	5/8	3	1/2	1-3/8	.480	34945	35009
1/2	5/8	4	1/2	2-1/4	.480	34946	35010
5/8	3/4	4	5/8	1-5/8	.605	34949	35013
3/4	1	4	3/4	2	.730	34951	35015
1	1-1/4	5	1	2-5/8	.980	34954	35018
1	1-1/4	6	1	3-3/8	.980	34955	35019

RE = 1/2 Cutting Diameter (DC)

- 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 end design ideal for finishing operations in complex workpieces
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)

NON-FERROUS

For patent information visit [www.ksptpatents.com](http://www.ksptpatents.com)



## 43EB FRACTIONAL SERIES

### TOLERANCES (inch)

#### 1/4–3/8 DIAMETER

DC = +0.0000/-0.00035

DCON =  $h_6$

RE = +0.0005/-0.0005

#### 1/2–5/8 DIAMETER

DC = +0.0000/-0.00043

DCON =  $h_6$

RE = +0.0005/-0.0005

#### 3/4–1 DIAMETER

DC = +0.0000/-0.00051

DCON =  $h_6$

RE = +0.0005/-0.0005

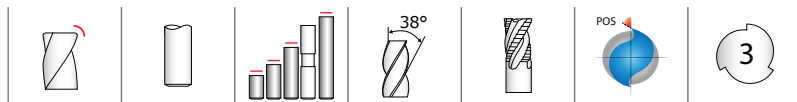
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	REACH LU	NECK DIAMETER DN	EDP NO.	
						UNCOATED	Ti-NAMITE®-B (TiB <sub>2</sub> )
1/4	3/8	3	1/4	1-1/8	.230	34942	35006
3/8	1/2	4	3/8	2-1/8	.355	34944	35008
1/2	5/8	5	1/2	3-3/8	.480	34947	35011
1/2	5/8	6	1/2	4-1/4	.480	34948	35012
5/8	3/4	6	5/8	3-3/8	.605	34950	35014
3/4	1	6	3/4	3-3/8	.730	34952	35016
1	1-1/4	7	1	4-3/8	.980	34956	35020

RE = 1/2 Cutting Diameter (DC)

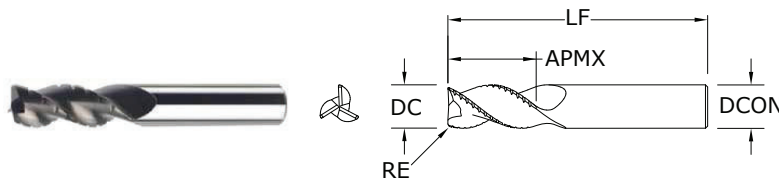
- Circular land allows for increased control at various speed and feed rates and reduces chatter
- Open fluting for deep slotting and profiling
- Necked design with blended diameter transitions provide clearance to reach
- Ball end design ideal for finishing operations in complex workpieces
- Recommended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

NON-FERROUS

For patent information visit [www.ksptpatents.com](http://www.ksptpatents.com)



**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  $\leq 150$  Bhn ( $\leq 7$  HRC)

CUTTING DIAMETER DC	LENGTH OF CUT APMX	inch			EDP NO.	
		OVERALL LENGTH LF	SHANK DIAMETER DCON	CORNER RADIUS RE	UNCOATED	Ti-NAMITE®-B (TiB <sub>2</sub> )
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	34300	34305
3/8	1-1/4	3-1/2	3/8	.020	33402	33462
3/8	1-1/2	4	3/8	.020	33403	33463
3/8	2	4	3/8	.020	33404	33464
1/2	5/8	3	1/2	.030	33406	33466
1/2	1	3	1/2	.030	33407	33467
1/2	1-1/4	3-1/4	1/2	.030	34301	34306
1/2	1-5/8	4	1/2	.030	33408	33468
1/2	2	4	1/2	.030	33409	33469
1/2	2-1/2	5	1/2	.030	33410	33470
1/2	3-1/8	6	1/2	.030	33411	33471
5/8	3/4	3-1/2	5/8	.030	33412	33472
5/8	1-5/8	3-3/4	5/8	.030	34302	34307
5/8	2-1/8	4	5/8	.030	33413	33473
5/8	3-1/4	6	5/8	.030	33415	33475
5/8	3-3/4	6	5/8	.030	33416	33476
3/4	1	4	3/4	.030	33417	33477
3/4	1-5/8	4	3/4	.030	34303	34308
3/4	2-1/4	5	3/4	.030	33418	33478
3/4	3-1/4	6	3/4	.030	33419	33479
3/4	4	6	3/4	.030	33420	33480
1	1-1/4	5	1	.030	33421	33481
1	2	4-1/2	1	.030	34304	34309
1	2-5/8	6	1	.030	33422	33482
1	3-1/4	6	1	.030	33423	33483
1	4-1/8	7	1	.030	33424	33484

**TOLERANCES (inch)**

**1/4–3/8 DIAMETER**

DC = +0.0000/–0.00035

DCON = h<sub>6</sub>

RE = +0.0000/–0.0020

**1/2–5/8 DIAMETER**

DC = +0.0000/–0.00043

DCON = h<sub>6</sub>

RE = +0.0000/–0.0020

**3/4–1 DIAMETER**

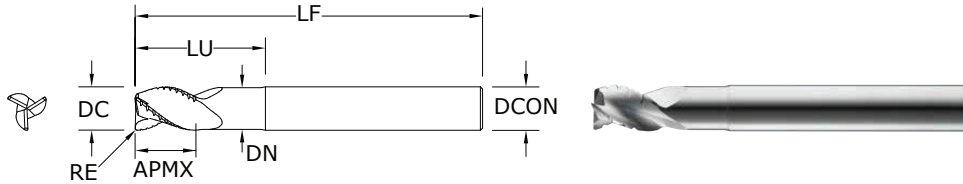
DC = +0.0000/–0.00051

DCON = h<sub>6</sub>

RE = +0.0000/–0.0020

**NON-FERROUS**

For patent information visit  
[www.ksptpatents.com](http://www.ksptpatents.com)



**43LCB**  
FRACTIONAL SERIES

**TOLERANCES (inch)**

**1/4–3/8 DIAMETER**

DC = +0.0000/-0.00035

DCON = h<sub>6</sub>

RE = +0.0000/-0.0020

**1/2–5/8 DIAMETER**

DC = +0.0000/-0.00043

DCON = h<sub>6</sub>

RE = +0.0000/-0.0020

**3/4–1 DIAMETER**

DC = +0.0000/-0.00051

DCON = h<sub>6</sub>

RE = +0.0000/-0.0020

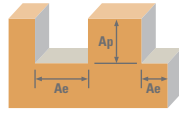
**NON-FERROUS**

For patent information visit [www.ksptpatents.com](http://www.ksptpatents.com)

CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	inch				EDP NO.	
			SHANK DIAMETER DCON	REACH LU	NECK DIAMETER DN	CORNER RADIUS RE	UNCOATED	Ti-NAMITE®-B (TiB <sub>2</sub> )
1/4	3/8	4	1/4	3/4	.230	.020	33500	33540
1/4	3/8	4	1/4	1-1/8	.230	.020	33501	33541
1/4	3/8	4	1/4	2-1/8	.230	.020	33502	33542
5/16	7/16	4	5/16	1-1/8	.292	.020	33503	33543
5/16	7/16	4	5/16	2-1/8	.292	.020	33504	33544
3/8	1/2	4	3/8	1-1/8	.355	.020	33507	33547
3/8	1/2	4	3/8	2-1/8	.355	.020	33508	33548
1/2	5/8	4	1/2	1-3/8	.480	.030	33511	33551
1/2	5/8	4	1/2	2-1/4	.480	.030	—	33552
1/2	5/8	6	1/2	3-3/8	.480	.030	33513	33553
1/2	5/8	6	1/2	4-1/4	.480	.030	33514	33554
5/8	3/4	4	5/8	1-5/8	.605	.030	33515	33555
5/8	3/4	6	5/8	2-3/8	.605	.030	33516	33556
5/8	3/4	6	5/8	3-3/8	.605	.030	33517	33557
5/8	3/4	6	5/8	4-3/8	.605	.030	33518	33558
3/4	1	4	3/4	2	.730	.030	33519	33559
3/4	1	6	3/4	2-1/2	.730	.030	33520	33560
3/4	1	6	3/4	3-3/8	.730	.030	33521	33561
3/4	1	6	3/4	4-3/8	.730	.030	33522	33562
1	1-1/4	6	1	2-5/8	.980	.030	33523	33563
1	1-1/4	6	1	3-3/8	.980	.030	33524	33564
1	1-1/4	7	1	4-3/8	.980	.030	33525	33565

