SGS®
Solid Carbide Tools

VALUE AT THE SPINDLE®

General Application End Mills

Milling

SERIES	GENERAL APPLICATION END MILLS DESCRIPTION	PAGE	S&F PAGE
3	2 Flute Square End Standard Length Fractional	280	320, 321
3L	2 Flute Square End Long Reach Fractional	280	320, 321
3EL	2 Flute Square End Extended Length Fractional	280	320, 321
3CR	2 Flute Corner Radius Standard Length Fractional	280	320, 321
3M	2 Flute Square End Standard Length Metric	285	326
3XLM	2 Flute Square End Extra Long Reach Metric	285	326
3B	2 Flute Ball End Standard Length Fractional	283	320
3LB	2 Flute Ball End Long Reach Fractional	283	320
3ELB	2 Flute Ball End Extended Length Fractional	283	320
3MB	2 Flute Ball End Standard Length Metric	286	326
3XLMB	2 Flute Ball End Extra Long Reach Metric	286	326
15	2 Flute Double End Square Stub Fractional	287	321
15M	2 Flute Double End Square Stub Metric	289	326
15B	2 Flute Double End Ball Stub Fractional	288	322
15MB	2 Flute Double End Ball Stub Metric	290	326
17	2 Flute Square End Stub Fractional	291	321
17M	2 Flute Square End Stub Metric	291	326
52	2 Flute High Shear Square End Standard Length Fractional	292	323
52M	2 Flute High Shear Square End Standard Length Metric	292	328
59	2 Flute Square End Long Reach Fractional	293	321
59M	2 Flute Square End Long Reach Metric	295	326
59B	2 Flute Ball End Long Reach Fractional	294	321
59MB	2 Flute Ball End Long Reach Metric	296	327
5	3 Flute Square End Standard Length Fractional	297	321
5M	3 Flute Square End Standard Length Metric	299	326
5XLM	3 Flute Square End Extra Long Reach Metric	299	326
5B	3 Flute Ball End Standard Length Fractional	298	321
5MB	3 Flute Ball End Standard Length Metric	300	326
5XLMB	3 Flute Ball End Extra Long Reach Metric	300	326
23	3 Flute Tapered Square End Standard Length Fractional	301	321
24	3 Flute Tapered Corner Radius Standard Length Fractional	302	321
1	4 Flute Square End Standard Length Fractional	303	320, 321
1L	4 Flute Square End Long Reach Fractional	303	320, 321
1EL	4 Flute Square End Extended Length Fractional	303	320, 321
1CR	4 Flute Corner Radius Standard Length Fractional	303	320, 321
1M	4 Flute Square End Standard Length Metric	309	326
1XLM	4 Flute Square End Extra Long Reach Metric	309	326
1MCR	4 Flute Corner Radius Standard Length Metric	309	326

Speed & Feed Recommendations listed at the end of this section

SERIES	GENERAL APPLICATION END MILLS DESCRIPTION	PAGE	S&F PAGE
1B	4 Flute Ball End Standard Length Fractional	307	320
1LB	4 Flute Ball End Long Reach Fractional	307	320
1ELB	4 Flute Ball End Extended Length Fractional	307	320
1MB	4 Flute Ball End Standard Length Metric	312	326
1XLMB	4 Flute Ball End Extra Long Reach Metric	312	326
14	4 Flute Double End Square Stub Fractional	313	321
14M	4 Flute Double End Square Stub Metric	313	326
14B	4 Flute Double End Ball Stub Fractional	314	321
14MB	4 Flute Double End Ball Stub Metric	314	326
16	4 Flute Square End Stub Fractional	303	321
16M	4 Flute Square End Stub Metric	309	326
54	4 Flute High Shear Square End Standard Length Fractional	315	323
54M	4 Flute High Shear Square End Standard Length Metric	315	328
61	Multi-Flute Coarse Pitch Rougher Fractional	316	324
61M	Multi-Flute Coarse Pitch Rougher Metric	316	330
62	Multi-Flute Fine Pitch Rougher Fractional	317	325
62M	Multi-Flute Fine Pitch Rougher Metric	317	331
End Mill Sets	2, 3, & 4 Flute Square End Series 1, 3, 5, 14, 15	318	320, 321
	2, 3, & 4 Flute Ball End Series 1B, 3B, 5B, 14B ,15B	319	320, 321

Speed & Feed Recommendations listed at the end of this section

Fresado

SERIE	DESCRIPCIÓN DE FRESAS DE USO GENERAL	PÁGINA	S&F PÁGINA
3	2 filos, punta cuadrada, longitud estándar, fraccional	280	320, 321
3L	2 filos, punta cuadrada, largo alcance, fraccional	280	320, 321
3EL	2 filos, punta cuadrada, longitud extendida, fraccional	280	320, 321
3CR	2 filos, radio angulado, longitud estándar, fraccional	280	320, 321
3M	2 filos, punta cuadrada, longitud estándar, métrico	285	326
3XLM	2 filos, punta cuadrada, alcance extralargo, métrico	285	326
3B	2 filos, punta esférica, longitud estándar, fraccional	283	320
3LB	2 filos, punta esférica, largo alcance, fraccional	283	320
3ELB	2 filos, punta esférica, longitud extendida, fraccional	283	320
3MB	2 filos, punta esférica, longitud estándar, métrico	286	326
3XLMB	2 filos, punta esférica, alcance extralargo, métrico	286	326
15	2 filos, pieza doble de punta cuadrada, fraccional	287	321
15M	2 filos, pieza doble de punta cuadrada, métrico	289	326
15B	2 filos, pieza doble de punta esférica, fraccional	288	322
15MB	2 filos, pieza doble de punta esférica, métrico	290	326
17	2 filos, pieza de punta cuadrada, fraccional	291	321

SERIE	DESCRIPCIÓN DE FRESAS DE USO GENERAL	PÁGINA	S&F PÁGINA
17M	2 filos, pieza de punta cuadrada, métrico	291	326
52	2 filos, alto rendimiento, punta cuadrada, longitud estándar, fraccional	292	323
52M	2 filos, alto rendimiento, punta cuadrada, longitud estándar, métrico	292	328
59	2 filos, punta cuadrada, largo alcance, fraccional	293	321
59M	2 filos, punta cuadrada, largo alcance, métrico	295	326
59B	2 filos, punta esférica, largo alcance, fraccional	294	321
59MB	2 filos, punta esférica, largo alcance, métrico	296	327
5	3 filos, punta cuadrada, longitud estándar, fraccional	297	321
5M	3 filos, punta cuadrada, longitud estándar, métrico	299	326
5XLM	3 filos, punta cuadrada, alcance extralargo, métrico	299	326
5B	3 filos, punta esférica, longitud estándar, fraccional	298	321
5MB	3 filos, punta esférica, longitud estándar, métrico	300	326
5XLMB	3 filos, punta esférica, alcance extralargo, métrico	300	326
23	3 filos, cónico, punta cuadrada, longitud estándar, fraccional	301	321
24	3 filos, cónico, radio angulado, longitud estándar, fraccional	302	321
1	4 filos, punta cuadrada, longitud estándar, fraccional	303	320, 321
1L	4 filos, punta cuadrada, largo alcance, fraccional	303	320, 321
1EL	4 filos, punta cuadrada, longitud extendida, fraccional	303	320, 321
1CR	4 filos, radio angulado, longitud estándar, fraccional	303	320, 321
1M	4 filos, punta cuadrada, longitud estándar, métrico	309	326
1XLM	4 filos, punta cuadrada, alcance extralargo, métrico	309	326
1MCR	4 filos, radio angulado, longitud estándar, métrico	309	326
1B	4 filos, punta esférica, longitud estándar, fraccional	307	320
1LB	4 filos, punta esférica, largo alcance, fraccional	307	320
1ELB	4 filos, punta esférica, longitud extendida, fraccional	307	320
1MB	4 filos, punta esférica, longitud estándar, métrico	312	326
1XLMB	4 filos, punta esférica, alcance extralargo, métrico	312	326
14	4 filos, pieza doble de punta cuadrada, fraccional	313	321
14M	4 filos, pieza doble de punta cuadrada, métrico	313	326
14B	4 filos, pieza doble de punta esférica, fraccional	314	321
14MB	4 filos, pieza doble de punta esférica, métrico	314	326
16	4 filos, pieza de punta cuadrada, fraccional	303	321
16M	4 filos, pieza de punta cuadrada, métrico	309	326
54	4 filos, alto rendimiento, punta cuadrada, longitud estándar, fraccional	315	323
54M	4 filos, alto rendimiento, punta cuadrada, longitud estándar, métrico	315	328
61	Filo múltiple, paso grueso, desbastador, fraccional	316	324
61M	Filo múltiple, paso grueso, desbastador, métrico	316	330
62	Filo múltiple, paso fino, desbastador, fraccional	317	325
62M	Filo múltiple, paso fino, desbastador, métrico	317	331
Juegos de fresas	2, 3 y 4 filos, punta cuadrada, series 1, 3, 5, 14, 15	318	320, 321
	2, 3 y 4 filos, punta esférica, series 1B, 3B, 5B, 14B ,15B	319	320, 321

Recomendaciones de Velocidad y Avance mostrados al final de esta sección.

Fraisage

SÈRIES	DESCRIPTION DE FRAISES À USAGE GÉNÉRAL	PAGE	S&F PAGE
3	2 dents non rayonné longueur standard (fractionnel)	280	320, 321
3L	2 dents non rayonné longue portée (fractionnel)	280	320, 321
3EL	2 dents non rayonné extra-long (fractionnel)	280	320, 321
3CR	2 dents rayonné longueur standard (fractionnel)	280	320, 321
3M	2 dents non rayonné longueur standard (métrique)	285	326
3XLM	2 dents non rayonné portée extra-longue (métrique)	285	326
3B	2 dents à bout hémisphérique longueur standard (fractionnel)	283	320
3LB	2 dents à bout hémisphérique longue portée (fractionnel)	283	320
3ELB	2 dents à bout hémisphérique extra-long (fractionnel)	283	320
3MB	2 dents à bout hémisphérique longueur standard (métrique)	286	326
3XLMB	2 dents à bout hémisphérique portée extra-longue (métrique)	286	326
15	2 dents à double bouts plats court (fractionnel)	287	321
15M	2 dents à double bouts plats court (métrique)	289	326
15B	2 dents à double bouts hémisphériques court (fractionnel)	288	322
15MB	2 dents à double bouts hémisphériques court (métrique)	290	326
17	2 dents non rayonné court (fractionnel)	291	321
17M	2 dents non rayonné court (métrique)	291	326
52	2 dents cisaillement élevé non rayonné longueur standard (fractionnel)	292	323
52M	2 dents cisaillement élevé non rayonné longueur standard (métrique)	292	328
59	2 dents non rayonné longue portée (fractionnel)	293	321
59M	2 dents non rayonné longue portée (métrique)	295	326
59B	2 dents à bout hémisphérique longue portée (fractionnel)	294	321
59MB	2 dents à bout hémisphérique longue portée (métrique)	296	327
5	3 dents non rayonné longueur standard (fractionnel)	297	321
5M	3 dents non rayonné longueur standard (métrique)	299	326
5XLM	3 dents non rayonné portée extra-longue (métrique)	299	326
5B	3 dents à bout hémisphérique longueur standard (fractionnel)	298	321
5MB	3 dents à bout hémisphérique longueur standard (métrique)	300	326
5XLMB	3 dents à bout hémisphérique portée extra-longue (métrique)	300	326
23	3 dents conique non rayonné longueur standard (fractionnel)	301	321
24	3 dents conique rayonné longueur standard (fractionnel)	302	321
1	4 dents non rayonné longueur standard (fractionnel)	303	320, 321
1L	4 dents non rayonné longue portée (fractionnel)	303	320, 321
1EL	4 dents non rayonné extra-long (fractionnel)	303	320, 321
1CR	4 dents rayonné longueur standard (fractionnel)	303	320, 321
1M	4 dents non rayonné longueur standard (métrique)	309	326
1XLM	4 dents non rayonné portée extra-longue (métrique)	309	326
1MCR	4 dents rayonné longueur standard (métrique)	309	326
1B	4 dents à bout hémisphérique longueur standard (fractionnel)	307	320
1LB	4 dents à bout hémisphérique longue portée (fractionnel)	307	320

SÈRIES	DESCRIPTION DE FRAISES À USAGE GÉNÉRAL	PAGE	S&F PAGE
1ELB	4 dents à bout hémisphérique extra-long (fractionnel)	307	320
1MB	4 dents à bout hémisphérique longueur standard (métrique)	312	326
1XLMB	4 dents à bout hémisphérique portée extra-longue (métrique)	312	326
14	4 dents à double bouts plats court (fractionnel)	313	321
14M	4 dents à double bouts plats court (métrique)	313	326
14B	4 dents à double bouts hémisphériques court (fractionnel)	314	321
14MB	4 dents à double bouts hémisphériques court (métrique)	314	326
16	4 dents non rayonné court (fractionnel)	303	321
16M	4 dents non rayonné court (métrique)	309	326
54	4 dents cisaillement élevé non rayonné longueur standard (fractionnel)	315	323
54M	4 dents cisaillement élevé non rayonné longueur standard (métrique)	315	328
61	Multi-dents à pas gros d'ébauche (fractionnel)	316	324
61M	Multi-dents à pas gros d'ébauche (métrique)	316	330
62	Multi-dents à pas fin d'ébauche (fractionnel)	317	325
62M	Multi-dents à pas fin d'ébauche (métrique)	317	331
Jeux de fraises	2, 3, & 4 Série goujure non rayonné 1,3,5,14,15	318	320, 321
	2, 3, & 4 Série goujure à bout hémisphérique 15B, 15MB, 15B, 15MB ,15B, 15MB	319	320, 321

Les avances et les vitesses recommandées se trouvent à la fin du chapitre.

Fräsen

SERIE	BESCHREIBUNG DER STANDARD-SCHAFTFRÄSER	SEITE	S&F SEITE
3	Zölliger Schaftfräser mit 2 Schneiden ohne Eckenradien, Standardlänge	280	320, 321
3L	Zölliger Langloch-Schaftfräser mit 2 Schneiden ohne Eckenradien	280	320, 321
3EL	Zölliger Schaftfräser mit 2 Schneiden ohne Eckenradien, extra lang	280	320, 321
3CR	Zölliger Schaftfräser mit 2 Schneiden mit Eckenradien, Standardlänge	280	320, 321
3M	Schaftfräser mit 2 Schneiden ohne Eckenradien, Standardlänge	285	326
3XLM	Langloch-Schaftfräser mit 2 Schneiden ohne Eckenradien	285	326
3B	Zölliger Radiusschaftfräser mit 2 Schneiden, Standdardlänge	283	320
3LB	Zölliger Langloch-Radiusschaftfräser mit 2 Schneiden	283	320
3ELB	Zölliger Schaftfräser mit 2 Schneiden, Extra lang	283	320
3MB	Schaftfräser mit 2 Schneiden, Standardlänge	286	326
3XLMB	Superlangloch-Schaftfräser mit 2 Schneiden	286	326
15	Zölliger Schaftfräser mit 2 Schneiden, kurze Ausführung	287	321
15M	Schaftfräser mit 2 Schneiden, kurze Ausführung	289	326
15B	Zölliger Doppelend-Radiusschaftfräser mit 2 Schneiden, kurze Ausführung	288	322
15MB	Doppelend-Radiusschaftfräser mit 2 Schneiden, kurze Ausführung	290	326
17	Zölliger Schaftfräser mit 2 Schneiden ohne Eckenradien, kurze Ausführung	291	321
17M	Schaftfräser mit 2 Schneiden ohne Eckenradien, kurze Ausführung	291	326
52	Zölliger Schaftfräser hoher Scherfestigkeit mit 2 Schneiden ohne Eckenradien, Standardlänge	292	323
52M	Schaftfräser hoher Scherfestigkeit mit 2 Schneiden ohne Eckenradien, Standardlänge	292	328
59	Zölliger Langloch-Schaftfräser mit 2 Schneiden ohne Eckenradien	293	321
59M	Langloch-Schaftfräser mit 2 Schneiden ohne Eckenradien	295	326
59B	Zölliger Langloch-Radiusschaftfräser mit 2 Schneiden	294	321
59MB	Langloch-Radiusschaftfräser mit 2 Schneiden	296	327
5	Zölliger Schaftfräser mit 3 Schneiden ohne Eckenradien, Standardlänge	297	321
5M	Schaftfräser mit 3 Schneiden ohne Eckenradien, Standardlänge	299	326
5XLM	Langloch-Schaftfräser mit 3 Schneiden ohne Eckenradien	299	326
5B	Zölliger Schaftfräser mit 3 Schneiden, Standardlänge	298	321
5MB	Schaftfräser mit 3 Schneiden, Standardlänge	300	326
5XLMB	Langloch-Schaftfräser mit 3 Schneiden	300	326
23	Zölliger Schaftfräser mit 3 Schneiden ohne Eckenradien, Standardlänge	301	321
24	Zölliger Schaftfräser mit 3 Schneiden mit Eckenradien, Standardlänge	302	321
1	Zölliger Schaftfräser mit 4 Schneiden ohne Eckenradien, Standardlänge	303	320, 321
1L	Zölliger Langloch-Schaftfräser mit 4 Schneiden ohne Eckenradien	303	320, 321
1EL	Zölliger Schaftfräser mit 4 Schneiden ohne Eckenradien, extra lang	303	320, 321
1CR	Zölliger Schaftfräser mit 4 Schneiden mit Eckenradien, Standardlänge	303	320, 321
1M	Schaftfräser mit 4 Schneiden ohne Eckenradien, Standardlänge	309	326
1XLM	Superlangloch-Schaftfräser mit 4 Schneiden ohne Eckenradien	309	326
1MCR	Schaftfräser mit 4 Schneiden mit Eckenradien, Standardlänge	309	326
1B	Zölliger Schaftfräser mit 4 Schneiden, Standardlänge	307	320

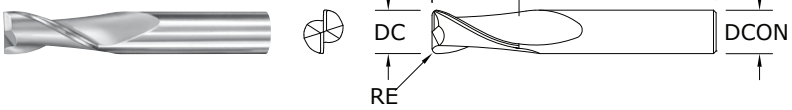
SERIE	BESCHREIBUNG DER STANDARD-SCHAFTFRÄSER	SEITE	S&F SEITE
1LB	Zölliger Langloch-Radiusschaftfräser mit 4 Schneiden	307	320
1ELB	Zölliger Schaftfräser mit 4 Schneiden, Extra lang	307	320
1MB	Schaftfräser mit 4 Schneiden, Standardlänge	312	326
1XLMB	Langloch-Radiusschaftfräser mit 4 Schneiden	312	326
14	Zölliger Schaftfräser mit 4 Schneiden, kurze Ausführung	313	321
14M	Schaftfräser mit 4 Schneiden, kurze Ausführung	313	326
14B	Zölliger Doppelend-Radiusschaftfräser mit 4 Schneiden, kurze Ausführung	314	321
14MB	Doppelend-Radiusschaftfräser mit 4 Schneiden, kurze Ausführung	314	326
16	Zölliger Schaftfräser mit 4 Schneiden ohne Eckenradien, kurze Ausführung	303	321
16M	Schaftfräser mit 4 Schneiden ohne Eckenradien, kurze Ausführung	309	326
54	Zölliger Schaftfräser hoher Scherfestigkeit mit 4 Schneiden ohne Eckenradien, Standardlänge	315	323
54M	Schaftfräser hoher Scherfestigkeit mit 4 Schneiden ohne Eckenradien, Standardlänge	315	328
61	Zölliger mehrschneidiger fein verzahnter Schruppfräser	316	324
61M	Mehrschneidiger fein verzahnter Schruppfräser	316	330
62	Zölliger mehrschneidiger fein verzahnter Schruppfräser	317	325
62M	Mehrschneidiger fein verzahnter Schruppfräser	317	331
Richtwerte zum Fräsen	Schaftfräser mit 2, 3 und 4 Schneiden ohne Eckenradien, Serien 1, 3, 5, 14, 15	318	320, 321
	Radiusschaftfräser mit 2, 3 und 4 Schneiden, Serien 1B, 3B, 5B, 14B ,15B	319	320, 321

Schnittwertempfehlungen finden Sie am Ende dieses Abschnitts

2 Flute Square End • 2 Flute Corner Radius

3 • 3L • 3EL • 3CR

FRACTIONAL SERIES



TOLERANCES (inch)

<1/8 DIAMETER

DC = +0.000/–0.001
DCON = h_6

≥1/8 DIAMETER

DC = +0.000/–0.002
3CR DC = –0.001/–0.002
DCON = h_6
RE = +0.000/–0.002

- STEELS
- STAINLESS STEELS
- CAST IRON
- NON-FERROUS
- HIGH TEMP ALLOYS

For patent information visit www.ksptpatents.com

inch						EDP NO.				SERIES
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	CORNER RADIUS RE	WELDON FLAT	UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)	
1/64	1/32	1-1/2	1/8	–		30301	39301	39501	30397	3
1/32	5/64	1-1/2	1/8	–		30303	39303	39503	30398	3
3/64	7/64	1-1/2	1/8	–		30305	39305	39505	30399	3
†1/16	3/16	1-1/2	1/8	–		30307	39307	39507	30400	3
5/64	3/16	1-1/2	1/8	–		30309	39309	39509	30435	3
3/32	9/32	1-1/2	1/8	–		30311	39311	39511	30436	3
7/64	3/8	1-1/2	1/8	–		30313	39313	39513	30437	3
1/8	3/8	1-1/2	1/8	–		30377	39377	39577	30469	3
*†1/8	1/2	1-1/2	1/8	–		30315	39315	39515	30438	3
1/8	1/2	1-1/2	1/8	.015		38201	38202	38315	38357	3CR
1/8	1/2	1-1/2	1/8	.020		38203	38204	38316	38358	3CR
1/8	3/4	2-1/4	1/8	–		33341	31800	31810	31850	3L
1/8	1	3	1/8	–		33343	31938	31948	31958	3EL
9/64	1/2	2	3/16	–		30317	39317	39517	30439	3
5/32	1/2	2	3/16	–		30319	39319	39519	30440	3
11/64	5/8	2	3/16	–		30321	39321	39521	30441	3
*†3/16	5/8	2	3/16	–		30323	39323	39523	30442	3
3/16	5/8	2	3/16	.015		38209	38210	38317	38359	3CR
3/16	5/8	2	3/16	.020		38211	38212	38318	38360	3CR
3/16	5/8	2	3/16	.030		38213	38214	38319	38361	3CR
3/16	3/4	2-1/2	3/16	–		33301	31820	31825	31851	3L
3/16	1-1/8	3	3/16	–		33321	31939	31949	31959	3EL
13/64	5/8	2-1/2	1/4	–		30325	39325	39525	30443	3
7/32	5/8	2-1/2	1/4	–		30327	39327	39527	30444	3
15/64	3/4	2-1/2	1/4	–		30329	39329	39529	30445	3
*†1/4	3/4	2-1/2	1/4	–		30331	39331	39531	30446	3
1/4	3/4	2-1/2	1/4	.015		38219	38220	38320	38362	3CR
1/4	3/4	2-1/2	1/4	.020		38221	38222	38321	38363	3CR
1/4	3/4	2-1/2	1/4	.030		38223	38224	38322	38364	3CR
1/4	3/4	2-1/2	1/4	.045		38225	38226	38323	38365	3CR
1/4	1-1/8	3	1/4	–		33303	31802	31812	31852	3L
1/4	1-1/2	4	1/4	–		33323	31940	31950	31960	3EL
17/64	3/4	2-1/2	5/16	–		30333	39333	39533	30447	3
9/32	3/4	2-1/2	5/16	–		30335	39335	39535	30448	3

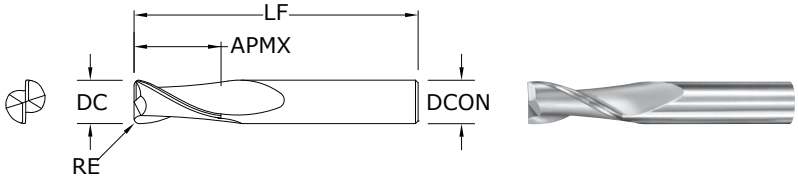
continued on next page

2 Flute Square End • 2 Flute Corner Radius

TOLERANCES (inch)

