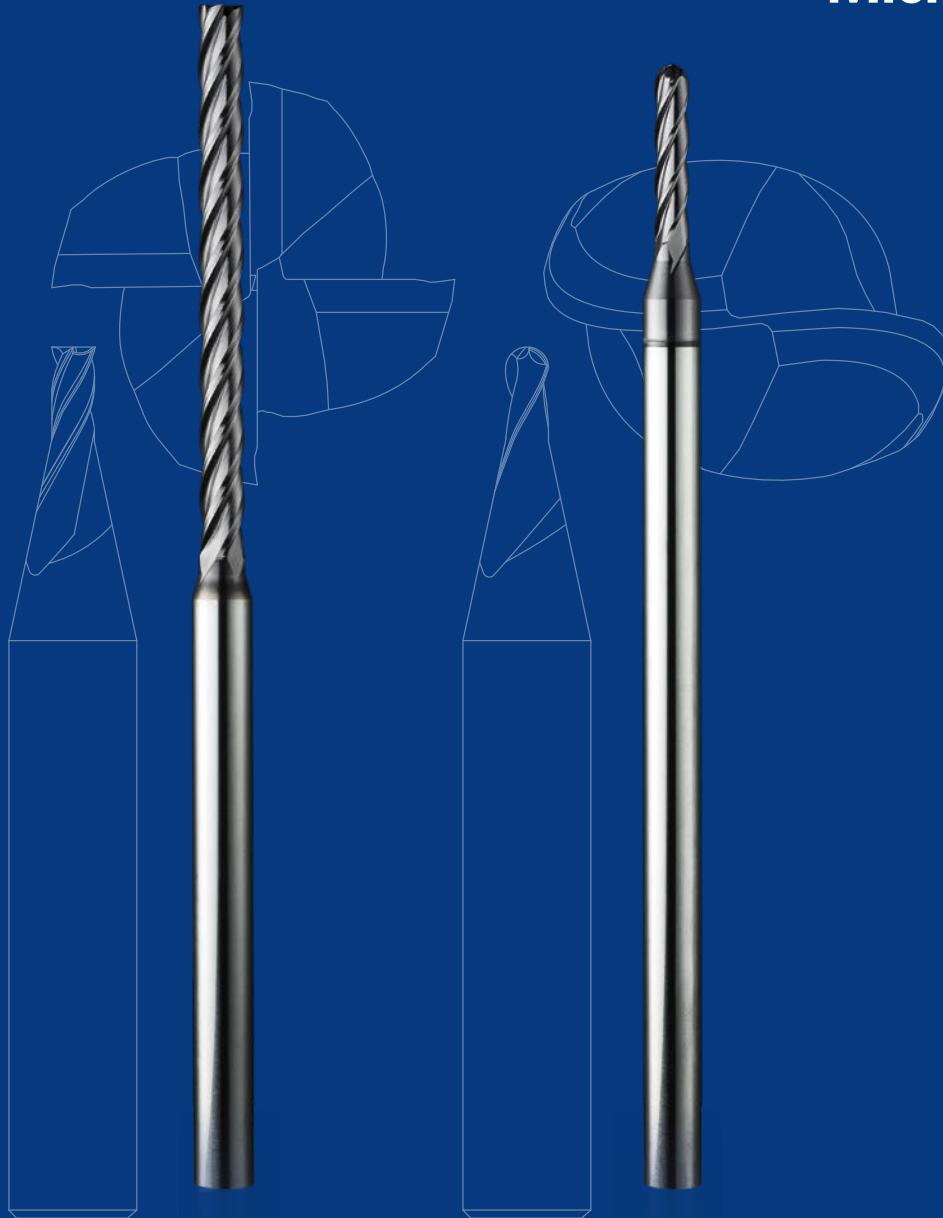




## Micro Tools



*New Expanded Offering*

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

ISO 9001 Certified



**KYOCERA SGS Precision Tools (KSPT) is an ISO-certified manufacturer of industry leading round solid carbide cutting tools. State of the art manufacturing and warehouse facilities have the capacity and processes to meet the quality and delivery demands of customers in all markets around the world. Complete inspections performed within its metallurgical lab and manufacturing quality departments ensure the use of high quality carbide and reliable manufacturing consistency regardless of when a cutting tool is produced.**

**KSPT is proud to have pioneered some of the world's most advanced cutting technologies due to rigorous testing of tools, coatings, and materials within its Global Innovation Center. It is this commitment to innovation that has launched patented products and technologies like the Z-Carb with its variable geometry and cutting edge preparation, Series 43 APR® and APF® ultra high performance aluminum cutting tools, and the JetStream coolant technology.**

**SGS has become an important part of the KYOCERA Precision Tools family, and while the name has changed, one thing has not. Its dedicated people and their relentless commitment to the customer. KSPT Technical Sales Engineers, Application Specialists, and Distribution Partners blanket the globe, delivering reliable service and support to all market segments. It is these people and products that drive innovative application strategies and cutting tool technologies into the end user, continually exceeding expectations and providing the most Value at the Spindle®**



**FRACTIONAL**

SERIES	DESCRIPTION	PAGE
M2	2 Flute Square 1.5xD . . . . .	6
	2 Flute Square 3xD . . . . .	8
	2 Flute Square 3xD, 8xD Overall Reach . . . . .	10
	2 Flute Square 3xD, 12xD Overall Reach . . . . .	11
M2B	2 Flute Ball 1.5xD . . . . .	12
	2 Flute Ball 3xD . . . . .	14
	2 Flute Ball 3xD, 8xD Overall Reach . . . . .	16
	2 Flute Ball 3xD, 12xD Overall Reach . . . . .	17
M3	3 Flute Square 1.5xD, 3xD Overall Reach . . . . .	18
	3 Flute Square 1.5xD, 5xD Overall Reach . . . . .	19
	3 Flute Square 1.5xD, 8xD Overall Reach . . . . .	20
	3 Flute Square 1.5xD, 12xD Overall Reach . . . . .	21
	3 Flute Square 1.5xD, 15xD Overall Reach . . . . .	22
	3 Flute Square 1.5xD, 20xD Overall Reach . . . . .	23
	3 Flute Square 1.5xD, 25xD Overall Reach . . . . .	24
	3 Flute Square 1.5xD, 30xD Overall Reach . . . . .	25
M3B	3 Flute Ball 1.5xD, 3xD Overall Reach . . . . .	25
	3 Flute Ball 1.5xD, 5xD Overall Reach . . . . .	26
	3 Flute Ball 1.5xD, 8xD Overall Reach . . . . .	27
	3 Flute Ball 1.5xD, 12xD Overall Reach . . . . .	28
	3 Flute Ball 1.5xD, 15xD Overall Reach . . . . .	29
	3 Flute Ball 1.5xD, 20xD Overall Reach . . . . .	30
	3 Flute Ball 1.5xD, 25xD Overall Reach . . . . .	31
	3 Flute Ball 1.5xD, 30xD Overall Reach . . . . .	32
M4	4 Flute Square 1.5xD . . . . .	32
	4 Flute Square 3xD . . . . .	34
	4 Flute Square 3xD, 8xD Overall Reach . . . . .	36
	4 Flute Square 3xD, 12xD Overall Reach . . . . .	37
M4L	4 Flute Square 5xD . . . . .	38
M4E	4 Flute Square 8xD . . . . .	39
M4X	4 Flute Square 12xD . . . . .	40
M4B	4 Flute Ball 1.5xD . . . . .	41
	4 Flute Ball 3xD . . . . .	43
	4 Flute Ball 3xD, 8xD Overall Reach . . . . .	45
	4 Flute Ball 3xD, 12xD Overall Reach . . . . .	46
M4LB	4 Flute Ball 5xD . . . . .	47
M4EB	4 Flute Ball 8xD . . . . .	48
M4XB	4 Flute Ball 12xD . . . . .	49

**METRIC**

SERIES	DESCRIPTION	PAGE
M2M	2 Flute Square 1.5xD . . . . .	50
	2 Flute Square 3xD . . . . .	51
M2MB	2 Flute Ball 1.5xD . . . . .	52
	2 Flute Ball 3xD . . . . .	53
M4MB	4 Flute Ball 1.5xD . . . . .	54
	4 Flute Ball 3xD . . . . .	55
<b>Speed &amp; Feed Recommendations . . . . .</b>		<b>56</b>

# Ti-NAMITE-A

With excellent thermal and chemical resistance, Ti-NAMITE-A (AlTiN) allows for dry cutting and improvements in performance of carbide. The coating has a high hardness giving ultimate protection against abrasive wear and erosion. Ideal for cast iron, high temperature alloys, steels, and stainless steel applications.

**Hardness (HV): 3700**

**Oxidation Temperature: 1100°C / 2010°F**

**Coefficient of Friction: 0.30**

**Thickness: 1 – 4 Microns (based on tool diameter)**

## KYOCERA SGS PRECISION TOOLS AlTiN COATING PERFORMANCE (LAB RESULTS)

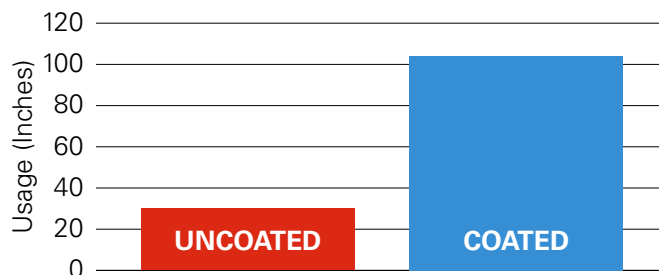
SEM photography shows the KSPT proprietary coating method provides a significant reduction in macro particle deposition on the tool surface, which contributes to increased performance due to smoother chip flow. Another benefit of the KSPT micro-tool coating is a significant reduction in edge rounding due to excessive thickness, typical of most normal coatings.



One common misconception is that coated micro tools are often unnecessary because most machines cannot reach sufficient spindle speed to warrant the additional expense of a coated tool. Our testing shows AlTiN coating increases tool life by 250 percent, even when the cutting speed is well below that recommended for uncoated carbide. In other words, coating cost is justifiable, even at low spindle speeds.

### TOOL LIFE COMPARISON

4140 alloy steel / 30 HRc / dry  
15000 rpm / 6 ipm / slotting to failure  
1/32 4-flute carbide end mill



# Micro Tool Legend









**TO ORDER:** Please specify quantity and EDP number.  
**RETURN POLICY:** An RMA number must accompany all product returns. Contact your Customer Service Representative for an RMA number.

**REGULATION SAFETY GLASSES SHOULD ALWAYS BE WORN WHEN USING HIGH-SPEED CUTTING EQUIPMENT**

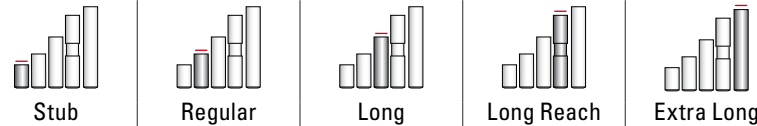


**WARNING:** This product can expose you to chemicals including Cobalt, which is known to the State of California to cause cancer. For more information go to [www.p65warnings.ca.gov](http://www.p65warnings.ca.gov)

## MATERIALS

 Steels	 Stainless Steels	 Cast Iron	 High Temp Alloys
 Titanium	 Non-Ferrous	 Plastics/Composites	 Hardened Steels

## TOOL LENGTH



## FLUTES



## END CONFIGURATIONS



## SHANK TYPE



## HELIX ANGLE



## RAKE ANGLE



All tools are in Right Cut Direction unless noted



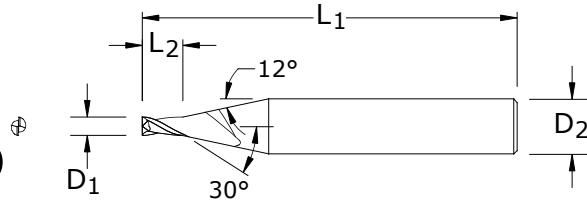
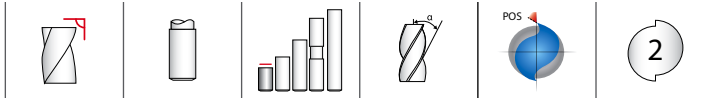
USE THE TOOLWIZARD® TO:

- Calculate application parameters
- Search the KSPT catalog
- Select products based on machining needs

TO SIGN UP FOR THE TOOLWIZARD®:

1. Visit [www.kyocera-sgstool.com](http://www.kyocera-sgstool.com)
2. Sign up for an account
3. Start calculating
4. Start saving

FRACTIONAL  
M2 1.5xD



M2 1.5xD  
FRACTIONAL SERIES

- Two flute design is ideal for softer alloyed, non-ferrous material applications that require slotting or involve heavy chip loads.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.

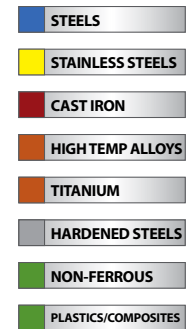
inch				EDP NO.
CUTTING DIAMETER D <sub>1</sub>	SHANK DIAMETER D <sub>2</sub>	LENGTH OF CUT L <sub>2</sub>	OVERALL LENGTH L <sub>1</sub>	TI-NAMITE-A (AlTiN)
0.005	1/8	0.008	1-1/2	02201
0.006	1/8	0.009	1-1/2	02202
0.007	1/8	0.011	1-1/2	02203
0.008	1/8	0.012	1-1/2	02204
0.009	1/8	0.014	1-1/2	02205
0.010	1/8	0.015	1-1/2	02206
0.011	1/8	0.017	1-1/2	02207
0.012	1/8	0.018	1-1/2	02208
0.013	1/8	0.020	1-1/2	02209
0.014	1/8	0.021	1-1/2	02210
0.015	1/8	0.023	1-1/2	02211
0.016	1/8	0.024	1-1/2	02212
0.017	1/8	0.026	1-1/2	02213
0.018	1/8	0.027	1-1/2	02214
0.019	1/8	0.029	1-1/2	02215
0.020	1/8	0.030	1-1/2	02216
0.021	1/8	0.032	1-1/2	02217
0.022	1/8	0.033	1-1/2	02218
0.023	1/8	0.035	1-1/2	02219
0.024	1/8	0.036	1-1/2	02220
0.025	1/8	0.038	1-1/2	02221
0.026	1/8	0.039	1-1/2	02222
0.027	1/8	0.041	1-1/2	02223
0.028	1/8	0.042	1-1/2	02224
0.029	1/8	0.044	1-1/2	02225
0.030	1/8	0.045	1-1/2	02226
0.031	1/8	0.047	1-1/2	02227
0.032	1/8	0.048	1-1/2	02228
0.033	1/8	0.050	1-1/2	02229
0.034	1/8	0.051	1-1/2	02230
0.035	1/8	0.053	1-1/2	02231
0.036	1/8	0.054	1-1/2	02232
0.037	1/8	0.056	1-1/2	02233
0.038	1/8	0.057	1-1/2	02234
0.039	1/8	0.059	1-1/2	02235
0.040	1/8	0.060	1-1/2	02236

TOLERANCES (inch)

.005-.120 DIAMETER

D<sub>1</sub> = +0.000/-0.001

D<sub>2</sub> = h<sub>6</sub>



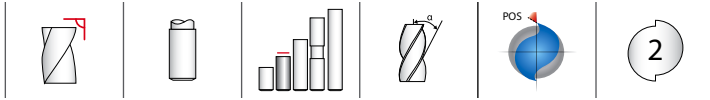
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**M2 1.5xD**  
FRACTIONAL SERIES

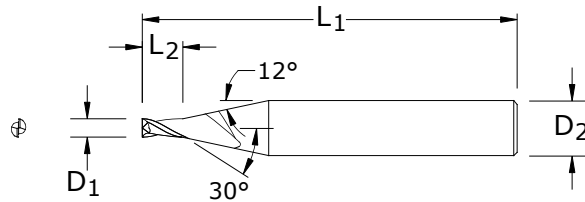
inch				EDP NO.
CUTTING DIAMETER D <sub>1</sub>	SHANK DIAMETER D <sub>2</sub>	LENGTH OF CUT L <sub>2</sub>	OVERALL LENGTH L <sub>1</sub>	TI-NAMITE-A (AlTiN)
0.041	1/8	0.062	1-1/2	02368
0.042	1/8	0.063	1-1/2	02369
0.043	1/8	0.065	1-1/2	02370
0.044	1/8	0.066	1-1/2	02371
0.045	1/8	0.068	1-1/2	02372
0.046	1/8	0.069	1-1/2	02373
0.047	1/8	0.071	1-1/2	02374
0.048	1/8	0.072	1-1/2	02375
0.049	1/8	0.074	1-1/2	02376
0.050	1/8	0.075	1-1/2	02377
0.051	1/8	0.077	1-1/2	02378
0.052	1/8	0.078	1-1/2	02379
0.053	1/8	0.080	1-1/2	02380
0.054	1/8	0.081	1-1/2	02381
0.055	1/8	0.083	1-1/2	02382
0.056	1/8	0.084	1-1/2	02383
0.057	1/8	0.086	1-1/2	02384
0.058	1/8	0.087	1-1/2	02385
0.059	1/8	0.089	1-1/2	02386
0.060	1/8	0.090	1-1/2	02387
0.062	1/8	0.093	1-1/2	02388
0.065	1/8	0.098	1-1/2	02389
0.070	1/8	0.105	1-1/2	02390
0.078	1/8	0.117	1-1/2	02391
0.080	1/8	0.120	1-1/2	02392
0.085	1/8	0.128	1-1/2	02393
0.090	1/8	0.135	1-1/2	02394
0.093	1/8	0.140	1-1/2	02395
0.095	1/8	0.143	1-1/2	02396
0.100	1/8	0.150	1-1/2	02397
0.105	1/8	0.158	1-1/2	02398
0.110	1/8	0.165	1-1/2	02399
0.115	1/8	0.173	1-1/2	02400
0.120	1/8	0.180	1-1/2	02401

*continued*

FRACTIONAL  
M2 3xD



M2 3xD  
FRACTIONAL SERIES



- Two flute design is ideal for softer alloyed, non-ferrous material applications that require slotting or involve heavy chip loads.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.