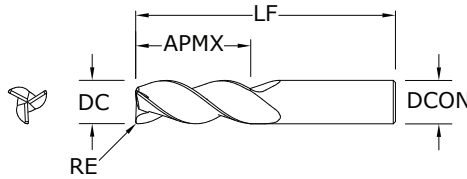
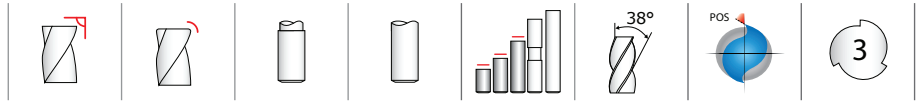
- Circular land allows for increased control at various speed and feed rates and reduces chatter
- Symmetrical end gashing for excellent balance at high speeds and aggressive plunging capability
- Chip breakers reduce machine loads up to 15% for increased roughing feed rate capability
- Open fluting 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



Material	Hardness	Ae x DC	Ap x DC	Vc (sfm)	DC • in							
					1/8	1/4	3/8	1/2	5/8	3/4	1	
ALUMINUM ALLOYS 2024, 5052, 5086, 6061, 6073, 7075	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)	132	183	220	220	191	171	156
	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)	165	229	275	275	238	214	195
	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)	635	832	1059	1059	908	832	737
ALUMINUM DIE CAST ALLOYS (HIGH SILICONE) A-390, A-392, B- 390	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)	50	69	83	83	72	64	58
	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)	62	86	103	103	89	80	73
	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)	239	313	398	398	341	313	277
COPPER ALLOYS Aluminum Bronze Brass Naval Brass Red Brass	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)	63	79	106	99	87	79	69
	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)	79	99	132	124	109	99	87
	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)	277	367	462	469	408	381	326
COPPER ALLOYS Beryllium Copper C110, Malleable Bronze, Tin Bronze	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)	25	32	42	40	35	32	28
	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)	32	39	53	49	43	39	34
	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)	111	146	184	187	163	152	130
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)	220	293	367	367	323	293	257
	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)	275	367	458	458	403	367	321
	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)	1029	1361	1714	1740	1513	1387	1210

Bhn (Brinell)    HRc (Rockwell C)    HRb (Rockwell B)    HSM (High Speed Machining)  
 rpm = Vc x 3.82 / DC  
 ipm = 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 DC maximum)  
 refer to the SGS Tool Wizard® for complete technical information ([www.kyocera-sgstool.com](http://www.kyocera-sgstool.com))



**43M •  
43MCR**  
METRIC SERIES

**TOLERANCES (mm)**

**≤6 DIAMETER**

DC = +0,000/-0,008

DCON = h<sub>6</sub>

RE = +0,000/-0,050

**>6–10 DIAMETER**

DC = +0,000/-0,009

DCON = h<sub>6</sub>

RE = +0,000/-0,050

**>10–18 DIAMETER**

DC = +0,000/-0,011

DCON = h<sub>6</sub>

RE = +0,000/-0,050

**>18–20 DIAMETER**

DC = +0,000/-0,013

DCON = h<sub>6</sub>

RE = +0,000/-0,050

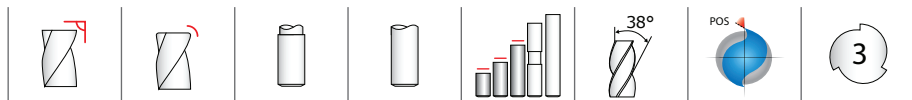
**NON-FERROUS**

For patent information visit  
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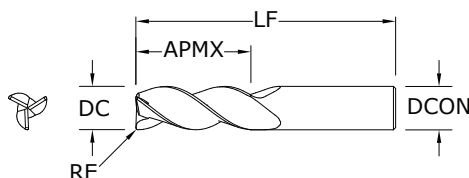
CUTTING DIAMETER DC	LENGTH OF CUT APMX	mm			CORNER RADIUS RE	EDP NO.	
		OVERALL LENGTH LF	SHANK DIAMETER DCON	UNCOATED		Ti-NAMITE®-B (TiB <sub>2</sub> )	
3,0	8,0	52,0	6,0	—	—	44890	
4,0	11,0	55,0	6,0	—	—	44891	
5,0	13,0	57,0	6,0	—	—	44892	
6,0	13,0	57,0	6,0	—	44701	44715	
6,0	13,0	57,0	6,0	1,5	—	44732	
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	—	44702	44716	
6,0	13,0	72,0	6,0	0,8	—	44842	
6,0	13,0	72,0	6,0	1,2	—	44843	
6,0	24,0	75,0	6,0	—	—	44893	
6,0	24,0	75,0	6,0	0,5	—	44844	
6,0	24,0	75,0	6,0	1,0	—	44845	
8,0	19,0	63,0	8,0	—	44703	44717	
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	
8,0	32,0	75,0	8,0	—	—	44895	
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	22,0	72,0	10,0	—	44705	44719	
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	
10,0	40,0	100,0	10,0	—	—	44896	
10,0	40,0	100,0	10,0	0,5	—	44858	

continued on next page

- 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)



**43M •  
43MCR**  
METRIC SERIES



CONTINUED

CUTTING DIAMETER DC	LENGTH OF CUT APMX	mm			EDP NO.	
		OVERALL LENGTH LF	SHANK DIAMETER DCON	CORNER RADIUS RE	UNCOATED	Ti-NAMITE®-B (TiB <sub>2</sub> )
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	26,0	83,0	12,0	—	44708	44722
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
12,0	48,0	100,0	12,0	—	—	44897
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
14,0	30,0	89,0	14,0	—	—	44898
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	—	44711	44725
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
16,0	32,0	92,0	16,0	4,0	—	44871
16,0	64,0	125,0	16,0	—	—	44900
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

continued on next page

**TOLERANCES (mm)**

**≤6 DIAMETER**

DC = +0,000/−0,008

DCON = h<sub>6</sub>

RE = +0,000/−0,050

**>6–10 DIAMETER**

DC = +0,000/−0,009

DCON = h<sub>6</sub>

RE = +0,000/−0,050

**>10–18 DIAMETER**

DC = +0,000/−0,011

DCON = h<sub>6</sub>

RE = +0,000/−0,050

**>18–20 DIAMETER**

DC = +0,000/−0,013

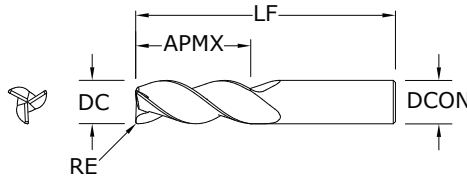
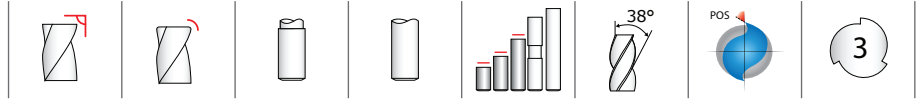
DCON = h<sub>6</sub>

RE = +0,000/−0,050

**NON-FERROUS**

For patent information visit

[www.ksptpatents.com](http://www.ksptpatents.com)