<1/8 DIAMETER
DC = +0.000 /–0.001
DCON = h_6

≥1/8 DIAMETER
DC = +0.000 /–0.002
3CR DC = –0.001 /–0.002
DCON = h_6
RE = +0.000 /–0.002



3 • 3L • 3EL • 3CR
FRACTIONAL SERIES

CONTINUED

inch						EDP NO.				SERIES
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	CORNER RADIUS RE	WELDON FLAT	UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)	
19/64	13/16	2-1/2	5/16	–		30337	39337	39537	30449	3
*†5/16	13/16	2-1/2	5/16	–		30339	39339	39539	30450	3
5/16	13/16	2-1/2	5/16	.015		38231	38232	38324	38366	3CR
5/16	13/16	2-1/2	5/16	.020		38233	38234	38325	38367	3CR
5/16	13/16	2-1/2	5/16	.030		38235	38236	38326	38368	3CR
5/16	13/16	2-1/2	5/16	.045		38237	38238	38327	38369	3CR
5/16	1-1/8	3	5/16	–		33305	31821	31826	31853	3L
5/16	1-5/8	4	5/16	–		33325	31941	31951	31961	3EL
21/64	1	2-1/2	3/8	–		30341	39341	39541	30451	3
11/32	1	2-1/2	3/8	–		30343	39343	39543	30452	3
23/64	1	2-1/2	3/8	–		30345	39345	39545	30453	3
*†3/8	1	2-1/2	3/8	–		30347	39347	39547	30454	3
3/8	1	2-1/2	3/8	.015	•	38245	38246	38328	38370	3CR
3/8	1	2-1/2	3/8	.020	•	38247	38248	38329	38371	3CR
3/8	1	2-1/2	3/8	.030	•	38249	38250	38330	38372	3CR
3/8	1	2-1/2	3/8	.045	•	38251	38252	38331	38373	3CR
3/8	1-1/8	3	3/8	–		33307	31804	31814	31854	3L
3/8	1-3/4	4	3/8	–		33327	31942	31952	31962	3EL
25/64	1	2-3/4	7/16	–		30349	39349	39549	30455	3
13/32	1	2-3/4	7/16	–		30351	39351	39551	30456	3
27/64	1	2-3/4	7/16	–		30353	39353	39553	30457	3
7/16	1	2-3/4	7/16	–		30355	39355	39555	30458	3
7/16	2	4-1/2	7/16	–		33309	31822	31827	31855	3L
7/16	3	6	7/16	–		33329	31943	31953	31963	3EL
29/64	1	3	1/2	–		30357	39357	39557	30459	3
15/32	1	3	1/2	–		30359	39359	39559	30460	3
31/64	1	3	1/2	–		30361	39361	39561	30461	3
*†1/2	1	3	1/2	–		30363	39363	39563	30462	3
1/2	1	3	1/2	.015	•	38259	38260	38332	38374	3CR
1/2	1	3	1/2	.020	•	38261	38262	38333	38375	3CR
1/2	1	3	1/2	.030	•	38263	38264	38334	38376	3CR
1/2	1	3	1/2	.045	•	38265	38266	38335	38377	3CR
1/2	1	3	1/2	.060	•	38267	38268	38336	38378	3CR
1/2	2	4-1/2	1/2	–		33311	31806	31816	31856	3L

continued on next page

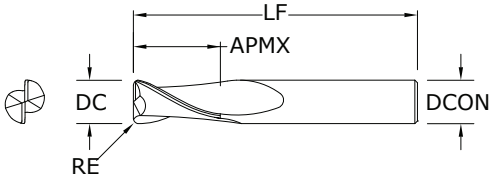
STEELS
STAINLESS STEELS
CAST IRON
NON-FERROUS
HIGH TEMP ALLOYS

For patent information visit www.ksptpatents.com

2 Flute Square End • 2 Flute Corner Radius

3 • 3L • 3EL • 3CR

FRACTIONAL SERIES



TOLERANCES (inch)

<1/8 DIAMETER

DC = +0.000/–0.001
DCON = h_6

≥1/8 DIAMETER

DC = +0.000/–0.002
3CR DC = –0.001/–0.002
DCON = h_6
RE = +0.000/–0.002

CONTINUED

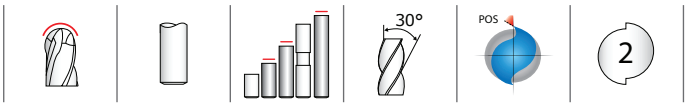
STEELS
STAINLESS STEELS
CAST IRON
NON-FERROUS
HIGH TEMP ALLOYS

For patent information visit www.ksptpatents.com

inch						EDP NO.				SERIES
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	CORNER RADIUS RE	WELDON FLAT	UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)	
1/2	3	6	1/2	–		33331	31944	31954	31964	3EL
9/16	1-1/8	3-1/2	9/16	–		30365	39365	39565	30463	3
5/8	1-1/4	3-1/2	5/8	–		30367	39367	39567	30464	3
5/8	1-1/4	3-1/2	5/8	.015	•	38273	38274	38337	38379	3CR
5/8	1-1/4	3-1/2	5/8	.020	•	38275	38276	38338	38380	3CR
5/8	1-1/4	3-1/2	5/8	.030	•	38277	38278	38339	38381	3CR
5/8	1-1/4	3-1/2	5/8	.045	•	38279	38280	38340	38382	3CR
5/8	1-1/4	3-1/2	5/8	.060	•	38281	38282	38341	38383	3CR
5/8	1-1/4	3-1/2	5/8	.090	•	38283	38284	38342	38384	3CR
5/8	2-1/4	5	5/8	–		33313	31823	31817	31857	3L
5/8	3	6	5/8	–		33333	31945	31955	31965	3EL
11/16	1-3/8	4	3/4	–		30369	39369	39569	30465	3
3/4	1-1/2	4	3/4	–		30371	39371	39571	30466	3
3/4	1-1/2	4	3/4	.015	•	38287	38288	38343	38385	3CR
3/4	1-1/2	4	3/4	.020	•	38289	38290	38344	38386	3CR
3/4	1-1/2	4	3/4	.030	•	38291	38292	38345	38387	3CR
3/4	1-1/2	4	3/4	.045	•	38293	38294	38346	38388	3CR
3/4	1-1/2	4	3/4	.060	•	38295	38296	38347	38389	3CR
3/4	1-1/2	4	3/4	.090	•	38297	38298	38348	38390	3CR
3/4	1-1/2	4	3/4	.125	•	38299	38300	38349	38391	3CR
3/4	2-1/4	5	3/4	–		33315	31808	31818	31858	3L
3/4	3	6	3/4	–		33335	31946	31956	31966	3EL
7/8	1-1/2	4	7/8	–		30373	39373	39573	30467	3
1	1-1/2	4	1	–		30375	39375	39575	30468	3
1	1-1/2	4	1	.015	•	38301	38302	38350	38392	3CR
1	1-1/2	4	1	.020	•	38303	38304	38351	38393	3CR
1	1-1/2	4	1	.030	•	38305	38306	38352	38394	3CR
1	1-1/2	4	1	.045	•	38307	38308	38353	38395	3CR
1	1-1/2	4	1	.060	•	38309	38310	38354	38396	3CR
1	1-1/2	4	1	.090	•	38311	38312	38355	38397	3CR
1	1-1/2	4	1	.125	•	38313	38314	38356	38398	3CR
1	2-1/4	5	1	–		33317	31824	31819	31859	3L
1	3	6	1	–		33337	31947	31957	31967	3EL
*Series 3 Set				–		30389	39389	39589	30470	3

† Di-NAMITE® coating offered standard for this configuration. Please contact your KSPT Representative for more information.

2 Flute Ball End



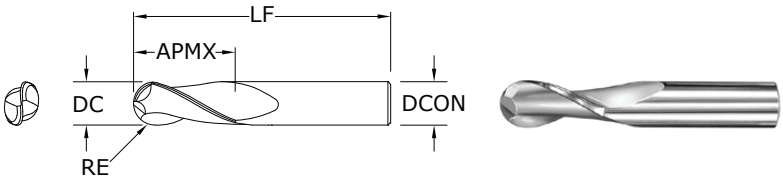
TOLERANCES (inch)

<1/8 DIAMETER

DC = +0.000/–0.001
DCON = h_6
RE = +0.000/–0.0005

≥1/8 DIAMETER

DC = +0.000/–0.002
DCON = h_6
RE = +0.000/–0.001



3B • 3LB • 3ELB

FRACTIONAL SERIES

inch				EDP NO.				SERIES
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)	
1/64	1/32	1-1/2	1/8	30302	39302	39502	30471	3B
1/32	5/64	1-1/2	1/8	30304	39304	39504	30472	3B
3/64	7/64	1-1/2	1/8	30306	39306	39506	30473	3B
1/16	3/16	1-1/2	1/8	30308	39308	39508	30474	3B
5/64	3/16	1-1/2	1/8	30310	39310	39510	30475	3B
3/32	9/32	1-1/2	1/8	30312	39312	39512	30476	3B
7/64	3/8	1-1/2	1/8	30314	39314	39514	30477	3B
1/8	3/8	1-1/2	1/8	30378	39378	39578	30599	3B
*1/8	1/2	1-1/2	1/8	30316	39316	39516	30478	3B
1/8	3/4	2-1/4	1/8	33342	31830	31840	31890	3LB
1/8	1	3	1/8	33344	31968	31978	31988	3ELB
9/64	1/2	2	3/16	30318	39318	39518	30479	3B
5/32	1/2	2	3/16	30320	39320	39520	30480	3B
11/64	5/8	2	3/16	30322	39322	39522	30481	3B
*3/16	5/8	2	3/16	30324	39324	39524	30482	3B
3/16	3/4	2-1/2	3/16	33302	31831	31841	31891	3LB
3/16	1-1/8	3	3/16	33322	31969	31979	31989	3ELB
13/64	5/8	2-1/2	1/4	30326	39326	39526	30483	3B
7/32	5/8	2-1/2	1/4	30328	39328	39528	30484	3B
15/64	3/4	2-1/2	1/4	30330	39330	39530	30485	3B
*1/4	3/4	2-1/2	1/4	30332	39332	39532	30486	3B
1/4	1-1/8	3	1/4	33304	31832	31842	31892	3LB
1/4	1-1/2	4	1/4	33324	31970	31980	31990	3ELB
17/64	3/4	2-1/2	5/16	30334	39334	39534	30487	3B
9/32	3/4	2-1/2	5/16	30336	39336	39536	30488	3B
19/64	13/16	2-1/2	5/16	30338	39338	39538	30489	3B
*5/16	13/16	2-1/2	5/16	30340	39340	39540	30490	3B
5/16	1-1/8	3	5/16	33306	31833	31843	31893	3LB
5/16	1-5/8	4	5/16	33326	31971	31981	31991	3ELB
21/64	1	2-1/2	3/8	30342	39342	39542	30491	3B
11/32	1	2-1/2	3/8	30344	39344	39544	30492	3B
23/64	1	2-1/2	3/8	30346	39346	39546	30493	3B

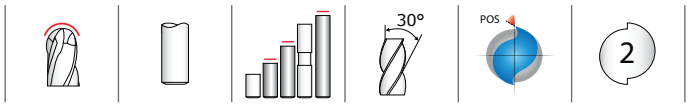
continued on next page

STEELS
STAINLESS STEELS
CAST IRON
NON-FERROUS
HIGH TEMP ALLOYS

For patent information visit www.ksptpatents.com

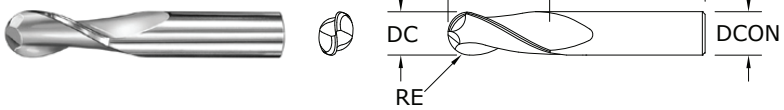
FRACTIONAL

2 Flute Ball End



3B • 3LB • 3ELB

FRACTIONAL SERIES



TOLERANCES (inch)

<1/8 DIAMETER

DC = +0.000/–0.001
DCON = h_6
RE = +0.000/–0.0005

≥1/8 DIAMETER

DC = +0.000/–0.002
DCON = h_6
RE = +0.000/–0.001

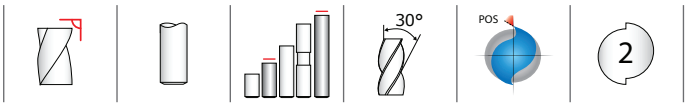
inch				EDP NO.				SERIES
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)	
*3/8	1	2-1/2	3/8	30348	39348	39548	30494	3B
3/8	1-1/8	3	3/8	33308	31834	31844	31894	3LB
3/8	1-3/4	4	3/8	33328	31972	31982	31992	3ELB
25/64	1	2-3/4	7/16	30350	39350	39550	30495	3B
13/32	1	2-3/4	7/16	30352	39352	39552	30496	3B
27/64	1	2-3/4	7/16	30354	39354	39554	30497	3B
7/16	1	2-3/4	7/16	30356	39356	39556	30498	3B
7/16	2	4-1/2	7/16	33310	31835	31845	31895	3LB
7/16	3	6	7/16	33330	31973	31983	31993	3ELB
29/64	1	3	1/2	30358	39358	39558	30499	3B
15/32	1	3	1/2	30360	39360	39560	30500	3B
31/64	1	3	1/2	30362	39362	39562	30591	3B
*1/2	1	3	1/2	30364	39364	39564	30592	3B
1/2	2	4-1/2	1/2	33312	31836	31846	31896	3LB
1/2	3	6	1/2	33332	31974	31984	31994	3ELB
9/16	1-1/8	3-1/2	9/16	30366	39366	39566	30593	3B
5/8	1-1/4	3-1/2	5/8	30368	39368	39568	30594	3B
5/8	2-1/4	5	5/8	33314	31837	31847	31897	3LB
5/8	3	6	5/8	33334	31975	31985	31995	3ELB
11/16	1-3/8	4	3/4	30370	39370	39570	30595	3B
3/4	1-1/2	4	3/4	30372	39372	39572	30596	3B
3/4	2-1/4	5	3/4	33316	31838	31848	31898	3LB
3/4	3	6	3/4	33336	31976	31986	31996	3ELB
7/8	1-1/2	4	7/8	30374	39374	39574	30597	3B
1	1-1/2	4	1	30376	39376	39576	30598	3B
1	2-1/4	5	1	33318	31839	31849	31899	3LB
1	3	6	1	33338	31977	31987	31997	3ELB
*Series 3B Set				30390	39390	39590	30600	3B

RE = 1/2 Cutting Diameter (DC)

STEELS
STAINLESS STEELS
CAST IRON
NON-FERROUS
HIGH TEMP ALLOYS

For patent information visit www.ksptpatents.com

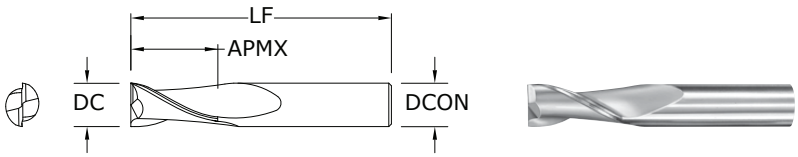
2 Flute Square End



TOLERANCES (mm)

<3 DIAMETER
DC = +0,0000/–0.0254
DCON = h_6

≥3 DIAMETER
DC = +0,0000/–0.0508
DCON = h_6
RE = +0,0000/–0.0508



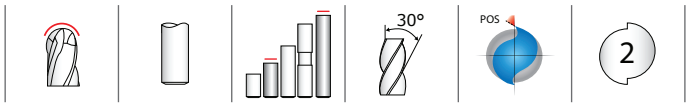
3M• 3XLM
METRIC SERIES

mm				EDP NO.				SERIES
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)	
1,0	4,0	38,0	3,0	40305	48628	48650	48671	3M
1,5	4,5	38,0	3,0	40309	48629	48651	48672	3M
2,0	6,3	38,0	3,0	40313	48630	48652	48673	3M
2,5	9,5	38,0	3,0	40317	48631	48653	48674	3M
3,0	12,0	38,0	3,0	40321	48632	48654	48675	3M
3,0	25,0	75,0	3,0	43301	49427	49440	49453	3XLM
3,5	12,0	50,0	4,0	40325	48633	48655	48676	3M
4,0	14,0	50,0	4,0	40329	48634	48656	48677	3M
4,0	25,0	75,0	4,0	43303	49428	49441	49454	3XLM
4,5	16,0	50,0	6,0	40333	48635	48657	48678	3M
5,0	16,0	50,0	6,0	40337	48636	48658	48679	3M
5,0	25,0	75,0	5,0	43307	49430	49443	49456	3XLM
6,0	19,0	50,0	6,0	40341	48637	48659	48680	3M
6,0	25,0	75,0	6,0	43305	49429	49442	49455	3XLM
7,0	19,0	63,0	8,0	40345	48638	48660	48681	3M
8,0	20,0	63,0	8,0	40349	48639	48661	48682	3M
8,0	25,0	75,0	8,0	43315	49431	49444	49457	3XLM
9,0	22,0	75,0	10,0	40353	48640	48662	48683	3M
10,0	22,0	75,0	10,0	40357	48641	48663	48684	3M
10,0	38,0	100,0	10,0	43325	49432	49445	49458	3XLM
11,0	25,0	75,0	12,0	40361	48642	48664	48685	3M
12,0	25,0	75,0	12,0	40365	48643	48665	48686	3M
12,0	50,0	100,0	12,0	43335	49433	49446	49459	3XLM
12,0	75,0	150,0	12,0	43345	49434	49447	49460	3XLM
14,0	32,0	89,0	14,0	40369	48644	48666	48687	3M
14,0	75,0	150,0	14,0	43355	49435	49448	49461	3XLM
16,0	32,0	89,0	16,0	40373	48645	48667	48688	3M
16,0	75,0	150,0	16,0	43365	49436	49449	49462	3XLM
18,0	38,0	100,0	18,0	40377	48646	48668	48689	3M
18,0	75,0	150,0	18,0	43375	49437	49450	49463	3XLM
20,0	38,0	100,0	20,0	40381	48647	48669	48690	3M
20,0	75,0	150,0	20,0	43385	49438	49451	49464	3XLM
25,0	38,0	100,0	25,0	40385	48648	48670	48691	3M
25,0	75,0	150,0	25,0	43395	49439	49452	49465	3XLM

STEELS
STAINLESS STEELS
CAST IRON
NON-FERROUS
HIGH TEMP ALLOYS

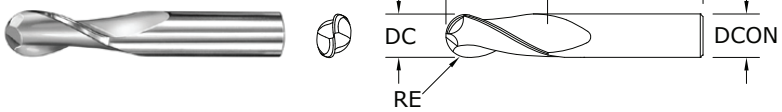
For patent information visit www.ksptpatents.com

2 Flute Ball End



3MB• 3XLMB

METRIC SERIES



TOLERANCES (mm)

<3 DIAMETER

DC = +0,0000 /–0,0254
DCON = h_6
RE = +0,0000 /–0,0127

≥3 DIAMETER

DC = +0,0000 /–0,0508
DCON = h_6
RE = +0,0000 /–0,0254

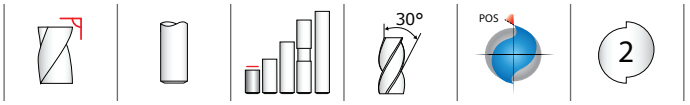
STEELS
STAINLESS STEELS
CAST IRON
NON-FERROUS
HIGH TEMP ALLOYS

For patent information visit www.ksptpatents.com

mm				EDP NO.				SERIES
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)	
1,0	4,0	38,0	3,0	40306	48692	48714	48735	3MB
1,5	4,5	38,0	3,0	40310	48693	48715	48736	3MB
2,0	6,3	38,0	3,0	40314	48694	48716	48737	3MB
2,5	9,5	38,0	3,0	40318	48695	48717	48738	3MB
3,0	12,0	38,0	3,0	40322	48696	48718	48739	3MB
3,0	25,0	75,0	3,0	43302	49544	49557	49570	3XLMB
3,5	12,0	50,0	4,0	40326	48697	48719	48740	3MB
4,0	14,0	50,0	4,0	40330	48698	48720	48741	3MB
4,0	25,0	75,0	4,0	43304	49545	49558	49571	3XLMB
4,5	16,0	50,0	6,0	40334	48699	48721	48742	3MB
5,0	16,0	50,0	6,0	40338	48700	48722	48743	3MB
5,0	25,0	75,0	5,0	43308	49547	49560	49573	3XLMB
6,0	19,0	50,0	6,0	40342	48701	48723	48744	3MB
6,0	25,0	75,0	6,0	43306	49546	49559	49572	3XLMB
7,0	19,0	63,0	8,0	40346	48702	48724	48745	3MB
8,0	20,0	63,0	8,0	40350	48703	48725	48746	3MB
8,0	25,0	75,0	8,0	43316	49548	49561	49574	3XLMB
9,0	22,0	75,0	10,0	40354	48704	48726	48747	3MB
10,0	22,0	75,0	10,0	40358	48705	48727	48748	3MB
10,0	38,0	100,0	10,0	43326	49549	49562	49575	3XLMB
11,0	25,0	75,0	12,0	40362	48706	48728	48749	3MB
12,0	25,0	75,0	12,0	40366	48707	48729	48750	3MB
12,0	50,0	100,0	12,0	43336	49550	49563	49576	3XLMB
12,0	75,0	150,0	12,0	43346	49551	49564	49577	3XLMB
14,0	32,0	89,0	14,0	40370	48708	48730	48751	3MB
14,0	75,0	150,0	14,0	43356	49552	49565	49578	3XLMB
16,0	32,0	89,0	16,0	40374	48709	48731	48752	3MB
16,0	75,0	150,0	16,0	43366	49553	49566	49579	3XLMB
18,0	38,0	100,0	18,0	40378	48710	48732	48753	3MB
18,0	75,0	150,0	18,0	43376	49554	49567	49580	3XLMB
20,0	38,0	100,0	20,0	40382	48711	48733	48754	3MB
20,0	75,0	150,0	20,0	43386	49555	49568	49581	3XLMB
25,0	38,0	100,0	25,0	40386	48712	48734	48755	3MB
25,0	75,0	150,0	25,0	43396	49556	49569	49582	3XLMB

RE = 1/2 Cutting Diameter (DC)

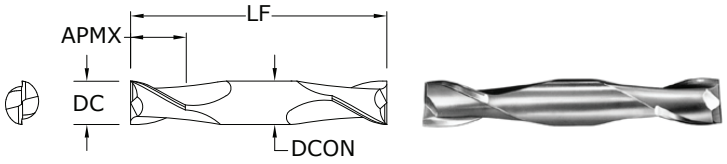
2 Flute Double End



TOLERANCES (inch)

<1/8 DIAMETER
DC = +0.000/–0.001
DCON = h_6

≥1/8 DIAMETER
DC = +0.000/–0.002
DCON = h_6



15
FRACTIONAL SERIES

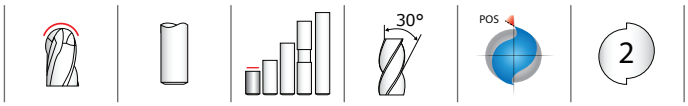
inch				EDP NO.			
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)
1/32	1/16	1-1/2	1/8	31501	31541	39651	31316
3/64	3/32	1-1/2	1/8	31503	31543	39653	31317
1/16	1/8	1-1/2	1/8	31505	31545	39655	31318
5/64	1/8	1-1/2	1/8	31507	31547	39657	31319
3/32	3/16	1-1/2	1/8	31509	31549	39659	31320
7/64	3/16	1-1/2	1/8	31511	31551	39661	31321
*1/8	1/4	1-1/2	1/8	31513	31553	39663	31322
9/64	5/16	2	3/16	31515	31555	39665	31323
5/32	5/16	2	3/16	31517	31557	39667	31324
11/64	5/16	2	3/16	31519	31559	39669	31325
*3/16	3/8	2	3/16	31521	31561	39671	31326
13/64	1/2	2-1/2	1/4	31523	31563	39673	31327
7/32	1/2	2-1/2	1/4	31525	31565	39675	31328
15/64	1/2	2-1/2	1/4	31527	31567	39677	31329
*1/4	1/2	2-1/2	1/4	31529	31569	39679	31330
9/32	1/2	2-1/2	5/16	31531	31571	39681	31331
*5/16	1/2	2-1/2	5/16	31533	31573	39683	31332
*3/8	9/16	2-1/2	3/8	31535	31575	39685	31333
7/16	9/16	2-3/4	7/16	31537	31577	39687	31334
*1/2	5/8	3	1/2	31539	31579	39689	31335
*Series 15 Set				31589	31581	39691	31336

STEELS
STAINLESS STEELS
CAST IRON
NON-FERROUS
HIGH TEMP ALLOYS

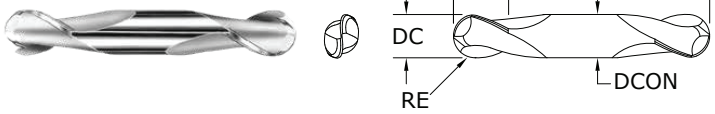
For patent information visit www.ksptpatents.com

FRACTIONAL

2 Flute Double End Ball End



15B
FRACTIONAL SERIES



TOLERANCES (inch)

<1/8 DIAMETER
DC = +0.000/–0.001
DCON = h_6
RE = +0.000/–0.0005

≥1/8 DIAMETER
DC = +0.000/–0.002
DCON = h_6
RE = +0.000/–0.001

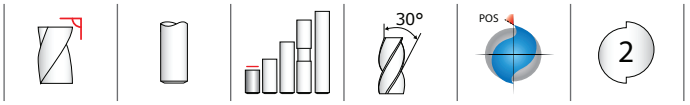
- STEELS
- STAINLESS STEELS
- CAST IRON
- NON-FERROUS
- HIGH TEMP ALLOYS

For patent information visit www.ksptpatents.com

inch				EDP NO.			
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)
1/32	1/16	1-1/2	1/8	31502	31542	39652	31337
3/64	3/32	1-1/2	1/8	31504	31544	39654	31338
1/16	1/8	1-1/2	1/8	31506	31546	39656	31339
5/64	1/8	1-1/2	1/8	31508	31548	39658	31340
3/32	3/16	1-1/2	1/8	31510	31550	39660	31341
7/64	3/16	1-1/2	1/8	31512	31552	39662	31342
*1/8	1/4	1-1/2	1/8	31514	31554	39664	31343
9/64	5/16	2	3/16	31516	31556	39666	31344
5/32	5/16	2	3/16	31518	31558	39668	31345
11/64	5/16	2	3/16	31520	31560	39670	31346
*3/16	3/8	2	3/16	31522	31562	39672	31347
13/64	1/2	2-1/2	1/4	31524	31564	39674	31348
7/32	1/2	2-1/2	1/4	31526	31566	39676	31349
15/64	1/2	2-1/2	1/4	31528	31568	39678	31350
*1/4	1/2	2-1/2	1/4	31530	31570	39680	31351
9/32	1/2	2-1/2	5/16	31532	31572	39682	31352
*5/16	1/2	2-1/2	5/16	31534	31574	39684	31353
*3/8	9/16	2-1/2	3/8	31536	31576	39686	31354
7/16	9/16	2-3/4	7/16	31538	31578	39688	31355
*1/2	5/8	3	1/2	31540	31580	39690	31356
*Series 15B Set				31590	31582	39692	31357

RE = 1/2 Cutting Diameter (DC)

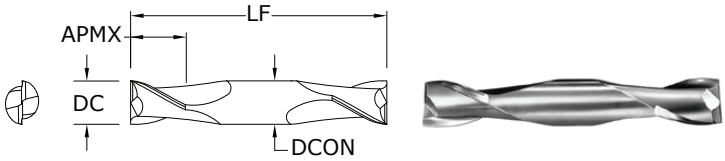
2 Flute Double End



TOLERANCES (mm)