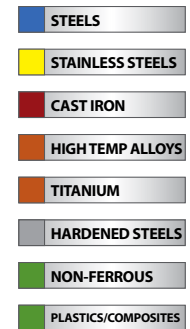
inch				EDP NO.
CUTTING DIAMETER D <sub>1</sub>	SHANK DIAMETER D <sub>2</sub>	LENGTH OF CUT L <sub>2</sub>	OVERALL LENGTH L <sub>1</sub>	TI-NAMITE-A (AITiN)
0.005	1/8	0.015	1-1/2	02275
0.006	1/8	0.018	1-1/2	02276
0.007	1/8	0.021	1-1/2	02277
0.008	1/8	0.024	1-1/2	02278
0.009	1/8	0.027	1-1/2	02279
0.010	1/8	0.030	1-1/2	02280
0.011	1/8	0.033	1-1/2	02281
0.012	1/8	0.036	1-1/2	02282
0.013	1/8	0.039	1-1/2	02283
0.014	1/8	0.042	1-1/2	02284
0.015	1/8	0.045	1-1/2	02285
0.016	1/8	0.048	1-1/2	02286
0.017	1/8	0.051	1-1/2	02287
0.018	1/8	0.054	1-1/2	02288
0.019	1/8	0.057	1-1/2	02289
0.020	1/8	0.060	1-1/2	02290
0.021	1/8	0.063	1-1/2	02291
0.022	1/8	0.066	1-1/2	02292
0.023	1/8	0.069	1-1/2	02293
0.024	1/8	0.072	1-1/2	02294
0.025	1/8	0.075	1-1/2	02295
0.026	1/8	0.078	1-1/2	02296
0.027	1/8	0.081	1-1/2	02297
0.028	1/8	0.084	1-1/2	02298
0.029	1/8	0.087	1-1/2	02299
0.030	1/8	0.090	1-1/2	02300
0.031	1/8	0.093	1-1/2	02301
0.032	1/8	0.096	1-1/2	02302
0.033	1/8	0.099	1-1/2	02303
0.034	1/8	0.102	1-1/2	02304
0.035	1/8	0.105	1-1/2	02305
0.036	1/8	0.108	1-1/2	02306
0.037	1/8	0.111	1-1/2	02307
0.038	1/8	0.114	1-1/2	02308
0.039	1/8	0.117	1-1/2	02309
0.040	1/8	0.120	1-1/2	02310

TOLERANCES (inch)

.005-.120 DIAMETER

D<sub>1</sub> = +0.000/-0.001

D<sub>2</sub> = h<sub>6</sub>



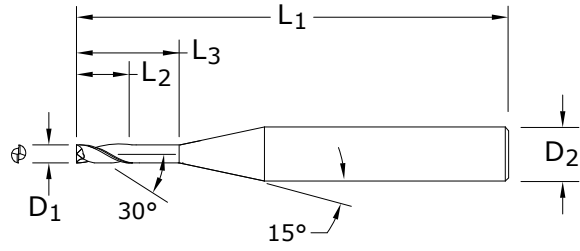
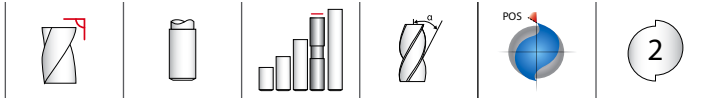
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**M2 3xD**  
FRACTIONAL SERIES

*continued*

inch				EDP NO.
CUTTING DIAMETER D <sub>1</sub>	SHANK DIAMETER D <sub>2</sub>	LENGTH OF CUT L <sub>2</sub>	OVERALL LENGTH L <sub>1</sub>	TI-NAMITE-A (AlTiN)
0.041	1/8	0.123	1-1/2	02436
0.042	1/8	0.126	1-1/2	02437
0.043	1/8	0.129	1-1/2	02438
0.044	1/8	0.132	1-1/2	02439
0.045	1/8	0.135	1-1/2	02440
0.046	1/8	0.138	1-1/2	02441
0.047	1/8	0.141	1-1/2	02442
0.048	1/8	0.144	1-1/2	02443
0.049	1/8	0.147	1-1/2	02444
0.050	1/8	0.150	1-1/2	02445
0.051	1/8	0.153	1-1/2	02446
0.052	1/8	0.156	1-1/2	02447
0.053	1/8	0.159	1-1/2	02448
0.054	1/8	0.162	1-1/2	02449
0.055	1/8	0.165	1-1/2	02450
0.056	1/8	0.168	1-1/2	02451
0.057	1/8	0.171	1-1/2	02452
0.058	1/8	0.174	1-1/2	02453
0.059	1/8	0.177	1-1/2	02454
0.060	1/8	0.180	1-1/2	02455
0.062	1/8	0.186	1-1/2	02456
0.065	1/8	0.195	1-1/2	02457
0.070	1/8	0.210	1-1/2	02458
0.078	1/8	0.234	1-1/2	02459
0.080	1/8	0.240	1-1/2	02460
0.085	1/8	0.255	1-1/2	02461
0.090	1/8	0.270	1-1/2	02462
0.093	1/8	0.279	1-1/2	02463
0.095	1/8	0.285	1-1/2	02464
0.100	1/8	0.300	1-1/2	02465
0.105	1/8	0.315	1-1/2	02466
0.110	1/8	0.330	1-1/2	02467
0.115	1/8	0.345	1-1/2	02468
0.120	1/8	0.360	1-1/2	02469



## M2 3xD, 8xD FRACTIONAL SERIES

- Two flute design is ideal for softer alloyed, non-ferrous material applications that require slotting or involve heavy chip loads.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.

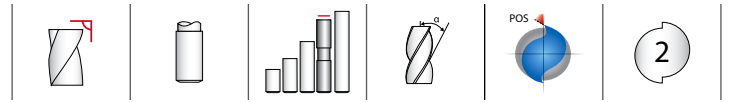
CUTTING DIAMETER D <sub>1</sub>	SHANK DIAMETER D <sub>2</sub>	inch			OVERALL LENGTH L <sub>1</sub>	EDP NO. TI-NAMITE-A (AITIN)
		LENGTH OF CUT L <sub>2</sub>	REACH L <sub>3</sub>			
0.010	1/8	0.030	0.080	1-1/2	03400	
0.015	1/8	0.045	0.120	1-1/2	03401	
0.020	1/8	0.060	0.160	1-1/2	03402	
0.025	1/8	0.075	0.200	1-1/2	03403	
0.030	1/8	0.090	0.240	1-1/2	03404	
0.031	1/8	0.093	0.248	1-1/2	03405	
0.035	1/8	0.105	0.280	1-1/2	03406	
0.040	1/8	0.120	0.320	1-1/2	03407	
0.045	1/8	0.135	0.360	2	03408	
0.047	1/8	0.141	0.376	2	03409	
0.050	1/8	0.150	0.400	2	03410	
0.055	1/8	0.165	0.440	2	03411	
0.060	1/8	0.180	0.480	2	03412	
0.062	1/8	0.186	0.496	2	03413	
0.065	1/8	0.195	0.520	2	03414	
0.070	1/8	0.210	0.560	2	03415	
0.075	1/8	0.225	0.600	2	03416	
0.078	1/8	0.234	0.624	2	03417	
0.080	1/8	0.240	0.640	2	03418	
0.085	1/8	0.255	0.680	2	03419	
0.090	1/8	0.270	0.720	2	03420	
0.093	1/8	0.279	0.744	2	03421	
0.095	1/8	0.285	0.760	2	03422	
0.100	1/8	0.300	0.800	2	03423	
0.110	1/8	0.330	0.880	2	03424	
0.115	1/8	0.345	0.920	2	03425	
0.120	1/8	0.360	0.960	2	03426	

New Expanded Tools

### TOLERANCES (inch)

**.010-.120 DIAMETER**  
D<sub>1</sub> = +0.000/-0.001  
D<sub>2</sub> = h<sub>6</sub>

- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES



**New Expanded Tools**

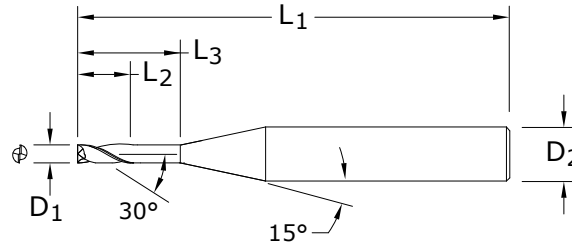
**TOLERANCES (inch)**

**.010–.120 DIAMETER**

$D_1 = +0.000/-0.001$

$D_2 = h_6$

- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES

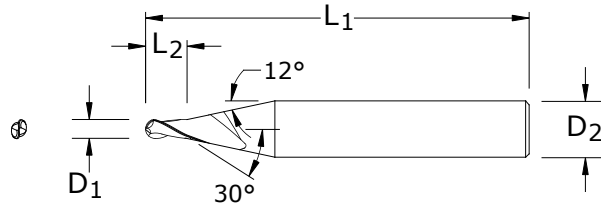
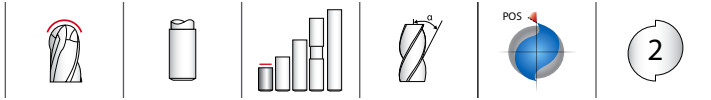


## M2 3xD, 12xD FRACTIONAL SERIES

CUTTING DIAMETER $D_1$	SHANK DIAMETER $D_2$	inch			OVERALL LENGTH $L_1$	EDP NO.
		LENGTH OF CUT $L_2$	REACH $L_3$	TI-NAMITE-A (AlTiN)		
0.010	1/8	0.030	0.120	1-1/2	03427	
0.015	1/8	0.045	0.180	1-1/2	03428	
0.020	1/8	0.060	0.240	1-1/2	03429	
0.025	1/8	0.075	0.300	1-1/2	03430	
0.030	1/8	0.090	0.360	2	03431	
0.031	1/8	0.093	0.372	2	03432	
0.035	1/8	0.105	0.420	2	03433	
0.040	1/8	0.120	0.480	2	03434	
0.045	1/8	0.135	0.540	2	03435	
0.047	1/8	0.141	0.564	2	03436	
0.050	1/8	0.150	0.600	2	03437	
0.055	1/8	0.165	0.600	2	03438	
0.060	1/8	0.180	0.720	2	03439	
0.062	1/8	0.186	0.744	2	03440	
0.065	1/8	0.195	0.780	2	03441	
0.070	1/8	0.210	0.840	2	03442	
0.075	1/8	0.225	0.900	2	03443	
0.078	1/8	0.234	0.936	2-1/2	03444	
0.080	1/8	0.240	0.960	2-1/2	03445	
0.085	1/8	0.255	1.020	2-1/2	03446	
0.090	1/8	0.270	1.080	2-1/2	03447	
0.093	1/8	0.279	1.116	2-1/2	03448	
0.095	1/8	0.285	1.140	2-1/2	03449	
0.100	1/8	0.300	1.200	2-1/2	03450	
0.110	1/8	0.330	1.320	2-1/2	03451	
0.115	1/8	0.345	1.380	2-1/2	03452	
0.120	1/8	0.360	1.440	2-1/2	03453	

- Two flute design is ideal for softer alloyed, non-ferrous material applications that require slotting or involve heavy chip loads.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.

FRACTIONAL  
M2B 1.5xD



M2B 1.5xD  
FRACTIONAL SERIES

- Two flute design is ideal for softer alloyed, non-ferrous material applications that require slotting or involve heavy chip loads.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.

inch				EDP NO.
CUTTING DIAMETER D <sub>1</sub>	SHANK DIAMETER D <sub>2</sub>	LENGTH OF CUT L <sub>2</sub>	OVERALL LENGTH L <sub>1</sub>	TI-NAMITE-A (AITiN)
0.005	1/8	0.008	1-1/2	03029
0.006	1/8	0.009	1-1/2	03030
0.007	1/8	0.011	1-1/2	03031
0.008	1/8	0.012	1-1/2	03032
0.009	1/8	0.014	1-1/2	03033
0.010	1/8	0.015	1-1/2	03034
0.011	1/8	0.017	1-1/2	03035
0.012	1/8	0.018	1-1/2	03036
0.013	1/8	0.020	1-1/2	03037
0.014	1/8	0.021	1-1/2	03038
0.015	1/8	0.023	1-1/2	03039
0.016	1/8	0.024	1-1/2	03040
0.017	1/8	0.026	1-1/2	03041
0.018	1/8	0.027	1-1/2	03042
0.019	1/8	0.029	1-1/2	03043
0.020	1/8	0.030	1-1/2	03044
0.021	1/8	0.032	1-1/2	03045
0.022	1/8	0.033	1-1/2	03046
0.023	1/8	0.035	1-1/2	03047
0.024	1/8	0.036	1-1/2	03048
0.025	1/8	0.038	1-1/2	03049
0.026	1/8	0.039	1-1/2	03050
0.027	1/8	0.041	1-1/2	03051
0.028	1/8	0.042	1-1/2	03052
0.029	1/8	0.044	1-1/2	03053
0.030	1/8	0.045	1-1/2	03054
0.031	1/8	0.047	1-1/2	03055
0.032	1/8	0.048	1-1/2	03056
0.033	1/8	0.050	1-1/2	03057
0.034	1/8	0.051	1-1/2	03058
0.035	1/8	0.053	1-1/2	03059
0.036	1/8	0.054	1-1/2	03060
0.037	1/8	0.056	1-1/2	03061
0.038	1/8	0.057	1-1/2	03062
0.039	1/8	0.059	1-1/2	03063
0.040	1/8	0.060	1-1/2	03064

TOLERANCES (inch)

.005-.120 DIAMETER

D<sub>1</sub> = +0.000/-0.001

D<sub>2</sub> = h<sub>6</sub>

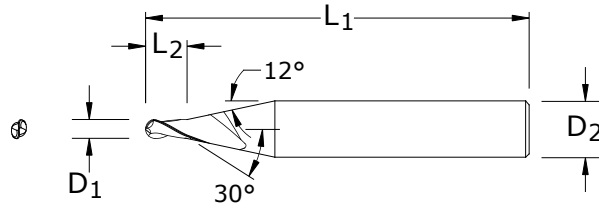
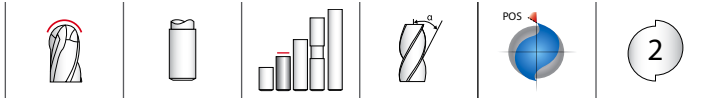
- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES

continued on next page

**M2B 1.5xD**  
FRACTIONAL SERIES

inch				EDP NO.
CUTTING DIAMETER D <sub>1</sub>	SHANK DIAMETER D <sub>2</sub>	LENGTH OF CUT L <sub>2</sub>	OVERALL LENGTH L <sub>1</sub>	TI-NAMITE-A (AlTiN)
0.041	1/8	0.062	1-1/2	02504
0.042	1/8	0.063	1-1/2	02505
0.043	1/8	0.065	1-1/2	02506
0.044	1/8	0.066	1-1/2	02507
0.045	1/8	0.068	1-1/2	02508
0.046	1/8	0.069	1-1/2	02509
0.047	1/8	0.071	1-1/2	02510
0.048	1/8	0.072	1-1/2	02511
0.049	1/8	0.074	1-1/2	02512
0.050	1/8	0.075	1-1/2	02513
0.051	1/8	0.077	1-1/2	02514
0.052	1/8	0.078	1-1/2	02515
0.053	1/8	0.080	1-1/2	02516
0.054	1/8	0.081	1-1/2	02517
0.055	1/8	0.083	1-1/2	02518
0.056	1/8	0.084	1-1/2	02519
0.057	1/8	0.086	1-1/2	02520
0.058	1/8	0.087	1-1/2	02521
0.059	1/8	0.089	1-1/2	02522
0.060	1/8	0.090	1-1/2	02523
0.062	1/8	0.093	1-1/2	02524
0.065	1/8	0.098	1-1/2	02525
0.070	1/8	0.105	1-1/2	02526
0.078	1/8	0.117	1-1/2	02527
0.080	1/8	0.120	1-1/2	02528
0.085	1/8	0.128	1-1/2	02529
0.090	1/8	0.135	1-1/2	02530
0.093	1/8	0.140	1-1/2	02531
0.095	1/8	0.143	1-1/2	02532
0.100	1/8	0.150	1-1/2	02533
0.105	1/8	0.158	1-1/2	02534
0.110	1/8	0.165	1-1/2	02535
0.115	1/8	0.173	1-1/2	02536
0.120	1/8	0.180	1-1/2	02537