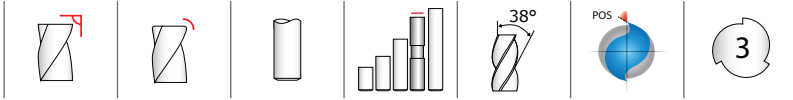


**43M •  
43MCR**  
METRIC SERIES

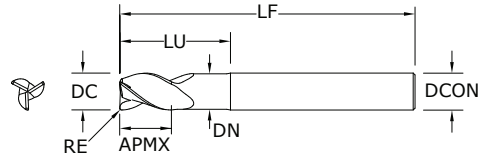
CUTTING DIAMETER DC	LENGTH OF CUT APMX	mm			EDP NO.	
		OVERALL LENGTH LF	SHANK DIAMETER DCON	CORNER RADIUS RE	UNCOATED	Ti-NAMITE®-B (TiB <sub>2</sub> )
16,0	64,0	125,0	16,0	4,0	—	44878
20,0	38,0	104,0	20,0	—	44714	44728
20,0	38,0	104,0	20,0	2,0	44822	44830
20,0	38,0	104,0	20,0	2,5	44823	44831
20,0	38,0	104,0	20,0	3,0	44824	44737
20,0	38,0	104,0	20,0	4,0	—	44879
20,0	80,0	150,0	20,0	—	—	44901
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
25,0	50,0	125,0	25,0	—	—	44731

CONTINUED





**43ML •  
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  $\leq 150$  Bhn ( $\leq 7$  HRc)

CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	mm				EDP NO.	
			SHANK DIAMETER DCON	REACH LU	NECK DIAMETER DN	CORNER RADIUS RE	UNCOATED	Ti-NAMITE®-B (TiB <sub>2</sub> )
6,0	10,0	63,0	6,0	20,0	5,49	0,5	44769	44789
6,0	10,0	63,0	6,0	20,0	5,49	1,0	44770	44790
6,0	10,0	75,0	6,0	20,0	5,49	–	–	42706
6,0	13,0	72,0	6,0	30,0	5,49	0,5	44771	44791
6,0	13,0	72,0	6,0	30,0	5,49	1,0	44772	44792
8,0	12,0	75,0	8,0	25,0	7,49	–	–	42707
8,0	12,0	75,0	8,0	25,0	7,49	0,3	44773	44793
8,0	12,0	75,0	8,0	25,0	7,49	0,5	44774	44794
8,0	12,0	75,0	8,0	25,0	7,49	0,8	–	44950
8,0	12,0	75,0	8,0	25,0	7,49	1,0	44775	44795
8,0	12,0	75,0	8,0	25,0	7,49	1,2	–	44951
8,0	12,0	75,0	8,0	25,0	7,49	1,5	44776	44796
8,0	12,0	75,0	8,0	25,0	7,49	1,6	–	44952
10,0	14,0	100,0	10,0	35,0	9,48	–	–	42708
10,0	14,0	100,0	10,0	35,0	9,48	0,3	44777	44797
10,0	14,0	100,0	10,0	35,0	9,48	0,5	44778	44798
10,0	14,0	100,0	10,0	35,0	9,48	1,0	44779	44799
10,0	14,0	100,0	10,0	35,0	9,48	1,5	44780	44800
10,0	14,0	100,0	10,0	35,0	9,50	0,8	–	44953
10,0	14,0	100,0	10,0	35,0	9,50	1,2	–	44954
10,0	14,0	100,0	10,0	35,0	9,50	1,6	–	44955
10,0	14,0	100,0	10,0	35,0	9,50	2,4	–	44956
12,0	16,0	100,0	12,0	40,0	11,48	–	–	42709
12,0	16,0	100,0	12,0	40,0	11,48	0,5	44781	44801
12,0	16,0	100,0	12,0	40,0	11,48	0,8	–	44957
12,0	16,0	100,0	12,0	40,0	11,48	1,0	44782	44802
12,0	16,0	100,0	12,0	40,0	11,48	1,2	–	44958
12,0	16,0	100,0	12,0	40,0	11,48	1,5	44783	44803
12,0	16,0	100,0	12,0	40,0	11,48	1,6	–	44959
12,0	16,0	100,0	12,0	40,0	11,48	2,0	44784	44804
12,0	16,0	100,0	12,0	40,0	11,48	2,4	–	44960
12,0	16,0	100,0	12,0	40,0	11,48	2,5	44832	44839
12,0	16,0	100,0	12,0	40,0	11,48	3,0	44833	44738
12,0	16,0	100,0	12,0	40,0	11,48	4,0	44834	44741

**TOLERANCES (mm)**

**6 DIAMETER**

DC = +0,000/–0,008  
DCON = h<sub>6</sub>

**>6–10 DIAMETER**

DC = +0,000/–0,009  
DCON = h<sub>6</sub>  
RE = +0,000/–0,050

**>10–18 DIAMETER**

DC = +0,000/–0,011  
DCON = h<sub>6</sub>  
RE = +0,000/–0,050

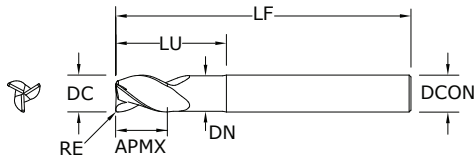
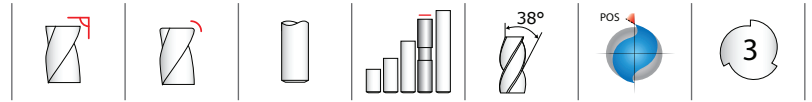
**>18–20 DIAMETER**

DC = +0,000/–0,013  
DCON = h<sub>6</sub>  
RE = +0,000/–0,050

**NON-FERROUS**

For patent information visit  
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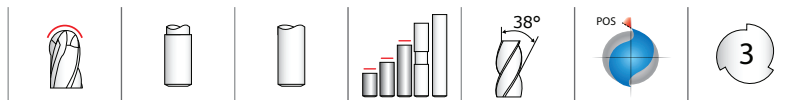
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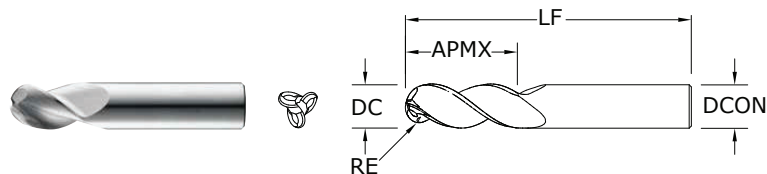
**43ML •  
43MLC**  
METRIC SERIES

CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	mm				EDP NO.	
			SHANK DIAMETER DCON	REACH LU	NECK DIAMETER DN	CORNER RADIUS RE	UNCOATED	Ti-NAMITE®-B (TiB <sub>2</sub> )
14,0	18,0	125,0	14,0	45,0	13,49	–	–	44899
14,0	18,0	125,0	14,0	45,0	13,49	1,0	–	44961
14,0	18,0	125,0	14,0	45,0	13,49	2,0	–	44962
14,0	18,0	125,0	14,0	45,0	13,49	3,0	–	44963
14,0	18,0	125,0	14,0	45,0	13,49	4,0	–	44964
16,0	20,0	125,0	16,0	50,0	15,47	–	–	42710
16,0	20,0	125,0	16,0	50,0	15,47	2,0	44785	44805
16,0	20,0	125,0	16,0	50,0	15,47	2,5	44835	44840
16,0	20,0	125,0	16,0	50,0	15,47	3,0	44836	44739
16,0	20,0	125,0	16,0	50,0	15,47	4,0	44786	44806
16,0	20,0	125,0	16,0	50,0	15,49	0,8	–	44965
16,0	20,0	125,0	16,0	50,0	15,49	1,2	–	44966
16,0	20,0	125,0	16,0	50,0	15,49	1,6	–	44967
16,0	20,0	125,0	16,0	50,0	15,49	2,4	–	44968
16,0	20,0	125,0	16,0	50,0	15,49	3,2	–	44969
20,0	25,0	150,0	20,0	65,0	19,46	–	–	42711
20,0	25,0	150,0	20,0	65,0	19,46	2,0	44787	44807
20,0	25,0	150,0	20,0	65,0	19,46	2,4	–	44973
20,0	25,0	150,0	20,0	65,0	19,46	2,5	44837	44841
20,0	25,0	150,0	20,0	65,0	19,46	3,0	44838	44740
20,0	25,0	150,0	20,0	65,0	19,46	4,0	44788	44808
20,0	25,0	150,0	20,0	65,0	19,48	0,8	–	44970
20,0	25,0	150,0	20,0	65,0	19,48	1,2	–	44971
20,0	25,0	150,0	20,0	65,0	19,48	1,6	–	44972
20,0	25,0	150,0	20,0	65,0	19,48	3,2	–	44974