<3 DIAMETER
DC = +0,0000 /–0,0254
DCON = h_6

≥3 DIAMETER
DC = +0,0000 /–0,0508
DCON = h_6



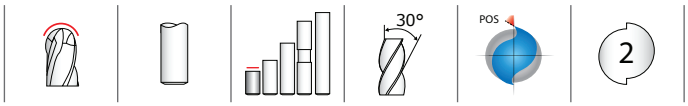
15M
METRIC SERIES

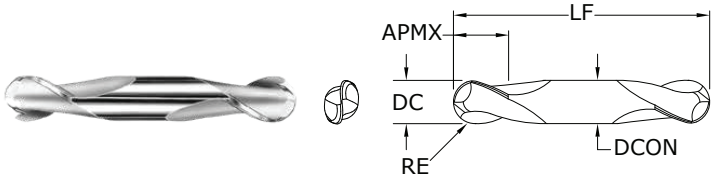
mm				EDP NO.			
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)
1,0	2,0	38,0	3,0	41505	49010	49031	49052
1,5	3,0	38,0	3,0	41509	49011	49032	49053
2,0	4,0	38,0	3,0	41513	49012	49033	49054
2,5	5,0	38,0	3,0	41517	49013	49034	49055
3,0	6,0	38,0	3,0	41521	49014	49035	49056
3,5	7,0	50,0	4,0	41525	49015	49036	49057
4,0	8,0	50,0	4,0	41529	49016	49037	49058
4,5	9,5	63,0	4,5	41533	49017	49038	49059
5,0	10,0	63,0	5,0	41537	49018	49039	49060
6,0	12,0	63,0	6,0	41541	49019	49040	49061
7,0	12,0	63,0	8,0	41545	49020	49041	49062
8,0	12,0	63,0	8,0	41549	49021	49042	49063
9,0	14,0	75,0	9,0	41553	49022	49043	49064
10,0	14,0	75,0	10,0	41557	49023	49044	49065
11,0	14,0	75,0	12,0	41561	49024	49045	49066
12,0	16,0	75,0	12,0	41565	49025	49046	49067

STEELS
STAINLESS STEELS
CAST IRON
NON-FERROUS
HIGH TEMP ALLOYS

For patent information visit www.ksptpatents.com

2 Flute Double End Ball End





TOLERANCES (mm)

<3 DIAMETER
DC = +0,0000 /–0.0254
DCON = h_6
RE = +0,0000 /–0.0127

≥3 DIAMETER
DC = +0,0000 /–0.0508
DCON = h_6
RE = +0,0000 /–0.0254

15MB
METRIC SERIES

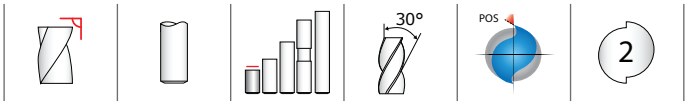
- STEELS
- STAINLESS STEELS
- CAST IRON
- NON-FERROUS
- HIGH TEMP ALLOYS

For patent information visit www.ksptpatents.com

mm				EDP NO.			
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)
1,0	2,0	38,0	3,0	41506	49073	49094	49115
1,5	3,0	38,0	3,0	41510	49074	49095	49116
2,0	4,0	38,0	3,0	41514	49075	49096	49117
2,5	5,0	38,0	3,0	41518	49076	49097	49118
3,0	6,0	38,0	3,0	41522	49077	49098	49119
3,5	7,0	50,0	4,0	41526	49078	49099	49120
4,0	8,0	50,0	4,0	41530	49079	49100	49121
4,5	9,5	63,0	4,5	41534	49080	49101	49122
5,0	10,0	63,0	5,0	41538	49081	49102	49123
6,0	12,0	63,0	6,0	41542	49082	49103	49124
7,0	12,0	63,0	8,0	41546	49083	49104	49125
8,0	12,0	63,0	8,0	41550	49084	49105	49126
9,0	14,0	75,0	9,0	41554	49085	49106	49127
10,0	14,0	75,0	10,0	41558	49086	49107	49128
11,0	14,0	75,0	12,0	41562	49087	49108	49129
12,0	16,0	75,0	12,0	41566	49088	49109	49130

RE = 1/2 Cutting Diameter (DC)

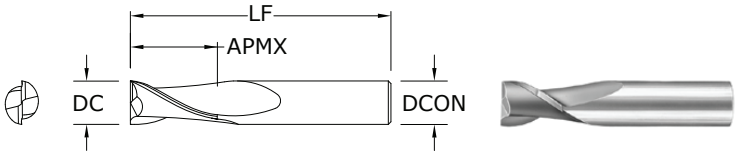
2 Flute Square End Stub



TOLERANCES (inch)

<1/8 DIAMETER
DC = +0.000 /–0.001
DCON = h_6

≥1/8 DIAMETER
DC = +0.000 /–0.002
DCON = h_6



17
FRACTIONAL SERIES

inch				EDP NO.			
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)
1/16	1/8	1-1/2	1/8	31701	31750	31303	31358
3/32	3/16	1-1/2	1/8	31703	31751	31304	31359
1/8	1/4	1-1/2	1/8	31705	31752	31305	31360
5/32	5/16	2	3/16	31707	31753	31306	31361
3/16	3/8	2	3/16	31709	31754	31307	31362
7/32	7/16	2	1/4	31711	31755	31308	31363
1/4	1/2	2	1/4	31713	31756	31309	31364
5/16	1/2	2	5/16	31715	31757	31310	31365
3/8	5/8	2	3/8	31717	31758	31311	31366
7/16	5/8	2-1/2	7/16	31719	31759	31312	31367
1/2	5/8	2-1/2	1/2	31721	31760	31313	31368
5/8	3/4	3	5/8	31723	31761	31314	31369
3/4	1	3	3/4	31725	31762	31315	31370

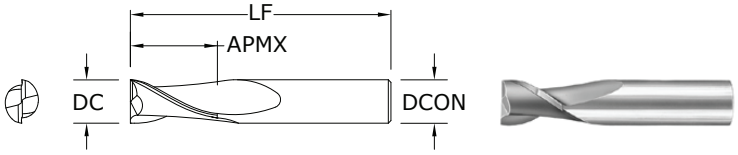
STEELS
STAINLESS STEELS
CAST IRON
NON-FERROUS
HIGH TEMP ALLOYS

For patent information visit www.ksptpatents.com

TOLERANCES (mm)

<3 DIAMETER
DC = +0,0000 /–0.0254
DCON = h_6

≥3 DIAMETER
DC = +0,0000 /–0.0508
DCON = h_6



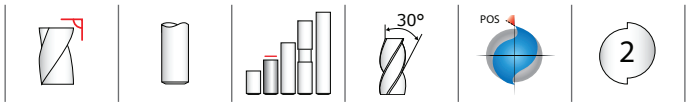
17M
METRIC SERIES

mm				EDP NO.			
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)
1,0	2,0	38,0	3,0	41705	49262	49283	49304
1,5	3,0	38,0	3,0	41709	49263	49284	49305
2,0	4,0	38,0	3,0	41713	49264	49285	49306
2,5	5,0	38,0	3,0	41717	49265	49286	49307
3,0	6,0	38,0	3,0	41721	49266	49287	49308
3,5	7,0	50,0	4,0	41725	49267	49288	49309
4,0	8,0	50,0	4,0	41729	49268	49289	49310
4,5	9,5	50,0	4,5	41733	49269	49290	49311
5,0	10,0	50,0	5,0	41737	49270	49291	49312
6,0	12,0	50,0	6,0	41741	49271	49292	49313
7,0	12,0	50,0	8,0	41745	49272	49293	49314
8,0	12,0	50,0	8,0	41749	49273	49294	49315
9,0	14,0	50,0	9,0	41753	49274	49295	49316
10,0	16,0	50,0	10,0	41757	49275	49296	49317
11,0	19,0	63,0	12,0	41761	49276	49297	49318
12,0	19,0	63,0	12,0	41765	49277	49298	49319

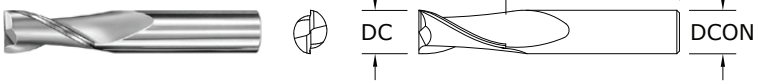
STEELS
STAINLESS STEELS
CAST IRON
NON-FERROUS
HIGH TEMP ALLOYS

For patent information visit www.ksptpatents.com

2 Flute High Shear



52
FRACTIONAL SERIES



TOLERANCES (inch)

<1/8 DIAMETER
DC = +0.000/–0.001
DCON = h_6

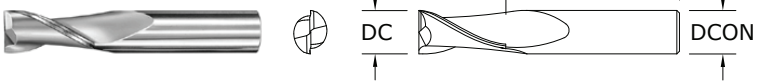
≥1/8 DIAMETER
DC = +0.000/–0.002
DCON = h_6

inch				EDP NO.	
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	UNCOATED	Ti-NAMITE®-C (TiCN)
1/16	3/16	1-1/2	1/8	35273	35300
3/32	3/8	1-1/2	1/8	35275	35301
1/8	7/16	1-1/2	1/8	35277	35302
5/32	9/16	2	3/16	35278	35303
3/16	9/16	2	3/16	35279	35304
7/32	5/8	2-1/2	1/4	35280	35305
1/4	3/4	2-1/2	1/4	35281	35306
9/32	3/4	2-1/2	5/16	35282	35307
5/16	13/16	2-1/2	5/16	35283	35308
3/8	7/8	2-1/2	3/8	35285	35309
7/16	1	2-3/4	7/16	35287	35310
1/2	1	3	1/2	35289	35311
9/16	1-1/8	3-1/2	9/16	35291	35312
5/8	1-1/4	3-1/2	5/8	35293	35313
3/4	1-1/2	4	3/4	35295	35314
1	1-1/2	4	1	35297	35315

NON-FERROUS

For patent information visit www.ksptpatents.com

52M
METRIC SERIES



TOLERANCES (mm)

<3 DIAMETER
DC = +0,0000/–0,0254
DCON = h_6

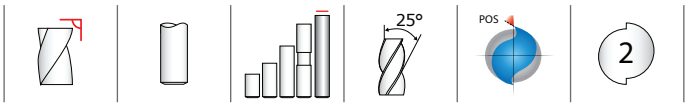
≥3 DIAMETER
DC = +0.0000/–0,0508
DCON = h_6

mm				EDP NO.	
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	UNCOATED	Ti-NAMITE®-C (TiCN)
3,0	7,0	38,0	3,0	45277	49829
3,5	7,0	57,0	6,0	45279	49830
4,0	8,0	57,0	6,0	45281	49831
4,5	8,0	57,0	6,0	45283	49832
5,0	10,0	57,0	6,0	45285	49833
6,0	10,0	57,0	6,0	45287	49834
8,0	16,0	63,0	8,0	45289	49835
10,0	19,0	72,0	10,0	45291	49836
12,0	22,0	83,0	12,0	45293	49837
14,0	22,0	83,0	14,0	45295	49838
16,0	26,0	92,0	16,0	45297	49839
20,0	32,0	104,0	20,0	45299	49840

NON-FERROUS

For patent information visit www.ksptpatents.com

2 Flute Square End Long Reach

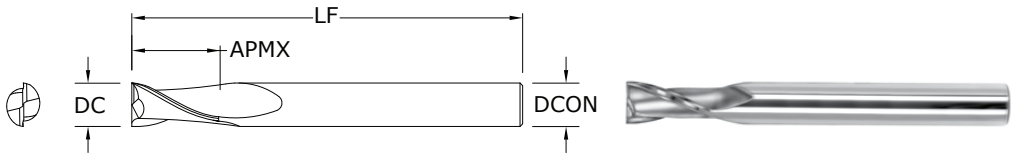


TOLERANCES (inch)

1/8–1/4 DIAMETER
DC = +0.0000 /–0.0012
DCON = h_6

>1/4–3/8 DIAMETER
DC = +0.0000 /–0.0016
DCON = h_6

>3/8–3/4 DIAMETER
DC = +0.0000 /–0.0020
DCON = h_6



59
FRACTIONAL SERIES

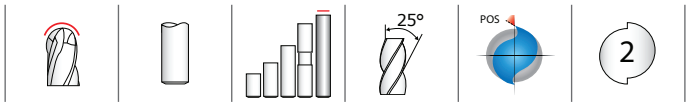
inch				EDP NO.		
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)
1/8	3/8	2-1/2	1/4	32280	32260	32270
3/16	9/16	3	1/4	32281	32261	32271
1/4	5/8	3-1/2	1/4	32282	32262	32272
5/16	11/16	4	5/16	32283	32263	32273
3/8	7/8	4	3/8	32284	32264	32274
1/2	1	4-1/2	1/2	32285	32265	32275
5/8	1-1/8	5	5/8	32286	32266	32276
3/4	1-3/8	5-1/4	3/4	32287	32267	32277

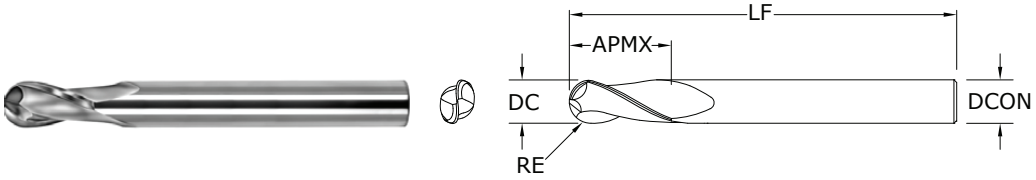
Neck Option Available

STEELS
STAINLESS STEELS
CAST IRON
NON-FERROUS
HIGH TEMP ALLOYS

For patent information visit www.ksptpatents.com

2 Flute Ball End Long Reach





59B
FRACTIONAL SERIES

TOLERANCES (inch)

1/8–1/4 DIAMETER
DC = +0.0000 /–0.0012
DCON = h_6
RE = +0.0000/–0.0006

>1/4–3/8 DIAMETER
DC = +0.0000 /–0.0016
DCON = h_6
RE = +0.0000/–0.0008

>3/8–3/4 DIAMETER
DC = +0.0000 /–0.0020
DCON = h_6
RE = +0.0000/–0.0010

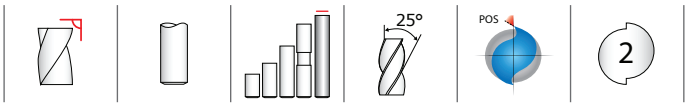
- STEELS
- STAINLESS STEELS
- CAST IRON
- NON-FERROUS
- HIGH TEMP ALLOYS

For patent information visit www.ksptpatents.com

inch				EDP NO.		
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)
1/8	3/8	2-1/2	1/4	32210	32290	32200
3/16	9/16	3	1/4	32211	32291	32201
1/4	5/8	3-1/2	1/4	32212	32292	32202
5/16	11/16	4	5/16	32213	32293	32203
3/8	7/8	4	3/8	32214	32294	32204
1/2	1	4-1/2	1/2	32215	32295	32205
5/8	1-1/8	5	5/8	32216	32296	32206
3/4	1-3/8	5-1/4	3/4	32217	32297	32207

Neck Option Available
RE = 1/2 Cutting Diameter (DC)

2 Flute Square End Long Reach

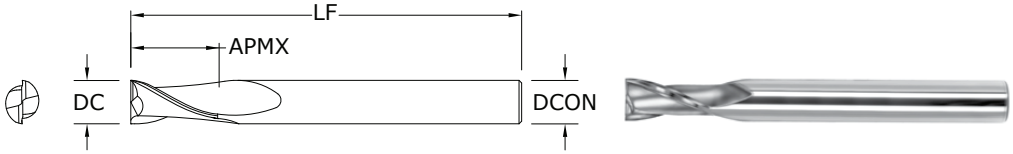


TOLERANCES (mm)

3–6 DIAMETER
DC = +0,0000 /–0,0254
DCON = h_6

>6–10 DIAMETER
DC = +0,0000 /–0,0406
DCON = h_6

>10–20 DIAMETER
DC = +0,0000 /–0,0508
DCON = h_6



59M
METRIC SERIES

mm				EDP NO.			
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)
3,0	9,0	60,0	6,0	43910	43920	43930	43950
4,0	12,0	70,0	6,0	43911	43921	43931	43951
6,0	15,0	80,0	6,0	43912	43922	43932	43952
8,0	20,0	89,0	8,0	43913	43923	43933	43953
10,0	25,0	100,0	10,0	43914	43924	43934	43954
12,0	30,0	110,0	12,0	43915	43925	43935	43955
14,0	35,0	120,0	16,0	43916	43926	43936	43956
16,0	40,0	120,0	16,0	43917	43927	43937	43957
18,0	40,0	130,0	20,0	43918	43928	43938	43958
20,0	45,0	130,0	20,0	43919	43929	43939	43959

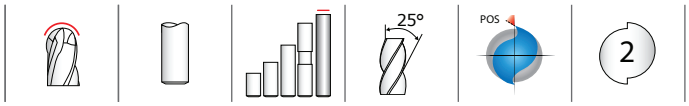
Neck Option Available

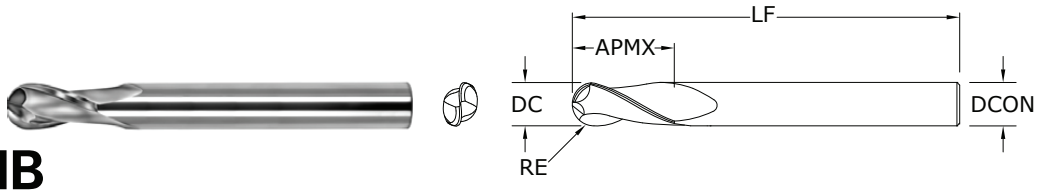
STEELS
STAINLESS STEELS
CAST IRON
NON-FERROUS
HIGH TEMP ALLOYS

For patent information visit www.ksptpatents.com

METRIC

2 Flute Ball End Long Reach





59MB

METRIC SERIES

TOLERANCES (mm)

3–6 DIAMETER
DC = +0,0000 /–0,0254
DCON = h_6
RE = +0,0000 /–0,0127

>6–10 DIAMETER
DC = +0,0000 /–0,0406
DCON = h_6
RE = +0,0000 /–0,0203

>10–20 DIAMETER
DC = +0,0000 /–0,0508
DCON = h_6
RE = +0,0000 /–0,0254

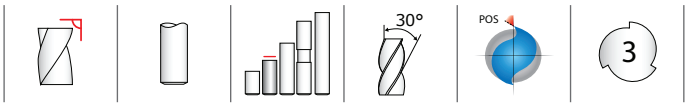
STEELS
STAINLESS STEELS
CAST IRON
NON-FERROUS
HIGH TEMP ALLOYS

For patent information visit www.ksptpatents.com

mm				EDP NO.			
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)
3,0	9,0	60,0	6,0	43900	49622	49632	49642
4,0	12,0	70,0	6,0	43901	49623	49633	49643
6,0	15,0	80,0	6,0	43902	49624	49634	49644
8,0	20,0	89,0	8,0	43903	49625	49635	49645
10,0	25,0	100,0	10,0	43904	49626	49636	49646
12,0	30,0	110,0	12,0	43905	49627	49637	49647
14,0	35,0	120,0	16,0	43906	49628	49638	49648
16,0	40,0	120,0	16,0	43907	49629	49639	49649
18,0	40,0	130,0	20,0	43908	49630	49640	49650
20,0	45,0	130,0	20,0	43909	49631	49641	49651

Neck Option Available
RE = 1/2 Cutting Diameter (DC)

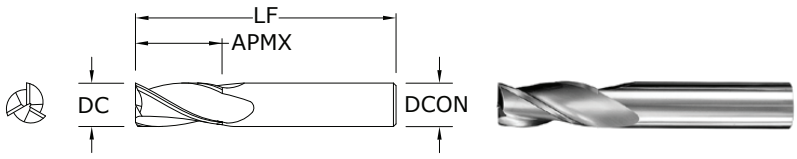
3 Flute Square End



TOLERANCES (inch)

<1/8 DIAMETER
DC = +0.000/–0.001
DCON = h_6

≥1/8 DIAMETER
DC = +0.000/–0.002
DCON = h_6



5
FRACTIONAL SERIES

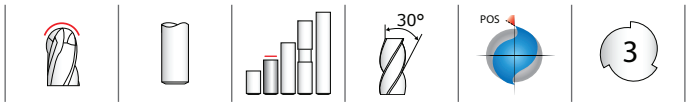
inch				EDP NO.			
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)
1/64	1/32	1-1/2	1/8	30501	39701	30771	30811
1/32	5/64	1-1/2	1/8	30503	39703	30772	30812
3/64	7/64	1-1/2	1/8	30505	39705	30773	30813
1/16	3/16	1-1/2	1/8	30507	39707	30774	30814
5/64	3/16	1-1/2	1/8	30509	39709	30775	30815
3/32	9/32	1-1/2	1/8	30511	39711	30776	30816
7/64	3/8	1-1/2	1/8	30513	39713	30777	30817
1/8	3/8	1-1/2	1/8	30577	39777	30809	30849
*1/8	1/2	1-1/2	1/8	30515	39715	30778	30818
9/64	1/2	2	3/16	30517	39717	30779	30819
5/32	1/2	2	3/16	30519	39719	30780	30820
11/64	5/8	2	3/16	30521	39721	30781	30821
*3/16	5/8	2	3/16	30523	39723	30782	30822
13/64	5/8	2-1/2	1/4	30525	39725	30783	30823
7/32	5/8	2-1/2	1/4	30527	39727	30784	30824
15/64	3/4	2-1/2	1/4	30529	39729	30785	30825
*1/4	3/4	2-1/2	1/4	30531	39731	30786	30826
17/64	3/4	2-1/2	5/16	30533	39733	30787	30827
9/32	3/4	2-1/2	5/16	30535	39735	30788	30828
19/64	13/16	2-1/2	5/16	30537	39737	30789	30829
*5/16	13/16	2-1/2	5/16	30539	39739	30790	30830
21/64	1	2-1/2	3/8	30541	39741	30791	30831
11/32	1	2-1/2	3/8	30543	39743	30792	30832
23/64	1	2-1/2	3/8	30545	39745	30793	30833
*3/8	1	2-1/2	3/8	30547	39747	30794	30834
25/64	1	2-3/4	7/16	30549	39749	30795	30835
13/32	1	2-3/4	7/16	30551	39751	30796	30836
27/64	1	2-3/4	7/16	30553	39753	30797	30837
7/16	1	2-3/4	7/16	30555	39755	30798	30838
29/64	1	3	1/2	30557	39757	30799	30839
15/32	1	3	1/2	30559	39759	30800	30840
31/64	1	3	1/2	30561	39761	30801	30841
*1/2	1	3	1/2	30563	39763	30802	30842
9/16	1-1/8	3-1/2	9/16	30565	39765	30803	30843
5/8	1-1/4	3-1/2	5/8	30567	39767	30804	30844
11/16	1-3/8	4	3/4	30569	39769	30805	30845
3/4	1-1/2	4	3/4	30571	39771	30806	30846
7/8	1-1/2	4	7/8	30573	39773	30807	30847
1	1-1/2	4	1	30575	39775	30808	30848
*Series 5 Set				30589	39789	30810	30850

STEELS
STAINLESS STEELS
CAST IRON
NON-FERROUS
HIGH TEMP ALLOYS

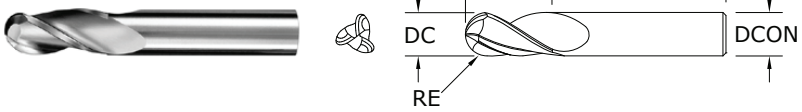
For patent information visit www.ksptpatents.com

FRACTIONAL

3 Flute Ball End



5B
FRACTIONAL SERIES



TOLERANCES (inch)

<1/8 DIAMETER
DC = +0.000/–0.001
DCON = h_6
RE = +0.000/–0.0005

≥1/8 DIAMETER
DC = +0.000/–0.002
DCON = h_6
RE = +0.000/–0.001

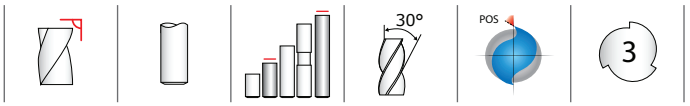
STEELS
STAINLESS STEELS
CAST IRON
NON-FERROUS
HIGH TEMP ALLOYS

For patent information visit www.ksptpatents.com

inch				EDP NO.			
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)
1/64	1/32	1-1/2	1/8	30502	30851	30602	31130
1/32	5/64	1-1/2	1/8	30504	30852	30604	31131
3/64	7/64	1-1/2	1/8	30506	30853	30606	31132
1/16	3/16	1-1/2	1/8	30508	30854	30608	31133
5/64	3/16	1-1/2	1/8	30510	30855	30610	31134
3/32	9/32	1-1/2	1/8	30512	30856	30612	31135
7/64	3/8	1-1/2	1/8	30514	30857	30902	31136
1/8	3/8	1-1/2	1/8	30578	30889	30943	31168
*1/8	1/2	1-1/2	1/8	30516	30858	30904	31137
9/64	1/2	2	3/16	30518	30859	30906	31138
5/32	1/2	2	3/16	30520	30860	30908	31139
11/64	5/8	2	3/16	30522	30861	30910	31140
*3/16	5/8	2	3/16	30524	30862	30912	31141
13/64	5/8	2-1/2	1/4	30526	30863	30914	31142
7/32	5/8	2-1/2	1/4	30528	30864	30916	31143
15/64	3/4	2-1/2	1/4	30530	30865	30918	31144
*1/4	3/4	2-1/2	1/4	30532	30866	30920	31145
17/64	3/4	2-1/2	5/16	30534	30867	30921	31146
9/32	3/4	2-1/2	5/16	30536	30868	30922	31147
19/64	13/16	2-1/2	5/16	30538	30869	30923	31148
*5/16	13/16	2-1/2	5/16	30540	30870	30924	31149
21/64	1	2-1/2	3/8	30542	30871	30925	31150
11/32	1	2-1/2	3/8	30544	30872	30926	31151
23/64	1	2-1/2	3/8	30546	30873	30927	31152
*3/8	1	2-1/2	3/8	30548	30874	30928	31153
25/64	1	2-3/4	7/16	30550	30875	30929	31154
13/32	1	2-3/4	7/16	30552	30876	30930	31155
27/64	1	2-3/4	7/16	30554	30877	30931	31156
7/16	1	2-3/4	7/16	30556	30878	30932	31157
29/64	1	3	1/2	30558	30879	30933	31158
15/32	1	3	1/2	30560	30880	30934	31159
31/64	1	3	1/2	30562	30881	30935	31160
*1/2	1	3	1/2	30564	30882	30936	31161
9/16	1-1/8	3-1/2	9/16	30566	30883	30937	31162
5/8	1-1/4	3-1/2	5/8	30568	30884	30938	31163
11/16	1-3/8	4	3/4	30570	30885	30939	31164
3/4	1-1/2	4	3/4	30572	30886	30940	31165
7/8	1-1/2	4	7/8	30574	30887	30941	31166
1	1-1/2	4	1	30576	30888	30942	31167
*Series 5B Set				30590	30900	30944	31169