*continued*



M2B 3xD  
FRACTIONAL SERIES

- Two flute design is ideal for softer alloyed, non-ferrous material applications that require slotting or involve heavy chip loads.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.

inch				EDP NO.
CUTTING DIAMETER D <sub>1</sub>	SHANK DIAMETER D <sub>2</sub>	LENGTH OF CUT L <sub>2</sub>	OVERALL LENGTH L <sub>1</sub>	TI-NAMITE-A (AITiN)
0.005	1/8	0.015	1-1/2	03103
0.006	1/8	0.018	1-1/2	03104
0.007	1/8	0.021	1-1/2	03105
0.008	1/8	0.024	1-1/2	03106
0.009	1/8	0.027	1-1/2	03107
0.010	1/8	0.030	1-1/2	03108
0.011	1/8	0.033	1-1/2	03109
0.012	1/8	0.036	1-1/2	03110
0.013	1/8	0.039	1-1/2	03111
0.014	1/8	0.042	1-1/2	03112
0.015	1/8	0.045	1-1/2	03113
0.016	1/8	0.048	1-1/2	03114
0.017	1/8	0.051	1-1/2	03115
0.018	1/8	0.054	1-1/2	03116
0.019	1/8	0.057	1-1/2	03117
0.020	1/8	0.060	1-1/2	03118
0.021	1/8	0.063	1-1/2	03119
0.022	1/8	0.066	1-1/2	03120
0.023	1/8	0.069	1-1/2	03121
0.024	1/8	0.072	1-1/2	03122
0.025	1/8	0.075	1-1/2	03123
0.026	1/8	0.078	1-1/2	03124
0.027	1/8	0.081	1-1/2	03125
0.028	1/8	0.084	1-1/2	03126
0.029	1/8	0.087	1-1/2	03127
0.030	1/8	0.090	1-1/2	03128
0.031	1/8	0.093	1-1/2	03129
0.032	1/8	0.096	1-1/2	03130
0.033	1/8	0.099	1-1/2	03131
0.034	1/8	0.102	1-1/2	03132
0.035	1/8	0.105	1-1/2	03133
0.036	1/8	0.108	1-1/2	03134
0.037	1/8	0.111	1-1/2	03135
0.038	1/8	0.114	1-1/2	03136
0.039	1/8	0.117	1-1/2	03137
0.040	1/8	0.120	1-1/2	03138

TOLERANCES (inch)

.005-.120 DIAMETER

D<sub>1</sub> = +0.000/-0.001

D<sub>2</sub> = h<sub>6</sub>

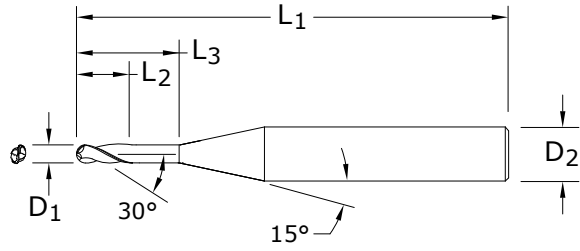
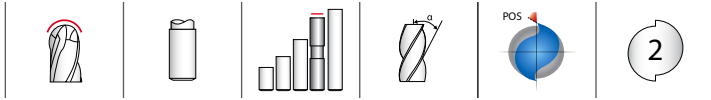
- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES

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**M2B 3xD**  
FRACTIONAL SERIES

inch				EDP NO.
CUTTING DIAMETER D <sub>1</sub>	SHANK DIAMETER D <sub>2</sub>	LENGTH OF CUT L <sub>2</sub>	OVERALL LENGTH L <sub>1</sub>	TI-NAMITE-A (AlTiN)
0.041	1/8	0.123	1-1/2	02572
0.042	1/8	0.126	1-1/2	02573
0.043	1/8	0.129	1-1/2	02574
0.044	1/8	0.132	1-1/2	02575
0.045	1/8	0.135	1-1/2	02576
0.046	1/8	0.138	1-1/2	02577
0.047	1/8	0.141	1-1/2	02578
0.048	1/8	0.144	1-1/2	02579
0.049	1/8	0.147	1-1/2	02580
0.050	1/8	0.150	1-1/2	02581
0.051	1/8	0.153	1-1/2	02582
0.052	1/8	0.156	1-1/2	02583
0.053	1/8	0.159	1-1/2	02584
0.054	1/8	0.162	1-1/2	02585
0.055	1/8	0.165	1-1/2	02586
0.056	1/8	0.168	1-1/2	02587
0.057	1/8	0.171	1-1/2	02588
0.058	1/8	0.174	1-1/2	02589
0.059	1/8	0.177	1-1/2	02590
0.060	1/8	0.180	1-1/2	02591
0.062	1/8	0.186	1-1/2	02592
0.065	1/8	0.195	1-1/2	02593
0.070	1/8	0.210	1-1/2	02594
0.078	1/8	0.234	1-1/2	02595
0.080	1/8	0.240	1-1/2	02596
0.085	1/8	0.255	1-1/2	02597
0.090	1/8	0.270	1-1/2	02598
0.093	1/8	0.279	1-1/2	02599
0.095	1/8	0.285	1-1/2	02600
0.100	1/8	0.300	1-1/2	02601
0.105	1/8	0.315	1-1/2	02602
0.110	1/8	0.330	1-1/2	02603
0.115	1/8	0.345	1-1/2	02604
0.120	1/8	0.360	1-1/2	02605

*continued*



## M2B 3xD, 8xD FRACTIONAL SERIES

- Two flute design is ideal for softer alloyed, non-ferrous material applications that require slotting or involve heavy chip loads.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.

CUTTING DIAMETER D <sub>1</sub>	SHANK DIAMETER D <sub>2</sub>	inch			OVERALL LENGTH L <sub>1</sub>	EDP NO. TI-NAMITE-A (AITIN)
		LENGTH OF CUT L <sub>2</sub>	REACH L <sub>3</sub>			
0.010	1/8	0.030	0.080	1-1/2	03697	
0.015	1/8	0.045	0.120	1-1/2	03698	
0.020	1/8	0.060	0.160	1-1/2	03699	
0.025	1/8	0.075	0.200	1-1/2	03700	
0.030	1/8	0.090	0.240	1-1/2	03701	
0.031	1/8	0.093	0.248	1-1/2	03702	
0.035	1/8	0.105	0.280	1-1/2	03703	
0.040	1/8	0.120	0.320	1-1/2	03704	
0.045	1/8	0.135	0.360	2	03705	
0.047	1/8	0.141	0.376	2	03706	
0.050	1/8	0.150	0.400	2	03707	
0.055	1/8	0.165	0.440	2	03708	
0.060	1/8	0.180	0.480	2	03709	
0.062	1/8	0.186	0.496	2	03710	
0.065	1/8	0.195	0.520	2	03711	
0.070	1/8	0.210	0.560	2	03712	
0.075	1/8	0.225	0.600	2	03713	
0.078	1/8	0.234	0.624	2	03714	
0.080	1/8	0.240	0.640	2	03715	
0.085	1/8	0.255	0.680	2	03716	
0.090	1/8	0.270	0.720	2	03717	
0.093	1/8	0.279	0.744	2	03718	
0.095	1/8	0.285	0.760	2	03719	
0.100	1/8	0.300	0.800	2	03720	
0.110	1/8	0.330	0.880	2	03721	
0.115	1/8	0.345	0.920	2	03722	
0.120	1/8	0.360	0.960	2	03723	

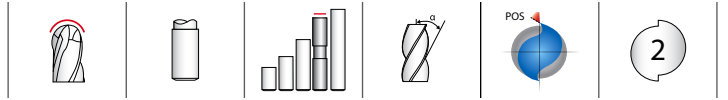
New Expanded Tools

**TOLERANCES (inch)**

**.010-.120 DIAMETER**  
D<sub>1</sub> = +0.000/-0.001  
D<sub>2</sub> = h<sub>6</sub>

- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES





**New Expanded Tools**

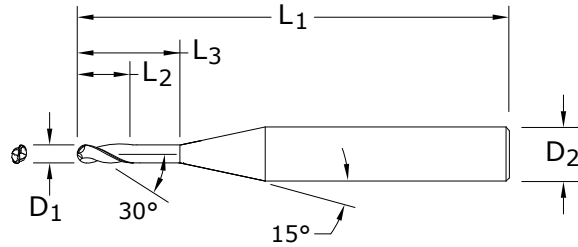
**TOLERANCES (inch)**

**.010-.120 DIAMETER**

$D_1 = +0.000/-0.001$

$D_2 = h_6$

- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES

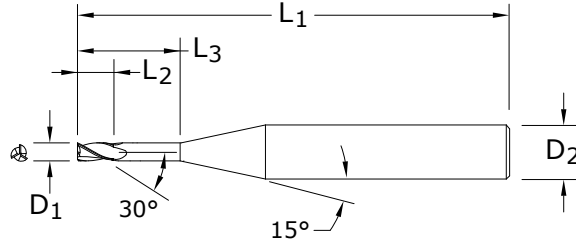
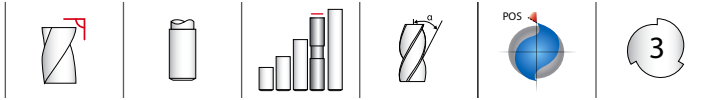


## M2B 3xD, 12xD

FRACTIONAL SERIES

CUTTING DIAMETER $D_1$	SHANK DIAMETER $D_2$	inch			OVERALL LENGTH $L_1$	EDP NO.
		LENGTH OF CUT $L_2$	REACH $L_3$	TI-NAMITE-A (AITiN)		
0.010	1/8	0.030	0.120	1-1/2	03724	
0.015	1/8	0.045	0.180	1-1/2	03725	
0.020	1/8	0.060	0.240	1-1/2	03726	
0.025	1/8	0.075	0.300	1-1/2	03727	
0.030	1/8	0.090	0.360	2	03728	
0.031	1/8	0.093	0.372	2	03729	
0.035	1/8	0.105	0.420	2	03730	
0.040	1/8	0.120	0.480	2	03731	
0.045	1/8	0.135	0.540	2	03732	
0.047	1/8	0.141	0.564	2	03733	
0.050	1/8	0.150	0.600	2	03734	
0.055	1/8	0.165	0.660	2	03735	
0.060	1/8	0.180	0.720	2	03736	
0.062	1/8	0.186	0.744	2	03737	
0.065	1/8	0.195	0.780	2	03738	
0.070	1/8	0.210	0.840	2	03739	
0.075	1/8	0.225	0.900	2	03740	
0.078	1/8	0.234	0.936	2-1/2	03741	
0.080	1/8	0.240	0.960	2-1/2	03742	
0.085	1/8	0.255	1.020	2-1/2	03743	
0.090	1/8	0.270	1.080	2-1/2	03744	
0.093	1/8	0.279	1.116	2-1/2	03745	
0.095	1/8	0.285	1.140	2-1/2	03746	
0.100	1/8	0.300	1.200	2-1/2	03747	
0.110	1/8	0.330	1.320	2-1/2	03748	
0.115	1/8	0.345	1.380	2-1/2	03749	
0.120	1/8	0.360	1.440	2-1/2	03750	

- Two flute design is ideal for softer alloyed, non-ferrous material applications that require slotting or involve heavy chip loads.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.



## M3 1.5xD, 3xD FRACTIONAL SERIES

- Three flute design features improved chip space over four flutes and increased strength and feed capability over two flutes.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.

CUTTING DIAMETER D <sub>1</sub>	SHANK DIAMETER D <sub>2</sub>	inch			OVERALL LENGTH L <sub>1</sub>	EDP NO. TI-NAMITE-A (AITIN)
		LENGTH OF CUT L <sub>2</sub>	REACH L <sub>3</sub>			
0.010	1/8	0.015	0.030	2-1/2	03508	
0.015	1/8	0.023	0.045	2-1/2	03509	
0.020	1/8	0.030	0.060	2-1/2	03510	
0.025	1/8	0.038	0.075	2-1/2	03511	
0.030	1/8	0.045	0.090	2-1/2	03512	
0.031	1/8	0.047	0.093	2-1/2	03513	
0.035	1/8	0.053	0.105	2-1/2	03514	
0.040	1/8	0.060	0.120	2-1/2	03515	
0.045	1/8	0.068	0.135	2-1/2	03516	
0.047	1/8	0.071	0.141	2-1/2	03517	
0.050	1/8	0.075	0.150	2-1/2	03518	
0.055	1/8	0.083	0.165	2-1/2	03519	
0.060	1/8	0.090	0.180	2-1/2	03520	
0.062	1/8	0.093	0.186	2-1/2	03521	
0.065	1/8	0.098	0.195	2-1/2	03522	
0.070	1/8	0.105	0.210	2-1/2	03523	
0.075	1/8	0.113	0.225	2-1/2	03524	
0.078	1/8	0.117	0.234	2-1/2	03525	
0.080	1/8	0.120	0.240	2-1/2	03526	
0.085	1/8	0.128	0.255	2-1/2	03527	
0.090	1/8	0.135	0.270	2-1/2	03528	
0.093	1/8	0.140	0.279	2-1/2	03529	
0.095	1/8	0.143	0.285	2-1/2	03530	
0.100	1/8	0.150	0.300	2-1/2	03531	
0.110	1/8	0.165	0.330	2-1/2	03532	
0.115	1/8	0.173	0.345	2-1/2	03533	
0.120	1/8	0.180	0.360	2-1/2	03534	

**New Expanded Tools**

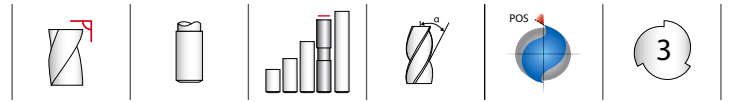
### TOLERANCES (inch)

**.010-.120 DIAMETER**

D<sub>1</sub> = +0.000/-0.001

D<sub>2</sub> = h<sub>6</sub>

- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES



**New Expanded Tools**

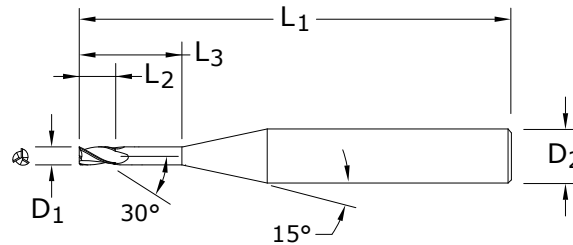
**TOLERANCES (inch)**

**.010-.120 DIAMETER**

$D_1 = +0.000/-0.001$

$D_2 = h_6$

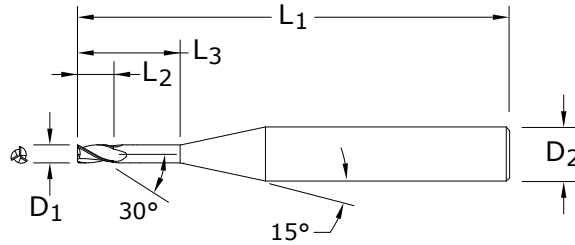
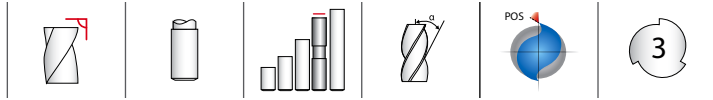
- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES



**M3 1.5xD, 5xD**  
FRACTIONAL SERIES

CUTTING DIAMETER $D_1$	SHANK DIAMETER $D_2$	inch			EDP NO.
		LENGTH OF CUT $L_2$	REACH $L_3$	OVERALL LENGTH $L_1$	TI-NAMITE-A (AITiN)
0.010	1/8	0.015	0.050	2-1/2	03535
0.015	1/8	0.023	0.075	2-1/2	03536
0.020	1/8	0.030	0.100	2-1/2	03537
0.025	1/8	0.038	0.125	2-1/2	03538
0.030	1/8	0.045	0.150	2-1/2	03539
0.031	1/8	0.047	0.155	2-1/2	03540
0.035	1/8	0.053	0.175	2-1/2	03541
0.040	1/8	0.060	0.200	2-1/2	03542
0.045	1/8	0.068	0.225	2-1/2	03543
0.047	1/8	0.071	0.235	2-1/2	03544
0.050	1/8	0.075	0.250	2-1/2	03545
0.055	1/8	0.083	0.275	2-1/2	03546
0.060	1/8	0.090	0.300	2-1/2	03547
0.062	1/8	0.093	0.310	2-1/2	03548
0.065	1/8	0.098	0.325	2-1/2	03549
0.070	1/8	0.105	0.350	2-1/2	03550
0.075	1/8	0.113	0.375	2-1/2	03551
0.078	1/8	0.117	0.390	2-1/2	03552
0.080	1/8	0.120	0.400	2-1/2	03553
0.085	1/8	0.128	0.425	2-1/2	03554
0.090	1/8	0.135	0.450	2-1/2	03555
0.093	1/8	0.140	0.465	2-1/2	03556
0.095	1/8	0.143	0.475	2-1/2	03557
0.100	1/8	0.150	0.500	2-1/2	03558
0.110	1/8	0.165	0.550	2-1/2	03559
0.115	1/8	0.173	0.575	2-1/2	03560
0.120	1/8	0.180	0.600	2-1/2	03561

- Three flute design features improved chip space over four flutes and increased strength and feed capability over two flutes.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.