CONTINUED



**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
- Ball end design ideal for finishing operations in complex workpieces
- Recommended for materials  $\leq 150$  Bhn ( $\leq 7$  HRc)

mm				EDP NO.
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	Ti-NAMITE®-B (TiB <sub>2</sub> )
3,0	4,5	57,0	6,0	44916
4,0	6,0	57,0	6,0	44919
5,0	7,5	57,0	6,0	44922
6,0	9,0	57,0	6,0	44925
8,0	12,0	63,0	8,0	44928
10,0	15,0	75,0	10,0	44931
12,0	18,0	83,0	12,0	44934
16,0	24,0	100,0	16,0	44937
20,0	30,0	108,0	20,0	44940
25,0	37,5	127,0	25,0	44943

RE = 1/2 Cutting Diameter (DC)

**TOLERANCES (mm)**

**3 DIAMETER**

DC = +0,000/-0,006

DCON = h<sub>6</sub>

RE = +0,0127/-0,0127

**>3-6 DIAMETER**

DC = +0,000/-0,008

DCON = h<sub>6</sub>

RE = +0,0127/-0,0127

**>6-10 DIAMETER**

DC = +0,000/-0,009

DCON = h<sub>6</sub>

RE = +0,0127/-0,0127

**>10-18 DIAMETER**

DC = +0,000/-0,011

DCON = h<sub>6</sub>

RE = +0,0127/-0,0127

**>18-25 DIAMETER**

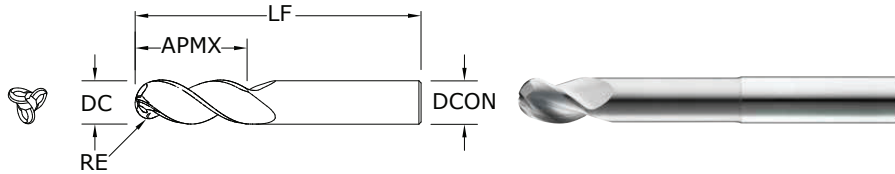
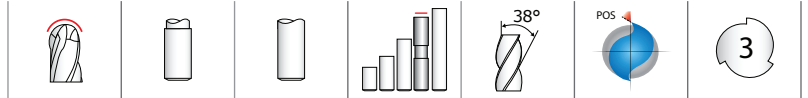
DC = +0,000/-0,013

DCON = h<sub>6</sub>

RE = +0,0127/-0,0127

NON-FERROUS

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**43MB**  
METRIC SERIES

**TOLERANCES (mm)**

**3 DIAMETER**

DC = +0,000/-0,006

DCON = h<sub>6</sub>

RE = +0,0127/-0,0127

**>3-6 DIAMETER**

DC = +0,000/-0,008

DCON = h<sub>6</sub>

RE = +0,0127/-0,0127

**>6-10 DIAMETER**

DC = +0,000/-0,009

DCON = h<sub>6</sub>

RE = +0,0127/-0,0127

**>10-18 DIAMETER**

DC = +0,000/-0,011

DCON = h<sub>6</sub>

RE = +0,0127/-0,0127

**>18-25 DIAMETER**

DC = +0,000/-0,013

DCON = h<sub>6</sub>

RE = +0,0127/-0,0127

**NON-FERROUS**

For patent information visit  
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mm							EDP NO.
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	REACH LU	NECK DIAMETER DN	Ti-NAMITE®-B (TiB <sub>2</sub> )	
3,0	6,0	57,0	6,0	10,0	2,74	44917	
3,0	9,0	57,0	6,0	16,0	2,74	44918	
4,0	8,0	57,0	6,0	13,0	3,73	44920	
4,0	12,0	57,0	6,0	21,0	3,73	44921	
5,0	10,0	63,0	6,0	16,0	4,50	44923	
5,0	15,0	63,0	6,0	26,0	4,50	44924	
6,0	12,0	63,0	6,0	19,0	5,49	44926	
6,0	18,0	75,0	6,0	31,0	5,49	44927	
8,0	16,0	75,0	8,0	25,0	7,49	44929	
8,0	24,0	83,0	8,0	41,0	7,49	44930	
10,0	20,0	83,0	10,0	31,0	9,50	44932	
10,0	30,0	100,0	10,0	51,0	9,50	44933	
12,0	24,0	100,0	12,0	37,0	11,48	44935	
12,0	36,0	130,0	12,0	61,0	11,48	44936	
16,0	32,0	130,0	16,0	49,0	15,49	44938	
16,0	48,0	150,0	16,0	81,0	15,49	44939	
20,0	40,0	130,0	20,0	61,0	19,48	44941	
20,0	60,0	150,0	20,0	101,0	19,48	44942	
25,0	50,0	152,0	25,0	76,0	24,49	44944	
25,0	75,0	170,0	25,0	126,0	24,49	44945	

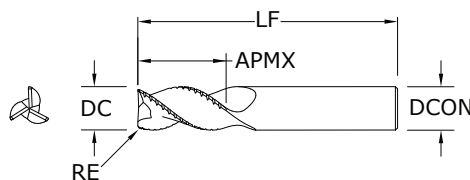
RE = 1/2 Cutting Diameter (DC)

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



## 43MCB

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
- Chip breakers reduce machine loads up to 15% for increased roughing feed rate capability
- Open fluting for deep slotting and profiling
- Recommended for materials  $\leq 150$  Bhn ( $\leq 7$  HRC)

CUTTING DIAMETER DC	LENGTH OF CUT APMX	mm			EDP NO.	
		OVERALL LENGTH LF	SHANK DIAMETER DCON	CORNER RADIUS RE	UNCOATED	Ti-NAMITE®-B (TiB <sub>2</sub> )
6,0	19,0	63,0	6,0	0,5	44298	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

### TOLERANCES (mm)

#### >6–10 DIAMETER

DC = +0,000/–0,009

DCON = h<sub>6</sub>

RE = +0,000/–0,050

#### >10–18 DIAMETER

DC = +0,000/–0,011

DCON = h<sub>6</sub>

RE = +0,000/–0,050

#### >18–20 DIAMETER

DC = +0,000/–0,013

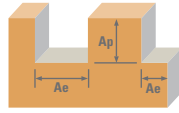
DCON = h<sub>6</sub>






RE = +0,000/–0,050

NON-FERROUS

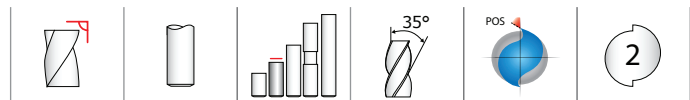
For patent information visit  
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Series  
43M, 43MB, 43MCR,  
43ML, 43MLC,  
43MCB  
Metric