RE = 1/2 Cutting Diameter (DC)

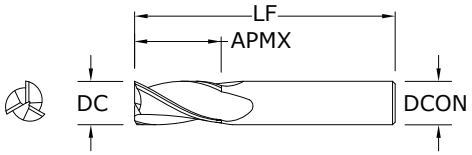
3 Flute Square End



TOLERANCES (mm)

<3 DIAMETER
DC = +0,0000/–0,0254
DCON = h_6

≥3 DIAMETER
DC = +0,0000/–0,0508
DCON = h_6



5M• 5XLM
METRIC SERIES

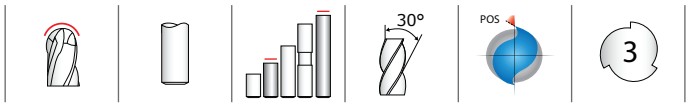
mm				EDP NO.				SERIES
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)	
1,0	4,0	38,0	3,0	40505	48756	48778	48799	5M
1,5	4,5	38,0	3,0	40509	48757	48779	48800	5M
2,0	6,3	38,0	3,0	40513	48758	48780	48801	5M
2,5	9,5	38,0	3,0	40517	48759	48781	48802	5M
3,0	12,0	38,0	3,0	40521	48760	48782	48803	5M
3,0	25,0	75,0	3,0	43501	49466	49479	49492	5XLM
3,5	12,0	50,0	4,0	40525	48761	48783	48804	5M
4,0	14,0	50,0	4,0	40529	48762	48784	48805	5M
4,0	25,0	75,0	4,0	43503	49467	49480	49493	5XLM
4,5	16,0	50,0	6,0	40533	48763	48785	48806	5M
5,0	16,0	50,0	6,0	40537	48764	48786	48807	5M
5,0	25,0	75,0	5,0	43507	49469	49482	49495	5XLM
6,0	19,0	50,0	6,0	40541	48765	48787	48808	5M
6,0	25,0	75,0	6,0	43505	49468	49481	49494	5XLM
7,0	19,0	63,0	8,0	40545	48766	48788	48809	5M
8,0	20,0	63,0	8,0	40549	48767	48789	48810	5M
8,0	25,0	75,0	8,0	43515	49470	49483	49496	5XLM
9,0	22,0	75,0	10,0	40553	48768	48790	48811	5M
10,0	22,0	75,0	10,0	40557	48769	48791	48812	5M
10,0	38,0	100,0	10,0	43525	49471	49484	49497	5XLM
11,0	25,0	75,0	12,0	40561	48770	48792	48813	5M
12,0	25,0	75,0	12,0	40565	48771	48793	48814	5M
12,0	50,0	100,0	12,0	43535	49472	49485	49498	5XLM
12,0	75,0	150,0	12,0	43545	49473	49486	49499	5XLM
14,0	32,0	89,0	14,0	40569	48772	48794	48815	5M
14,0	75,0	150,0	14,0	43555	49474	49487	49500	5XLM
16,0	32,0	89,0	16,0	40573	48773	48795	48816	5M
16,0	75,0	150,0	16,0	43565	49475	49488	49501	5XLM
18,0	38,0	100,0	18,0	40577	48774	48796	48817	5M
18,0	75,0	150,0	18,0	43575	49476	49489	49502	5XLM
20,0	38,0	100,0	20,0	40581	48775	48797	48818	5M
20,0	75,0	150,0	20,0	43585	49477	49490	49503	5XLM
25,0	38,0	100,0	25,0	40585	48776	48798	48819	5M
25,0	75,0	150,0	25,0	43595	49478	49491	49504	5XLM

STEELS
STAINLESS STEELS
CAST IRON
NON-FERROUS
HIGH TEMP ALLOYS

For patent information visit www.ksptpatents.com

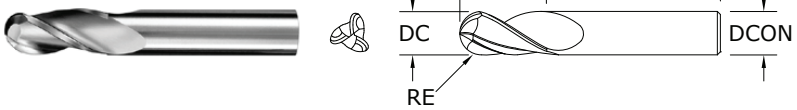
METRIC

3 Flute Ball End



5MB• 5XLMB

METRIC SERIES



TOLERANCES (mm)

<3 DIAMETER
DC = +0,0000 /–0.0254
DCON = h_6
RE = +0,0000 /–0.0127

≥3 DIAMETER
DC = +0,0000 /–0.0508
DCON = h_6
RE = +0,0000 /–0.0254

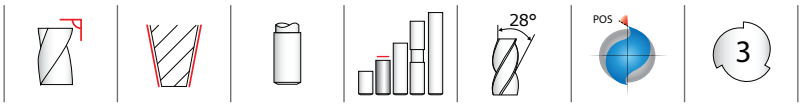
STEELS
STAINLESS STEELS
CAST IRON
NON-FERROUS
HIGH TEMP ALLOYS

For patent information visit www.ksptpatents.com

mm				EDP NO.				SERIES
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)	
1,0	4,0	38,0	3,0	40506	48820	48842	48863	5MB
1,5	4,5	38,0	3,0	40510	48821	48843	48864	5MB
2,0	6,3	38,0	3,0	40514	48822	48844	48865	5MB
2,5	9,5	38,0	3,0	40518	48823	48845	48866	5MB
3,0	12,0	38,0	3,0	40522	48824	48846	48867	5MB
3,0	25,0	75,0	3,0	43502	49583	49596	49609	5XLMB
3,5	12,0	50,0	4,0	40526	48825	48847	48868	5MB
4,0	14,0	50,0	4,0	40530	48826	48848	48869	5MB
4,0	25,0	75,0	4,0	43504	49584	49597	49610	5XLMB
4,5	16,0	50,0	6,0	40534	48827	48849	48870	5MB
5,0	16,0	50,0	6,0	40538	48828	48850	48871	5MB
5,0	25,0	75,0	5,0	43508	49586	49599	49612	5XLMB
6,0	19,0	50,0	6,0	40542	48829	48851	48872	5MB
6,0	25,0	75,0	6,0	43506	49585	49598	49611	5XLMB
7,0	19,0	63,0	8,0	40546	48830	48852	48873	5MB
8,0	20,0	63,0	8,0	40550	48831	48853	48874	5MB
8,0	25,0	75,0	8,0	43516	49587	49600	49613	5XLMB
9,0	22,0	75,0	10,0	40554	48832	48854	48875	5MB
10,0	22,0	75,0	10,0	40558	48833	48855	48876	5MB
10,0	38,0	100,0	10,0	43526	49588	49601	49614	5XLMB
11,0	25,0	75,0	12,0	40562	48834	48856	48877	5MB
12,0	25,0	75,0	12,0	40566	48835	48857	48878	5MB
12,0	50,0	100,0	12,0	43536	49589	49602	49615	5XLMB
12,0	75,0	150,0	12,0	43546	49590	49603	49616	5XLMB
14,0	32,0	89,0	14,0	40570	48836	48858	48879	5MB
14,0	75,0	150,0	14,0	43556	49591	49604	49617	5XLMB
16,0	32,0	89,0	16,0	40574	48837	48859	48880	5MB
16,0	75,0	150,0	16,0	43566	49592	49605	49618	5XLMB
18,0	38,0	100,0	18,0	40578	48838	48860	48881	5MB
18,0	75,0	150,0	18,0	43576	49593	49606	49619	5XLMB
20,0	38,0	100,0	20,0	40582	48839	48861	48882	5MB
20,0	75,0	150,0	20,0	43586	49594	49607	49620	5XLMB
25,0	38,0	100,0	25,0	40586	48840	48862	48883	5MB
25,0	75,0	150,0	25,0	43596	49595	49608	49621	5XLMB

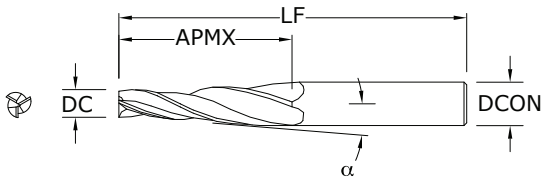
RE = 1/2 Cutting Diameter (DC)

Tapered Square End



TOLERANCES (inch)

DC = +0.001 / −0.002
DCON = h_6
α = +10' / −10'



23
FRACTIONAL SERIES

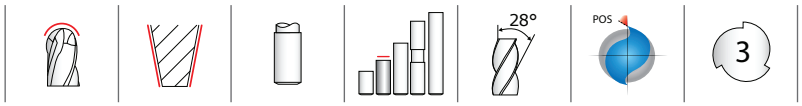
inch					EDP NO.			
SHANK DIAMETER DCON	CENTER LINE ANGLE α	SMALL DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)
1/4	1°	1/8	1-1/2	3	32301	32370	32302	32345
1/4	1°30'	1/8	1-1/2	3	32303	32371	32304	32346
1/4	2°	1/8	1-1/4	3	32305	32372	32306	32347
1/4	3°	1/8	1	3	32307	32373	32308	32348
1/4	5°	1/8	3/4	3	32309	32374	32310	32349
1/4	7°	1/8	1/2	3	32311	32375	32312	32350
1/4	10°	3/32	1/2	3	32313	32376	32314	32351
3/8	1°	3/16	1-3/4	3-1/2	32315	32377	32316	32352
3/8	1°30'	3/16	1-3/4	3-1/2	32317	32378	32318	32353
3/8	2°	3/16	1-3/4	3-1/2	32319	32379	32320	32354
3/8	3°	5/32	1-3/4	3-1/2	32321	32380	32322	32355
3/8	5°	1/8	1-1/2	3-1/2	32323	32381	32324	32356
3/8	7°	1/8	1	3-1/2	32325	32382	32326	32357
3/8	10°	1/8	3/4	3-1/2	32327	32383	32328	32358
1/2	1°	1/4	2	4	32329	32384	32330	32359
1/2	2°	1/4	2	4	32333	32385	32334	32360
1/2	3°	1/4	2	4	32335	32386	32336	32361
1/2	5°	1/4	1-1/4	4	32337	32387	32338	32362
1/2	7°	3/16	1-1/4	4	32339	32388	32340	32363
1/2	10°	1/8	1	4	32341	32389	32342	32364

STEELS
STAINLESS STEELS
CAST IRON
NON-FERROUS
HIGH TEMP ALLOYS

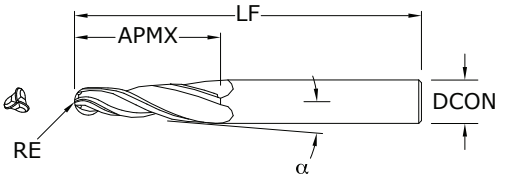
For patent information visit www.ksptpatents.com

FRACTIONAL

Tapered Ball End



24
FRACTIONAL SERIES



TOLERANCES (inch)

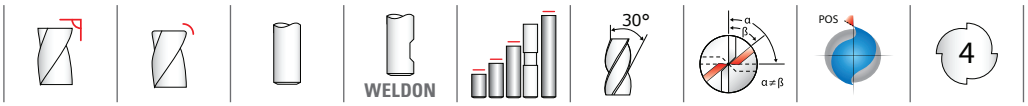
DCON = h_6
RE = +0.0000/–0.0010
α = +10' / –10'

- STEELS
- STAINLESS STEELS
- CAST IRON
- NON-FERROUS
- HIGH TEMP ALLOYS

For patent information visit www.ksptpatents.com

inch					EDP NO.			
SHANK DIAMETER DCON	CENTER LINE ANGLE α	RADIUS RE	LENGTH OF CUT APMX	OVERALL LENGTH LF	UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)
1/4	1°	.062	1-1/2	3	32402	32403	32445	32470
1/4	1°30'	.062	1-1/2	3	32404	32405	32446	32471
1/4	2°	.062	1-1/4	3	32406	32407	32447	32472
1/4	3°	.062	1	3	32408	32409	32448	32473
1/4	5°	.062	3/4	3	32410	32411	32449	32474
1/4	7°	.062	1/2	3	32412	32413	32450	32475
1/4	10°	.047	1/2	3	32414	32415	32451	32476
3/8	1°	.093	1-3/4	3-1/2	32416	32417	32452	32477
3/8	1°30'	.093	1-3/4	3-1/2	32418	32419	32453	32478
3/8	2°	.093	1-3/4	3-1/2	32420	32421	32454	32479
3/8	3°	.078	1-3/4	3-1/2	32422	32423	32455	32480
3/8	5°	.062	1-1/2	3-1/2	32424	32425	32456	32481
3/8	7°	.062	1	3-1/2	32426	32427	32457	32482
3/8	10°	.062	3/4	3-1/2	32428	32429	32458	32483
1/2	1°	.125	2	4	32430	32431	32459	32484
1/2	2°	.125	2	4	32434	32435	32460	32485
1/2	3°	.125	2	4	32436	32437	32461	32486
1/2	5°	.125	1-1/4	4	32438	32439	32462	32487
1/2	7°	.093	1-1/4	4	32440	32441	32463	32488
1/2	10°	.062	1	4	32442	32443	32464	32489

4 Flute Square End • 4 Flute Corner Radius



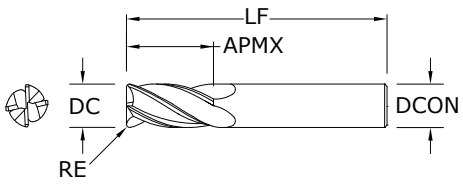
TOLERANCES (inch)

<1/8 DIAMETER

DC = +0.000 / –0.001
DCON = h_6

≥1/8 DIAMETER

DC = +0.000 / –0.002
1CR DC = –0.001 / –0.002
DCON = h_6
RE = +0.000 / –0.002



1 • 1L • 1EL • 1CR • 16
FRACTIONAL SERIES

inch						EDP NO.				SERIES
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	CORNER RADIUS RE	WELDON FLAT	UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)	
1/64	1/32	1-1/2	1/8	–		30101	39101	39001	30191	1
1/32	5/64	1-1/2	1/8	–		30103	39103	39003	30192	1
3/64	7/64	1-1/2	1/8	–		30105	39105	39005	30193	1
1/16	1/8	1-1/2	1/8	–		31601	31650	31238	31251	16
†1/16	3/16	1-1/2	1/8	–		30107	39107	39007	30194	1
5/64	3/16	1-1/2	1/8	–		30109	39109	39009	30195	1
3/32	3/16	1-1/2	1/8	–		31603	31651	31239	31252	16
3/32	9/32	1-1/2	1/8	–		30111	39111	39011	30196	1
7/64	3/8	1-1/2	1/8	–		30113	39113	39013	30197	1
1/8	1/4	1-1/2	1/8	–		31605	31652	31240	31253	16
1/8	3/8	1-1/2	1/8	–		30177	39177	39077	30029	1
*†1/8	1/2	1-1/2	1/8	–		30115	39115	39015	30198	1
1/8	1/2	1-1/2	1/8	.015		38001	38002	38115	38157	1CR
1/8	1/2	1-1/2	1/8	.020		38003	38004	38116	38158	1CR
1/8	3/4	2-1/4	1/8	–		33141	31727	31737	31747	1L
1/8	1	3	1/8	–		33143	31860	31870	31880	1EL
9/64	1/2	2	3/16	–		30117	39117	39017	30199	1
5/32	5/16	2	3/16	–		31607	31653	31241	31254	16
5/32	1/2	2	3/16	–		30119	39119	39019	30000	1
11/64	5/8	2	3/16	–		30121	39121	39021	30001	1
3/16	3/8	2	3/16	–		31609	31654	31242	31255	16
*†3/16	5/8	2	3/16	–		30123	39123	39023	30002	1
3/16	5/8	2	3/16	.015		38009	38010	38117	38159	1CR
3/16	5/8	2	3/16	.020		38011	38012	38118	38160	1CR
3/16	5/8	2	3/16	.030		38013	38014	38119	38161	1CR
3/16	3/4	2-1/2	3/16	–		33101	31728	31738	31748	1L
3/16	1-1/8	3	3/16	–		33121	31861	31871	31881	1EL
13/64	5/8	2-1/2	1/4	–		30125	39125	39025	30003	1
7/32	7/16	2	1/4	–		31611	31655	31243	31256	16
7/32	5/8	2-1/2	1/4	–		30127	39127	39027	30004	1
15/64	3/4	2-1/2	1/4	–		30129	39129	39029	30005	1
1/4	1/2	2	1/4	–		31613	31656	31244	31257	16
*†1/4	3/4	2-1/2	1/4	–		30131	39131	39031	30006	1
1/4	3/4	2-1/2	1/4	–	•	30300	–	–	–	1

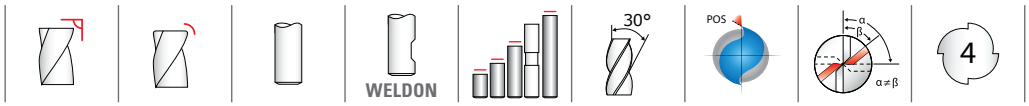
continued on next page

STEELS
STAINLESS STEELS
CAST IRON
NON-FERROUS
HIGH TEMP ALLOYS

For patent information visit www.ksptpatents.com

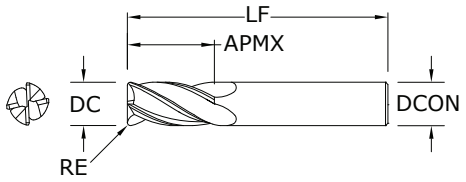
FRACTIONAL

4 Flute Square End • 4 Flute Corner Radius



1 • 1L • 1EL • 1CR • 16

FRACTIONAL SERIES



TOLERANCES (inch)

<1/8 DIAMETER

DC = +0.000 /–0.001
DCON = h_6

≥1/8 DIAMETER

DC = +0.000 /–0.002
1CR DC = –0.001 /–0.002
DCON = h_6
RE = +0.000 /–0.002

CONTINUED

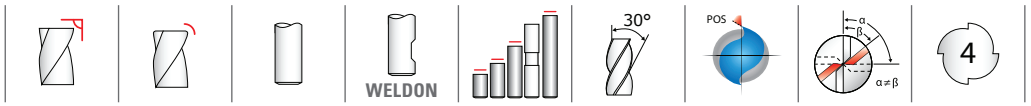
STEELS
STAINLESS STEELS
CAST IRON
NON-FERROUS
HIGH TEMP ALLOYS

For patent information visit www.ksptpatents.com

inch						EDP NO.				SERIES
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	CORNER RADIUS RE	WELDON FLAT	UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)	
1/4	3/4	2-1/2	1/4	.015		38019	38020	38120	38162	1CR
1/4	3/4	2-1/2	1/4	.020		38021	38022	38121	38163	1CR
1/4	3/4	2-1/2	1/4	.030		38023	38024	38122	38164	1CR
1/4	3/4	2-1/2	1/4	.045		38025	38026	38123	38165	1CR
1/4	1-1/8	3	1/4	–		33103	31729	31739	31749	1L
1/4	1-1/2	4	1/4	–		33123	31862	31872	31882	1EL
17/64	3/4	2-1/2	5/16	–		30133	39133	39033	30007	1
9/32	3/4	2-1/2	5/16	–		30135	39135	39035	30008	1
19/64	13/16	2-1/2	5/16	–		30137	39137	39037	30009	1
5/16	1/2	2	5/16	–		31615	31657	31245	31258	16
*†5/16	13/16	2-1/2	5/16	–		30139	39139	39039	30010	1
5/16	13/16	2-1/2	5/16	.015		38031	38032	38124	38166	1CR
5/16	13/16	2-1/2	5/16	.020		38033	38034	38125	38167	1CR
5/16	13/16	2-1/2	5/16	.030		38035	38036	38126	38168	1CR
5/16	13/16	2-1/2	5/16	.045		38037	38038	38127	38169	1CR
5/16	1-1/8	3	5/16	–		33105	31730	31740	31763	1L
5/16	1-5/8	4	5/16	–		33125	31863	31873	31883	1EL
21/64	1	2-1/2	3/8	–		30141	39141	39041	30011	1
11/32	1	2-1/2	3/8	–		30143	39143	39043	30012	1
23/64	1	2-1/2	3/8	–		30145	39145	39045	30013	1
3/8	5/8	2	3/8	–		31617	31658	31246	31259	16
*†3/8	1	2-1/2	3/8	–		30147	39147	39047	30014	1
3/8	1	2-1/2	3/8	–	•	30179	–	–	30379	1
3/8	1	2-1/2	3/8	.015	•	38045	38046	38128	38170	1CR
3/8	1	2-1/2	3/8	.020	•	38047	38048	38129	38171	1CR
3/8	1	2-1/2	3/8	.030	•	38049	38050	38130	38172	1CR
3/8	1	2-1/2	3/8	.045	•	38051	38052	38131	38173	1CR
3/8	1-1/8	3	3/8	–		33107	31731	31741	31764	1L
3/8	1-3/4	4	3/8	–		33127	31864	31874	31884	1EL
25/64	1	2-3/4	7/16	–		30149	39149	39049	30015	1
13/32	1	2-3/4	7/16	–		30151	39151	39051	30016	1
27/64	1	2-3/4	7/16	–		30153	39153	39053	30017	1

continued on next page

4 Flute Square End • 4 Flute Corner Radius



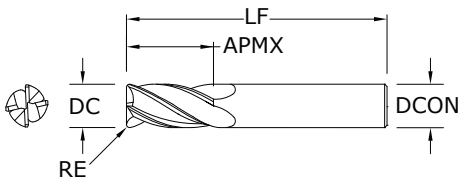
TOLERANCES (inch)

<1/8 DIAMETER

DC = +0.000 / –0.001
DCON = h_6

≥1/8 DIAMETER

DC = +0.000 / –0.002
1CR DC = –0.001 / –0.002
DCON = h_6
RE = +0.000 / –0.002



1 • 1L • 1EL • 1CR • 16
FRACTIONAL SERIES

CONTINUED

inch						EDP NO.				SERIES
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	CORNER RADIUS RE	WELDON FLAT	UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)	
7/16	5/8	2-1/2	7/16	–		31619	31659	31247	31260	16
7/16	1	2-3/4	7/16	–		30155	39155	39055	30018	1
7/16	2	4-1/2	7/16	–		33109	31732	31742	31765	1L
7/16	3	6	7/16	–		33129	31865	31875	31885	1EL
29/64	1	3	1/2	–		30157	39157	39057	30019	1
15/32	1	3	1/2	–		30159	39159	39059	30020	1
31/64	1	3	1/2	–		30161	39161	39061	30021	1
1/2	5/8	2-1/2	1/2	–		31621	31660	31248	31261	16
*†1/2	1	3	1/2	–		30163	39163	39063	30022	1
1/2	1	3	1/2	–	•	30180	–	–	30380	1
1/2	1	3	1/2	.015	•	38059	38060	38132	38174	1CR
1/2	1	3	1/2	.020	•	38061	38062	38133	38175	1CR
1/2	1	3	1/2	.030	•	38063	38064	38134	38176	1CR
1/2	1	3	1/2	.045	•	38065	38066	38135	38177	1CR
1/2	1	3	1/2	.060	•	38067	38068	38136	38178	1CR
1/2	2	4-1/2	1/2	–		33111	31733	31743	31766	1L
1/2	3	6	1/2	–		33131	31866	31876	31886	1EL
9/16	1-1/8	3-1/2	9/16	–		30165	39165	39065	30023	1
5/8	3/4	3	5/8	–		31623	31661	31249	31262	16
5/8	1-1/4	3-1/2	5/8	–		30167	39167	39067	30024	1
5/8	1-1/4	3-1/2	5/8	–	•	30181	–	–	30381	1
5/8	1-1/4	3-1/2	5/8	.015	•	38073	38074	38137	38179	1CR
5/8	1-1/4	3-1/2	5/8	.020	•	38075	38076	38138	38180	1CR
5/8	1-1/4	3-1/2	5/8	.030	•	38077	38078	38139	38181	1CR
5/8	1-1/4	3-1/2	5/8	.045	•	38079	38080	38140	38182	1CR
5/8	1-1/4	3-1/2	5/8	.060	•	38081	38082	38141	38183	1CR
5/8	1-1/4	3-1/2	5/8	.090	•	38083	38084	38142	38184	1CR
5/8	2-1/4	5	5/8	–		33113	31734	31744	31767	1L
5/8	3	6	5/8	–		33133	31867	31877	31887	1EL
11/16	1-3/8	4	3/4	–		30169	39169	39069	30025	1
3/4	1	3	3/4	–		31625	31662	31250	31263	16
3/4	1-1/2	4	3/4	–		30171	39171	39071	30026	1

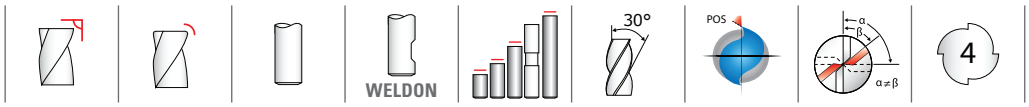
continued on next page

STEELS
STAINLESS STEELS
CAST IRON
NON-FERROUS
HIGH TEMP ALLOYS

For patent information visit www.ksptpatents.com

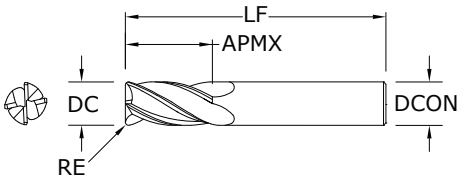
FRACTIONAL

4 Flute Square End • 4 Flute Corner Radius



1 • 1L • 1EL • 1CR • 16

FRACTIONAL SERIES



TOLERANCES (inch)

<1/8 DIAMETER

DC = +0.000 /–0.001
DCON = h_6

≥1/8 DIAMETER

DC = +0.000 /–0.002
1CR DC = –0.001 /–0.002
DCON = h_6
RE = +0.000 /–0.002

CONTINUED

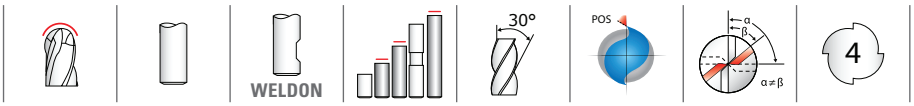
STEELS
STAINLESS STEELS
CAST IRON
NON-FERROUS
HIGH TEMP ALLOYS

For patent information visit www.ksptpatents.com

inch						EDP NO.				SERIES
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	CORNER RADIUS RE	WELDON FLAT	UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)	
3/4	1-1/2	4	3/4	–	•	30182	–	–	30382	1
3/4	1-1/2	4	3/4	.015	•	38087	38088	38143	38185	1CR
3/4	1-1/2	4	3/4	.020	•	38089	38090	38144	38186	1CR
3/4	1-1/2	4	3/4	.030	•	38091	38092	38145	38187	1CR
3/4	1-1/2	4	3/4	.045	•	38093	38094	38146	38188	1CR
3/4	1-1/2	4	3/4	.060	•	38095	38096	38147	38189	1CR
3/4	1-1/2	4	3/4	.090	•	38097	38098	38148	38190	1CR
3/4	1-1/2	4	3/4	.125	•	38099	38100	38149	38191	1CR
3/4	2-1/4	5	3/4	–		33115	31735	31745	31768	1L
3/4	3	6	3/4	–		33135	31868	31878	31888	1EL
7/8	1-1/2	4	7/8	–		30173	39173	39073	30027	1
1	1-1/2	4	1	–		30175	39175	39075	30028	1
1	1-1/2	4	1	–		30183	–	–	30383	1
1	1-1/2	4	1	.015	•	38101	38102	38150	38192	1CR
1	1-1/2	4	1	.020	•	38103	38104	38151	38193	1CR
1	1-1/2	4	1	.030	•	38105	38106	38152	38194	1CR
1	1-1/2	4	1	.045	•	38107	38108	38153	38195	1CR
1	1-1/2	4	1	.060	•	38109	38110	38154	38196	1CR
1	1-1/2	4	1	.090	•	38111	38112	38155	38197	1CR
1	1-1/2	4	1	.125	•	38113	38114	38156	38198	1CR
1	2-1/4	5	1	–		33117	31736	31746	31769	1L
1	3	6	1	–		33137	31869	31879	31889	1EL
*Series 1 Set						30189	39189	39089	30030	1

† Di-NAMITE® coating offered standard for this configuration. Please contact your KSPT Representative for more information.