## M3 1.5xD, 8xD

FRACTIONAL SERIES

- Three flute design features improved chip space over four flutes and increased strength and feed capability over two flutes.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.

CUTTING DIAMETER D <sub>1</sub>	SHANK DIAMETER D <sub>2</sub>	inch			OVERALL LENGTH L <sub>1</sub>	EDP NO. TI-NAMITE-A (AITIN)
		LENGTH OF CUT L <sub>2</sub>	REACH L <sub>3</sub>			
0.010	1/8	0.015	0.080	2-1/2	03562	
0.015	1/8	0.023	0.120	2-1/2	03563	
0.020	1/8	0.030	0.160	2-1/2	03564	
0.025	1/8	0.038	0.200	2-1/2	03565	
0.030	1/8	0.045	0.240	2-1/2	03566	
0.031	1/8	0.047	0.248	2-1/2	03567	
0.035	1/8	0.053	0.280	2-1/2	03568	
0.040	1/8	0.060	0.320	2-1/2	03569	
0.045	1/8	0.068	0.360	2-1/2	03570	
0.047	1/8	0.071	0.376	2-1/2	03571	
0.050	1/8	0.075	0.400	2-1/2	03572	
0.055	1/8	0.083	0.440	2-1/2	03573	
0.060	1/8	0.090	0.480	2-1/2	03574	
0.062	1/8	0.093	0.496	2-1/2	03575	
0.065	1/8	0.098	0.520	2-1/2	03576	
0.070	1/8	0.105	0.560	2-1/2	03577	
0.075	1/8	0.113	0.600	2-1/2	03578	
0.078	1/8	0.117	0.624	2-1/2	03579	
0.080	1/8	0.120	0.640	2-1/2	03580	
0.085	1/8	0.128	0.680	2-1/2	03581	
0.090	1/8	0.135	0.720	2-1/2	03582	
0.093	1/8	0.140	0.744	2-1/2	03583	
0.095	1/8	0.143	0.760	2-1/2	03584	
0.100	1/8	0.150	0.800	2-1/2	03585	
0.110	1/8	0.165	0.880	2-1/2	03586	
0.115	1/8	0.173	0.920	2-1/2	03587	
0.120	1/8	0.180	0.960	2-1/2	03588	

New Expanded Tools

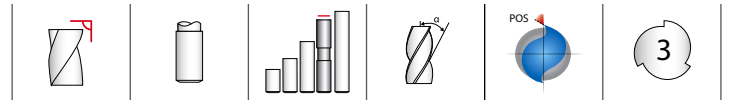
**TOLERANCES (inch)**

**.010-.120 DIAMETER**

D<sub>1</sub> = +0.000/-0.001

D<sub>2</sub> = h<sub>6</sub>

- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES



**New Expanded Tools**

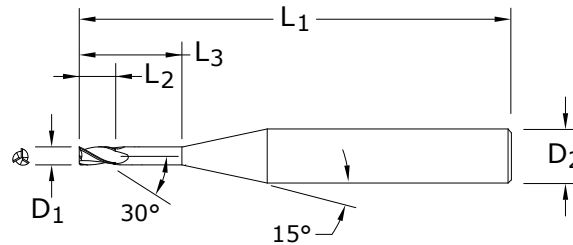
**TOLERANCES (inch)**

**.010–.120 DIAMETER**

$D_1 = +0.000/-0.001$

$D_2 = h_6$

- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES

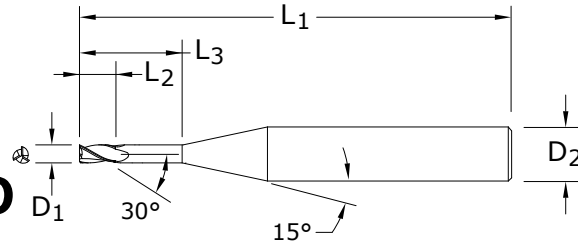
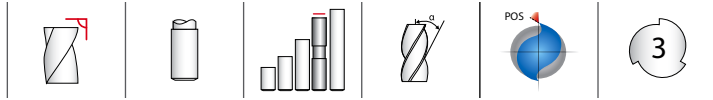


## M3 1.5xD, 12xD

FRACTIONAL SERIES

CUTTING DIAMETER $D_1$	SHANK DIAMETER $D_2$	inch			EDP NO.
		LENGTH OF CUT $L_2$	REACH $L_3$	OVERALL LENGTH $L_1$	TI-NAMITE-A (AITiN)
0.010	1/8	0.015	0.120	2-1/2	03589
0.015	1/8	0.023	0.180	2-1/2	03590
0.020	1/8	0.030	0.240	2-1/2	03591
0.025	1/8	0.038	0.300	2-1/2	03592
0.030	1/8	0.045	0.360	2-1/2	03593
0.031	1/8	0.047	0.372	2-1/2	03594
0.035	1/8	0.053	0.420	2-1/2	03595
0.040	1/8	0.060	0.480	2-1/2	03596
0.045	1/8	0.068	0.540	2-1/2	03597
0.047	1/8	0.071	0.564	2-1/2	03598
0.050	1/8	0.075	0.600	2-1/2	03599
0.055	1/8	0.083	0.660	2-1/2	03600
0.060	1/8	0.090	0.720	2-1/2	03601
0.062	1/8	0.093	0.744	2-1/2	03602
0.065	1/8	0.098	0.780	2-1/2	03603
0.070	1/8	0.105	0.840	2-1/2	03604
0.075	1/8	0.113	0.900	2-1/2	03605
0.078	1/8	0.117	0.936	2-1/2	03606
0.080	1/8	0.120	0.960	2-1/2	03607
0.085	1/8	0.128	1.020	2-1/2	03608
0.090	1/8	0.135	1.080	2-1/2	03609
0.093	1/8	0.140	1.116	2-1/2	03610
0.095	1/8	0.143	1.140	2-1/2	03611
0.100	1/8	0.150	1.200	2-1/2	03612
0.110	1/8	0.165	1.320	2-1/2	03613
0.115	1/8	0.173	1.380	2-1/2	03614
0.120	1/8	0.180	1.440	2-1/2	03615

- Three flute design features improved chip space over four flutes and increased strength and feed capability over two flutes.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.



## M3 1.5xD, 15xD

FRACTIONAL SERIES

- Three flute design features improved chip space over four flutes and increased strength and feed capability over two flutes.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.

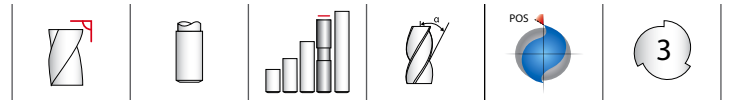
CUTTING DIAMETER D <sub>1</sub>	SHANK DIAMETER D <sub>2</sub>	inch			OVERALL LENGTH L <sub>1</sub>	EDP NO. TI-NAMITE-A (AITIN)
		LENGTH OF CUT L <sub>2</sub>	REACH L <sub>3</sub>			
0.010	1/8	0.015	0.150	2-1/2	03616	
0.015	1/8	0.023	0.225	2-1/2	03617	
0.020	1/8	0.030	0.300	2-1/2	03618	
0.025	1/8	0.038	0.375	2-1/2	03619	
0.030	1/8	0.045	0.450	2-1/2	03620	
0.031	1/8	0.047	0.465	2-1/2	03621	
0.035	1/8	0.053	0.525	2-1/2	03622	
0.040	1/8	0.060	0.600	2-1/2	03623	
0.045	1/8	0.068	0.675	2-1/2	03624	
0.047	1/8	0.071	0.705	2-1/2	03625	
0.050	1/8	0.075	0.750	2-1/2	03626	
0.055	1/8	0.083	0.825	2-1/2	03627	
0.060	1/8	0.090	0.900	2-1/2	03628	
0.062	1/8	0.093	0.930	2-1/2	03629	
0.065	1/8	0.098	0.975	2-1/2	03630	
0.070	1/8	0.105	1.050	2-1/2	03631	
0.075	1/8	0.113	1.125	2-1/2	03632	
0.078	1/8	0.117	1.170	2-1/2	03633	
0.080	1/8	0.120	1.200	2-1/2	03634	
0.085	1/8	0.128	1.275	2-1/2	03635	
0.090	1/8	0.135	1.350	2-1/2	03636	
0.093	1/8	0.140	1.395	3	03637	
0.095	1/8	0.143	1.425	3	03638	
0.100	1/8	0.150	1.500	3	03639	
0.110	1/8	0.165	1.650	3	03640	
0.115	1/8	0.173	1.725	3	03641	
0.120	1/8	0.180	1.800	3	03642	

New Expanded Tools

**TOLERANCES (inch)**

**.010-.120 DIAMETER**  
 D<sub>1</sub> = +0.000/-0.001  
 D<sub>2</sub> = h<sub>6</sub>

- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES



**New Expanded Tools**

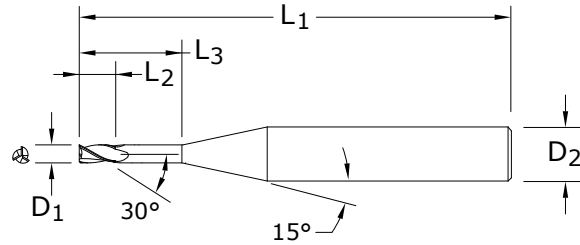
**TOLERANCES (inch)**

**.010–.120 DIAMETER**

$D_1 = +0.000/-0.001$

$D_2 = h_6$

- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES

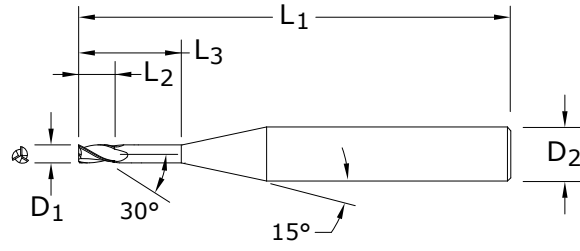
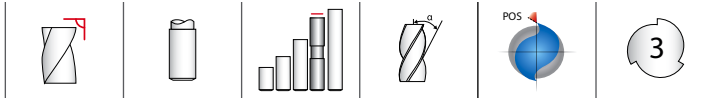


## M3 1.5xD, 20xD

FRACTIONAL SERIES

CUTTING DIAMETER $D_1$	SHANK DIAMETER $D_2$	inch			EDP NO.
		LENGTH OF CUT $L_2$	REACH $L_3$	OVERALL LENGTH $L_1$	TI-NAMITE-A (AITiN)
0.010	1/8	0.015	0.200	2-1/2	03643
0.015	1/8	0.023	0.300	2-1/2	03644
0.020	1/8	0.030	0.400	2-1/2	03645
0.025	1/8	0.038	0.500	2-1/2	03646
0.030	1/8	0.045	0.600	2-1/2	03647
0.031	1/8	0.047	0.620	2-1/2	03648
0.035	1/8	0.053	0.700	2-1/2	03649
0.040	1/8	0.060	0.800	2-1/2	03650
0.045	1/8	0.068	0.900	2-1/2	03651
0.047	1/8	0.071	0.940	2-1/2	03652
0.050	1/8	0.075	1.000	2-1/2	03653
0.055	1/8	0.083	1.100	2-1/2	03654
0.060	1/8	0.090	1.200	2-1/2	03655
0.062	1/8	0.093	1.240	2-1/2	03656
0.065	1/8	0.098	1.300	3	03657
0.070	1/8	0.105	1.400	3	03658
0.075	1/8	0.113	1.500	3	03659
0.078	1/8	0.117	1.560	3	03660
0.080	1/8	0.120	1.600	3	03661
0.085	1/8	0.128	1.700	3	03662
0.090	1/8	0.135	1.800	3	03663
0.093	1/8	0.140	1.860	3	03664
0.095	1/8	0.143	1.900	3	03665
0.100	1/8	0.150	2.000	4	03666
0.110	1/8	0.165	2.200	4	03667
0.115	1/8	0.173	2.300	4	03668
0.120	1/8	0.180	2.400	4	03669

- Three flute design features improved chip space over four flutes and increased strength and feed capability over two flutes.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.



**New Expanded Tools**

## M3 1.5xD, 25xD FRACTIONAL SERIES

- Three flute design features improved chip space over four flutes and increased strength and feed capability over two flutes.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.

CUTTING DIAMETER D <sub>1</sub>	SHANK DIAMETER D <sub>2</sub>	inch			OVERALL LENGTH L <sub>1</sub>	EDP NO. TI-NAMITE-A (AITIN)
		LENGTH OF CUT L <sub>2</sub>	REACH L <sub>3</sub>			
0.010	1/8	0.015	0.250	2-1/2	03670	
0.015	1/8	0.023	0.375	2-1/2	03671	
0.020	1/8	0.030	0.500	2-1/2	03672	
0.025	1/8	0.038	0.625	2-1/2	03673	
0.030	1/8	0.045	0.750	2-1/2	03674	
0.031	1/8	0.047	0.775	2-1/2	03675	
0.035	1/8	0.053	0.875	2-1/2	03676	
0.040	1/8	0.060	1.000	2-1/2	03677	
0.045	1/8	0.068	1.125	2-1/2	03678	
0.047	1/8	0.071	1.175	2-1/2	03679	
0.050	1/8	0.075	1.250	2-1/2	03680	
0.055	1/8	0.083	1.375	3	03681	
0.060	1/8	0.090	1.500	3	03682	
0.062	1/8	0.093	1.550	3	03683	
0.065	1/8	0.098	1.625	3	03684	
0.070	1/8	0.105	1.750	3	03685	
0.075	1/8	0.113	1.875	3	03686	
0.078	1/8	0.117	1.950	4	03687	
0.080	1/8	0.120	2.000	4	03688	
0.085	1/8	0.128	2.125	4	03689	
0.090	1/8	0.135	2.250	4	03690	
0.093	1/8	0.140	2.325	4	03691	
0.095	1/8	0.143	2.375	4	03692	
0.100	1/8	0.150	2.500	4	03693	
0.110	1/8	0.165	2.750	4	03694	
0.115	1/8	0.173	2.875	4	03695	
0.120	1/8	0.180	3.000	4	03696	

**TOLERANCES (inch)**

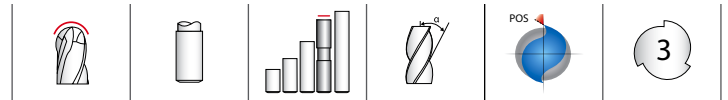
**.010-.120 DIAMETER**

D<sub>1</sub> = +0.000/-0.001

D<sub>2</sub> = h<sub>6</sub>

- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES





**New Expanded Tools**

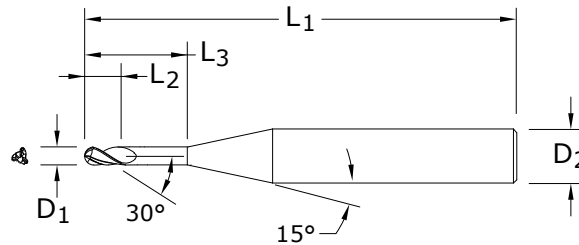
**TOLERANCES (inch)**

**.010-.120 DIAMETER**

$D_1 = +0.000/-0.001$

$D_2 = h_6$

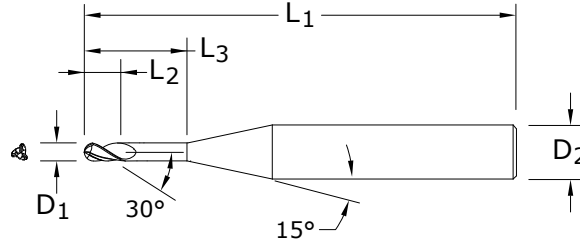
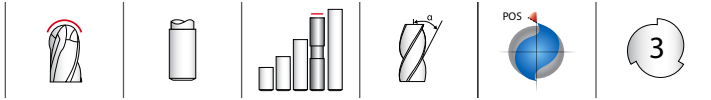
- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES



## M3B 1.5xD, 3xD FRACTIONAL SERIES

CUTTING DIAMETER $D_1$	SHANK DIAMETER $D_2$	inch			EDP NO.
		LENGTH OF CUT $L_2$	REACH $L_3$	OVERALL LENGTH $L_1$	TI-NAMITE-A (AlTiN)
0.010	1/8	0.015	0.030	2-1/2	03805
0.015	1/8	0.023	0.045	2-1/2	03806
0.020	1/8	0.030	0.060	2-1/2	03807
0.025	1/8	0.038	0.075	2-1/2	03808
0.030	1/8	0.045	0.090	2-1/2	03809
0.031	1/8	0.047	0.093	2-1/2	03810
0.035	1/8	0.053	0.105	2-1/2	03811
0.040	1/8	0.060	0.120	2-1/2	03812
0.045	1/8	0.068	0.135	2-1/2	03813
0.047	1/8	0.071	0.141	2-1/2	03814
0.050	1/8	0.075	0.150	2-1/2	03815
0.055	1/8	0.083	0.165	2-1/2	03816
0.060	1/8	0.090	0.180	2-1/2	03817
0.062	1/8	0.093	0.186	2-1/2	03818
0.065	1/8	0.098	0.195	2-1/2	03819
0.070	1/8	0.105	0.210	2-1/2	03820
0.075	1/8	0.113	0.225	2-1/2	03821
0.078	1/8	0.117	0.234	2-1/2	03822
0.080	1/8	0.120	0.240	2-1/2	03823
0.085	1/8	0.128	0.255	2-1/2	03824
0.090	1/8	0.135	0.270	2-1/2	03825
0.093	1/8	0.140	0.279	2-1/2	03826
0.095	1/8	0.143	0.285	2-1/2	03827
0.100	1/8	0.150	0.300	2-1/2	03828
0.110	1/8	0.165	0.330	2-1/2	03829
0.115	1/8	0.173	0.345	2-1/2	03830
0.120	1/8	0.180	0.360	2-1/2	03831

- Three flute design features improved chip space over four flutes and increased strength and feed capability over two flutes.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.