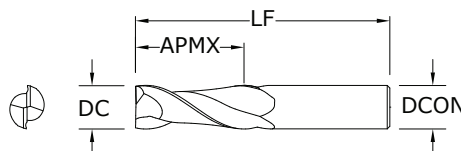
Metric	Hardness	Ae x DC	Ap x DC	Vc (m/min)	DC • mm								
					3	6	10	12	16	20	25		
<b>ALUMINUM ALLOYS</b> 2024, 5052, 5086, 6061, 6073, 7075	≤ 150 Bhn or ≤ 88 HRb	Slot 	1	≤ 1	490	RPM	52022	26011	15607	13005	9754	7803	6243
					(392-588)	Fz	0.022	0.060	0.120	0.144	0.166	0.187	0.213
						Feed (mm/min)	3371	4682	5618	5618	4869	4370	3980
		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)	4196	5828	6994	6994	6061	5440	4955
		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)	16131	21124	26888	26885	23046	21126	18726
<b>ALUMINUM DIE CAST ALLOYS (HIGH SILICONE)</b> 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)	1273	1768	2121	2121	1838	1650	1503
		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)	1582	2197	2637	2637	2285	2051	1868
		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)	6099	7987	10166	10166	8714	7988	7081
<b>COPPER ALLOYS</b> 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)	1620	2025	2701	2532	2228	2026	1773
		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)	2018	2522	3363	3153	2775	2523	2207
		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)	7082	9373	11804	11976	10415	9721	8332
<b>COPPER ALLOYS</b> 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)	642	803	1070	1003	883	803	702
		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)	795	994	1325	1242	1093	994	870
		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)	2794	3697	4656	4725	4109	3835	3287
<b>PLASTICS</b> 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)	5618	7490	9364	9363	8240	7491	6555
		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)	6994	9325	11657	11656	10258	9326	8160
		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)	26117	34567	43532	44169	38410	35210	30730

Bhn (Brinell)    HRc (Rockwell C)    HRb (Rockwell B)    HSM (High Speed Machining)  
 $rpm = (Vc \times 1000) / (DC \times 3.14)$   
 $mm/min = Fz \times 3 \times rpm$   
 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 DC maximum)  
 refer to the SGS Tool Wizard® for complete technical information ([www.kyocera-sgstoool.com](http://www.kyocera-sgstoool.com))



# 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  $\leq 150$  Bhn ( $\leq 7$  HRc)

CUTTING DIAMETER DC	inch			EDP NO.	
	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	UNCOATED	Ti-NAMITE®-B (TiB <sub>2</sub> )
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

### TOLERANCES (inch)

#### 1/8–3/16 DIAMETER

DC = +0.0000/–0.00032  
DCON = h<sub>6</sub>

#### 1/4–3/8 DIAMETER

DC = +0.0000/–0.00035  
DCON = h<sub>6</sub>

#### 1/2–5/8 DIAMETER

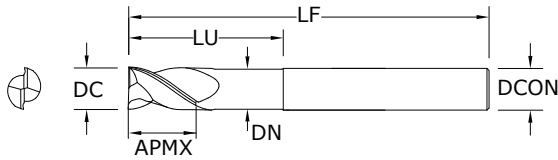
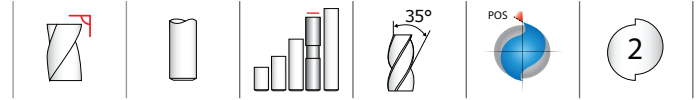
DC = +0.0000/–0.00043  
DCON = h<sub>6</sub>

#### 3/4–1 DIAMETER

DC = +0.0000/–0.00051  
DCON = h<sub>6</sub>

**NON-FERROUS**

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[www.ksptpatents.com](http://www.ksptpatents.com)



**47L**  
FRACTIONAL SERIES

**TOLERANCES (inch)**

**1/4–3/8 DIAMETER**

DC = +0.0000/–0.00035

DCON =  $h_6$

**1/2–5/8 DIAMETER**

DC = +0.0000/–0.00043

DCON =  $h_6$

**3/4–1 DIAMETER**

DC = +0.0000/–0.00051

DCON =  $h_6$

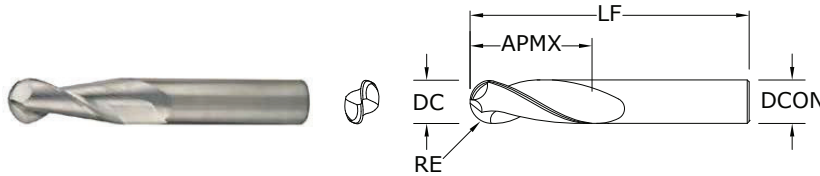
**NON-FERROUS**

For patent information visit [www.ksptpatents.com](http://www.ksptpatents.com)

CUTTING DIAMETER DC	LENGTH OF CUT APMX	inch				NECK DIAMETER DN	EDP NO.	
		OVERALL LENGTH LF	SHANK DIAMETER DCON	REACH LU	UNCOATED		Ti-NAMITE®-B (TiB <sub>2</sub> )	
1/4	3/8	4	1/4	2-1/8	.235	34640	34678	
3/8	1/2	4	3/8	2-1/8	.360	34641	34679	
1/2	5/8	6	1/2	2-1/8	.485	34642	34680	
1/2	5/8	6	1/2	3-3/8	.485	34643	34681	
5/8	3/4	6	5/8	2-3/8	.610	34644	34682	
5/8	3/4	6	5/8	3-3/8	.610	34645	34683	
3/4	1	6	3/4	2-1/2	.735	34646	34684	
3/4	1	6	3/4	3-3/8	.735	34647	34685	

- 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 end design ideal for finishing operations in complex workpieces
- Recommended for materials  $\leq 150$  Bhn ( $\leq 7$  HRc)

inch				EDP NO.	
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	UNCOATED	Ti-NAMITE®-B (TiB <sub>2</sub> )
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

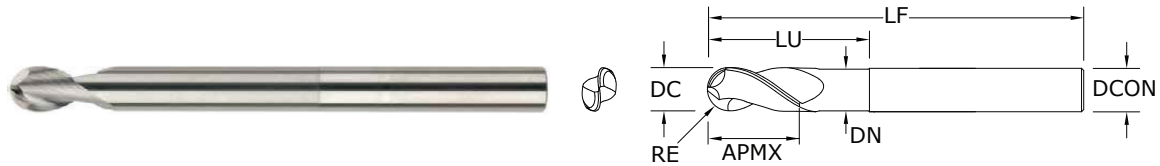
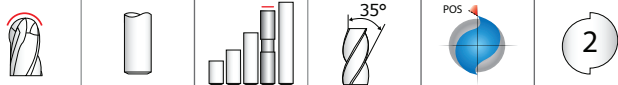
RE = 1/2 Cutting Diameter (DC)

**TOLERANCES (inch)**

- 1/8–3/16 DIAMETER**  
DC = +0.0000/–0.00032  
DCON = h<sub>6</sub>  
RE = +.0005/–.0005
- 1/4–3/8 DIAMETER**  
DC = +0.0000/–0.00035  
DCON = h<sub>6</sub>  
RE = +.0005/–.0005
- 1/2–5/8 DIAMETER**  
DC = +0.0000/–0.00043  
DCON = h<sub>6</sub>  
RE = +.0005/–.0005
- 3/4–1 DIAMETER**  
DC = +0.0000/–0.00051  
DCON = h<sub>6</sub>  
RE = +.0005/–.0005

NON-FERROUS

For patent information visit [www.ksptpatents.com](http://www.ksptpatents.com)



**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 end design ideal for finishing operations in complex workpieces
- Recommended for materials  $\leq 150$  Bhn ( $\leq 7$  HRc)

inch						EDP NO.	
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	REACH LU	NECK DIAMETER DN	UNCOATED	Ti-NAMITE®-B (TiB <sub>2</sub> )
1/4	3/8	4	1/4	2-1/8	.235	34650	34686
3/8	1/2	4	3/8	2-1/8	.360	34651	34687
1/2	5/8	6	1/2	2-1/8	.485	34652	34688
1/2	5/8	6	1/2	3-3/8	.485	34653	34689
5/8	3/4	6	5/8	2-3/8	.610	34655	34691
5/8	3/4	6	5/8	3-3/8	.610	34654	34690
3/4	1	6	3/4	2-1/2	.735	34656	34693
3/4	1	6	3/4	3-3/8	.735	34657	34692