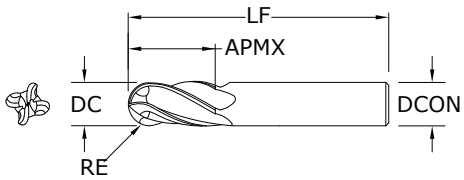
4 Flute Ball End



TOLERANCES (inch)

<1/8 DIAMETER
DC = +0.000 /–0.001
DCON = h_6
RE = +0.000 /–0.0005

≥1/8 DIAMETER
DC = +0.000 /–0.002
DCON = h_6
RE = +0.000 /–0.001



1B • 1LB • 1ELB
FRACTIONAL SERIES

inch					EDP NO.				SERIES
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	WELDON FLAT	UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)	
1/64	1/32	1-1/2	1/8		30102	39102	39002	30031	1B
1/32	5/64	1-1/2	1/8		30104	39104	39004	30032	1B
3/64	7/64	1-1/2	1/8		30106	39106	39006	30033	1B
†1/16	3/16	1-1/2	1/8		30108	39108	39008	30034	1B
5/64	3/16	1-1/2	1/8		30110	39110	39010	30035	1B
3/32	9/32	1-1/2	1/8		30112	39112	39012	30036	1B
7/64	3/8	1-1/2	1/8		30114	39114	39014	30037	1B
*1/8	3/8	1-1/2	1/8		30178	39178	39078	30069	1B
†1/8	1/2	1-1/2	1/8		30116	39116	39016	30038	1B
1/8	3/4	2-1/4	1/8		33142	31770	31780	31790	1LB
1/8	1	3	1/8		33144	31900	31918	31928	1ELB
9/64	1/2	2	3/16		30118	39118	39018	30039	1B
5/32	1/2	2	3/16		30120	39120	39020	30040	1B
11/64	5/8	2	3/16		30122	39122	39022	30041	1B
*†3/16	5/8	2	3/16		30124	39124	39024	30042	1B
3/16	3/4	2-1/2	3/16		33102	31771	31781	31791	1LB
3/16	1-1/8	3	3/16		33122	31902	31919	31929	1ELB
13/64	5/8	2-1/2	1/4		30126	39126	39026	30043	1B
7/32	5/8	2-1/2	1/4		30128	39128	39028	30044	1B
15/64	3/4	2-1/2	1/4		30130	39130	39030	30045	1B
*†1/4	3/4	2-1/2	1/4		30132	39132	39032	30046	1B
1/4	1-1/8	3	1/4		33104	31772	31782	31792	1LB
1/4	1-1/2	4	1/4		33124	31904	31920	31930	1ELB
17/64	3/4	2-1/2	5/16		30134	39134	39034	30047	1B
9/32	3/4	2-1/2	5/16		30136	39136	39036	30048	1B
19/64	13/16	2-1/2	5/16		30138	39138	39038	30049	1B
*†5/16	13/16	2-1/2	5/16		30140	39140	39040	30050	1B
5/16	1-1/8	3	5/16		33106	31773	31783	31793	1LB
5/16	1-5/8	4	5/16		33126	31906	31921	31931	1ELB
21/64	1	2-1/2	3/8		30142	39142	39042	30051	1B
11/32	1	2-1/2	3/8		30144	39144	39044	30052	1B
23/64	1	2-1/2	3/8		30146	39146	39046	30053	1B

RE = 1/2 Cutting Diameter (DC)

continued on next page

STEELS
STAINLESS STEELS
CAST IRON
NON-FERROUS
HIGH TEMP ALLOYS

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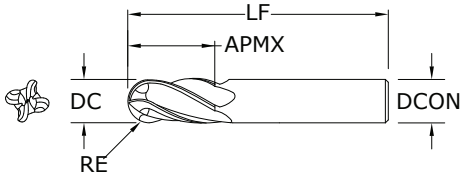
FRACTIONAL

4 Flute Ball End

1B • 1LB • 1ELB

FRACTIONAL SERIES



TOLERANCES (inch)

<1/8 DIAMETER
DC = +0.000/–0.001
DCON = h_6
RE = +0.000/–0.0005

≥1/8 DIAMETER
DC = +0.000/–0.002
DCON = h_6
RE = +0.000/–0.001

CONTINUED

STEELS
STAINLESS STEELS
CAST IRON
NON-FERROUS
HIGH TEMP ALLOYS

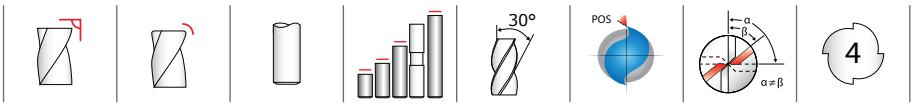
For patent information visit www.ksptpatents.com

inch					EDP NO.				SERIES
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	WELDON FLAT	UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)	
*†3/8	1	2-1/2	3/8		30148	39148	39048	30054	1B
3/8	1	2-1/2	3/8	•	30184	–	–	30384	1B
3/8	1-1/8	3	3/8		33108	31774	31784	31794	1LB
3/8	1-3/4	4	3/8		33128	31908	31922	31932	1ELB
25/64	1	2-3/4	7/16		30150	39150	39050	30055	1B
13/32	1	2-3/4	7/16		30152	39152	39052	30056	1B
27/64	1	2-3/4	7/16		30154	39154	39054	30057	1B
7/16	1	2-3/4	7/16		30156	39156	39056	30058	1B
7/16	2	4-1/2	7/16		33110	31775	31785	31795	1LB
7/16	3	6	7/16		33130	31910	31923	31933	1ELB
29/64	1	3	1/2		30158	39158	39058	30059	1B
15/32	1	3	1/2		30160	39160	39060	30060	1B
31/64	1	3	1/2		30162	39162	39062	30061	1B
*†1/2	1	3	1/2		30164	39164	39064	30062	1B
1/2	1	3	1/2	•	30185	–	–	30385	1B
1/2	2	4-1/2	1/2		33112	31776	31786	31796	1LB
1/2	3	6	1/2		33132	31912	31924	31934	1ELB
9/16	1-1/8	3-1/2	9/16		30166	39166	39066	30063	1B
5/8	1-1/4	3-1/2	5/8		30168	39168	39068	30064	1B
5/8	1-1/4	3-1/2	5/8	•	30186	–	–	30386	1B
5/8	2-1/4	5	5/8		33114	31777	31787	31797	1LB
5/8	3	6	5/8		33134	31914	31925	31935	1ELB
11/16	1-3/8	4	3/4		30170	39170	39070	30065	1B
3/4	1-1/2	4	3/4		30172	39172	39072	30066	1B
3/4	1-1/2	4	3/4	•	30187	–	–	30387	1B
3/4	2-1/4	5	3/4		33116	31778	31788	31798	1LB
3/4	3	6	3/4		33136	31916	31926	31936	1ELB
7/8	1-1/2	4	7/8		30174	39174	39074	30067	1B
1	1-1/2	4	1		30176	39176	39076	30068	1B
1	1-1/2	4	1	•	30188	–	–	30388	1B
1	2-1/4	5	1		33118	31779	31789	31799	1LB
1	3	6	1		33138	31917	31927	31937	1ELB
*Series 1B Set					30190	39190	39090	30070	1B

RE = 1/2 Cutting Diameter (DC)

† Di-NAMITE® coating offered standard for this configuration. Please contact your KSPT Representative for more information.

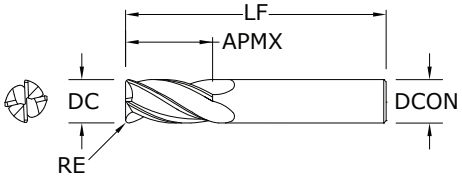
4 Flute Square End • 4 Flute Corner Radius



TOLERANCES (mm)

<3 DIAMETER
DC = +0,0000/–0,0254
DCON = h_6

≥3 DIAMETER
DC = +0,0000/–0,0508
DCON = h_6
RE = +0,0000/–0,0508



1M • 1XLM • 1MCR • 16M
METRIC SERIES

mm					EDP NO.				SERIES
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	CORNER RADIUS RE	SHANK DIAMETER DCON	UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)	
1,0	2,0	38,0	–	3,0	41605	49136	49157	49178	16M
1,0	4,0	38,0	–	3,0	40105	48500	48522	48543	1M
1,5	3,0	38,0	–	3,0	41609	49137	49158	49179	16M
1,5	4,5	38,0	–	3,0	40109	48501	48523	48544	1M
2,0	4,0	38,0	–	3,0	41613	49138	49159	49180	16M
2,0	6,3	38,0	–	3,0	40113	48502	48524	48545	1M
2,5	5,0	38,0	–	3,0	41617	49139	49160	49181	16M
2,5	9,5	38,0	–	3,0	40117	48503	48525	48546	1M
3,0	6,0	38,0	–	3,0	41621	49140	49161	49182	16M
3,0	12,0	38,0	–	3,0	40121	48504	48526	48547	1M
3,0	25,0	75,0	–	3,0	43101	49388	49401	49414	1XLM
3,5	7,0	50,0	–	4,0	41625	49141	49162	49183	16M
3,5	12,0	50,0	–	4,0	40125	48505	48527	48548	1M
4,0	8,0	50,0	–	4,0	41629	49142	49163	49184	16M
4,0	14,0	50,0	–	4,0	40129	48506	48528	48549	1M
4,0	14,0	50,0	0,25	4,0	–	–	–	40000	1MCR
4,0	14,0	50,0	0,50	4,0	–	–	–	40001	1MCR
4,0	14,0	50,0	1,00	4,0	–	–	–	40003	1MCR
4,0	25,0	75,0	–	4,0	43103	49389	49402	49415	1XLM
4,5	9,5	50,0	–	4,5	41633	49143	49164	49185	16M
4,5	16,0	50,0	–	6,0	40133	48507	48529	48550	1M
5,0	10,0	50,0	–	5,0	41637	49144	49165	49186	16M
5,0	16,0	50,0	–	6,0	40137	48508	48530	48551	1M
5,0	16,0	50,0	0,25	6,0	–	–	–	40004	1MCR
5,0	16,0	50,0	0,50	6,0	–	–	–	40005	1MCR
5,0	16,0	50,0	1,00	6,0	–	–	–	40007	1MCR
5,0	25,0	75,0	–	5,0	43107	49391	49404	49417	1XLM
6,0	12,0	50,0	–	6,0	41641	49145	49166	49187	16M
6,0	19,0	50,0	–	6,0	40141	48509	48531	48552	1M
6,0	19,0	50,0	0,25	6,0	–	–	–	40009	1MCR
6,0	19,0	50,0	0,50	6,0	–	–	–	40010	1MCR
6,0	19,0	50,0	0,75	6,0	–	–	–	40011	1MCR

continued on next page

STEELS
STAINLESS STEELS
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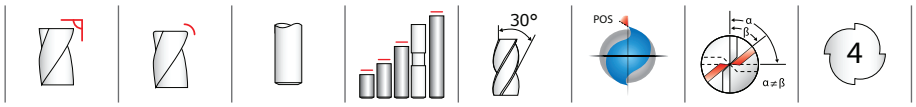
HIGH TEMP ALLOYS

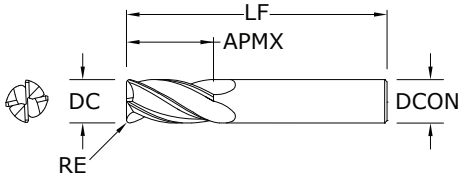
For patent information visit www.ksptpatents.com

4 Flute Square End • 4 Flute Corner Radius



1M • 1XLM • 1MCR • 16M

METRIC SERIES



TOLERANCES (mm)

<3 DIAMETER
DC = +0,0000/–0,0254
DCON = h_6

≥3 DIAMETER
DC = +0,0000/–0,0508
DCON = h_6

RE = +0,0000/–0,0508

CONTINUED

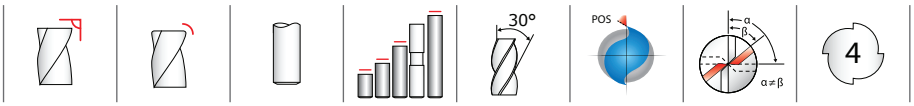
STEELS
STAINLESS STEELS
CAST IRON
NON-FERROUS
HIGH TEMP ALLOYS

For patent information visit www.ksptpatents.com

mm					EDP NO.				SERIES
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	CORNER RADIUS RE	SHANK DIAMETER DCON	UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)	
6,0	19,0	50,0	1,00	6,0	–	–	–	40012	1MCR
6,0	25,0	75,0	–	6,0	43105	49390	49403	49416	1XLM
7,0	12,0	50,0		8,0	41645	49146	49167	49188	16M
7,0	19,0	63,0	–	8,0	40145	48510	48532	48553	1M
8,0	12,0	50,0		8,0	41649	49147	49168	49189	16M
8,0	20,0	63,0	–	8,0	40149	48511	48533	48554	1M
8,0	20,0	63,0	0,50	8,0	–	–	–	40015	1MCR
8,0	20,0	63,0	0,75	8,0	–	–	–	40016	1MCR
8,0	20,0	63,0	1,00	8,0	–	–	–	40017	1MCR
8,0	20,0	63,0	1,50	8,0	–	–	–	40019	1MCR
8,0	20,0	63,0	2,00	8,0	–	–	–	40020	1MCR
8,0	25,0	75,0	–	8,0	43115	49392	49405	49418	1XLM
9,0	14,0	50,0		9,0	41653	49148	49169	49190	16M
9,0	22,0	75,0	–	10,0	40153	48512	48534	48555	1M
10,0	16,0	50,0		10,0	41657	49149	49170	49191	16M
10,0	22,0	75,0	–	10,0	40157	48513	48535	48556	1M
10,0	22,0	75,0	0,50	10,0	–	–	–	40021	1MCR
10,0	22,0	75,0	1,00	10,0	–	–	–	40023	1MCR
10,0	22,0	75,0	1,50	10,0	–	–	–	40024	1MCR
10,0	22,0	75,0	2,00	10,0	–	–	–	40025	1MCR
10,0	38,0	100,0	–	10,0	43125	49393	49406	49419	1XLM
11,0	19,0	63,0		12,0	41661	49150	49171	49192	16M
11,0	25,0	75,0	–	12,0	40161	48514	48536	48557	1M
12,0	19,0	63,0		12,0	40165	49151	49172	49193	16M
12,0	25,0	75,0	–	12,0	41665	48515	48537	48558	1M
12,0	25,0	75,0	0,50	12,0	–	–	–	40028	1MCR
12,0	25,0	75,0	1,00	12,0	–	–	–	40030	1MCR
12,0	25,0	75,0	1,50	12,0	–	–	–	40031	1MCR
12,0	25,0	75,0	2,00	12,0	–	–	–	40032	1MCR
12,0	50,0	100,0	–	12,0	43135	49394	49407	49420	1XLM
12,0	75,0	150,0	–	12,0	43145	49395	49408	49421	1XLM
14,0	32,0	89,0	–	14,0	40169	48516	48538	48559	1M
14,0	75,0	150,0	–	14,0	43155	49396	49409	49422	1XLM
16,0	32,0	89,0	–	16,0	40173	48517	48539	48560	1M
16,0	32,0	89,0	0,50	16,0	–	–	–	40035	1MCR
16,0	32,0	89,0	1,00	16,0	–	–	–	40037	1MCR

continued on next page

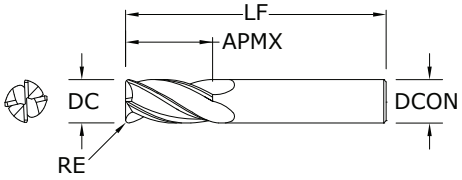
4 Flute Square End • 4 Flute Corner Radius



TOLERANCES (mm)

<3 DIAMETER
DC = +0,0000 / –0,0254
DCON = h_6

≥3 DIAMETER
DC = +0,0000 / –0,0508
DCON = h_6
RE = +0,0000 / –0,0508



1M • 1XLM • 1MCR • 16M
METRIC SERIES

CONTINUED

mm					EDP NO.				SERIES
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	CORNER RADIUS RE	SHANK DIAMETER DCON	UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)	
16,0	32,0	89,0	1,50	16,0	–	–	–	40038	1MCR
16,0	32,0	89,0	2,00	16,0	–	–	–	40039	1MCR
16,0	75,0	150,0	–	16,0	43165	49397	49410	49423	1XLM
18,0	38,0	100,0	–	18,0	40177	48518	48540	48561	1M
18,0	75,0	150,0	–	18,0	43175	49398	49411	49424	1XLM
20,0	38,0	100,0	–	20,0	40181	48519	48541	48562	1M
20,0	75,0	150,0	–	20,0	43185	49399	49412	49425	1XLM
25,0	38,0	100,0	–	25,0	40185	48520	48542	48563	1M
25,0	75,0	150,0	–	25,0	43195	49400	49413	49426	1XLM

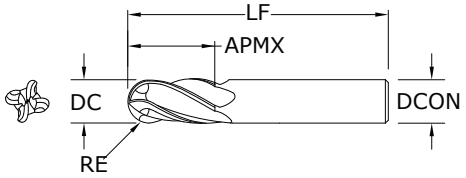
STEELS
STAINLESS STEELS
CAST IRON
NON-FERROUS
HIGH TEMP ALLOYS

For patent information visit www.ksptpatents.com

4 Flute Ball End

1MB• 1XLMB

METRIC SERIES



TOLERANCES (mm)

<3 DIAMETER
DC = +0,0000 /–0.0254
DCON = h_6
RE = +0,0000 /–0.0127

≥3 DIAMETER
DC = +0,0000 /–0.0508
DCON = h_6
RE = +0,0000 /–0.0254

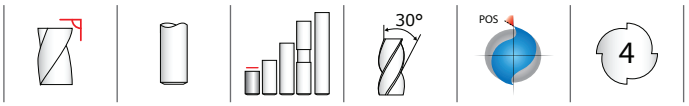
STEELS
STAINLESS STEELS
CAST IRON
NON-FERROUS
HIGH TEMP ALLOYS

For patent information visit www.ksptpatents.com

mm				EDP NO.				SERIES
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)	
1,0	4,0	38,0	3,0	40106	48564	48586	48607	1MB
1,5	4,5	38,0	3,0	40110	48565	48587	48608	1MB
2,0	6,3	38,0	3,0	40114	48566	48588	48609	1MB
2,5	9,5	38,0	3,0	40118	48567	48589	48610	1MB
3,0	12,0	38,0	3,0	40122	48568	48590	48611	1MB
3,0	25,0	75,0	3,0	43102	49505	49518	49531	1XLMB
3,5	12,0	50,0	4,0	40126	48569	48591	48612	1MB
4,0	14,0	50,0	4,0	40130	48570	48592	48613	1MB
4,0	25,0	75,0	4,0	43104	49506	49519	49532	1XLMB
4,5	16,0	50,0	6,0	40134	48571	48593	48614	1MB
5,0	16,0	50,0	6,0	40138	48572	48594	48615	1MB
5,0	25,0	75,0	5,0	43108	49508	49521	49534	1XLMB
6,0	19,0	50,0	6,0	40142	48573	48595	48616	1MB
6,0	25,0	75,0	6,0	43106	49507	49520	49533	1XLMB
7,0	19,0	63,0	8,0	40146	48574	48596	48617	1MB
8,0	20,0	63,0	8,0	40150	48575	48597	48618	1MB
8,0	25,0	75,0	8,0	43116	49509	49522	49535	1XLMB
9,0	22,0	75,0	10,0	40154	48576	48598	48619	1MB
10,0	22,0	75,0	10,0	40158	48577	48599	48620	1MB
10,0	38,0	100,0	10,0	43126	49510	49523	49536	1XLMB
11,0	25,0	75,0	12,0	40162	48578	48600	48621	1MB
12,0	25,0	75,0	12,0	40166	48579	48601	48622	1MB
12,0	50,0	100,0	12,0	43136	49511	49524	49537	1XLMB
12,0	75,0	150,0	12,0	43146	49512	49525	49538	1XLMB
14,0	32,0	89,0	14,0	40170	48580	48602	48623	1MB
14,0	75,0	150,0	14,0	43156	49513	49526	49539	1XLMB
16,0	32,0	89,0	16,0	40174	48581	48603	48624	1MB
16,0	75,0	150,0	16,0	43166	49514	49527	49540	1XLMB
18,0	38,0	100,0	18,0	40178	48582	48604	48625	1MB
18,0	75,0	150,0	18,0	43176	49515	49528	49541	1XLMB
20,0	38,0	100,0	20,0	40182	48583	48605	48626	1MB
20,0	75,0	150,0	20,0	43186	49516	49529	49542	1XLMB
25,0	38,0	100,0	25,0	40186	48584	48606	48627	1MB
25,0	75,0	150,0	25,0	43196	49517	49530	49543	1XLMB

RE = 1/2 Cutting Diameter (DC)

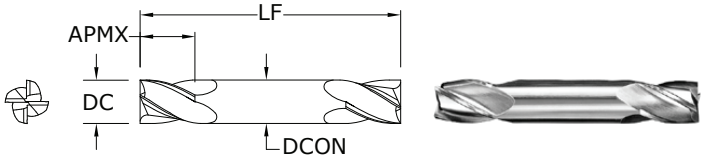
4 Flute Double End



TOLERANCES (inch)

<1/8 DIAMETER
DC = +0.000 /–0.001
DCON = h_6

≥1/8 DIAMETER
DC = +0.000 /–0.002
DCON = h_6



14
FRACTIONAL SERIES

inch				EDP NO.			
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)
1/32	1/16	1-1/2	1/8	31401	31441	39601	31170
3/64	3/32	1-1/2	1/8	31403	31443	39603	31171
1/16	1/8	1-1/2	1/8	31405	31445	39605	31172
5/64	1/8	1-1/2	1/8	31407	31447	39607	31173
3/32	3/16	1-1/2	1/8	31409	31449	39609	31174
7/64	3/16	1-1/2	1/8	31411	31451	39611	31175
*1/8	1/4	1-1/2	1/8	31413	31453	39613	31176
9/64	5/16	2	3/16	31415	31455	39615	31177
5/32	5/16	2	3/16	31417	31457	39617	31178
11/64	5/16	2	3/16	31419	31459	39619	31179
*3/16	3/8	2	3/16	31421	31461	39621	31180
13/64	1/2	2-1/2	1/4	31423	31463	39623	31181
7/32	1/2	2-1/2	1/4	31425	31465	39625	31182
15/64	1/2	2-1/2	1/4	31427	31467	39627	31183
*1/4	1/2	2-1/2	1/4	31429	31469	39629	31184
9/32	1/2	2-1/2	5/16	31431	31471	39631	31185
*5/16	1/2	2-1/2	5/16	31433	31473	39633	31186
*3/8	9/16	2-1/2	3/8	31435	31475	39635	31187
7/16	9/16	2-3/4	7/16	31437	31477	39637	31188
*1/2	5/8	3	1/2	31439	31479	39639	31189
*Series 14 Set				31489	31481	39641	31190