**New Expanded Tools**

## M3B 1.5xD, 5xD FRACTIONAL SERIES

- Three flute design features improved chip space over four flutes and increased strength and feed capability over two flutes.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.

CUTTING DIAMETER D <sub>1</sub>	SHANK DIAMETER D <sub>2</sub>	inch			OVERALL LENGTH L <sub>1</sub>	EDP NO. TI-NAMITE-A (AITIN)
		LENGTH OF CUT L <sub>2</sub>	REACH L <sub>3</sub>			
0.010	1/8	0.015	0.050	2-1/2	03832	
0.015	1/8	0.023	0.075	2-1/2	03833	
0.020	1/8	0.030	0.100	2-1/2	03834	
0.025	1/8	0.038	0.125	2-1/2	03835	
0.030	1/8	0.045	0.150	2-1/2	03836	
0.031	1/8	0.047	0.155	2-1/2	03837	
0.035	1/8	0.053	0.175	2-1/2	03838	
0.040	1/8	0.060	0.200	2-1/2	03839	
0.045	1/8	0.068	0.225	2-1/2	03840	
0.047	1/8	0.071	0.235	2-1/2	03841	
0.050	1/8	0.075	0.250	2-1/2	03842	
0.055	1/8	0.083	0.275	2-1/2	03843	
0.060	1/8	0.090	0.300	2-1/2	03844	
0.062	1/8	0.093	0.310	2-1/2	03845	
0.065	1/8	0.098	0.325	2-1/2	03846	
0.070	1/8	0.105	0.350	2-1/2	03847	
0.075	1/8	0.113	0.375	2-1/2	03848	
0.078	1/8	0.117	0.390	2-1/2	03849	
0.080	1/8	0.120	0.400	2-1/2	03850	
0.085	1/8	0.128	0.425	2-1/2	03851	
0.090	1/8	0.135	0.450	2-1/2	03852	
0.093	1/8	0.140	0.465	2-1/2	03853	
0.095	1/8	0.143	0.475	2-1/2	03854	
0.100	1/8	0.150	0.500	2-1/2	03855	
0.110	1/8	0.165	0.550	2-1/2	03856	
0.115	1/8	0.173	0.575	2-1/2	03857	
0.120	1/8	0.180	0.600	2-1/2	03858	

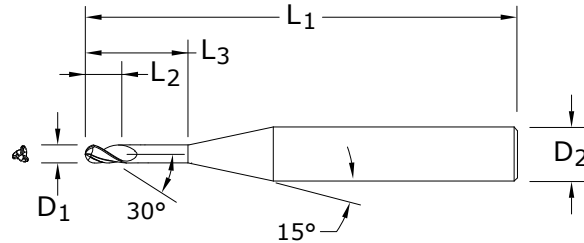
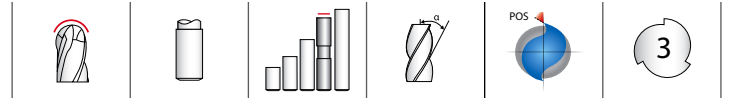
### TOLERANCES (inch)

**.010-.120 DIAMETER**

D<sub>1</sub> = +0.000/-0.001

D<sub>2</sub> = h<sub>6</sub>

- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES



**New Expanded Tools**

**TOLERANCES (inch)**

**.010–.120 DIAMETER**

$D_1 = +0.000/-0.001$

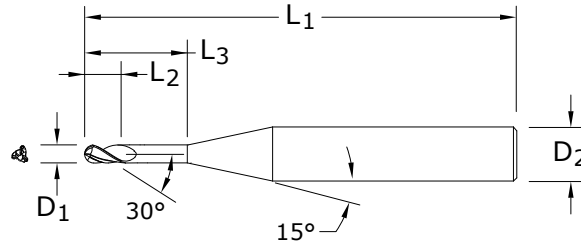
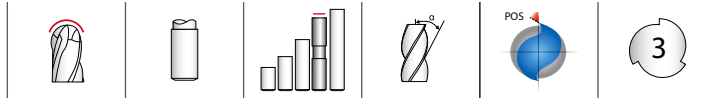
$D_2 = h_6$

- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES

## M3B 1.5xD, 8xD FRACTIONAL SERIES

CUTTING DIAMETER $D_1$	SHANK DIAMETER $D_2$	inch			OVERALL LENGTH $L_1$	EDP NO.
		LENGTH OF CUT $L_2$	REACH $L_3$	TI-NAMITE-A (AlTiN)		
0.010	1/8	0.015	0.080	2-1/2	03859	
0.015	1/8	0.023	0.120	2-1/2	03860	
0.020	1/8	0.030	0.160	2-1/2	03861	
0.025	1/8	0.038	0.200	2-1/2	03862	
0.030	1/8	0.045	0.240	2-1/2	03863	
0.031	1/8	0.047	0.248	2-1/2	03864	
0.035	1/8	0.053	0.280	2-1/2	03865	
0.040	1/8	0.060	0.320	2-1/2	03866	
0.045	1/8	0.068	0.360	2-1/2	03867	
0.047	1/8	0.071	0.376	2-1/2	03868	
0.050	1/8	0.075	0.400	2-1/2	03869	
0.055	1/8	0.083	0.440	2-1/2	03870	
0.060	1/8	0.090	0.480	2-1/2	03871	
0.062	1/8	0.093	0.496	2-1/2	03872	
0.065	1/8	0.098	0.520	2-1/2	03873	
0.070	1/8	0.105	0.560	2-1/2	03874	
0.075	1/8	0.113	0.600	2-1/2	03875	
0.078	1/8	0.117	0.624	2-1/2	03876	
0.080	1/8	0.120	0.640	2-1/2	03877	
0.085	1/8	0.128	0.680	2-1/2	03878	
0.090	1/8	0.135	0.720	2-1/2	03879	
0.093	1/8	0.140	0.744	2-1/2	03880	
0.095	1/8	0.143	0.760	2-1/2	03881	
0.100	1/8	0.150	0.800	2-1/2	03882	
0.110	1/8	0.165	0.880	2-1/2	03883	
0.115	1/8	0.173	0.920	2-1/2	03884	
0.120	1/8	0.180	0.960	2-1/2	03885	

- Three flute design features improved chip space over four flutes and increased strength and feed capability over two flutes.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.



**New Expanded Tools**

## M3B 1.5xD, 12xD FRACTIONAL SERIES

- Three flute design features improved chip space over four flutes and increased strength and feed capability over two flutes.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.

CUTTING DIAMETER D <sub>1</sub>	SHANK DIAMETER D <sub>2</sub>	inch			OVERALL LENGTH L <sub>1</sub>	EDP NO. TI-NAMITE-A (AlTiN)
		LENGTH OF CUT L <sub>2</sub>	REACH L <sub>3</sub>			
0.010	1/8	0.015	0.120	2-1/2	03886	
0.015	1/8	0.023	0.180	2-1/2	03887	
0.020	1/8	0.030	0.240	2-1/2	03888	
0.025	1/8	0.038	0.300	2-1/2	03889	
0.030	1/8	0.045	0.360	2-1/2	03890	
0.031	1/8	0.047	0.372	2-1/2	03891	
0.035	1/8	0.053	0.420	2-1/2	03892	
0.040	1/8	0.060	0.480	2-1/2	03893	
0.045	1/8	0.068	0.540	2-1/2	03894	
0.047	1/8	0.071	0.564	2-1/2	03895	
0.050	1/8	0.075	0.600	2-1/2	03896	
0.055	1/8	0.083	0.660	2-1/2	03897	
0.060	1/8	0.090	0.720	2-1/2	03898	
0.062	1/8	0.093	0.744	2-1/2	03899	
0.065	1/8	0.098	0.780	2-1/2	03900	
0.070	1/8	0.105	0.840	2-1/2	03901	
0.075	1/8	0.113	0.900	2-1/2	03902	
0.078	1/8	0.117	0.936	2-1/2	03903	
0.080	1/8	0.120	0.960	2-1/2	03904	
0.085	1/8	0.128	1.020	2-1/2	03905	
0.090	1/8	0.135	1.080	2-1/2	03906	
0.093	1/8	0.140	1.116	2-1/2	03907	
0.095	1/8	0.143	1.140	2-1/2	03908	
0.100	1/8	0.150	1.200	2-1/2	03909	
0.110	1/8	0.165	1.320	2-1/2	03910	
0.115	1/8	0.173	1.380	2-1/2	03911	
0.120	1/8	0.180	1.440	2-1/2	03912	

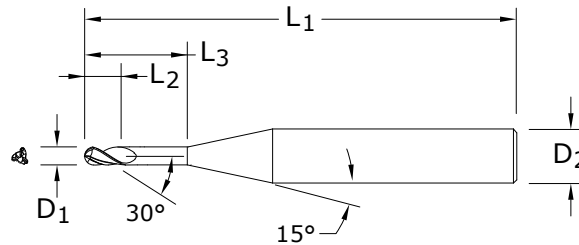
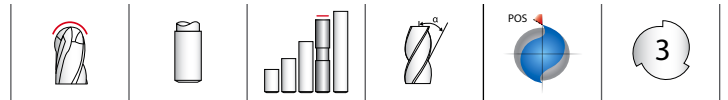
**TOLERANCES (inch)**

**.010-.120 DIAMETER**

D<sub>1</sub> = +0.000/-0.001

D<sub>2</sub> = h<sub>6</sub>

- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES



**New Expanded Tools**

**TOLERANCES (inch)**

**.010–.120 DIAMETER**

$D_1 = +0.000/-0.001$

$D_2 = h_6$

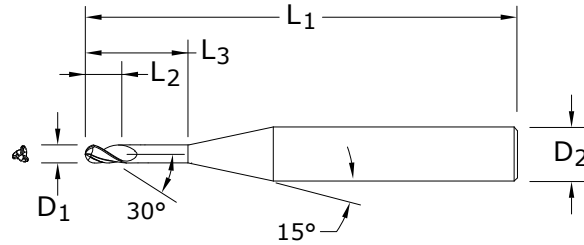
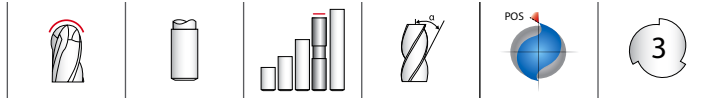
- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES

## M3B 1.5xD, 15xD

FRACTIONAL SERIES

CUTTING DIAMETER $D_1$	SHANK DIAMETER $D_2$	inch			OVERALL LENGTH $L_1$	EDP NO.
		LENGTH OF CUT $L_2$	REACH $L_3$	TI-NAMITE-A (AlTiN)		
0.010	1/8	0.015	0.150	2-1/2	03913	
0.015	1/8	0.023	0.225	2-1/2	03914	
0.020	1/8	0.030	0.300	2-1/2	03915	
0.025	1/8	0.038	0.375	2-1/2	03916	
0.030	1/8	0.045	0.450	2-1/2	03917	
0.031	1/8	0.047	0.465	2-1/2	03918	
0.035	1/8	0.053	0.525	2-1/2	03919	
0.040	1/8	0.060	0.600	2-1/2	03920	
0.045	1/8	0.068	0.675	2-1/2	03921	
0.047	1/8	0.071	0.705	2-1/2	03922	
0.050	1/8	0.075	0.750	2-1/2	03923	
0.055	1/8	0.083	0.825	2-1/2	03924	
0.060	1/8	0.090	0.900	2-1/2	03925	
0.062	1/8	0.093	0.930	2-1/2	03926	
0.065	1/8	0.098	0.975	2-1/2	03927	
0.070	1/8	0.105	1.050	2-1/2	03928	
0.075	1/8	0.113	1.125	2-1/2	03929	
0.078	1/8	0.117	1.170	2-1/2	03930	
0.080	1/8	0.120	1.200	2-1/2	03931	
0.085	1/8	0.128	1.275	2-1/2	03932	
0.090	1/8	0.135	1.350	2-1/2	03933	
0.093	1/8	0.140	1.395	3	03934	
0.095	1/8	0.143	1.425	3	03935	
0.100	1/8	0.150	1.500	3	03936	
0.110	1/8	0.165	1.650	3	03937	
0.115	1/8	0.173	1.725	3	03938	
0.120	1/8	0.180	1.800	3	03939	

- Three flute design features improved chip space over four flutes and increased strength and feed capability over two flutes.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.



**New Expanded Tools**

## M3B 1.5xD, 20xD

FRACTIONAL SERIES

- Three flute design features improved chip space over four flutes and increased strength and feed capability over two flutes.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.