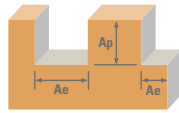
RE = 1/2 Cutting Diameter (DC)

**TOLERANCES (inch)**

- 1/4–3/8 DIAMETER**  
DC = +0.0000/–0.00035  
DCON = h<sub>6</sub>  
RE = +.0005/–.0005
- 1/2–5/8 DIAMETER**  
DC = +0.0000/–0.00043  
DCON = h<sub>6</sub>  
RE = +.0005/–.0005
- 3/4–1 DIAMETER**  
DC = +0.0000/–0.00051  
DCON = h<sub>6</sub>  
RE = +.0005/–.0005

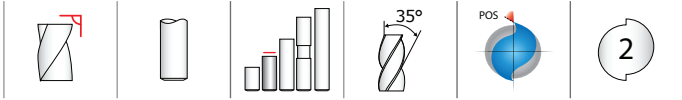
NON-FERROUS

For patent information visit [www.ksptpatents.com](http://www.ksptpatents.com)

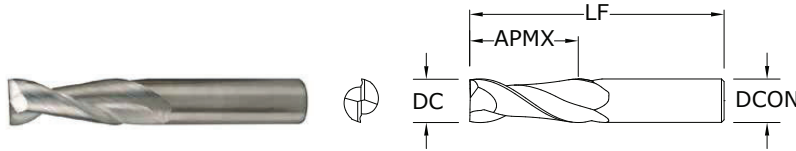


Series 47, 47B, 47L, 47LB Fractional	Hardness	Ae x DC	Ap x DC	Vc (sfm)	DC • in								
					1/8	1/4	3/8	1/2	5/8	3/4	1		
<b>ALUMINUM ALLOYS</b> 2024, 5052, 5086, 6061, 6073, 7075	≤ 150 Bhn or ≤ 88 HRb	Slot 	1	≤ 1	1600	RPM	48896	24448	16299	12224	9779	8149	6112
					(1280-1920)	Fz	0.0009	0.0025	0.0045	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	
<b>ALUMINUM DIE CAST ALLOYS (HIGH SILICONE)</b> 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	
<b>COPPER ALLOYS</b> 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	
<b>COPPER ALLOYS</b> 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	
<b>PLASTICS</b> ABS, Polycarbonate, PVC, Polypropylene	≤ 150 Bhn or ≤ 88 HRb	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 / DC  
 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 DC maximum)  
 refer to the SGS Tool Wizard® for complete technical information ([www.kyocera-sgstool.com](http://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  $\leq 150$  Bhn ( $\leq 7$  HRC)

mm				EDP NO.	
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	UNCOATED	Ti-NAMITE®-B (TiB <sub>2</sub> )
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	38,0	104,0	25,0	44560	44597

**TOLERANCES (mm)**

**3 DIAMETER**

DC = +0,000/-0,008  
DCON = h<sub>6</sub>

**>3-6 DIAMETER**

DC = +0,000/-0,008  
DCON = h<sub>6</sub>

**>6-10 DIAMETER**

DC = +0,000/-0,009  
DCON = h<sub>6</sub>

**>10-18 DIAMETER**

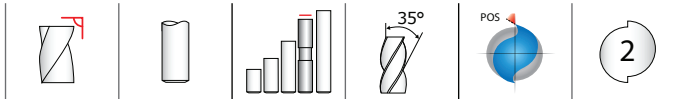
DC = +0,000/-0,012  
DCON = h<sub>6</sub>

**>18-25 DIAMETER**

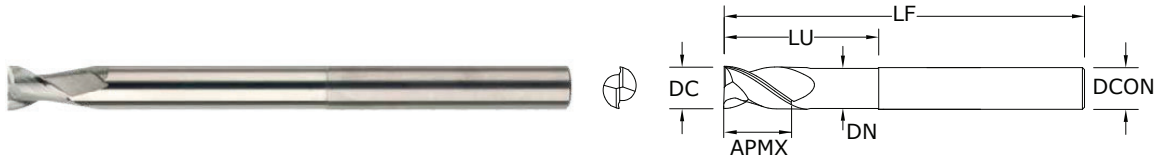
DC = +0,000/-0,013  
DCON = h<sub>6</sub>

**NON-FERROUS**

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**47ML**  
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
- Recommended for materials  $\leq 150$  Bhn ( $\leq 7$  HRC)

mm					EDP NO.		
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	REACH LU	NECK DIAMETER DN	UNCOATED	Ti-NAMITE®-B (TiB <sub>2</sub> )
6,0	10,0	100,0	6,0	54,0	5,62	44561	44609
8,0	12,0	100,0	8,0	54,0	7,62	44562	44610
10,0	12,0	100,0	10,0	54,0	9,62	44563	44611
12,0	16,0	150,0	12,0	80,0	11,62	44564	44612
16,0	20,0	150,0	16,0	80,0	15,62	44565	44613
20,0	25,0	150,0	20,0	80,0	19,62	44566	44614

**TOLERANCES (mm)**

**6 DIAMETER**

DC = +0,000/-0,008  
DCON = h<sub>6</sub>

**>6-10 DIAMETER**

DC = +0,000/-0,009  
DCON = h<sub>6</sub>

**>10-18 DIAMETER**

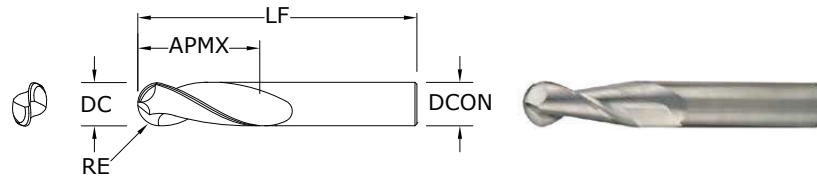
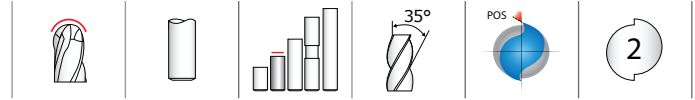
DC = +0,000/-0,011  
DCON = h<sub>6</sub>

**>18-20 DIAMETER**

DC = +0,000/-0,013  
DCON = h<sub>6</sub>

**NON-FERROUS**

For patent information visit [www.ksptpatents.com](http://www.ksptpatents.com)



**47MB**  
METRIC SERIES

**TOLERANCES (mm)**

**3 DIAMETER**

DC = +0,000/-0,006  
DCON = h<sub>6</sub>  
RE = +0,0127/-0,0127

**>3-6 DIAMETER**

DC = +0,000/-0,008  
DCON = h<sub>6</sub>  
RE = +0,0127/-0,0127

**>6-10 DIAMETER**

DC = +0,000/-0,009  
DCON = h<sub>6</sub>  
RE = +0,0127/-0,0127

**>10-18 DIAMETER**

DC = +0,000/-0,012  
DCON = h<sub>6</sub>  
RE = +0,0127/-0,0127

**>18-25 DIAMETER**

DC = +0,000/-0,013  
DCON = h<sub>6</sub>  
RE = +0,0127/-0,0127

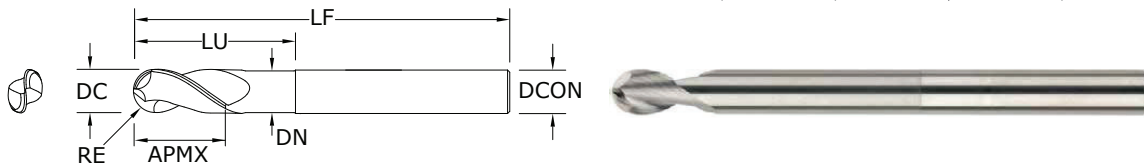
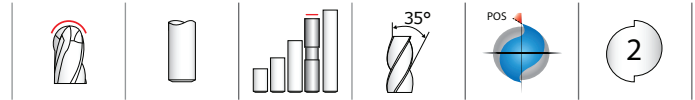
mm				EDP NO.	
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	UNCOATED	Ti-NAMITE®-B (TiB <sub>2</sub> )
3,0	8,0	38,0	3,0	44570	44598
4,0	11,0	50,0	4,0	44571	44599
5,0	13,0	50,0	5,0	44572	44600
6,0	13,0	57,0	6,0	44573	44601
8,0	19,0	63,0	8,0	44574	44602
10,0	22,0	72,0	10,0	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