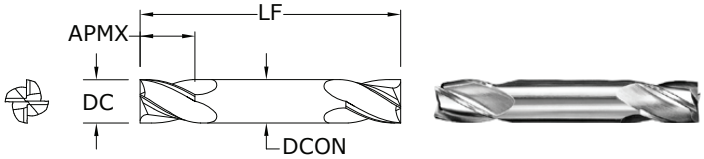
STEELS
STAINLESS STEELS
CAST IRON
NON-FERROUS
HIGH TEMP ALLOYS

For patent information visit www.ksptpatents.com

TOLERANCES (mm)

<3 DIAMETER
DC = +0,0000 /–0,0254
DCON = h_6

≥3 DIAMETER
DC = +0,0000 /–0,0508
DCON = h_6



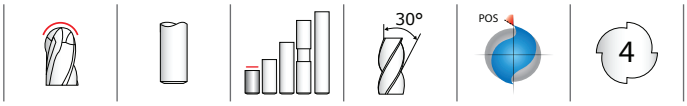
14M
METRIC SERIES

mm				EDP NO.			
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)
1,0	2,0	38,0	3,0	41405	48884	48905	48926
1,5	3,0	38,0	3,0	41409	48885	48906	48927
2,0	4,0	38,0	3,0	41413	48886	48907	48928
2,5	5,0	38,0	3,0	41417	48887	48908	48929
3,0	6,0	38,0	3,0	41421	48888	48909	48930
3,5	7,0	50,0	4,0	41425	48889	48910	48931
4,0	8,0	50,0	4,0	41429	48890	48911	48932
4,5	9,5	63,0	4,5	41433	48891	48912	48933
5,0	10,0	63,0	5,0	41437	48892	48913	48934
6,0	12,0	63,0	6,0	41441	48893	48914	48935
7,0	12,0	63,0	8,0	41445	48894	48915	48936
8,0	12,0	63,0	8,0	41449	48895	48916	48937
9,0	14,0	75,0	9,0	41453	48896	48917	48938
10,0	14,0	75,0	10,0	41457	48897	48918	48939
11,0	14,0	75,0	12,0	41461	48898	48919	48940
12,0	16,0	75,0	12,0	41465	48899	48920	48941

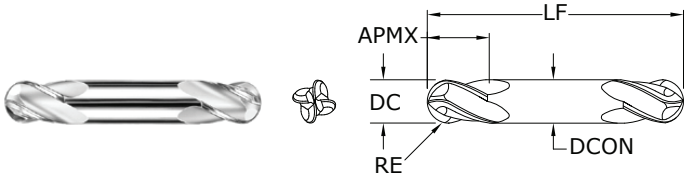
STEELS
STAINLESS STEELS
CAST IRON
NON-FERROUS
HIGH TEMP ALLOYS

For patent information visit www.ksptpatents.com

4 Flute Double End Ball End



14B
FRACTIONAL SERIES



TOLERANCES (inch)

<1/8 DIAMETER
DC = +0.000 /–0.001
DCON = h_6
RE = +0.000 /–0.005

≥1/8 DIAMETER
DC = +0.000 /–0.002
DCON = h_6
RE = +0.000 /–0.001

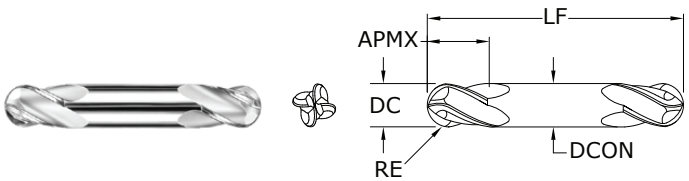
inch				EDP NO.			
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)
1/32	1/16	1-1/2	1/8	31402	31442	39602	31218
3/64	3/32	1-1/2	1/8	31404	31444	39604	31219
1/16	1/8	1-1/2	1/8	31406	31446	39606	31220
5/64	1/8	1-1/2	1/8	31408	31448	39608	31221
3/32	3/16	1-1/2	1/8	31410	31450	39610	31222
7/64	3/16	1-1/2	1/8	31412	31452	39612	31223
*1/8	1/4	1-1/2	1/8	31414	31454	39614	31224
9/64	5/16	2	3/16	31416	31456	39616	31225
5/32	5/16	2	3/16	31418	31458	39618	31226
11/64	5/16	2	3/16	31420	31460	39620	31227
*3/16	3/8	2	3/16	31422	31462	39622	31228
13/64	1/2	2-1/2	1/4	31424	31464	39624	31229
7/32	1/2	2-1/2	1/4	31426	31466	39626	31230
15/64	1/2	2-1/2	1/4	31428	31468	39628	31231
*1/4	1/2	2-1/2	1/4	31430	31470	39630	31232
9/32	1/2	2-1/2	5/16	31432	31472	39632	31233
*5/16	1/2	2-1/2	5/16	31434	31474	39634	31234
*3/8	9/16	2-1/2	3/8	31436	31476	39636	31235
7/16	9/16	2-3/4	7/16	31438	31478	39638	31236
*1/2	5/8	3	1/2	31440	31480	39640	31237
*Series 14B Set				31490	31482	39642	31217

RE = 1/2 Cutting Diameter (DC)

STEELS
STAINLESS STEELS
CAST IRON
NON-FERROUS
HIGH TEMP ALLOYS

For patent information visit www.ksptpatents.com

14MB
METRIC SERIES



TOLERANCES (mm)

<3 DIAMETER
DC = +0,0000 /–0,0254
DCON = h_6
RE = +0,0000 /–0,0127

≥3 DIAMETER
DC = +0,0000 /–0,0508
DCON = h_6
RE = +0,0000 /–0,0254

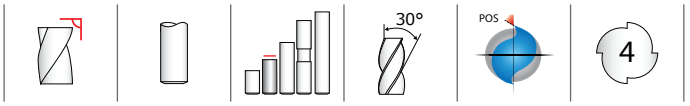
mm				EDP NO.			
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)
1,0	2,0	38,0	3,0	41406	48947	48968	48989
1,5	3,0	38,0	3,0	41410	48948	48969	48990
2,0	4,0	38,0	3,0	41414	48949	48970	48991
2,5	5,0	38,0	3,0	41418	48950	48971	48992
3,0	6,0	38,0	3,0	41422	48951	48972	48993
3,5	7,0	50,0	4,0	41426	48952	48973	48994
4,0	8,0	50,0	4,0	41430	48953	48974	48995
4,5	9,5	63,0	4,5	41434	48954	48975	48996
5,0	10,0	63,0	5,0	41438	48955	48976	48997
6,0	12,0	63,0	6,0	41442	48956	48977	48998
7,0	12,0	63,0	8,0	41446	48957	48978	48999
8,0	12,0	63,0	8,0	41450	48958	48979	49000
9,0	14,0	75,0	9,0	41454	48959	48980	49001
10,0	14,0	75,0	10,0	41458	48960	48981	49002
11,0	14,0	75,0	12,0	41462	48961	48982	49003
12,0	16,0	75,0	12,0	41466	48962	48983	49004

RE = 1/2 Cutting Diameter (DC)

STEELS
STAINLESS STEELS
CAST IRON
NON-FERROUS
HIGH TEMP ALLOYS

For patent information visit www.ksptpatents.com

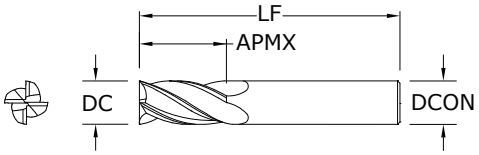
4 Flute High Shear



TOLERANCES (inch)

<1/8 DIAMETER
DC = +0.000 /–0.001
DCON = h_6

≥1/8 DIAMETER
DC = +0.000 /–0.002
DCON = h_6



54
FRACTIONAL SERIES

inch				EDP NO.	
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	UNCOATED	Ti-NAMITE®-C (TiCN)
1/16	3/16	1-1/2	1/8	35473	35500
3/32	3/8	1-1/2	1/8	35475	35501
1/8	7/16	1-1/2	1/8	35477	35502
5/32	9/16	2	3/16	35478	35503
3/16	9/16	2	3/16	35479	35504
7/32	5/8	2-1/2	1/4	35480	35505
1/4	3/4	2-1/2	1/4	35481	35506
9/32	3/4	2-1/2	5/16	35482	35507
5/16	13/16	2-1/2	5/16	35483	35508
3/8	7/8	2-1/2	3/8	35485	35509
7/16	1	2-3/4	7/16	35487	35510
1/2	1	3	1/2	35489	35511
9/16	1-1/8	3-1/2	9/16	35491	35512
5/8	1-1/4	3-1/2	5/8	35493	35513
3/4	1-1/2	4	3/4	35495	35514
1	1-1/2	4	1	35497	35515

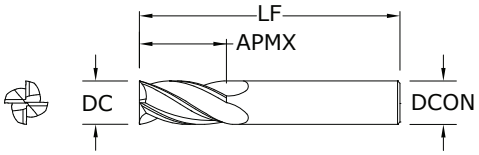
NON-FERROUS

For patent information visit www.ksptpatents.com

TOLERANCES (mm)

<3 DIAMETER
DC = +0,0000 /–0,0254
DCON = h_6

≥3 DIAMETER
DC = +0,0000 /–0,0508
DCON = h_6



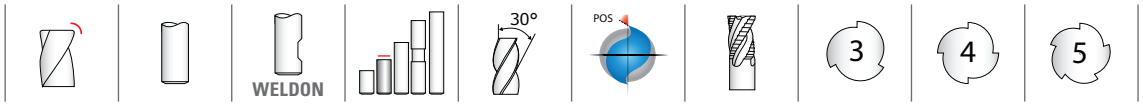
54M
METRIC SERIES

mm				EDP NO.	
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	UNCOATED	Ti-NAMITE®-C (TiCN)
3,0	8,0	38,0	3,0	45477	45478
3,5	10,0	57,0	6,0	45479	45480
4,0	11,0	57,0	6,0	45481	45482
4,5	11,0	57,0	6,0	45483	45484
5,0	13,0	57,0	6,0	45485	45486
6,0	13,0	57,0	6,0	45487	45488
8,0	19,0	63,0	8,0	45489	45490
10,0	22,0	72,0	10,0	45491	45492
12,0	26,0	83,0	12,0	45493	45494
14,0	26,0	83,0	14,0	45495	45496
16,0	32,0	92,0	16,0	45497	45498
20,0	38,0	104,0	20,0	45499	45500

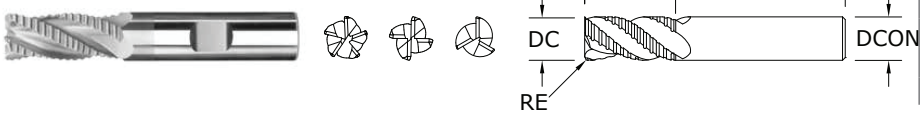
NON-FERROUS

For patent information visit www.ksptpatents.com

Single End Roughers (Coarse Pitch)



61
FRACTIONAL SERIES



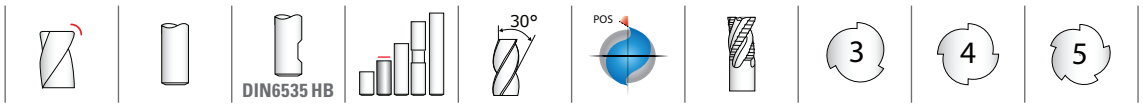
TOLERANCES (inch)
DC = +0.0000/–0.0040
DCON = h_6
RE = +0.0050/–0.0050

STEELS
CAST IRON

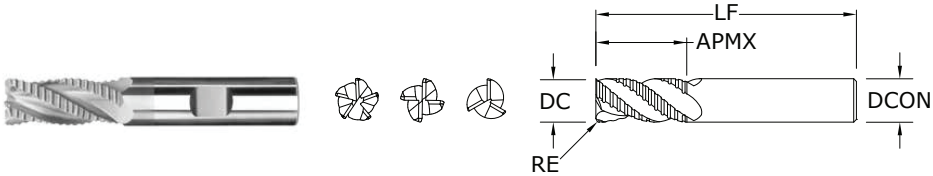
For patent information visit www.ksptpatents.com

inch						EDP NO.		
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	CORNER RADIUS RE	NO. OF FLUTES	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)
*1/4	3/4	2-1/2	1/4	.045	3	36107	36106	36110
*5/16	3/4	2-1/2	5/16	.045	3	36109	36108	36111
3/8	7/8	2-1/2	3/8	.060	3	36113	36112	36114
1/2	1	3	1/2	.060	4	36117	36116	36118
5/8	1-1/4	3-1/2	5/8	.060	4	36121	36120	36122
3/4	1-5/8	4	3/4	.060	4	36125	36124	36126
1	1-3/4	4	1	.060	5	36129	36128	36130

*Without Flat



61M
METRIC SERIES



TOLERANCES (mm)
DC = +0,000 / –0,100
DCON = h_6
RE = +0,127/–0,127

STEELS
CAST IRON

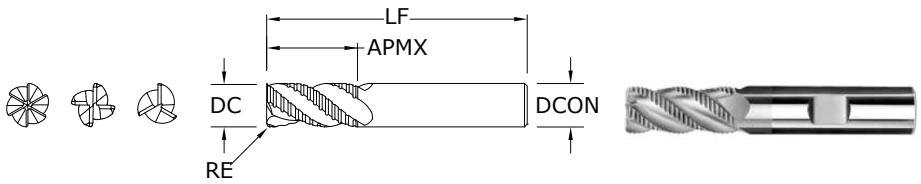
For patent information visit www.ksptpatents.com

mm						EDP NO.		
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	CORNER RADIUS RE	NO. OF FLUTES	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)
6,0	19,0	63,0	6,0	1,14	3	46107	46106	46110
8,0	19,0	63,0	8,0	1,14	3	46109	46108	46111
10,0	22,0	72,0	10,0	1,52	3	46113	46112	46114
12,0	26,0	83,0	12,0	1,52	4	46117	46116	46118
16,0	32,0	92,0	16,0	1,52	4	46121	46120	46122
20,0	38,0	104,0	20,0	1,52	4	46129	46128	46132
25,0	44,0	104,0	25,0	1,52	5	46131	46130	46133

Single End Roughers (Fine Pitch)

TOLERANCES (inch)

DC = +0.0000/–0.0040
DCON = h_6
RE = +0.0050/–0.0050



62
FRACTIONAL SERIES

inch						EDP NO.		
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	CORNER RADIUS RE	NO. OF FLUTES	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)
*1/4	3/4	2-1/2	1/4	.045	3	36207	36206	36210
*5/16	3/4	2-1/2	5/16	.045	3	36209	36208	36211
3/8	7/8	2-1/2	3/8	.060	3	36213	36212	36214
1/2	1	3	1/2	.060	4	36217	36216	36218
5/8	1-1/4	3-1/2	5/8	.060	4	36221	36220	36222
3/4	1-5/8	4	3/4	.060	4	36225	36224	36226
1	1-3/4	4	1	.060	6	36229	36228	36230

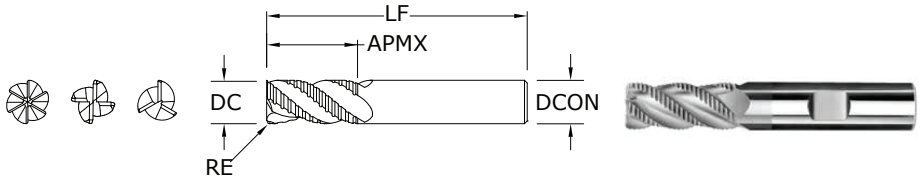
*Without Flat

STAINLESS STEELS
HIGH TEMP ALLOYS

For patent information visit www.ksptpatents.com

TOLERANCES (mm)

DC = +0,000 / –0,100
DCON = h_6
RE = +0,127/–0,127



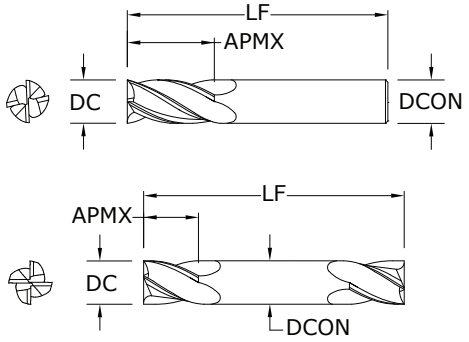
62M
METRIC SERIES

mm						EDP NO.		
CUTTING DIAMETER DC	LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON	CORNER RADIUS RE	NO. OF FLUTES	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)
6,0	19,0	63,0	6,0	1,14	3	46207	46206	46210
8,0	19,0	63,0	8,0	1,14	3	46209	46208	46211
10,0	22,0	72,0	10,0	1,52	3	46213	46212	46214
12,0	26,0	83,0	12,0	1,52	4	46217	46216	46218
16,0	32,0	92,0	16,0	1,52	4	46221	46220	46222
20,0	38,0	104,0	20,0	1,52	4	46229	46228	46232
25,0	44,0	104,0	25,0	1,52	5	46231	46230	46233

STAINLESS STEELS
HIGH TEMP ALLOYS

For patent information visit www.ksptpatents.com

End Mill Sets



Pictured:
Series 1 4 Flute
Single End Square
Endmill Set

CUTTING DIAMETER DC	SINGLE END LENGTH OF CUT APMX	DOUBLE END LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON
1/8	1/2	1/4	1-1/2	1/8
3/16	5/8	3/8	2	3/16
1/4	3/4	1/2	2-1/2	1/4
5/16	13/16	1/2	2-1/2	5/16
3/8	1	9/16	2-1/2	3/8
1/2	1	5/8	3	1/2

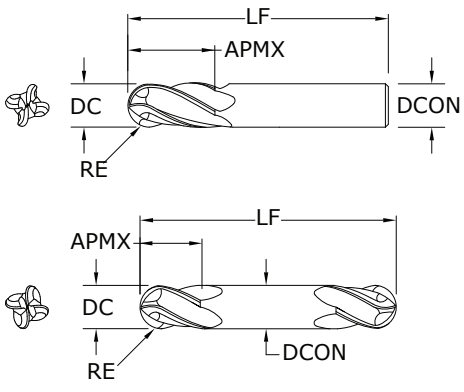
Square End

FRACTIONAL SERIES

For patent information visit www.ksptpatents.com

DESCRIPTION	EDP NO. UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)
Series 1 – 4 Flute, Single End	30189	39189	39089	30030
Series 3 – 2 Flute, Single End	30389	39389	39589	30470
Series 5 – 3 Flute, Single End	30589	39789	30810	30850
Series 14 – 4 Flute, Double End	31489	31481	39641	31190
Series 15 – 2 Flute, Double End	31589	31581	39691	31336

End Mill Sets



Pictured:
Series 1 4 Flute Single End Ball Endmill Set

CUTTING DIAMETER DC	SINGLE END LENGTH OF CUT APMX	DOUBLE END LENGTH OF CUT APMX	OVERALL LENGTH LF	SHANK DIAMETER DCON
1/8	1/2	1/4	1-1/2	1/8
3/16	5/8	3/8	2	3/16
1/4	3/4	1/2	2-1/2	1/4
5/16	13/16	1/2	2-1/2	5/16
3/8	1	9/16	2-1/2	3/8
1/2	1	5/8	3	1/2

RE = 1/2 Cutting Diameter (DC)

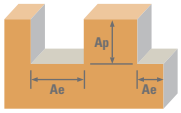
Ball End

FRACTIONAL SERIES

DESCRIPTION	EDP NO. UNCOATED	Ti-NAMITE® (TiN)	Ti-NAMITE®-C (TiCN)	Ti-NAMITE®-A (AlTiN)
Series 1B – 4 Flute, Single End	30190	39190	39090	30070
Series 3B – 2 Flute, Single End	30390	39390	39590	30600
Series 5B – 3 Flute, Single End	30590	30900	30944	31169
Series 14B – 4 Flute, Double End	31490	31482	39642	31217
Series 15B – 2 Flute, Double End	31590	31582	39692	31357

For patent information visit www.ksptpatents.com

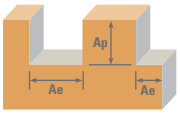
2 Flute: Square & Ball End
4 Flute: Square & Ball End



Diamond 1, 1B, 3, 3B Fractional		Ae x DC	Ap x DC	Vc (sfm)		DC • in 1/8	1/4	5/16	3/8	1/2
GRAPHITE Ultrafine, Superfine	Profile	≤ 0.25	≤ 1.5	720	RPM	22003	11002	8801	7334	5501
				(576-864)	Fz	0.0009	0.0023	0.0036	0.0043	0.0058
					Feed 2 flutes (ipm)	38.3	50.6	63.4	63.1	63.8
					Feed 4 flutes (ipm)	76.6	101.2	126.7	126.2	127.6
	Slot	≤ 1	≤ 1	580	RPM	17725	8862	7090	5908	4431
				(464-696)	Fz	0.0075	0.0020	0.0031	0.0038	0.0050
					Feed 2 flutes (ipm)	265.9	35.4	44.0	44.9	44.3
					Feed 4 flutes (ipm)	531.7	70.9	87.9	89.8	88.6
COMPOSITES FRP, CFRP, GRP	Profile	≤ 0.25	≤ 1.5	385	RPM	11766	5883	4706	3922	2941
				(308-462)	Fz	0.0005	0.0014	0.0022	0.0026	0.0035
					Feed 2 flutes (ipm)	12.2	16.5	20.7	20.4	20.6
					Feed 4 flutes (ipm)	24.5	32.9	41.4	40.8	41.2
	Slot	≤ 1	≤ 1	350	RPM	10696	5348	4278	3565	2674
				(280-420)	Fz	0.0005	0.0012	0.0019	0.0023	0.0030
					Feed 2 flutes (ipm)	9.6	12.8	16.3	16.4	16.0
					Feed 3 flutes (ipm)	19.3	25.7	32.5	32.8	32.1
PLASTICS Polycarbonate, PVC, Polypropylene	Profile	≤ 0.25	≤ 1.5	1200	RPM	36672	18336	14669	12224	9168
				(960-1440)	Fz	0.0009	0.0023	0.0036	0.0043	0.0058
					Feed 2 flutes (ipm)	63.8	84.3	105.6	105.1	106.3
					Feed 4 flutes (ipm)	127.6	168.7	211.2	210.3	212.7
	Slot	≤ 1	≤ 1	960	RPM	29338	14669	11735	9779	7334
				(768-1152)	Fz	0.0008	0.0020	0.0031	0.0038	0.0050
					Feed 2 flutes (ipm)	44.0	58.7	72.8	74.3	73.3
					Feed 3 flutes (ipm)	88.0	117.4	145.5	148.6	146.7

rpm = (Vc x 3.82) / DC
ipm = Fz x number of flutes x rpm
finish cuts typically require reduced feed and cut depths (.02 x D maximum)
refer to the SGS Tool Wizard® for complete technical information (www.kyocera-sgstool.com)

2 Flute: Square, Double, Stub, Long, Ball, Corner Radius
3 Flute: Square, Ball, Tapered
4 Flute: Square, Double, Stub, Ball, Corner Radius
Tapered: Square, Radius