CUTTING DIAMETER D <sub>1</sub>	SHANK DIAMETER D <sub>2</sub>	inch			OVERALL LENGTH L <sub>1</sub>	EDP NO. TI-NAMITE-A (AITIN)
		LENGTH OF CUT L <sub>2</sub>	REACH L <sub>3</sub>			
0.010	1/8	0.015	0.200	2-1/2	03940	
0.015	1/8	0.023	0.300	2-1/2	03941	
0.020	1/8	0.030	0.400	2-1/2	03942	
0.025	1/8	0.038	0.500	2-1/2	03943	
0.030	1/8	0.045	0.600	2-1/2	03944	
0.031	1/8	0.047	0.620	2-1/2	03945	
0.035	1/8	0.053	0.700	2-1/2	03946	
0.040	1/8	0.060	0.800	2-1/2	03947	
0.045	1/8	0.068	0.900	2-1/2	03948	
0.047	1/8	0.071	0.940	2-1/2	03949	
0.050	1/8	0.075	1.000	2-1/2	03950	
0.055	1/8	0.083	1.100	2-1/2	03951	
0.060	1/8	0.090	1.200	2-1/2	03952	
0.062	1/8	0.093	1.240	2-1/2	03953	
0.065	1/8	0.098	1.300	3	03954	
0.070	1/8	0.105	1.400	3	03955	
0.075	1/8	0.113	1.500	3	03956	
0.078	1/8	0.117	1.560	3	03957	
0.080	1/8	0.120	1.600	3	03958	
0.085	1/8	0.128	1.700	3	03959	
0.090	1/8	0.135	1.800	3	03960	
0.093	1/8	0.140	1.860	3	03961	
0.095	1/8	0.143	1.900	3	03962	
0.100	1/8	0.150	2.000	4	03963	
0.110	1/8	0.165	2.200	4	03964	
0.115	1/8	0.173	2.300	4	03965	
0.120	1/8	0.180	2.400	4	03966	

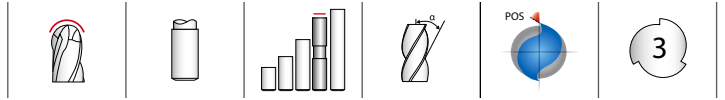
**TOLERANCES (inch)**

**.010-.120 DIAMETER**

D<sub>1</sub> = +0.000/-0.001

D<sub>2</sub> = h<sub>6</sub>

- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES



**New Expanded Tools**

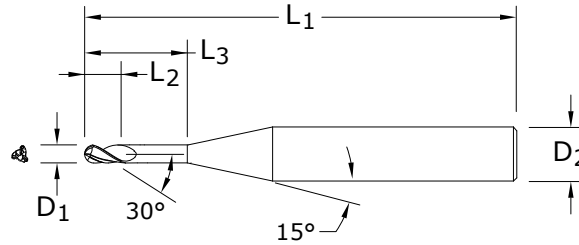
**TOLERANCES (inch)**

**.010-.120 DIAMETER**

$D_1 = +0.000/-0.001$

$D_2 = h_6$

- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES



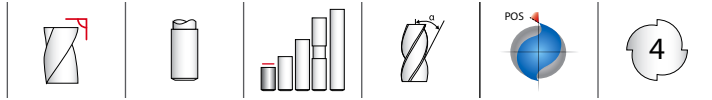
## M3B 1.5xD, 25xD

FRACTIONAL SERIES

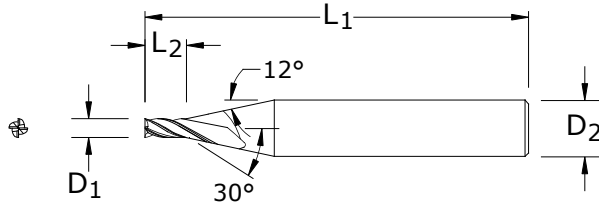
CUTTING DIAMETER $D_1$	SHANK DIAMETER $D_2$	inch			OVERALL LENGTH $L_1$	EDP NO.
		LENGTH OF CUT $L_2$	REACH $L_3$	TI-NAMITE-A (AlTiN)		
0.010	1/8	0.015	0.250	2-1/2	03967	
0.015	1/8	0.023	0.375	2-1/2	03968	
0.020	1/8	0.030	0.500	2-1/2	03969	
0.025	1/8	0.038	0.625	2-1/2	03970	
0.030	1/8	0.045	0.750	2-1/2	03971	
0.031	1/8	0.047	0.775	2-1/2	03972	
0.035	1/8	0.053	0.875	2-1/2	03973	
0.040	1/8	0.060	1.000	2-1/2	03974	
0.045	1/8	0.068	1.125	2-1/2	03975	
0.047	1/8	0.071	1.175	2-1/2	03976	
0.050	1/8	0.075	1.250	2-1/2	03977	
0.055	1/8	0.083	1.375	3	03978	
0.060	1/8	0.090	1.500	3	03979	
0.062	1/8	0.093	1.550	3	03980	
0.065	1/8	0.098	1.625	3	03981	
0.070	1/8	0.105	1.750	3	03982	
0.075	1/8	0.113	1.875	3	03983	
0.078	1/8	0.117	1.950	4	03984	
0.080	1/8	0.120	2.000	4	03985	
0.085	1/8	0.128	2.125	4	03986	
0.090	1/8	0.135	2.250	4	03987	
0.093	1/8	0.140	2.325	4	03988	
0.095	1/8	0.143	2.375	4	03989	
0.100	1/8	0.150	2.500	4	03990	
0.110	1/8	0.165	2.750	4	03991	
0.115	1/8	0.173	2.875	4	03992	
0.120	1/8	0.180	3.000	4	03993	

- Three flute design features improved chip space over four flutes and increased strength and feed capability over two flutes.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.

FRACTIONAL  
M4 1.5xD



M4 1.5xD  
FRACTIONAL SERIES



- Four flute design allows for higher feed rates and decreased deflection, improving productivity and surface finish.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.

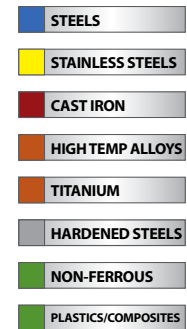
inch				EDP NO.
CUTTING DIAMETER D <sub>1</sub>	SHANK DIAMETER D <sub>2</sub>	LENGTH OF CUT L <sub>2</sub>	OVERALL LENGTH L <sub>1</sub>	TI-NAMITE-A (AITiN)
0.005	1/8	0.008	1-1/2	02238
0.006	1/8	0.009	1-1/2	02239
0.007	1/8	0.011	1-1/2	02240
0.008	1/8	0.012	1-1/2	02241
0.009	1/8	0.014	1-1/2	02242
0.010	1/8	0.015	1-1/2	02243
0.011	1/8	0.017	1-1/2	02244
0.012	1/8	0.018	1-1/2	02245
0.013	1/8	0.020	1-1/2	02246
0.014	1/8	0.021	1-1/2	02247
0.015	1/8	0.023	1-1/2	02248
0.016	1/8	0.024	1-1/2	02249
0.017	1/8	0.026	1-1/2	02250
0.018	1/8	0.027	1-1/2	02251
0.019	1/8	0.029	1-1/2	02252
0.020	1/8	0.030	1-1/2	02253
0.021	1/8	0.032	1-1/2	02254
0.022	1/8	0.033	1-1/2	02255
0.023	1/8	0.035	1-1/2	02256
0.024	1/8	0.036	1-1/2	02257
0.025	1/8	0.038	1-1/2	02258
0.026	1/8	0.039	1-1/2	02259
0.027	1/8	0.041	1-1/2	02260
0.028	1/8	0.042	1-1/2	02261
0.029	1/8	0.044	1-1/2	02262
0.030	1/8	0.045	1-1/2	02263
0.031	1/8	0.047	1-1/2	02264
0.032	1/8	0.048	1-1/2	02265
0.033	1/8	0.050	1-1/2	02266
0.034	1/8	0.051	1-1/2	02267
0.035	1/8	0.053	1-1/2	02268
0.036	1/8	0.054	1-1/2	02269
0.037	1/8	0.056	1-1/2	02270
0.038	1/8	0.057	1-1/2	02271
0.039	1/8	0.059	1-1/2	02272
0.040	1/8	0.060	1-1/2	02273

TOLERANCES (inch)

.005-.120 DIAMETER

D<sub>1</sub> = +0.000/-0.001

D<sub>2</sub> = h<sub>6</sub>



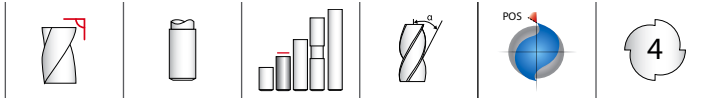
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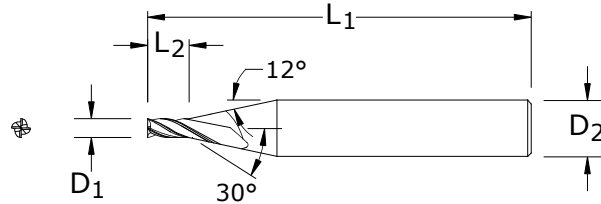
**M4 1.5xD**  
FRACTIONAL SERIES

inch				EDP NO.
CUTTING DIAMETER D <sub>1</sub>	SHANK DIAMETER D <sub>2</sub>	LENGTH OF CUT L <sub>2</sub>	OVERALL LENGTH L <sub>1</sub>	TI-NAMITE-A (AlTiN)
0.041	1/8	0.062	1-1/2	02402
0.042	1/8	0.063	1-1/2	02403
0.043	1/8	0.065	1-1/2	02404
0.044	1/8	0.066	1-1/2	02405
0.045	1/8	0.068	1-1/2	02406
0.046	1/8	0.069	1-1/2	02407
0.047	1/8	0.071	1-1/2	02408
0.048	1/8	0.072	1-1/2	02409
0.049	1/8	0.074	1-1/2	02410
0.050	1/8	0.075	1-1/2	02411
0.051	1/8	0.077	1-1/2	02412
0.052	1/8	0.078	1-1/2	02413
0.053	1/8	0.080	1-1/2	02414
0.054	1/8	0.081	1-1/2	02415
0.055	1/8	0.083	1-1/2	02416
0.056	1/8	0.084	1-1/2	02417
0.057	1/8	0.086	1-1/2	02418
0.058	1/8	0.087	1-1/2	02419
0.059	1/8	0.089	1-1/2	02420
0.060	1/8	0.090	1-1/2	02421
0.062	1/8	0.093	1-1/2	02422
0.065	1/8	0.098	1-1/2	02423
0.070	1/8	0.105	1-1/2	02424
0.078	1/8	0.117	1-1/2	02425
0.080	1/8	0.120	1-1/2	02426
0.085	1/8	0.128	1-1/2	02427
0.090	1/8	0.135	1-1/2	02428
0.093	1/8	0.140	1-1/2	02429
0.095	1/8	0.143	1-1/2	02430
0.100	1/8	0.150	1-1/2	02431
0.105	1/8	0.158	1-1/2	02432
0.110	1/8	0.165	1-1/2	02433
0.115	1/8	0.173	1-1/2	02434
0.120	1/8	0.180	1-1/2	02435

*continued*



M4 3xD  
FRACTIONAL SERIES



- Four flute design allows for higher feed rates and decreased deflection, improving productivity and surface finish.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.

inch				EDP NO.
CUTTING DIAMETER D <sub>1</sub>	SHANK DIAMETER D <sub>2</sub>	LENGTH OF CUT L <sub>2</sub>	OVERALL LENGTH L <sub>1</sub>	TI-NAMITE-A (AITiN)
0.005	1/8	0.015	1-1/2	02312
0.006	1/8	0.018	1-1/2	02313
0.007	1/8	0.021	1-1/2	02314
0.008	1/8	0.024	1-1/2	02315
0.009	1/8	0.027	1-1/2	02316
0.010	1/8	0.030	1-1/2	02317
0.011	1/8	0.033	1-1/2	02318
0.012	1/8	0.036	1-1/2	02319
0.013	1/8	0.039	1-1/2	02320
0.014	1/8	0.042	1-1/2	02321
0.015	1/8	0.045	1-1/2	02322
0.016	1/8	0.048	1-1/2	02323
0.017	1/8	0.051	1-1/2	02324
0.018	1/8	0.054	1-1/2	02325
0.019	1/8	0.057	1-1/2	02326
0.020	1/8	0.060	1-1/2	02327
0.021	1/8	0.063	1-1/2	02328
0.022	1/8	0.066	1-1/2	02329
0.023	1/8	0.069	1-1/2	02330
0.024	1/8	0.072	1-1/2	02331
0.025	1/8	0.075	1-1/2	02332
0.026	1/8	0.078	1-1/2	02333
0.027	1/8	0.081	1-1/2	02334
0.028	1/8	0.084	1-1/2	02335
0.029	1/8	0.087	1-1/2	02336
0.030	1/8	0.090	1-1/2	02337
0.031	1/8	0.093	1-1/2	02338
0.032	1/8	0.096	1-1/2	02339
0.033	1/8	0.099	1-1/2	02340
0.034	1/8	0.102	1-1/2	02341
0.035	1/8	0.105	1-1/2	02342
0.036	1/8	0.108	1-1/2	02343
0.037	1/8	0.111	1-1/2	02344
0.038	1/8	0.114	1-1/2	02345
0.039	1/8	0.117	1-1/2	02346
0.040	1/8	0.120	1-1/2	02347

TOLERANCES (inch)

.005-.120 DIAMETER

D<sub>1</sub> = +0.000/-0.001

D<sub>2</sub> = h<sub>6</sub>

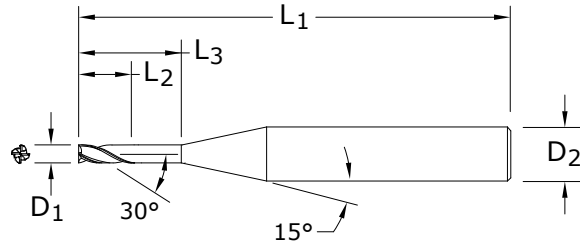
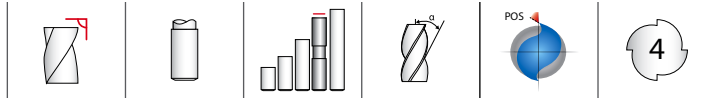
- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES

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**M4 3xD**  
FRACTIONAL SERIES

*continued*

inch				EDP NO.
CUTTING DIAMETER D <sub>1</sub>	SHANK DIAMETER D <sub>2</sub>	LENGTH OF CUT L <sub>2</sub>	OVERALL LENGTH L <sub>1</sub>	TI-NAMITE-A (AlTiN)
0.041	1/8	0.123	1-1/2	02470
0.042	1/8	0.126	1-1/2	02471
0.043	1/8	0.129	1-1/2	02472
0.044	1/8	0.132	1-1/2	02473
0.045	1/8	0.135	1-1/2	02474
0.046	1/8	0.138	1-1/2	02475
0.047	1/8	0.141	1-1/2	02476
0.048	1/8	0.144	1-1/2	02477
0.049	1/8	0.147	1-1/2	02478
0.050	1/8	0.150	1-1/2	02479
0.051	1/8	0.153	1-1/2	02480
0.052	1/8	0.156	1-1/2	02481
0.053	1/8	0.159	1-1/2	02482
0.054	1/8	0.162	1-1/2	02483
0.055	1/8	0.165	1-1/2	02484
0.056	1/8	0.168	1-1/2	02485
0.057	1/8	0.171	1-1/2	02486
0.058	1/8	0.174	1-1/2	02487
0.059	1/8	0.177	1-1/2	02488
0.060	1/8	0.180	1-1/2	02489
0.062	1/8	0.186	1-1/2	02490
0.065	1/8	0.195	1-1/2	02491
0.070	1/8	0.210	1-1/2	02492
0.078	1/8	0.234	1-1/2	02493
0.080	1/8	0.240	1-1/2	02494
0.085	1/8	0.255	1-1/2	02495
0.090	1/8	0.270	1-1/2	02496
0.093	1/8	0.279	1-1/2	02497
0.095	1/8	0.285	1-1/2	02498
0.100	1/8	0.300	1-1/2	02499
0.105	1/8	0.315	1-1/2	02500
0.110	1/8	0.330	1-1/2	02501
0.115	1/8	0.345	1-1/2	02502
0.120	1/8	0.360	1-1/2	02503



**New Expanded Tools**

## M4 3xD, 8xD FRACTIONAL SERIES

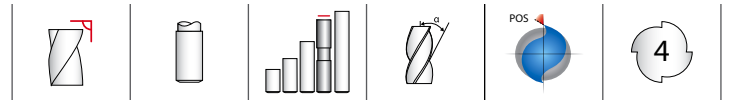
- Four flute design allows for higher feed rates and decreased deflection, improving productivity and surface finish.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.