- Circular land reduces edge aggressiveness for varied speed and feed rates
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- Excellent balance at high speeds and aggressive plunging capability
- Ball end design ideal for finishing operations in complex workpieces
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)

RE = 1/2 Cutting Diameter (DC)

NON-FERROUS

For patent information visit [www.ksptpatents.com](http://www.ksptpatents.com)



**47MLB**  
METRIC SERIES

**TOLERANCES (mm)**

**6 DIAMETER**

DC = +0,000/-0,008  
DCON = h<sub>6</sub>  
RE = +0,0127/-0,0127

**>6-10 DIAMETER**

DC = +0,000/-0,009  
DCON = h<sub>6</sub>  
RE = +0,0127/-0,0127

**>10-18 DIAMETER**

DC = +0,000/-0,011  
DCON = h<sub>6</sub>  
RE = +0,0127/-0,0127

**>18-20 DIAMETER**

DC = +0,000/-0,013  
DCON = h<sub>6</sub>  
RE = +0,0127/-0,0127

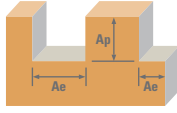
mm						EDP NO.	
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	REACH LU	NECK DIAMETER DN	UNCOATED	Ti-NAMITE®-B (TiB <sub>2</sub> )
6,0	10,0	100,0	6,0	54,0	5,62	44581	44615
8,0	12,0	100,0	8,0	54,0	7,62	44582	44616
10,0	12,0	100,0	10,0	54,0	9,62	44583	44617
12,0	16,0	150,0	12,0	80,0	11,62	44584	44618
16,0	20,0	150,0	16,0	80,0	15,62	44585	44619
20,0	25,0	150,0	20,0	80,0	19,62	44586	44620

- Circular land reduces edge aggressiveness for varied speed and feed rates
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- Excellent balance at high speeds and aggressive plunging capability
- Necked design with blended diameter transitions provide clearance to reach
- Ball end design ideal for finishing operations in complex workpieces
- Recommended for materials ≤ 150 Bhn (≤ 7 HRC)

RE = 1/2 Cutting Diameter (DC)

NON-FERROUS

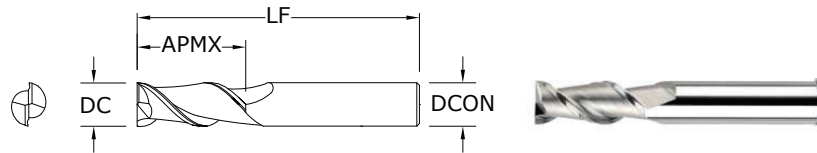
For patent information visit [www.ksptpatents.com](http://www.ksptpatents.com)



Series  
47M, 47MB,  
47ML, 47MLB  
Metric

Material	Hardness	Ae x DC	Ap x DC	Vc (m/min)	DC • mm							
					3	6	10	12	16	20	25	
ALUMINUM ALLOYS 2024, 5052, 5086, 6061, 6073, 7075	≤ 150 Bhn or ≤ 88 HRb	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	≤ 150 Bhn or ≤ 88 HRb	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)  
 rpm = (Vc x 1000) / (DC x 3.14)  
 mm/min = 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 DC maximum)  
 refer to the SGS Tool Wizard® for complete technical information ([www.kyocera-sgstool.com](http://www.kyocera-sgstool.com))



## 44

**FRACTIONAL SERIES**
**TOLERANCES (inch)**
**1/4–3/8 DIAMETER**

DC = +0.0000/–0.00035

 DCON = h<sub>6</sub>
**1/2–5/8 DIAMETER**

DC = +0.0000/–0.00043

 DCON = h<sub>6</sub>
**3/4–1 DIAMETER**

DC = +0.0000/–0.00051

 DCON = h<sub>6</sub>

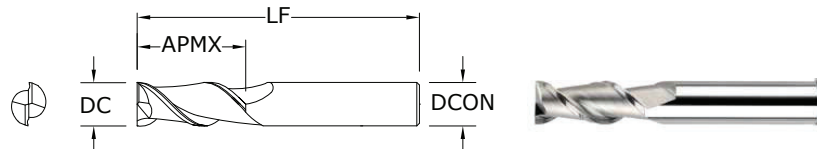
NON-FERROUS

For patent information visit  
[www.ksptpatents.com](http://www.ksptpatents.com)

inch				EDP NO.			
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	UNCOATED W/FLAT	Ti-NAMITE®-B (TiB <sub>2</sub> ) W/FLAT	UNCOATED	Ti-NAMITE®-B (TiB <sub>2</sub> )
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

- 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)

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



## 44M

**METRIC SERIES**
**TOLERANCES (mm)**
**≤3 DIAMETER**

DC = +0,000/–0,006

 DCON = h<sub>6</sub>
**>3–6 DIAMETER**

DC = +0,000/–0,008

 DCON = h<sub>6</sub>
**>6–10 DIAMETER**

DC = +0,000/–0,009

 DCON = h<sub>6</sub>
**>10–18 DIAMETER**

DC = +0,000/–0,011

 DCON = h<sub>6</sub>
**>18–20 DIAMETER**

DC = +0,000/–0,013

 DCON = h<sub>6</sub>

NON-FERROUS

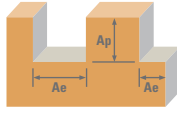
For patent information visit  
[www.ksptpatents.com](http://www.ksptpatents.com)

mm				EDP NO.			
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	UNCOATED W/FLAT	UNCOATED	Ti-NAMITE®-B (TiB <sub>2</sub> ) W/FLAT	Ti-NAMITE®-B (TiB <sub>2</sub> )
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

- 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)

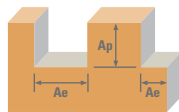
Contact your KSPT Sales Representative for more information on Corner Radius options.

# FRACTIONAL Ski-Carb



Series 44 Fractional	Hardness	Ae x DC	Ap x DC	Vc (sfm)	DC • in								
					1/8	1/4	3/8	1/2	5/8	3/4	1		
<b>ALUMINUM ALLOYS</b> 2024, 5052, 5086, 6061, 6073, 7075	≤ 150 Bhn or ≤ 88 HRb	Slot 	1	≤ 1	1600 (1280-1920)	RPM	48896	24448	16299	12224	9779	8149	6112
						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 (1600-2400)	RPM	61120	30560	20373	15280	12224	10187	7640	
					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 (2640-3960)	RPM	100848	50424	33616	25212	20170	16808	12606	
					Fz	0.0021	0.0055	0.0105	0.0140	0.0150	0.0165	0.0195	
					Feed (ipm)	424	555	706	706	605	555	492	
<b>ALUMINUM DIE CAST ALLOYS (HIGH SILICONE)</b> A-390, A-392, B-390	≤ 125 Bhn or ≤ 77 HRb	Slot 	1	≤ 1	600 (480-720)	RPM	18336	9168	6112	4584	3667	3056	2292
						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 (600-900)	RPM	22920	11460	7640	5730	4584	3820	2865	
					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 (992-1488)	RPM	37894	18947	12631	9474	7579	6316	4737	
					Fz	0.0021	0.0055	0.0105	0.0140	0.0150	0.0165	0.0195	
					Feed (ipm)	159	208	265	265	227	208	185	
<b>COPPER ALLOYS</b> Aluminum Bronze Brass Naval Brass Red Brass	≤ 140 Bhn or ≤ 3 HRc	Slot 	1	≤ 1	865 (692-1038)	RPM	26434	13217	8811	6609	5287	4406	3304
						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 (864-1296)	RPM	33005	16502	11002	8251	6601	5501	4126	
					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 (1424-2136)	RPM	54397	27198	18132	13599	10879	9066	6800	
					Fz	0.0017	0.0045	0.0085	0.0115	0.0125	0.0140	0.0160	
					Feed (ipm)	185	245	308	313	272	254	218	
<b>COPPER ALLOYS</b> Beryllium Copper C110, Manganese Bronze, Tin Bronze	≤ 200 Bhn or ≤ 23 HRc	Slot 	1	≤ 1	345 (276-414)	RPM	10543	5272	3514	2636	2109	1757	1318
						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 (344-516)	RPM	13141	6570	4380	3285	2628	2190	1643	
					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 (568-852)	RPM	21698	10849	7233	5424	4340	3616	2712	
					Fz	0.0017	0.0045	0.0085	0.0115	0.0125	0.0140	0.0160	
					Feed (ipm)	74	98	123	125	108	101	87	
<b>PLASTICS</b> ABS, Polycarbonate, PVC, Polypropylene	≤ 150 Bhn or ≤ 88 HRb	Slot 	1	≤ 1	1600 (1280-1920)	RPM	48896	24448	16299	12224	9779	8149	6112
						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 (1600-2400)	RPM	61120	30560	20373	15280	12224	10187	7640	
					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 (2640-3960)	RPM	100848	50424	33616	25212	20170	16808	12606	
					Fz	0.0034	0.0090	0.0170	0.0230	0.0250	0.0275	0.0320	
					Feed (ipm)	686	908	1143	1160	1008	924	807	