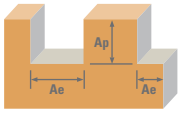


	Series 1, 3, 5, 14, 15, 16, 17, 23, 24, 59 Fractional	Hardness		Flutes	Ae x DC	Ap x DC	Vc (sfm)		DC • in 1/64	1/32	1/16	1/8	1/4	3/8	1/2	3/4	1
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 175 Bhn or ≤ 7 HRc	Profile				460	RPM	112461	56230	28115	14058	7029	4686	3514	2343	1757
								Fz	0.00003	0.00006	0.00013	0.0003	0.0008	0.0015	0.0020	0.0024	0.0028
				2	≤ 0.50	≤ 1.5	(368-552)	Feed (ipm)	6.7	6.7	7.3	8.4	11.2	14.1	14.1	11.2	9.8
				3	≤ 0.25	≤ 1.5			10.1	10.1	11.0	12.7	16.9	21.1	21.1	16.9	14.8
				4	≤ 0.25	≤ 1.5			13.5	13.5	14.6	16.9	22.5	28.1	28.1	22.5	19.7
			Slot				335	RPM	81901	40950	20475	10238	5119	3413	2559	1706	1280
								Fz	0.00003	0.00006	0.00013	0.0003	0.0008	0.0015	0.0020	0.0024	0.0028
				2	1	≤ 1	(268-402)	Feed (ipm)	4.9	4.9	5.3	6.1	8.2	10.2	10.2	8.2	7.2
				3	1	≤ 0.5			7.4	7.4	8.0	9.2	12.3	15.4	15.4	12.3	10.7
				4	1	≤ 0.4			9.8	9.8	10.6	12.3	16.4	20.5	20.5	16.4	14.3
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100	≤ 275 Bhn or ≤ 28 HRc	Profile				335	RPM	81901	40950	20475	10238	5119	3413	2559	1706	1280
								Fz	0.00002	0.00005	0.00009	0.0002	0.0006	0.0011	0.0015	0.0018	0.0021
				2	≤ 0.50	≤ 1.5	(268-402)	Feed (ipm)	3.3	4.1	3.7	4.1	6.1	7.5	7.7	6.1	5.4
				3	≤ 0.25	≤ 1.5			4.9	6.1	5.5	6.1	9.2	11.3	11.5	9.2	8.1
				4	≤ 0.25	≤ 1.5			6.6	8.2	7.4	8.2	12.3	15.0	15.4	12.3	10.7
			Slot				245	RPM	59898	29949	14974	7487	3744	2496	1872	1248	936
								Fz	0.00002	0.00005	0.00009	0.0002	0.0006	0.0011	0.0015	0.0018	0.0021
				2	1	≤ 1	(196-294)	Feed (ipm)	2.4	3.0	2.7	3.0	4.5	5.5	5.6	4.5	3.9
				3	1	≤ 0.5			3.6	4.5	4.0	4.5	6.7	8.2	8.4	6.7	5.9
				4	1	≤ 0.4			4.8	6.0	5.4	6.0	9.0	11.0	11.2	9.0	7.9
	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 250 Bhn or ≤ 24 HRc	Profile				315	RPM	77011	38506	19253	9626	4813	3209	2407	1604	1203
								Fz	0.00002	0.00005	0.00009	0.0002	0.0006	0.0011	0.0015	0.0018	0.0021
				2	≤ 0.50	≤ 1.5	(252-378)	Feed (ipm)	3.1	3.9	3.5	3.9	5.8	7.1	7.2	5.8	5.1
				3	≤ 0.25	≤ 1.5			4.6	5.8	5.2	5.8	8.7	10.6	10.8	8.7	7.6
				4	≤ 0.25	≤ 1.5			6.2	7.7	6.9	7.7	11.6	14.1	14.4	11.6	10.1
			Slot				230	RPM	56230	28115	14058	7029	3514	2343	1757	1171	879
								Fz	0.00002	0.00005	0.00009	0.0002	0.0006	0.0011	0.0015	0.0018	0.0021
				2	1	≤ 1	(184-276)	Feed (ipm)	2.2	2.8	2.5	2.8	4.2	5.2	5.3	4.2	3.7
				3	1	≤ 0.5			3.4	4.2	3.8	4.2	6.3	7.7	7.9	6.3	5.5
				4	1	≤ 0.4			4.5	5.6	5.1	5.6	8.4	10.3	10.5	8.4	7.4
M	STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F 440F	≤ 275 Bhn or ≤ 28 HRc	Profile				370	RPM	90458	45229	22614	11307	5654	3769	2827	1885	1413
								Fz	0.00002	0.00005	0.00009	0.0002	0.0006	0.0011	0.0015	0.0018	0.0021
				2	≤ 0.50	≤ 1.5	(296-444)	Feed (ipm)	3.6	4.5	4.1	4.5	6.8	8.3	8.5	6.8	5.9
				3	≤ 0.25	≤ 1.5			5.4	6.8	6.1	6.8	10.2	12.4	12.7	10.2	8.9
				4	≤ 0.25	≤ 1.5			7.2	9.0	8.1	9.0	13.6	16.6	17.0	13.6	11.9
			Slot				270	RPM	66010	33005	16502	8251	4126	2750	2063	1375	1031
								Fz	0.00002	0.00005	0.00009	0.0002	0.0006	0.0011	0.0015	0.0018	0.0021
				2	1	≤ 1	(216-324)	Feed (ipm)	2.6	3.3	3.0	3.3	5.0	6.1	6.2	5.0	4.3
				3	1	≤ 0.5			4.0	5.0	4.5	5.0	7.4	9.1	9.3	7.4	6.5
				4	1	≤ 0.4			5.3	6.6	5.9	6.6	9.9	12.1	12.4	9.9	8.7
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L, 17-4 PH, 15-5, 13-4, Custom 450	≤ 275 Bhn or ≤ 28 HRc	Profile				255	RPM	62342	31171	15586	7793	3896	2598	1948	1299	974
								Fz	0.00002	0.00004	0.00008	0.0002	0.0005	0.0009	0.0012	0.0014	0.0017
				2	≤ 0.50	≤ 1.5	(204-306)	Feed (ipm)	2.5	2.5	2.5	2.6	3.9	4.7	4.7	3.6	3.3
				3	≤ 0.25	≤ 1.5			3.7	3.7	3.7	4.0	5.8	7.0	7.0	5.5	5.0
				4	≤ 0.25	≤ 1.5			5.0	5.0	5.0	5.3	7.8	9.4	9.4	7.3	6.6
			Slot				185	RPM	45229	22614	11307	5654	2827	1885	1413	942	707
								Fz	0.00002	0.00004	0.00008	0.0002	0.0005	0.0009	0.0012	0.0014	0.0017
				2	1	≤ 1	(148-222)	Feed (ipm)	1.8	1.8	1.8	1.9	2.8	3.4	3.4	2.6	2.4
				3	1	≤ 0.5			2.7	2.7	2.7	2.9	4.2	5.1	5.1	4.0	3.6
				4	1	≤ 0.4			3.6	3.6	3.6	3.8	5.7	6.8	6.8	5.3	4.8
K	CAST IRONS Gray, Malleable, Ductile	≤ 220 Bhn or ≤ 19 HRc	Profile				335	RPM	81901	40950	20475	10238	5119	3413	2559	1706	1280
								Fz	0.00003	0.00006	0.00013	0.0003	0.0008	0.0015	0.0020	0.0024	0.0028
				2	≤ 0.50	≤ 1.5	(268-402)	Feed (ipm)	4.9	4.9	5.3	6.1	8.2	10.2	10.2	8.2	7.2
				3	≤ 0.25	≤ 1.5			7.4	7.4	8.0	9.2	12.3	15.4	15.4	12.3	10.7
				4	≤ 0.25	≤ 1.5			9.8	9.8	10.6	12.3	16.4	20.5	20.5	16.4	14.3
			Slot				245	RPM	59898	29949	14974	7487	3744	2496	1872	1248	936
								Fz	0.00003	0.00006	0.00013	0.0003	0.0008	0.0015	0.0020	0.0024	0.0028
				2	1	≤ 1	(196-294)	Feed (ipm)	3.6	3.6	3.9	4.5	6.0	7.5	7.5	6.0	5.2
				3	1	≤ 0.5			5.4	5.4	5.8	6.7	9.0	11.2	11.2	9.0	7.9
				4	1	≤ 0.4			7.2	7.2	7.8	9.0	12.0	15.0	15.0	12.0	10.5
N	ALUMINUM ALLOYS 2017, 2024, 356, 6061, 7075	≤ 150 Bhn or ≤ 88 HRb	Profile				880	RPM	215142	107571	53786	26893	13446	8964	6723	4482	3362
								Fz	0.00006	0.00013	0.00025	0.0006	0.0016	0.0030	0.0040	0.0048	0.0056
				2	≤ 0.50	≤ 1.5	(704-1056)	Feed (ipm)	25.8	28.0	26.9	32.3	43.0	53.8	53.8	43.0	37.6
				3	≤ 0.25	≤ 1.5			38.7	42.0	40.3	48.4	64.5	80.7	80.7	64.5	56.5
			Slot				640	RPM	156467	78234	39117	19558	9779	6519	4890	3260	2445
								Fz	0.00006	0.00013	0.00025	0.0006	0.0016	0.0030	0.0040	0.0048	0.0056
				2	1	≤ 1	(512-768)	Feed (ipm)	18.8	20.3	19.6	23.5	31.3	39.1	39.1	31.3	27.4
				3	1	≤ 0.5			28.2	30.5	29.3	35.2	46.9	58.7	58.7	46.9	41.1

continued on next page

FRACTIONAL

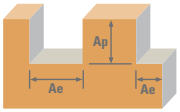
2 Flute: Square, Double, Stub, Long, Ball, Corner Radius
3 Flute: Square, Ball, Tapered
4 Flute: Square, Double, Stub, Ball, Corner Radius
Tapered: Square, Radius



	Series 1, 3, 5, 14, 15, 16, 17, 23, 24, 59 Fractional	Hardness		Flutes	Ae x DC	Ap x DC	Vc (sfm)		DC • in 1/64	1/32	1/16	1/8	1/4	3/8	1/2	3/4	1
N	COPPER ALLOYS Alum Bronze, C110, Muntz Brass	≤ 140 Bhn or ≤ 3 HRc	Profile				485	RPM	118573	59286	29643	14822	7411	4941	3705	2470	1853
								Fz	0.00003	0.00006	0.00013	0.0003	0.0008	0.0015	0.0020	0.0024	0.0028
				2	≤ 0.50	≤ 1.5	(388-582)	Feed (ipm)	7.1	7.1	7.7	8.9	11.9	14.8	14.8	11.9	10.4
				3	≤ 0.25	≤ 1.5			10.7	10.7	11.6	13.3	17.8	22.2	22.2	17.8	15.6
				4	≤ 0.25	≤ 1.5			14.2	14.2	15.4	17.8	23.7	29.6	29.6	23.7	20.8
			Slot				350	RPM	85568	42784	21392	10696	5348	3565	2674	1783	1337
								Fz	0.00003	0.00006	0.00013	0.0003	0.0008	0.0015	0.0020	0.0024	0.0028
				2	1	≤ 1	(280-420)	Feed (ipm)	5.1	5.1	5.6	6.4	8.6	10.7	10.7	8.6	7.5
				3	1	≤ 0.5			7.7	7.7	8.3	9.6	12.8	16.0	16.0	12.8	11.2
				4	1	≤ 0.4			10.3	10.3	11.1	12.8	17.1	21.4	21.4	17.1	15.0
	PLASTICS Polycarbonate, PVC, Polypropylene		Profile				880	RPM	215142	107571	53786	26893	13446	8964	6723	4482	3362
								Fz	0.00006	0.00013	0.00025	0.0006	0.0016	0.0030	0.0040	0.0048	0.0056
				2	≤ 0.50	≤ 1.5	(704-1056)	Feed (ipm)	25.8	28.0	26.9	32.3	43.0	53.8	53.8	43.0	37.6
				3	≤ 0.25	≤ 1.5			38.7	42.0	40.3	48.4	64.5	80.7	80.7	64.5	56.5
				4	≤ 0.25	≤ 1.5			51.6	55.9	53.8	64.5	86.1	107.6	107.6	86.1	75.3
			Slot				640	RPM	156467	78234	39117	19558	9779	6519	4890	3260	2445
								Fz	0.00006	0.00013	0.00025	0.0006	0.0016	0.0030	0.0040	0.0048	0.0056
				2	1	≤ 1	(512-768)	Feed (ipm)	18.8	20.3	19.6	23.5	31.3	39.1	39.1	31.3	27.4
				3	1	≤ 0.5			28.2	30.5	29.3	35.2	46.9	58.7	58.7	46.9	41.1
				4	1	≤ 0.4			37.6	40.7	39.1	46.9	62.6	78.2	78.2	62.6	54.8
	GRAPHITE		Profile				660	RPM	161357	80678	40339	20170	10085	6723	5042	3362	2521
								Fz	0.00006	0.00013	0.00025	0.0006	0.0016	0.0030	0.0040	0.0048	0.0056
				2	≤ 0.50	≤ 1.5	(528-792)	Feed (ipm)	19.4	21.0	20.2	24.2	32.3	40.3	40.3	32.3	28.2
				3	≤ 0.25	≤ 1.5			29.0	31.5	30.3	36.3	48.4	60.5	60.5	48.4	42.4
				4	≤ 0.25	≤ 1.5			38.7	42.0	40.3	48.4	64.5	80.7	80.7	64.5	56.5
			Slot				480	RPM	117350	58675	29338	14669	7334	4890	3667	2445	1834
								Fz	0.00006	0.00013	0.00025	0.0006	0.0016	0.0030	0.0040	0.0048	0.0056
				2	1	≤ 1	(384-576)	Feed (ipm)	14.1	15.3	14.7	17.6	23.5	29.3	29.3	23.5	20.5
				3	1	≤ 0.5			21.1	22.9	22.0	26.4	35.2	44.0	44.0	35.2	30.8
				4	1	≤ 0.4			28.2	30.5	29.3	35.2	46.9	58.7	58.7	46.9	41.1
S	HIGH TEMP ALLOYS (NICKEL, COBALT, IRON BASE) Inconel 601, 617, 625, 718, Incoloy 800, Monel 400,Rene, Waspalloy	≤ 300 Bhn or ≤ 32 HRc	Profile				65	RPM	15891	7946	3973	1986	993	662	497	331	248
								Fz	0.00002	0.00003	0.00006	0.0002	0.0004	0.0008	0.0010	0.0012	0.0014
				2	≤ 0.50	≤ 1.5	(52-78)	Feed (ipm)	0.6	0.5	0.5	0.7	0.7	1.1	1.0	0.8	0.7
				3	≤ 0.25	≤ 1.5			1.0	0.7	0.7	1.1	1.0	1.6	1.5	1.2	1.0
				4	≤ 0.25	≤ 1.5			1.3	1.0	1.0	1.4	1.4	2.1	2.0	1.6	1.4
			Slot				45	RPM	11002	5501	2750	1375	688	458	344	229	172
								Fz	0.00002	0.00003	0.00006	0.0002	0.0004	0.0008	0.0010	0.0012	0.0014
				2	1	≤ 1	(36-54)	Feed (ipm)	0.4	0.3	0.3	0.5	0.5	0.7	0.7	0.6	0.5
				3	1	≤ 0.5			0.7	0.5	0.5	0.7	0.7	1.1	1.0	0.8	0.7
				4	1	≤ 0.4			0.9	0.7	0.7	1.0	1.0	1.5	1.4	1.1	1.0
	TITANIUM ALLOYS Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si, Ti10V2Fe3Al, Ti5Al53Mo3Cr, Ti7Al4Mo, Ti3Al8V6Cr4Zr4Mo, Ti6Al6V6Sn, Ti152 Cr3Sn3Al	≤ 350 Bhn or ≤ 38 HRc	Profile				180	RPM	44006	22003	11002	5501	2750	1834	1375	917	688
								Fz	0.00002	0.00004	0.00008	0.0002	0.0005	0.0009	0.0012	0.0014	0.0017
				2	≤ 0.50	≤ 1.5	(144-216)	Feed (ipm)	1.8	1.8	1.8	2.2	2.8	3.3	3.3	2.6	2.3
				3	≤ 0.25	≤ 1.5			2.6	2.6	2.6	3.3	4.1	5.0	5.0	3.9	3.5
				4	≤ 0.25	≤ 1.5			3.5	3.5	3.5	4.4	5.5	6.6	6.6	5.1	4.7
			Slot				130	RPM	31782	15891	7946	3973	1986	1324	993	662	497
								Fz	0.00002	0.00004	0.00008	0.0002	0.0005	0.0009	0.0012	0.0014	0.0017
				2	1	≤ 1	(104-156)	Feed (ipm)	1.3	1.3	1.3	1.6	2.0	2.4	2.4	1.9	1.7
				3	1	≤ 0.5			1.9	1.9	1.9	2.4	3.0	3.6	3.6	2.8	2.5
				4	1	≤ 0.4			2.5	2.5	2.5	3.2	4.0	4.8	4.8	3.7	3.4

Bhn (Brinell) HRc (Rockwell C) HRb (Rockwell B)
rpm = (Vc x 3.82) / DC
ipm = Fz x number of flutes x rpm
reduce speed and feed for materials harder than listed
for tapered end mills, base the speed on the largest diameter contacting the workpiece and the feed on the smallest diameter
limit cut depths of long and extra long flute mills to .05 x DC when slotting or profiling
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)

2 Flute: High Shear
4 Flute: High Shear

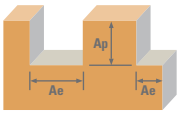


	Series 52, 54 Fractional	Hardness		Flutes	Ae x DC	Ap x DC	Vc (sfm)		DC • in 1/8	1/4	3/8	1/2	3/4	1
N	ALUMINUM ALLOYS 2024, 5052, 5086, 6061, 6063, 7075	≤ 150 Bhn or ≤ 88 HRb	Profile				1360	RPM	41562	20781	13854	10390	6927	5195
							(1088-1632)	Fz	0.00069	0.0018	0.0034	0.0046	0.0055	0.0064
				2	≤ 0.3	≤ 1.5		Feed (ipm)	57.4	74.8	94.2	95.6	76.2	66.5
				4	≤ 0.3	≤ 1.5			114.7	149.6	188.4	191.2	152.4	133.0
			Slot				1090	RPM	33310	16655	11103	8328	5552	4164
							(872-1308)	Fz	0.00063	0.0017	0.0032	0.0042	0.0050	0.0059
				2	1	≤ 1		Feed (ipm)	42.0	56.6	71.1	70.0	55.5	49.1
				4	1	≤ 0.25			83.9	113.3	142.1	139.9	111.0	98.3
	ALUMINUM DIE CAST ALLOYS (HIGH SILICON) A-390, A-392, B-390	≤ 125 Bhn or ≤ 77 HRb	Profile				510	RPM	15586	7793	5195	3896	2598	1948
							(408-612)	Fz	0.00069	0.0018	0.0034	0.0046	0.0055	0.0064
				2	≤ 0.3	≤ 1.5		Feed (ipm)	21.5	28.1	35.3	35.8	28.6	24.9
				4	≤ 0.3	≤ 1.5			43.0	56.1	70.7	71.7	57.1	49.9
			Slot				410	RPM	12530	6265	4177	3132	2088	1566
							(328-492)	Fz	0.00063	0.0017	0.0032	0.0042	0.0050	0.0059
				2	1	≤ 1		Feed (ipm)	15.8	21.3	26.7	26.3	20.9	18.5
				4	1	≤ 0.25			31.6	42.6	53.5	52.6	41.8	37.0
	COPPER ALLOYS Aluminum Bronze, Muntz Brass, Naval, Brass, Red Brass	≤ 140 Bhn or ≤ 3 HRc	Profile				590	RPM	18030	9015	6010	4508	3005	2254
							(472-708)	Fz	0.00039	0.0010	0.0020	0.0026	0.0031	0.0037
				2	≤ 0.3	≤ 1.5		Feed (ipm)	14.1	18.0	24.0	23.4	18.6	16.7
				4	≤ 0.3	≤ 1.5			28.1	36.1	48.1	46.9	37.3	33.4
			Slot				475	RPM	14516	7258	4839	3629	2419	1815
							(380-570)	Fz	0.00036	0.0010	0.0018	0.0024	0.0029	0.0034
				2	1	≤ 1		Feed (ipm)	10.5	14.5	17.4	17.4	14.0	12.3
				4	1	≤ 0.25			20.9	29.0	34.8	34.8	28.1	24.7
	COPPER ALLOYS Beryllium Copper, C110, Manganese Bronze, Tin Bronze	≤ 200 Bhn or ≤ 23 HRc	Profile				235	RPM	7182	3591	2394	1795	1197	898
							(188-282)	Fz	0.00039	0.0010	0.0020	0.0026	0.0031	0.0037
				2	≤ 0.3	≤ 1.5		Feed (ipm)	5.6	7.2	9.6	9.3	7.4	6.6
				4	≤ 0.3	≤ 1.5			11.2	14.4	19.2	18.7	14.8	13.3
			Slot				190	RPM	5806	2903	1935	1452	968	726
							(152-228)	Fz	0.00036	0.0010	0.0018	0.0024	0.0029	0.0034
				2	1	≤ 1		Feed (ipm)	4.2	5.8	7.0	7.0	5.6	4.9
				4	1	≤ 0.25			8.4	11.6	13.9	13.9	11.2	9.9
	PLASTICS ABS, Polycarbonate, PVC, Polypropylene		Profile				1600	RPM	48896	24448	16299	12224	8149	6112
							(1280-1920)	Fz	0.00110	0.0030	0.0056	0.0074	0.0089	0.0100
				2	≤ 0.3	≤ 1.5		Feed (ipm)	107.6	146.7	182.5	180.9	145.1	122.2
				4	≤ 0.3	≤ 1.5			215.1	293.4	365.1	361.8	290.1	244.5
			Slot				1280	RPM	39117	19558	13039	9779	6519	4890
							(1024-1536)	Fz	0.00100	0.0027	0.0051	0.0068	0.0082	0.0095
				2	1	≤ 1		Feed (ipm)	78.2	105.6	133.0	133.0	106.9	92.9
				4	1	≤ 0.25			156.5	211.2	266.0	266.0	213.8	185.8
	PLASTICS Fiberglass, Glass Filled		Profile				720	RPM	22003	11002	7334	5501	3667	2750
							(576-864)	Fz	0.00082	0.0022	0.0041	0.0055	0.0065	0.0076
				2	≤ 0.3	≤ 1.5		Feed (ipm)	36.1	48.4	60.1	60.5	47.7	41.8
				4	≤ 0.3	≤ 1.5			72.2	96.8	120.3	121.0	95.3	83.6
			Slot				575	RPM	17572	8786	5857	4393	2929	2197
							(460-690)	Fz	0.00075	0.0020	0.0037	0.0050	0.0060	0.0070
				2	1	≤ 1		Feed (ipm)	26.4	35.1	43.3	43.9	35.1	30.8
				4	1	≤ 0.25			52.7	70.3	86.7	87.9	70.3	61.5

Bhn (Brinell) HRc (Rockwell C) HRb (Rockwell B)
rpm = (Vc x 3.82) / DC
ipm = Fz x number of flutes x rpm
reduce speed and feed for materials harder than listed
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)

FRACTIONAL

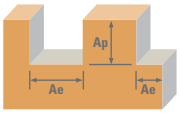
Single End Roughers (Coarse Pitch)



	Series 61 Fractional	Hardness		Ae x DC	Ap x DC	Vc (sfm)		DC • in 1/4	3/8	1/2	3/4	1
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 175 Bhn or ≤ 7 HRc	Profile	≤ 0.5	≤ 1.5	500	RPM	7640	5093	3820	2547	1910
						(400-600)	Fz	0.0006	0.0011	0.0014	0.0017	0.0020
							Feed (ipm)	13.8	16.8	21.4	17.3	19.1
			Slot	1	≤ 1	400	RPM	6112	4075	3056	2037	1528
						(320-480)	Fz	0.0006	0.0011	0.0014	0.0017	0.0020
							Feed (ipm)	11.0	13.4	17.1	13.9	15.3
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100	≤ 275 Bhn or ≤ 28 HRc	Profile	≤ 0.5	≤ 1.5	365	RPM	5577	3718	2789	1859	1394
						(292-438)	Fz	0.0004	0.0008	0.0011	0.0013	0.0015
							Feed (ipm)	6.7	8.9	12.3	9.7	10.5
			Slot	1	≤ 1	295	RPM	4508	3005	2254	1503	1127
						(236-354)	Fz	0.0004	0.0008	0.0011	0.0013	0.0015
							Feed (ipm)	5.4	7.2	9.9	7.8	8.5
	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 250 Bhn or ≤ 24 HRc	Profile	≤ 0.5	≤ 1.5	345	RPM	5272	3514	2636	1757	1318
						(276-414)	Fz	0.0006	0.0009	0.0015	0.0018	0.0021
							Feed (ipm)	9.5	9.5	15.8	12.7	13.8
			Slot	1	≤ 1	275	RPM	4202	2801	2101	1401	1051
						(220-330)	Fz	0.0006	0.0009	0.0015	0.0018	0.0021
							Feed (ipm)	7.6	7.6	12.6	10.1	11.0
K	CAST IRONS Gray, Malleable, Ductile	≤ 220 Bhn or ≤ 19 HRc	Profile	≤ 0.5	≤ 1.5	365	RPM	5577	3718	2789	1859	1394
						(292-438)	Fz	0.0008	0.0015	0.0020	0.0024	0.0028
							Feed (ipm)	13.4	16.7	22.3	17.8	19.5
			Slot	1	≤ 1	295	RPM	4508	3005	2254	1503	1127
						(236-354)	Fz	0.0008	0.0015	0.0020	0.0024	0.0028
							Feed (ipm)	10.8	13.5	18.0	14.4	15.8

Bhn (Brinell) HRc (Rockwell C)
rpm = (Vc x 3.82) / DC
ipm = Fz x number of flutes x rpm
reduce speed and feed for materials harder than listed
refer to the SGS Tool Wizard® for complete technical information (www.kyocera-sgstool.com)

Single End Roughers (Fine Pitch)

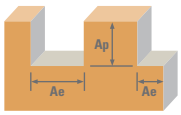


	Series 62 Fractional	Hardness		Ae x DC	Ap x DC	Vc (sfm)		DC • in 1/4	3/8	1/2	3/4	1
M	STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 Bhn or ≤ 28 HRc	Profile	≤ 0.5	≤ 1.5	405	RPM	6188	4126	3094	2063	1547
						(324-486)	Fz	0.0006	0.0011	0.0015	0.0019	0.0021
							Feed (ipm)	11.1	13.6	18.6	15.7	19.5
			Slot	1	≤ 1	325	RPM	4966	3311	2483	1655	1242
						(260-390)	Fz	0.0006	0.0011	0.0015	0.0019	0.0021
							Feed (ipm)	8.9	10.9	14.9	12.6	15.6
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L, 17-4PH, 15-5PH, 13-4PH, Custom 450	≤ 275 Bhn or ≤ 28 HRc	Profile	≤ 0.5	≤ 1.5	280	RPM	4278	2852	2139	1426	1070
						(224-336)	Fz	0.0005	0.0009	0.0012	0.0015	0.0017
							Feed (ipm)	6.4	7.7	10.3	8.6	10.9
			Slot	1	≤ 1	225	RPM	3438	2292	1719	1146	860
						(180-270)	Fz	0.0005	0.0009	0.0012	0.0015	0.0017
							Feed (ipm)	5.2	6.2	8.3	6.9	8.8
S	HIGH TEMP ALLOYS (NICKEL, COBALT, IRON BASE) Inconel 601, 617, 625, Incoloy 800, Monel 400, Rene, Waspalloy	≤ 300 Bhn or ≤ 32 HRc	Profile	≤ 0.5	≤ 1.5	70	RPM	1070	713	535	357	267
						(56-84)	Fz	0.0004	0.0008	0.0010	0.0013	0.0014
							Feed (ipm)	1.3	1.7	2.1	1.9	2.2
			Slot	1	≤ 1	56	RPM	856	570	428	285	214
						(45-67)	Fz	0.0004	0.0008	0.0010	0.0013	0.0014
							Feed (ipm)	1.0	1.4	1.7	1.5	1.8
	TITANIUM ALLOYS Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si, Ti10V2Fe3Al, Ti5Al53Mo3Cr, Ti7Al4Mo, Ti3Al8V6Cr4Zr4Mo, Ti6Al6V6Sn, Ti152 Cr3Sn3Al	≤ 350 Bhn or ≤ 38 HRc	Profile	≤ 0.5	≤ 1.5	155	RPM	2368	1579	1184	789	592
						(124-186)	Fz	0.0005	0.0009	0.0012	0.0015	0.0017
							Feed (ipm)	3.6	4.3	5.7	4.7	6.0
			Slot	1	≤ 1	195	RPM	2980	1986	1490	993	745
						(156-234)	Fz	0.0005	0.0009	0.0012	0.0015	0.0017
							Feed (ipm)	4.5	5.4	7.2	6.0	7.6