CUTTING DIAMETER D <sub>1</sub>	SHANK DIAMETER D <sub>2</sub>	inch			OVERALL LENGTH L <sub>1</sub>	EDP NO. TI-NAMITE-A (AITIN)
		LENGTH OF CUT L <sub>2</sub>	REACH L <sub>3</sub>			
0.010	1/8	0.030	0.080	1-1/2	03454	
0.015	1/8	0.045	0.120	1-1/2	03455	
0.020	1/8	0.060	0.160	1-1/2	03456	
0.025	1/8	0.075	0.200	1-1/2	03457	
0.030	1/8	0.090	0.240	1-1/2	03458	
0.031	1/8	0.093	0.248	1-1/2	03459	
0.035	1/8	0.105	0.280	1-1/2	03460	
0.040	1/8	0.120	0.320	1-1/2	03461	
0.045	1/8	0.135	0.360	2	03462	
0.047	1/8	0.141	0.376	2	03463	
0.050	1/8	0.150	0.400	2	03464	
0.055	1/8	0.165	0.440	2	03465	
0.060	1/8	0.180	0.480	2	03466	
0.062	1/8	0.186	0.496	2	03467	
0.065	1/8	0.195	0.520	2	03468	
0.070	1/8	0.210	0.560	2	03469	
0.075	1/8	0.225	0.600	2	03470	
0.078	1/8	0.234	0.624	2	03471	
0.080	1/8	0.240	0.640	2	03472	
0.085	1/8	0.255	0.680	2	03473	
0.090	1/8	0.270	0.720	2	03474	
0.093	1/8	0.279	0.744	2	03475	
0.095	1/8	0.285	0.760	2	03476	
0.100	1/8	0.300	0.800	2	03477	
0.110	1/8	0.330	0.880	2	03478	
0.115	1/8	0.345	0.920	2	03479	
0.120	1/8	0.360	0.960	2	03480	

**TOLERANCES (inch)**

**.010-.120 DIAMETER**  
 D<sub>1</sub> = +0.000/-0.001  
 D<sub>2</sub> = h<sub>6</sub>

- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES



**New Expanded Tools**

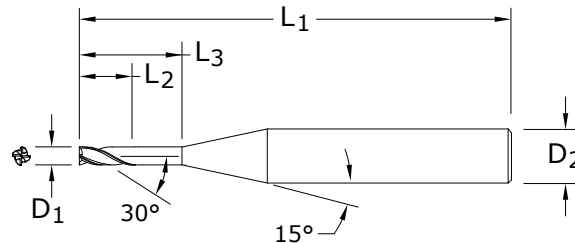
**TOLERANCES (inch)**

**.010-.120 DIAMETER**

$D_1 = +0.000/-0.001$

$D_2 = h_6$

- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES

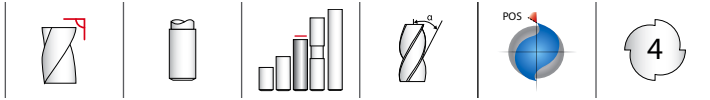


**M4 3xD, 12xD**  
FRACTIONAL SERIES

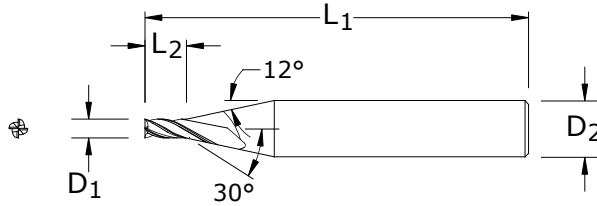
CUTTING DIAMETER $D_1$	SHANK DIAMETER $D_2$	inch			OVERALL LENGTH $L_1$	EDP NO.
		LENGTH OF CUT $L_2$	REACH $L_3$	TI-NAMITE-A (AITiN)		
0.010	1/8	0.030	0.120	1-1/2	03481	
0.015	1/8	0.045	0.180	1-1/2	03482	
0.020	1/8	0.060	0.240	1-1/2	03483	
0.025	1/8	0.075	0.300	1-1/2	03484	
0.030	1/8	0.090	0.360	2	03485	
0.031	1/8	0.093	0.372	2	03486	
0.035	1/8	0.105	0.420	2	03487	
0.040	1/8	0.120	0.480	2	03488	
0.045	1/8	0.135	0.540	2	03489	
0.047	1/8	0.141	0.564	2	03490	
0.050	1/8	0.150	0.600	2	03491	
0.055	1/8	0.165	0.660	2	03492	
0.060	1/8	0.180	0.720	2	03493	
0.062	1/8	0.186	0.744	2	03494	
0.065	1/8	0.195	0.780	2	03495	
0.070	1/8	0.210	0.840	2	03496	
0.075	1/8	0.225	0.900	2	03497	
0.078	1/8	0.234	0.936	2-1/2	03498	
0.080	1/8	0.240	0.960	2-1/2	03499	
0.085	1/8	0.255	1.020	2-1/2	03500	
0.090	1/8	0.270	1.080	2-1/2	03501	
0.093	1/8	0.279	1.116	2-1/2	03502	
0.095	1/8	0.285	1.140	2-1/2	03503	
0.100	1/8	0.300	1.200	2-1/2	03504	
0.110	1/8	0.330	1.320	2-1/2	03505	
0.115	1/8	0.345	1.380	2-1/2	03506	
0.120	1/8	0.360	1.440	2-1/2	03507	

- Four flute design allows for higher feed rates and decreased deflection, improving productivity and surface finish.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.

# FRACTIONAL M4L 5xD



## M4L 5xD FRACTIONAL SERIES



- Four flute design allows for higher feed rates and decreased deflection, improving productivity and surface finish.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.

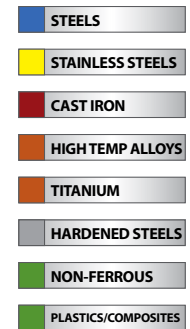
inch				EDP NO.
CUTTING DIAMETER D <sub>1</sub>	SHANK DIAMETER D <sub>2</sub>	LENGTH OF CUT L <sub>2</sub>	OVERALL LENGTH L <sub>1</sub>	TI-NAMITE-A (AITIN)
0.010	1/8	0.050	2-1/2	02640
0.015	1/8	0.075	2-1/2	02641
0.020	1/8	0.100	2-1/2	02642
0.025	1/8	0.125	2-1/2	02643
0.030	1/8	0.150	2-1/2	02644
0.031	1/8	0.155	2-1/2	02645
0.035	1/8	0.175	2-1/2	02646
0.040	1/8	0.200	2-1/2	02647
0.045	1/8	0.225	2-1/2	02648
0.047	1/8	0.235	2-1/2	02649
0.050	1/8	0.250	2-1/2	02650
0.055	1/8	0.275	2-1/2	02651
0.060	1/8	0.300	2-1/2	02652
0.062	1/8	0.310	2-1/2	02653
0.065	1/8	0.325	2-1/2	02654
0.070	1/8	0.350	2-1/2	02655
0.075	1/8	0.375	2-1/2	02656
0.078	1/8	0.390	2-1/2	02657
0.080	1/8	0.400	2-1/2	02658
0.085	1/8	0.425	2-1/2	02659
0.090	1/8	0.450	2-1/2	02660
0.093	1/8	0.465	2-1/2	02661
0.095	1/8	0.475	2-1/2	02662
0.100	1/8	0.500	2-1/2	02663
0.110	1/8	0.550	2-1/2	02664
0.115	1/8	0.575	2-1/2	02665
0.120	1/8	0.600	2-1/2	02666

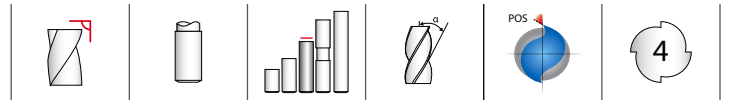
### TOLERANCES (inch)

.010-.120 DIAMETER

D<sub>1</sub> = +0.000/-0.001

D<sub>2</sub> = h<sub>6</sub>





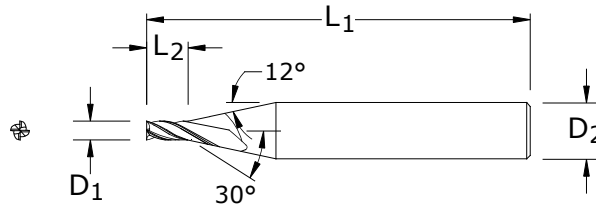
**TOLERANCES (inch)**

**.010–.120 DIAMETER**

$D_1 = +0.000/-0.001$

$D_2 = h_6$

- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES

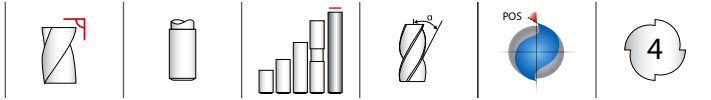


**M4E 8xD**  
FRACTIONAL SERIES

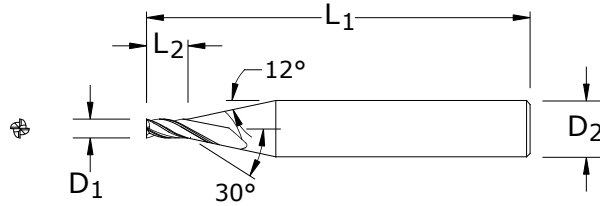
inch				EDP NO.
CUTTING DIAMETER $D_1$	SHANK DIAMETER $D_2$	LENGTH OF CUT $L_2$	OVERALL LENGTH $L_1$	TI-NAMITE-A (AlTiN)
0.010	1/8	0.080	2-1/2	02667
0.015	1/8	0.120	2-1/2	02668
0.020	1/8	0.160	2-1/2	02669
0.025	1/8	0.200	2-1/2	02670
0.030	1/8	0.240	2-1/2	02671
0.031	1/8	0.248	2-1/2	02672
0.035	1/8	0.280	2-1/2	02673
0.040	1/8	0.320	2-1/2	02674
0.045	1/8	0.360	2-1/2	02675
0.047	1/8	0.376	2-1/2	02676
0.050	1/8	0.400	2-1/2	02677
0.055	1/8	0.440	2-1/2	02678
0.060	1/8	0.480	2-1/2	02679
0.062	1/8	0.496	2-1/2	02680
0.065	1/8	0.520	2-1/2	02681
0.070	1/8	0.560	2-1/2	02682
0.075	1/8	0.600	2-1/2	02683
0.078	1/8	0.624	2-1/2	02684
0.080	1/8	0.640	2-1/2	02685
0.085	1/8	0.680	2-1/2	02686
0.090	1/8	0.720	2-1/2	02687
0.093	1/8	0.744	2-1/2	02688
0.095	1/8	0.760	2-1/2	02689
0.100	1/8	0.800	2-1/2	02690
0.110	1/8	0.880	2-1/2	02691
0.115	1/8	0.920	2-1/2	02692
0.120	1/8	0.960	2-1/2	02693

- Four flute design allows for higher feed rates and decreased deflection, improving productivity and surface finish.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.

# FRACTIONAL M4X 12xD



## M4X 12xD FRACTIONAL SERIES



- Four flute design allows for higher feed rates and decreased deflection, improving productivity and surface finish.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.

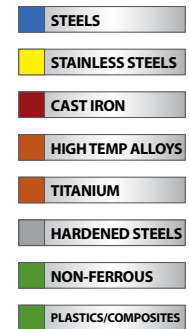
	inch			EDP NO.
CUTTING DIAMETER D <sub>1</sub>	SHANK DIAMETER D <sub>2</sub>	LENGTH OF CUT L <sub>2</sub>	OVERALL LENGTH L <sub>1</sub>	TI-NAMITE-A (AITIN)
0.015	1/8	0.180	2-1/2	02694
0.020	1/8	0.240	2-1/2	02695
0.025	1/8	0.300	2-1/2	02696
0.030	1/8	0.360	2-1/2	02697
0.031	1/8	0.372	2-1/2	02698
0.035	1/8	0.420	2-1/2	02699
0.040	1/8	0.480	2-1/2	02700
0.045	1/8	0.540	2-1/2	02701
0.047	1/8	0.564	2-1/2	02702
0.050	1/8	0.600	2-1/2	02703
0.055	1/8	0.660	2-1/2	02704
0.060	1/8	0.720	2-1/2	02705
0.062	1/8	0.744	2-1/2	02706
0.065	1/8	0.780	2-1/2	02707
0.070	1/8	0.840	2-1/2	02708
0.075	1/8	0.900	2-1/2	02709
0.078	1/8	0.936	2-1/2	02710
0.080	1/8	0.960	2-1/2	02711
0.085	1/8	1.020	2-1/2	02712
0.090	1/8	1.080	2-1/2	02713
0.093	1/8	1.116	2-1/2	02714
0.095	1/8	1.140	2-1/2	02715
0.100	1/8	1.200	2-1/2	02716
0.110	1/8	1.320	2-1/2	02717
0.115	1/8	1.380	2-1/2	02718
0.120	1/8	1.440	2-1/2	02719

### TOLERANCES (inch)

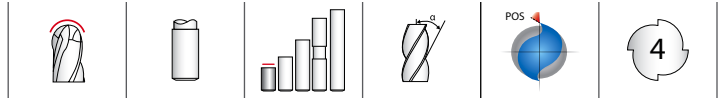
.015-.120 DIAMETER

D<sub>1</sub> = +0.000/-0.001

D<sub>2</sub> = h<sub>6</sub>







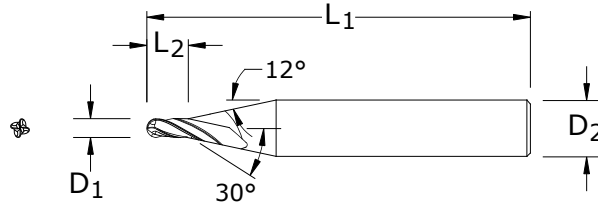
**TOLERANCES (inch)**

**.010–.120 DIAMETER**

$D_1 = +0.000/-0.001$

$D_2 = h_6$

- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES



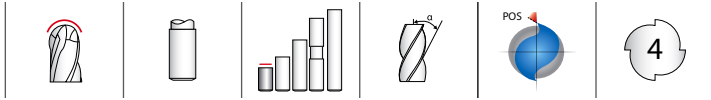
**M4B 1.5xD**  
FRACTIONAL SERIES

inch				EDP NO.
CUTTING DIAMETER $D_1$	SHANK DIAMETER $D_2$	LENGTH OF CUT $L_2$	OVERALL LENGTH $L_1$	TI-NAMITE-A (AlTiN)
0.010	1/8	0.015	1-1/2	03071
0.011	1/8	0.017	1-1/2	03072
0.012	1/8	0.018	1-1/2	03073
0.013	1/8	0.020	1-1/2	03074
0.014	1/8	0.021	1-1/2	03075
0.015	1/8	0.023	1-1/2	03076
0.016	1/8	0.024	1-1/2	03077
0.017	1/8	0.026	1-1/2	03078
0.018	1/8	0.027	1-1/2	03079
0.019	1/8	0.029	1-1/2	03080
0.020	1/8	0.030	1-1/2	03081
0.021	1/8	0.032	1-1/2	03082
0.022	1/8	0.033	1-1/2	03083
0.023	1/8	0.035	1-1/2	03084
0.024	1/8	0.036	1-1/2	03085
0.025	1/8	0.038	1-1/2	03086
0.026	1/8	0.039	1-1/2	03087
0.027	1/8	0.041	1-1/2	03088
0.028	1/8	0.042	1-1/2	03089
0.029	1/8	0.044	1-1/2	03090
0.030	1/8	0.045	1-1/2	03091
0.031	1/8	0.047	1-1/2	03092
0.032	1/8	0.048	1-1/2	03093
0.033	1/8	0.050	1-1/2	03094
0.034	1/8	0.051	1-1/2	03095
0.035	1/8	0.053	1-1/2	03096
0.036	1/8	0.054	1-1/2	03097
0.037	1/8	0.056	1-1/2	03098
0.038	1/8	0.057	1-1/2	03099
0.039	1/8	0.059	1-1/2	03100
0.040	1/8	0.060	1-1/2	03101
0.041	1/8	0.062	1-1/2	02538
0.042	1/8	0.063	1-1/2	02539

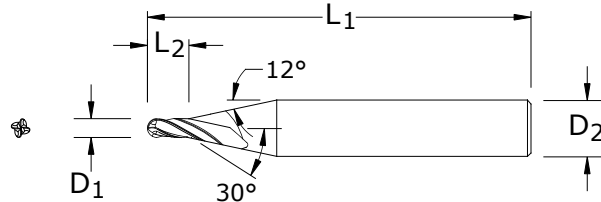
- Four flute design allows for higher feed rates and decreased deflection, improving productivity and surface finish.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.

*continued on next page*

FRACTIONAL  
**M4B 1.5xD**



**M4B 1.5xD**  
 FRACTIONAL SERIES



continued

CUTTING DIAMETER D <sub>1</sub>	SHANK DIAMETER D <sub>2</sub>	inch		EDP NO.
		LENGTH OF CUT L <sub>2</sub>	OVERALL LENGTH L <sub>1</sub>	TI-NAMITE-A (AlTiN)
0.043	1/8	0.065	1-1/2	02540
0.044	1/8	0.066	1-1/2	02541
0.045	1/8	0.068	1-1/2	02542
0.046	1/8	0.069	1-1/2	02543
0.047	1/8	0.071	1-1/2	02544
0.048	1/8	0.072	1-1/2	02545
0.049	1/8	0.074	1-1/2	02546
0.050	1/8	0.075	1-1/2	02547
0.051	1/8	0.077	1-1/2	02548
0.052	1/8	0.078	1-1/2	02549
0.053	1/8	0.080	1-1/2	02550
0.054	1/8	0.081	1-1/2	02551
0.055	1/8	0.083	1-1/2	02552
0.056	1/8	0.084	1-1/2	02553
0.057	1/8	0.086	1-1/2	02554
0.058	1/8	0.087	1-1/2	02555
0.059	1/8	0.089	1-1/2	02556
0.060	1/8	0.090	1-1/2	02557
0.062	1/8	0.093	1-1/2	02558
0.065	1/8	0.098	1-1/2	02559
0.070	1/8	0.105	1-1/2	02560
0.078	1/8	0.117	1-1/2	02561
0.080	1/8	0.120	1-1/2	02562
0.085	1/8	0.128	1-1/2	02563
0.090	1/8	0.135	1-1/2	02564
0.093	1/8	0.140	1-1/2	02565
0.095	1/8	0.143	1-1/2	02566
0.100	1/8	0.150	1-1/2	02567
0.105	1/8	0.158	1-1/2	02568
0.110	1/8	0.165	1-1/2	02569
0.115	1/8	0.173	1-1/2	02570
0.120	1/8	0.180	1-1/2	02571