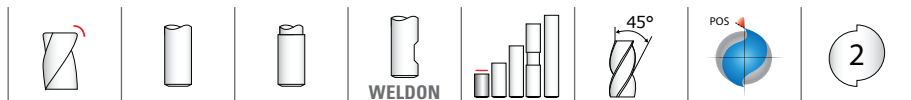
Bhn (Brinell)    HRc (Rockwell C)    HRb (Rockwell B)    HSM (High Speed Machining)  
 rpm = Vc x 3.82 / DC  
 ipm = Fz x 2 x rpm  
 reduce speed and feed for materials harder than listed  
 reduce cut depth and feed by 50% for long flute and long reach tools  
 reduce feed and Ae when finish milling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



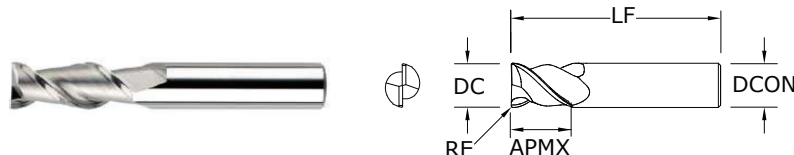
Series 44M Metric	Hardness	Ae x DC	Ap x DC	Vc (m/min)	DC • mm								
					3	6	10	12	16	20	25		
<b>ALUMINUM ALLOYS</b> 2024, 5052, 5086, 6061, 6073, 7075	≤ 150 Bhn or ≤ 88 HRb	Slot 	1	≤ 1	490 (392-588)	RPM	52022	26011	15607	13005	9754	7803	6243
						Fz	0.022	0.060	0.120	0.144	0.166	0.187	0.213
						Feed (mm/min)	2247	3121	3746	3745	3246	2913	2653
		Profile 	≤ 0.5	≤ 1.5	610 (488-732)	RPM	64762	32381	19429	16190	12143	9714	7771
						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 (804-1206)	RPM	106698	53349	32009	26674	20006	16005	12804
						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
<b>ALUMINUM DIE CAST ALLOYS (HIGH SILICONE)</b> A-390, A-392, B-390	≤ 125 Bhn or ≤ 77 HRb	Slot 	1	≤ 1	185 (148-222)	RPM	19641	9820	5892	4910	3683	2946	2357
						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 (184-276)	RPM	24418	12209	7326	6105	4578	3663	2930
						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 (304-456)	RPM	40343	20172	12103	10086	7564	6052	4841
						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
<b>COPPER ALLOYS</b> Aluminum Bronze Brass Naval Brass Red Brass	≤ 140 Bhn or ≤ 3 HRc	Slot 	1	≤ 1	265 (212-318)	RPM	28134	14067	8440	7034	5275	4220	3376
						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 (264-396)	RPM	35035	17518	10511	8759	6569	5255	4204
						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 (436-654)	RPM	57861	28930	17358	14465	10849	8679	6943
						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
<b>COPPER ALLOYS</b> Beryllium Copper C110, Manganese Bronze, Tin Bronze	≤ 200 Bhn or ≤ 23 HRc	Slot 	1	≤ 1	105 (84-126)	RPM	11148	5574	3344	2787	2090	1672	1338
						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 (104-156)	RPM	13802	6901	4141	3450	2588	2070	1656
						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 (172-258)	RPM	22826	11413	6848	5706	4280	3424	2739
						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
<b>PLASTICS</b> ABS, Polycarbonate, PVC, Polypropylene		Slot 	1	≤ 1	490 (392-588)	RPM	52022	26011	15607	13005	9754	7803	6243
						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 (488-732)	RPM	64762	32381	19429	16190	12143	9714	7771
						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 (804-1206)	RPM	106698	53349	32009	26674	20006	16005	12804
						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)  
 $rpm = (Vc \times 1000) / (DC \times 3.14)$   
 $mm/min = Fz \times 2 \times rpm$   
 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 DC maximum)  
 refer to the SGS Tool Wizard® for complete technical information ([www.kyocera-sgstoool.com](http://www.kyocera-sgstoool.com))





## 45 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  $\leq 150$  Bhn ( $\leq 7$  HRc)

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

Contact your KSPT representative for reach options.

### TOLERANCES (inch)

#### 1/4–3/8 DIAMETER

DC = +0.0000/-0.00035

DCON = h<sub>6</sub>

RE = +0.0000/-0.0020

#### 1/2–5/8 DIAMETER

DC = +0.0000/-0.00043

DCON = h<sub>6</sub>

RE = +0.0000/-0.0020

#### 3/4–1 DIAMETER

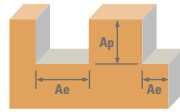
DC = +0.0000/-0.00051

DCON = h<sub>6</sub>

RE = +0.0000/-0.0020

NON-FERROUS

For patent information visit  
[www.ksptpatents.com](http://www.ksptpatents.com)



Series 45 Fractional	Hardness	Ae x DC	Ap x DC	Vc (sfm)	DC • in								
					1/4	3/8	1/2	5/8	3/4	1			
<b>ALUMINUM ALLOYS</b> 2024, 5052, 5086, 6061, 6073, 7075	≤ 150 Bhn or ≤ 88 HRb	Slot 	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		
		Profile 	≤ 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		
	HSM 	≤ 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			
	<b>ALUMINUM DIE CAST ALLOYS (HIGH SILICONE)</b> A-390, A-392, B-390	≤ 125 Bhn or ≤ 77 HRb	Slot 	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	
Profile 			≤ 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		
HSM 		≤ 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			
<b>COPPER ALLOYS</b> Aluminum Bronze Naval Brass Red Brass		≤ 140 Bhn or ≤ 7 HRc	Slot 	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	
	Profile 		≤ 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		
	HSM 	≤ 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			
	<b>COPPER ALLOYS</b> Beryllium Copper C110, Manganese Bronze, Tin Bronze	≤ 200 Bhn or ≤ 23 HRc	Slot 	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	
Profile 			≤ 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		
HSM 		≤ 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			
<b>PLASTICS</b> ABS, Polycarbonate, PVC, Polypropylene			Slot 	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	
	Profile 		≤ 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		
	HSM 	≤ 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)  
 $rpm = Vc \times 3.82 / DC$   
 $ipm = Fz \times 2 \times rpm$   
 reduce speed and feed for materials harder than listed  
 reduce cut depth and feed by 50% for long flute and long reach tools  
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