Bhn (Brinell) HRc (Rockwell C)
rpm = (Vc x 3.82) / DC
ipm = Fz x number of flutes x rpm
reduce speed and feed for materials harder than listed
refer to the SGS Tool Wizard® for complete technical information (www.kyocera-sgstool.com)

METRIC

2 Flute: Square, Double, Stub, Long Reach, Ball
3 Flute: Square, Long Reach, Ball
4 Flute: Square, Double, Stub, Long Reach, Ball, Corner Radius



	Series 1M, 3M, 5M, 14M, 15M, 16M, 17M, 59M Metric	Hardness		Flutes	Ae x DC	Ap x DC	Vc (m/min)		DC • mm 0.4	0.75	1.5	3	6	10	12	20	25
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 175 Bhn or ≤ 7 HRc	Profile				140	RPM	111483	59458	29729	14864	7432	4459	3716	2230	1784
								Fz	0.0008	0.0015	0.0031	0.007	0.019	0.040	0.048	0.064	0.070
				2	≤ 0.50	≤ 1.5	(112-168)	Feed (mm/min)	178	178	184	208	282	357	357	285	250
				3	≤ 0.25	≤ 1.5			268	268	276	312	424	535	535	428	375
				4	≤ 0.25	≤ 1.5			357	357	369	416	565	713	713	571	499
			Slot				102	RPM	81189	43301	21650	10825	5413	3248	2706	1624	1299
								Fz	0.0008	0.0015	0.0031	0.007	0.019	0.040	0.048	0.064	0.070
				2	1	≤ 1	(82-123)	Feed (mm/min)	130	130	134	152	206	260	260	208	182
				3	1	≤ 0.5			195	195	201	227	309	390	390	312	273
				4	1	≤ 0.4			260	260	268	303	411	520	520	416	364
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100	≤ 275 Bhn or ≤ 28 HRc	Profile				102	RPM	81189	43301	21650	10825	5413	3248	2706	1624	1299
								Fz	0.0005	0.0012	0.0022	0.006	0.014	0.029	0.036	0.048	0.052
				2	≤ 0.50	≤ 1.5	(82-123)	Feed (mm/min)	81	104	95	130	152	188	195	156	135
				3	≤ 0.25	≤ 1.5			122	156	143	195	227	283	292	234	203
				4	≤ 0.25	≤ 1.5			162	208	191	260	303	377	390	312	270
			Slot				75	RPM	59377	31668	15834	7917	3958	2375	1979	1188	950
								Fz	0.0005	0.0012	0.0022	0.006	0.014	0.029	0.036	0.048	0.052
				2	1	≤ 1	(60-90)	Feed (mm/min)	59	76	70	95	111	138	143	114	99
				3	1	≤ 0.5			119	152	139	190	222	276	285	228	198
				4	1	≤ 0.4			119	152	139	190	222	276	285	228	198
	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 250 Bhn or ≤ 24 HRc	Profile				96	RPM	76342	40715	20358	10179	5089	3054	2545	1527	1221
								Fz	0.0005	0.0012	0.0022	0.006	0.014	0.029	0.036	0.048	0.052
				2	≤ 0.50	≤ 1.5	(77-115)	Feed (mm/min)	76	98	90	122	143	177	183	147	127
				3	≤ 0.25	≤ 1.5			115	147	134	183	214	266	275	220	191
				4	≤ 0.25	≤ 1.5			153	195	179	244	285	354	366	293	254
			Slot				70	RPM	55741	29729	14864	7432	3716	2230	1858	1115	892
								Fz	0.0005	0.0012	0.0022	0.006	0.014	0.029	0.036	0.048	0.052
				2	1	≤ 1	(56-84)	Feed (mm/min)	56	71	65	89	104	129	134	107	93
				3	1	≤ 0.5			84	107	98	134	156	194	201	161	139
				4	1	≤ 0.4			111	143	131	178	208	259	268	214	186
M	STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F 440F	≤ 275 Bhn or ≤ 28 HRc	Profile				113	RPM	89671	47825	23912	11956	5978	3587	2989	1793	1435
								Fz	0.0005	0.0012	0.0022	0.006	0.014	0.029	0.036	0.048	0.052
				2	≤ 0.50	≤ 1.5	(90-135)	Feed (mm/min)	90	115	105	143	167	208	215	172	149
				3	≤ 0.25	≤ 1.5			135	172	158	215	251	312	323	258	224
				4	≤ 0.25	≤ 1.5			179	230	210	287	335	416	430	344	298
			Slot				82	RPM	65436	34899	17449	8725	4362	2617	2181	1309	1047
								Fz	0.0005	0.0012	0.0022	0.006	0.014	0.029	0.036	0.048	0.052
				2	1	≤ 1	(66-99)	Feed (mm/min)	65	84	77	105	122	152	157	126	109
				3	1	≤ 0.5			98	126	115	157	183	228	236	188	163
				4	1	≤ 0.4			131	168	154	209	244	304	314	251	218
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L, 17-4 PH, 15-5, 13-4, Custom 450	≤ 275 Bhn or ≤ 28 HRc	Profile				78	RPM	61800	32960	16480	8240	4120	2472	2060	1236	989
								Fz	0.0005	0.0010	0.0019	0.004	0.012	0.024	0.029	0.037	0.042
				2	≤ 0.50	≤ 1.5	(62-93)	Feed (mm/min)	62	66	63	66	99	119	119	91	83
				3	≤ 0.25	≤ 1.5			93	99	94	99	148	178	179	137	125
				4	≤ 0.25	≤ 1.5			124	132	125	132	198	237	239	183	166
			Slot				56	RPM	44836	23912	11956	5978	2989	1793	1495	897	717
								Fz	0.0005	0.0010	0.0019	0.004	0.012	0.024	0.029	0.037	0.042
				2	1	≤ 1	(45-68)	Feed (mm/min)	45	48	45	48	72	86	87	66	60
				3	1	≤ 0.5			67	72	68	72	108	129	130	100	90
				4	1	≤ 0.4			90	96	91	96	143	172	173	133	121
K	CAST IRONS Gray, Malleable, Ductile	≤ 220 Bhn or ≤ 19 HRc	Profile				102	RPM	81189	43301	21650	10825	5413	3248	2706	1624	1299
								Fz	0.0008	0.0015	0.0031	0.007	0.019	0.040	0.048	0.064	0.070
				2	≤ 0.50	≤ 1.5	(82-123)	Feed (mm/min)	130	130	134	152	206	260	260	208	182
				3	≤ 0.25	≤ 1.5			195	195	201	227	309	390	390	312	273
				4	≤ 0.25	≤ 1.5			260	260	268	303	411	520	520	416	364
			Slot				75	RPM	59377	31668	15834	7917	3958	2375	1979	1188	950
								Fz	0.0008	0.0015	0.0031	0.007	0.019	0.040	0.048	0.064	0.070
				2	1	≤ 1	(60-90)	Feed (mm/min)	95	95	98	111	150	190	190	152	133
				3	1	≤ 0.5			143	143	147	166	226	285	285	228	200
				4	1	≤ 0.4			190	190	196	222	301	380	380	304	266

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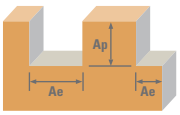
2 Flute: Square, Double, Stub, Long Reach, Ball
3 Flute: Square, Long Reach, Ball
4 Flute: Square, Double, Stub, Long Reach, Ball, Corner Radius

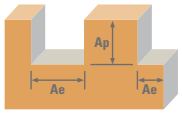


	Series 1M, 3M, 5M, 14M, 15M, 16M, 17M, 59M Metric	Hardness		Flutes	Ae x DC	Ap x DC	Vc (m/min)		DC • mm 0.4	0.75	1.5	3	6	10	12	20	25
N	ALUMINUM ALLOYS 2017, 2024, 356, 6061, 7075	≤ 150 Bhn or ≤ 88 HRb	Profile				268	RPM	213272	113745	56872	28436	14218	8531	7109	4265	3412
								Fz	0.0015	0.0032	0.0060	0.014	0.038	0.080	0.096	0.128	0.140
				2	≤ 0.50	≤ 1.5	(215-322)	Feed (mm/min)	640	728	682	796	1081	1365	1365	1092	955
				3	≤ 0.25	≤ 1.5			960	1092	1024	1194	1621	2047	2047	1638	1433
			Slot				195	RPM	155107	82724	41362	20681	10340	6204	5170	3102	2482
								Fz	0.0015	0.0032	0.0060	0.014	0.038	0.080	0.096	0.128	0.140
				2	1	≤ 1	(156-234)	Feed (mm/min)	465	529	496	579	786	993	993	794	695
				3	1	≤ 0.5			698	794	745	869	1179	1489	1489	1191	1042
	COPPER ALLOYS Alum Bronze, C110, Muntz Brass	≤ 140 Bhn or ≤ 3 HRc	Profile				148	RPM	117542	62689	31344	15672	7836	4702	3918	2351	1881
								Fz	0.0008	0.0015	0.0031	0.007	0.019	0.040	0.048	0.064	0.070
				2	≤ 0.50	≤ 1.5	(118-177)	Feed (mm/min)	188	188	194	219	298	376	376	301	263
				3	≤ 0.25	≤ 1.5			282	282	292	329	447	564	564	451	395
				4	≤ 0.25	≤ 1.5			376	376	389	439	596	752	752	602	527
			Slot					RPM	84824	45239	22620	11310	5655	3393	2827	1696	1357
								Fz	0.0008	0.0015	0.0031	0.007	0.019	0.040	0.048	0.064	0.070
				2	1	≤ 1		Feed (mm/min)	136	136	140	158	215	271	271	217	190
				3	1	≤ 0.5			204	204	210	238	322	407	407	326	285
				4	1	≤ 0.4			271	271	280	317	430	543	543	434	380
	PLASTICS Polycarbonate, PVC, Polypropylene		Profile				268	RPM	213272	113745	56872	28436	14218	8531	7109	4265	3412
								Fz	0.0015	0.0032	0.0060	0.014	0.038	0.080	0.096	0.128	0.140
				2	≤ 0.50	≤ 1.5	(215-322)	Feed (mm/min)	640	728	682	796	1081	1365	1365	1092	955
				3	≤ 0.25	≤ 1.5			960	1092	1024	1194	1621	2047	2047	1638	1433
				4	≤ 0.25	≤ 1.5			1280	1456	1365	1592	2161	2730	2730	2184	1911
			Slot				195	RPM	155107	82724	41362	20681	10340	6204	5170	3102	2482
								Fz	0.0015	0.0032	0.0060	0.014	0.038	0.080	0.096	0.128	0.140
				2	1	≤ 1	(156-234)	Feed (mm/min)	465	529	496	579	786	993	993	794	695
				3	1	≤ 0.5			698	794	745	869	1179	1489	1489	1191	1042
				4	1	≤ 0.4			931	1059	993	1158	1572	1985	1985	1588	1390
	GRAPHITE		Profile				201	RPM	159954	85309	42654	21327	10664	6398	5332	3199	2559
								Fz	0.0015	0.0032	0.0060	0.014	0.038	0.080	0.096	0.128	0.140
				2	≤ 0.50	≤ 1.5	(161-241)	Feed (mm/min)	480	546	512	597	810	1024	1024	819	717
				3	≤ 0.25	≤ 1.5			720	819	768	896	1216	1536	1536	1228	1075
				4	≤ 0.25	≤ 1.5			960	1092	1024	1194	1621	2047	2047	1638	1433
			Slot				146	RPM	116330	62043	31021	15511	7755	4653	3878	2327	1861
								Fz	0.0015	0.0032	0.0060	0.014	0.038	0.080	0.096	0.128	0.140
				2	1	≤ 1	(117-176)	Feed (mm/min)	349	397	372	434	589	745	745	596	521
				3	1	≤ 0.5			523	596	558	651	884	1117	1117	893	782
				4	1	≤ 0.4			698	794	745	869	1179	1489	1489	1191	1042
S	HIGH TEMP ALLOYS (NICKEL, COBALT, IRON BASE) Inconel 601, 617, 625, 718, Incoloy 800, Monel 400,Rene, Waspalloy	≤ 300 Bhn or ≤ 32 HRc	Profile				20	RPM	15753	8402	4201	2100	1050	630	525	315	252
								Fz	0.0005	0.0007	0.0014	0.004	0.010	0.021	0.024	0.032	0.035
				2	≤ 0.50	≤ 1.5	(16-24)	Feed (mm/min)	16	12	12	17	21	26	25	20	18
				3	≤ 0.25	≤ 1.5			24	18	18	25	32	40	38	30	26
				4	≤ 0.25	≤ 1.5			32	24	24	34	42	53	50	40	35
			Slot				14	RPM	10906	5816	2908	1454	727	436	364	218	174
								Fz	0.0005	0.0007	0.0014	0.004	0.010	0.021	0.024	0.032	0.035
				2	1	≤ 1	(11-16)	Feed (mm/min)	11	8	8	12	15	18	17	14	12
				3	1	≤ 0.5			16	12	12	17	22	27	26	21	18
				4	1	≤ 0.4			22	16	16	23	29	37	35	28	24
	TITANIUM ALLOYS Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si, Ti10V2Fe3Al, Ti5Al53Mo3Cr, Ti7Al4Mo, Ti3Al8V6Cr4Zr4Mo, Ti6Al6V6Sn, Ti152 Cr3Sn3Al	≤ 350 Bhn or ≤ 38 HRc	Profile				55	RPM	43624	23266	11633	5816	2908	1745	1454	872	698
								Fz	0.0005	0.0010	0.0019	0.004	0.012	0.024	0.029	0.037	0.042
				2	≤ 0.50	≤ 1.5	(44-66)	Feed (mm/min)	44	47	44	47	70	84	84	65	59
				3	≤ 0.25	≤ 1.5			65	70	66	70	105	126	127	97	88
				4	≤ 0.25	≤ 1.5			87	93	88	93	140	168	169	129	117
			Slot				40	RPM	31506	16803	8402	4201	2100	1260	1050	630	504
								Fz	0.0005	0.0010	0.0019	0.004	0.012	0.024	0.029	0.037	0.042
				2	1	≤ 1	(32-48)	Feed (mm/min)	32	34	32	34	50	60	61	47	42
				3	1	≤ 0.5			47	50	48	50	76	91	91	70	64
				4	1	≤ 0.4			63	67	64	67	101	121	122	93	85

Bhn (Brinell) HRc (Rockwell C)
rpm = (Vc x 1000) / (DC x 3.14)
mm/min = Fz x number of flutes x rpm
reduce speed and feed for materials harder than listed

limit cut depths of long and extra long flute mills to .05 x DC when slotting or profiling
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)

2 Flute: High Shear
4 Flute: High Shear



	Series 52M, 54M Metric	Hardness		Flutes	Ae x DC	Ap x DC	Vc (m/min)		DC • mm 3	6	10	12	20	25
N	ALUMINUM ALLOYS 2024, 5052, 5086, 6061, 6063, 7075	≤ 150 Bhn or ≤ 88 HRb	Profile				415	RPM	43947	21973	13184	10987	6592	5274
								Fz	0.0166	0.043	0.091	0.110	0.147	0.160
				2	≤ 0.3	≤ 1.5	(332-497)	Feed (mm/min)	1459	1890	2399	2417	1938	1688
				4	≤ 0.3	≤ 1.5			2918	3779	4799	4834	3876	3375
			Slot				332	RPM	35222	17611	10567	8806	5283	4227
								Fz	0.0151	0.041	0.085	0.101	0.133	0.148
				2	1	≤ 1	(266-399)	Feed (mm/min)	1064	1444	1796	1779	1405	1251
				4	1	≤ 0.25			2127	2888	3593	3557	2811	2502
	ALUMINUM DIE CAST ALLOYS (HIGH SILICON) A-390, A-392, B-390	≤ 125 Bhn or ≤ 77 HRb	Profile				155	RPM	16480	8240	4944	4120	2472	1978
								Fz	0.0166	0.043	0.091	0.110	0.147	0.160
				2	≤ 0.3	≤ 1.5	(124-187)	Feed (mm/min)	547	709	900	906	727	633
				4	≤ 0.3	≤ 1.5			1094	1417	1800	1813	1454	1266
			Slot				125	RPM	13249	6624	3975	3312	1987	1590
								Fz	0.0151	0.041	0.085	0.101	0.133	0.148
				2	1	≤ 1	(100-150)	Feed (mm/min)	400	543	676	669	529	471
				4	1	≤ 0.25			800	1086	1351	1338	1057	941
	COPPER ALLOYS Aluminum Bronze, Muntz Brass, Naval, Brass, Red Brass	≤ 140 Bhn or ≤ 3 HRc	Profile				180	RPM	19065	9533	5720	4766	2860	2288
								Fz	0.0094	0.024	0.053	0.062	0.083	0.093
				2	≤ 0.3	≤ 1.5	(144-216)	Feed (mm/min)	358	458	606	591	475	426
				4	≤ 0.3	≤ 1.5			717	915	1213	1182	949	851
			Slot				145	RPM	15349	7675	4605	3837	2302	1842
								Fz	0.0086	0.024	0.048	0.058	0.077	0.085
				2	1	≤ 1	(116-174)	Feed (mm/min)	264	368	442	445	355	313
				4	1	≤ 0.25			528	737	884	890	709	626
	COPPER ALLOYS Beryllium Copper, C110, Manganese Bronze, Tin Bronze	≤ 200 Bhn or ≤ 23 HRc	Profile				72	RPM	7594	3797	2278	1898	1139	911
								Fz	0.0094	0.024	0.053	0.062	0.083	0.093
				2	≤ 0.3	≤ 1.5	(57-86)	Feed (mm/min)	143	182	241	235	189	169
				4	≤ 0.3	≤ 1.5			286	365	483	471	378	339
			Slot				58	RPM	6140	3070	1842	1535	921	737
								Fz	0.0086	0.024	0.048	0.058	0.077	0.085
				2	1	≤ 1	(46-69)	Feed (mm/min)	106	147	177	178	142	125
				4	1	≤ 0.25			211	295	354	356	284	250

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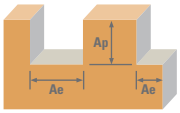
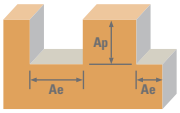
2 Flute: High Shear
4 Flute: High Shear



	Series 52M, 54M Metric	Hardness		Flutes	Ae x DC	Ap x DC	Vc (m/min)		DC • mm 3	6	10	12	20	25
N	PLASTICS ABS, Polycarbonate, PVC, Polypropylene		Profile				488	RPM	51702	25851	15511	12926	7755	6204
							(390-585)	Fz	0.0264	0.072	0.149	0.178	0.237	0.250
				2	≤ 0.3	≤ 1.5		Feed (mm/min)	2730	3723	4622	4601	3676	3102
				4	≤ 0.3	≤ 1.5			5460	7445	9244	9203	7352	6204
			Slot				390	RPM	41362	20681	12409	10340	6204	4963
							(312-468)	Fz	0.0240	0.065	0.136	0.163	0.210	0.238
				2	1	≤ 1		Feed (mm/min)	1985	2689	3375	3371	2606	2363
				4	1	≤ 0.25			3971	5377	6750	6742	5212	4725
	PLASTICS Fiberglass, Glass Filled		Profile				219	RPM	23266	11633	6980	5816	3490	2792
							(176-263)	Fz	0.0197	0.053	0.109	0.132	0.173	0.190
				2	≤ 0.3	≤ 1.5		Feed (mm/min)	917	1233	1522	1536	1208	1061
				4	≤ 0.3	≤ 1.5			1833	2466	3043	3071	2415	2122
			Slot				175	RPM	18580	9290	5574	4645	2787	2230
							(140-210)	Fz	0.0180	0.048	0.101	0.120	0.160	0.175
				2	1	≤ 1		Feed (mm/min)	669	892	1126	1115	892	780
				4	1	≤ 0.25			1338	1784	2252	2230	1784	1561

Bhn (Brinell) HRc (Rockwell C) HRb (Rockwell B)
rpm = (Vc x 1000) / (DC x 3.14)
mm/min = Fz x number of flutes x rpm
reduce speed and feed for materials harder than listed
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)

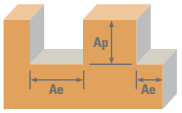
Single End Roughers (Coarse Pitch)



	Series 61M Metric	Hardness		Ae x DC	Ap x DC	Vc (m/min)		DC • mm 6	10	12	20	25
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 175 Bhn or ≤ 7 HRc	Profile	≤ 0.5	≤ 1.5	152	RPM	8078	4847	4039	2424	1939
						(122-183)	Fz	0.014	0.029	0.034	0.045	0.050
							Feed (mm/min)	339	422	549	436	485
			Slot	1	≤ 1	122	RPM	6463	3878	3231	1939	1551
						(98-146)	Fz	0.014	0.029	0.034	0.045	0.050
							Feed (mm/min)	271	337	439	349	388
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100	≤ 275 Bhn or ≤ 28 HRc	Profile	≤ 0.5	≤ 1.5	111	RPM	5897	3538	2949	1769	1415
						(89-134)	Fz	0.010	0.021	0.026	0.035	0.038
							Feed (mm/min)	177	223	307	248	269
			Slot	1	≤ 1	90	RPM	4766	2860	2383	1430	1144
						(72-108)	Fz	0.010	0.021	0.026	0.035	0.038
							Feed (mm/min)	143	180	248	200	217
	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 250 Bhn or ≤ 24 HRc	Profile	≤ 0.5	≤ 1.5	105	RPM	5574	3344	2787	1672	1338
						(84-126)	Fz	0.014	0.024	0.036	0.048	0.053
							Feed (mm/min)	234	241	401	321	355
			Slot	1	≤ 1	84	RPM	4443	2666	2222	1333	1066
						(67-101)	Fz	0.014	0.024	0.036	0.048	0.053
							Feed (mm/min)	187	192	320	256	283
K	CAST IRONS Gray, Malleable, Ductile	≤ 220 Bhn or ≤ 19 HRc	Profile	≤ 0.5	≤ 1.5	111	RPM	5897	3538	2949	1769	1415
						(89-134)	Fz	0.019	0.040	0.048	0.064	0.070
							Feed (mm/min)	336	425	566	453	495
			Slot	1	≤ 1	90	RPM	4766	2860	2383	1430	1144
						(72-108)	Fz	0.019	0.040	0.048	0.064	0.070
							Feed (mm/min)	272	343	458	366	400

Bhn (Brinell) HRc (Rockwell C)
rpm = (Vc x 1000) / (DC x 3.14)
mm/min = Fz x number of flutes x rpm
reduce speed and feed for materials harder than listed
refer to the SGS Tool Wizard® for complete technical information (www.kyocera-sgstool.com)

Single End Roughers (Fine Pitch)



	Series 62M Metric	Hardness		Ae x DC	Ap x DC	Vc (m/min)		DC • mm 6	10	12	20	25
M	STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 Bhn or ≤ 28 HRc	Profile	≤ 0.5	≤ 1.5	123	RPM	6544	3926	3272	1963	1570
						(99-148)	Fz	0.014	0.029	0.036	0.051	0.053
							Feed (mm/min)	283	345	471	398	495
			Slot	1	≤ 1	99	RPM	5251	3151	2626	1575	1260
						(79-119)	Fz	0.014	0.029	0.036	0.051	0.053
							Feed (mm/min)	227	277	378	319	397
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L, 17-4PH, 15-5PH, 13-4PH, Custom 450	≤ 275 Bhn or ≤ 28 HRc	Profile	≤ 0.5	≤ 1.5	85	RPM	4524	2714	2262	1357	1086
						(68-102)	Fz	0.012	0.024	0.029	0.040	0.043
							Feed (mm/min)	163	195	261	217	277
			Slot	1	≤ 1	69	RPM	3635	2181	1818	1091	872
						(55-82)	Fz	0.012	0.024	0.029	0.040	0.043
							Feed (mm/min)	131	157	209	174	222
S	HIGH TEMP ALLOYS (NICKEL, COBALT, IRON BASE) Inconel 601, 617, 625, Incoloy 800, Monel 400, Rene, Waspalloy	≤ 300 Bhn or ≤ 32 HRc	Profile	≤ 0.5	≤ 1.5	21	RPM	1131	679	565	339	271
						(17-26)	Fz	0.010	0.021	0.024	0.035	0.035
							Feed (mm/min)	33	43	54	47	57
			Slot	1	≤ 1	17	RPM	905	543	452	271	217
						(14-20)	Fz	0.010	0.021	0.024	0.035	0.035
							Feed (mm/min)	26	35	43	38	46
	TITANIUM ALLOYS Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si, Ti10V2Fe3Al, Ti5Al53Mo3Cr, Ti7Al4Mo, Ti3Al8V6Cr4Zr4Mo, Ti6Al6V6Sn, Ti152 Cr3Sn3Al	≤ 350 Bhn or ≤ 38 HRc	Profile	≤ 0.5	≤ 1.5	47	RPM	2504	1503	1252	751	601
						(38-57)	Fz	0.012	0.024	0.029	0.040	0.043
							Feed (mm/min)	90	108	144	120	153
			Slot	1	≤ 1	59	RPM	3151	1890	1575	945	756
						(48-71)	Fz	0.012	0.024	0.029	0.040	0.043
							Feed (mm/min)	113	136	181	151	193

Bhn (Brinell) HRc (Rockwell C)
rpm = (Vc x 1000) / (DC x 3.14)
mm/min = Fz x number of flutes x rpm
reduce speed and feed for materials harder than listed
refer to the SGS Tool Wizard® for complete technical information (www.kyocera-sgstool.com)