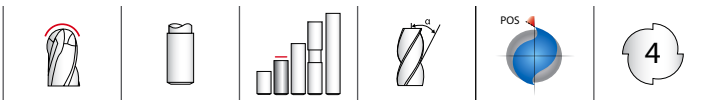
**TOLERANCES (inch)**

**.010-.120 DIAMETER**

D<sub>1</sub> = +0.000/-0.001

D<sub>2</sub> = h<sub>6</sub>

- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES



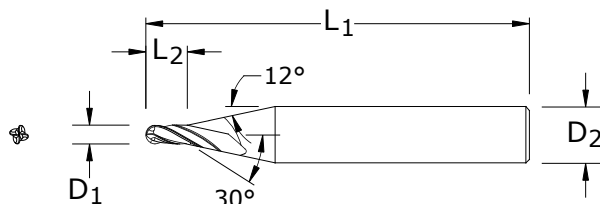
**TOLERANCES (inch)**

**.010–.120 DIAMETER**

$D_1 = +0.000/-0.001$

$D_2 = h_6$

- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES

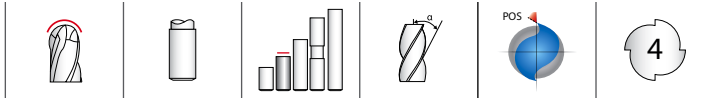


**M4B 3xD**  
FRACTIONAL SERIES

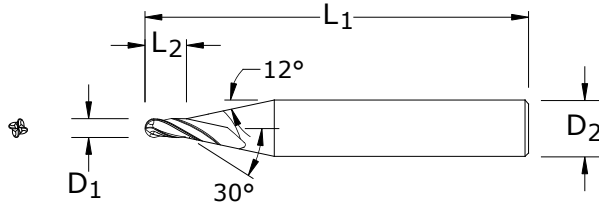
inch				EDP NO.
CUTTING DIAMETER $D_1$	SHANK DIAMETER $D_2$	LENGTH OF CUT $L_2$	OVERALL LENGTH $L_1$	TI-NAMITE-A (AlTiN)
0.010	1/8	0.030	1-1/2	03145
0.011	1/8	0.033	1-1/2	03146
0.012	1/8	0.036	1-1/2	03147
0.013	1/8	0.039	1-1/2	03148
0.014	1/8	0.042	1-1/2	03149
0.015	1/8	0.045	1-1/2	03150
0.016	1/8	0.048	1-1/2	03151
0.017	1/8	0.051	1-1/2	03152
0.018	1/8	0.054	1-1/2	03153
0.019	1/8	0.057	1-1/2	03154
0.020	1/8	0.060	1-1/2	03155
0.021	1/8	0.063	1-1/2	03156
0.022	1/8	0.066	1-1/2	03157
0.023	1/8	0.069	1-1/2	03158
0.024	1/8	0.072	1-1/2	03159
0.025	1/8	0.075	1-1/2	03160
0.026	1/8	0.078	1-1/2	03161
0.027	1/8	0.081	1-1/2	03162
0.028	1/8	0.084	1-1/2	03163
0.029	1/8	0.087	1-1/2	03164
0.030	1/8	0.090	1-1/2	03165
0.031	1/8	0.093	1-1/2	03166
0.032	1/8	0.096	1-1/2	03167
0.033	1/8	0.099	1-1/2	03168
0.034	1/8	0.102	1-1/2	03169
0.035	1/8	0.105	1-1/2	03170
0.036	1/8	0.108	1-1/2	03171
0.037	1/8	0.111	1-1/2	03172
0.038	1/8	0.114	1-1/2	03173
0.039	1/8	0.117	1-1/2	03174
0.040	1/8	0.120	1-1/2	03175
0.041	1/8	0.123	1-1/2	02606
0.042	1/8	0.126	1-1/2	02607
0.043	1/8	0.129	1-1/2	02608

- Four flute design allows for higher feed rates and decreased deflection, improving productivity and surface finish.
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**M4B 3xD**  
FRACTIONAL SERIES



continued

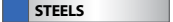







CUTTING DIAMETER D <sub>1</sub>	SHANK DIAMETER D <sub>2</sub>	inch		EDP NO.
		LENGTH OF CUT L <sub>2</sub>	OVERALL LENGTH L <sub>1</sub>	TI-NAMITE-A (AlTiN)
0.044	1/8	0.132	1-1/2	02609
0.045	1/8	0.135	1-1/2	02610
0.046	1/8	0.138	1-1/2	02611
0.047	1/8	0.141	1-1/2	02612
0.048	1/8	0.144	1-1/2	02613
0.049	1/8	0.147	1-1/2	02614
0.050	1/8	0.150	1-1/2	02615
0.051	1/8	0.153	1-1/2	02616
0.052	1/8	0.156	1-1/2	02617
0.053	1/8	0.159	1-1/2	02618
0.054	1/8	0.162	1-1/2	02619
0.055	1/8	0.165	1-1/2	02620
0.056	1/8	0.168	1-1/2	02621
0.057	1/8	0.171	1-1/2	02622
0.058	1/8	0.174	1-1/2	02623
0.059	1/8	0.177	1-1/2	02624
0.060	1/8	0.180	1-1/2	02625
0.062	1/8	0.186	1-1/2	02626
0.065	1/8	0.195	1-1/2	02627
0.070	1/8	0.210	1-1/2	02628
0.078	1/8	0.234	1-1/2	02629
0.080	1/8	0.240	1-1/2	02630
0.085	1/8	0.255	1-1/2	02631
0.090	1/8	0.270	1-1/2	02632
0.093	1/8	0.279	1-1/2	02633
0.095	1/8	0.285	1-1/2	02634
0.100	1/8	0.300	1-1/2	02635
0.105	1/8	0.315	1-1/2	02636
0.110	1/8	0.330	1-1/2	02637
0.115	1/8	0.345	1-1/2	02638
0.120	1/8	0.360	1-1/2	02639

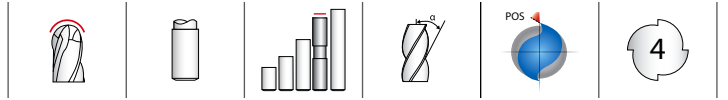
**TOLERANCES (inch)**

**.010-.120 DIAMETER**

D<sub>1</sub> = +0.000/-0.001

D<sub>2</sub> = h<sub>6</sub>

-  STEELS
-  STAINLESS STEELS
-  CAST IRON
-  HIGH TEMP ALLOYS
-  TITANIUM
-  HARDENED STEELS
-  NON-FERROUS
-  PLASTICS/COMPOSITES



**New Expanded Tools**

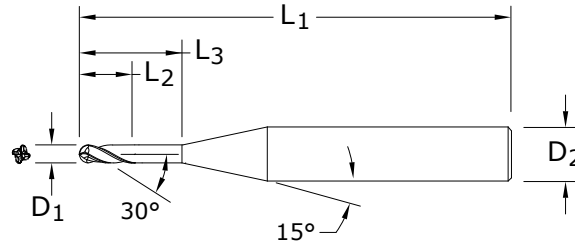
**TOLERANCES (inch)**

**.010–.120 DIAMETER**

$D_1 = +0.000/-0.001$

$D_2 = h_6$

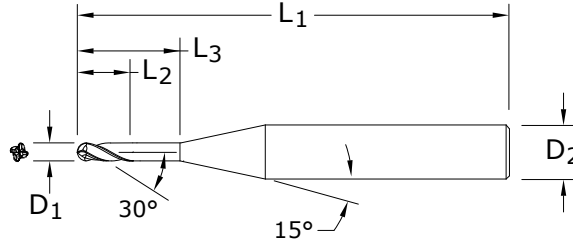
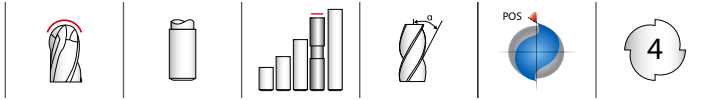
- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES



## M4B 3xD, 8xD FRACTIONAL SERIES

CUTTING DIAMETER $D_1$	SHANK DIAMETER $D_2$	inch			OVERALL LENGTH $L_1$	EDP NO.  TI-NAMITE-A (AlTiN)
		LENGTH OF CUT $L_2$	REACH $L_3$			
0.010	1/8	0.030	0.080	1-1/2	03751	
0.015	1/8	0.045	0.120	1-1/2	03752	
0.020	1/8	0.060	0.160	1-1/2	03753	
0.025	1/8	0.075	0.200	1-1/2	03754	
0.030	1/8	0.090	0.240	1-1/2	03755	
0.031	1/8	0.093	0.248	1-1/2	03756	
0.035	1/8	0.105	0.280	1-1/2	03757	
0.040	1/8	0.120	0.320	1-1/2	03758	
0.045	1/8	0.135	0.360	2	03759	
0.047	1/8	0.141	0.376	2	03760	
0.050	1/8	0.150	0.400	2	03761	
0.055	1/8	0.165	0.440	2	03762	
0.060	1/8	0.180	0.480	2	03763	
0.062	1/8	0.186	0.496	2	03764	
0.065	1/8	0.195	0.520	2	03765	
0.070	1/8	0.210	0.560	2	03766	
0.075	1/8	0.225	0.600	2	03767	
0.078	1/8	0.234	0.624	2	03768	
0.080	1/8	0.240	0.640	2	03769	
0.085	1/8	0.255	0.680	2	03770	
0.090	1/8	0.270	0.720	2	03771	
0.093	1/8	0.279	0.744	2	03772	
0.095	1/8	0.285	0.760	2	03773	
0.100	1/8	0.300	0.800	2	03774	
0.110	1/8	0.330	0.880	2	03775	
0.115	1/8	0.345	0.920	2	03776	
0.120	1/8	0.360	0.960	2	03777	

- Four flute design allows for higher feed rates and decreased deflection, improving productivity and surface finish.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.



## M4B 3xD, 12xD

FRACTIONAL SERIES

- Four flute design allows for higher feed rates and decreased deflection, improving productivity and surface finish.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.

CUTTING DIAMETER D <sub>1</sub>	SHANK DIAMETER D <sub>2</sub>	inch			OVERALL LENGTH L <sub>1</sub>	EDP NO.  TI-NAMITE-A (AITIN)
		LENGTH OF CUT L <sub>2</sub>	REACH L <sub>3</sub>			
0.010	1/8	0.030	0.120	1-1/2	03778	
0.015	1/8	0.045	0.180	1-1/2	03779	
0.020	1/8	0.060	0.240	1-1/2	03780	
0.025	1/8	0.075	0.300	1-1/2	03781	
0.030	1/8	0.090	0.360	2	03782	
0.031	1/8	0.093	0.372	2	03783	
0.035	1/8	0.105	0.420	2	03784	
0.040	1/8	0.120	0.480	2	03785	
0.045	1/8	0.135	0.540	2	03786	
0.047	1/8	0.141	0.564	2	03787	
0.050	1/8	0.150	0.600	2	03788	
0.055	1/8	0.165	0.660	2	03789	
0.060	1/8	0.180	0.720	2	03790	
0.062	1/8	0.186	0.744	2	03791	
0.065	1/8	0.195	0.780	2	03792	
0.070	1/8	0.210	0.840	2	03793	
0.075	1/8	0.225	0.900	2	03794	
0.078	1/8	0.234	0.936	2-1/2	03795	
0.080	1/8	0.240	0.960	2-1/2	03796	
0.085	1/8	0.255	1.020	2-1/2	03797	
0.090	1/8	0.270	1.080	2-1/2	03798	
0.093	1/8	0.279	1.116	2-1/2	03799	
0.095	1/8	0.285	1.140	2-1/2	03800	
0.100	1/8	0.300	1.200	2-1/2	03801	
0.110	1/8	0.330	1.320	2-1/2	03802	
0.115	1/8	0.345	1.380	2-1/2	03803	
0.120	1/8	0.360	1.440	2-1/2	03804	

New Expanded Tools

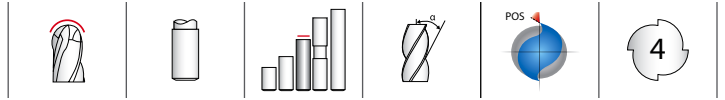
**TOLERANCES (inch)**

**.010-.120 DIAMETER**

D<sub>1</sub> = +0.0000/-0.0001

D<sub>2</sub> = h<sub>6</sub>

- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES



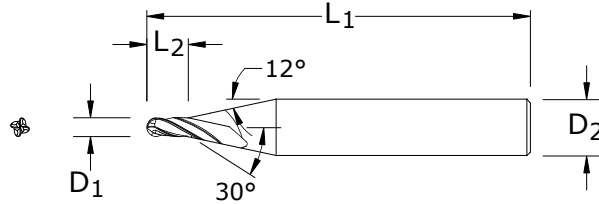
**TOLERANCES (inch)**

**.010–.120 DIAMETER**

$D_1 = +0.000/-0.001$

$D_2 = h_6$

- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES

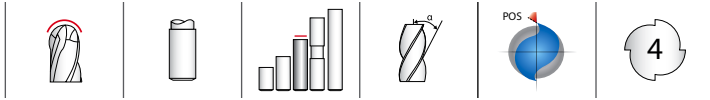


**M4LB 5xD**  
FRACTIONAL SERIES

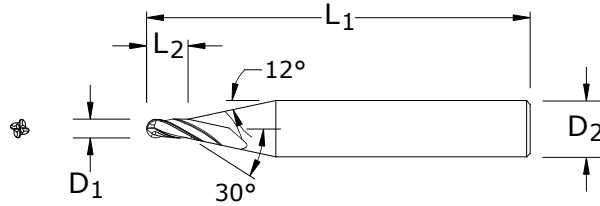
inch				EDP NO.
CUTTING DIAMETER $D_1$	SHANK DIAMETER $D_2$	LENGTH OF CUT $L_2$	OVERALL LENGTH $L_1$	TI-NAMITE-A (AlTiN)
0.010	1/8	0.050	2-1/2	02720
0.015	1/8	0.075	2-1/2	02721
0.020	1/8	0.100	2-1/2	02722
0.025	1/8	0.125	2-1/2	02723
0.030	1/8	0.150	2-1/2	02724
0.031	1/8	0.155	2-1/2	02725
0.035	1/8	0.175	2-1/2	02726
0.040	1/8	0.200	2-1/2	02727
0.045	1/8	0.225	2-1/2	02728
0.047	1/8	0.235	2-1/2	02729
0.050	1/8	0.250	2-1/2	02730
0.055	1/8	0.275	2-1/2	02731
0.060	1/8	0.300	2-1/2	02732
0.062	1/8	0.310	2-1/2	02733
0.065	1/8	0.325	2-1/2	02734
0.070	1/8	0.350	2-1/2	02735
0.075	1/8	0.375	2-1/2	02736
0.078	1/8	0.390	2-1/2	02737
0.080	1/8	0.400	2-1/2	02738
0.085	1/8	0.425	2-1/2	02739
0.090	1/8	0.450	2-1/2	02740
0.093	1/8	0.465	2-1/2	02741
0.095	1/8	0.475	2-1/2	02742
0.100	1/8	0.500	2-1/2	02743
0.110	1/8	0.550	2-1/2	02744
0.115	1/8	0.575	2-1/2	02745
0.120	1/8	0.600	2-1/2	02746

- Four flute design allows for higher feed rates and decreased deflection, improving productivity and surface finish.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.

FRACTIONAL  
**M4EB 8xD**



**M4EB 8xD**  
FRACTIONAL SERIES



- Four flute design allows for higher feed rates and decreased deflection, improving productivity and surface finish.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.

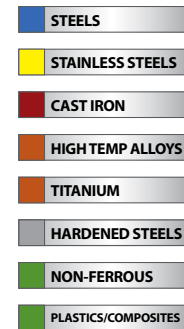
inch				EDP NO.
CUTTING DIAMETER D <sub>1</sub>	SHANK DIAMETER D <sub>2</sub>	LENGTH OF CUT L <sub>2</sub>	OVERALL LENGTH L <sub>1</sub>	TI-NAMITE-A (AlTiN)
0.010	1/8	0.080	2-1/2	02747
0.015	1/8	0.120	2-1/2	02748
0.020	1/8	0.160	2-1/2	02749
0.025	1/8	0.200	2-1/2	02750
0.030	1/8	0.240	2-1/2	02751
0.031	1/8	0.248	2-1/2	02752
0.035	1/8	0.280	2-1/2	02753
0.040	1/8	0.320	2-1/2	02754
0.045	1/8	0.360	2-1/2	02755
0.047	1/8	0.376	2-1/2	02756
0.050	1/8	0.400	2-1/2	02757
0.055	1/8	0.440	2-1/2	02758
0.060	1/8	0.480	2-1/2	02759
0.062	1/8	0.496	2-1/2	02760
0.065	1/8	0.520	2-1/2	02761
0.070	1/8	0.560	2-1/2	02762
0.075	1/8	0.600	2-1/2	02763
0.078	1/8	0.624	2-1/2	02764
0.080	1/8	0.640	2-1/2	02765
0.085	1/8	0.680	2-1/2	02766
0.090	1/8	0.720	2-1/2	02767
0.093	1/8	0.744	2-1/2	02768
0.095	1/8	0.760	2-1/2	02769
0.100	1/8	0.800	2-1/2	02770
0.110	1/8	0.880	2-1/2	02771
0.115	1/8	0.920	2-1/2	02772
0.120	1/8	0.960	2-1/2	02773

**TOLERANCES (inch)**

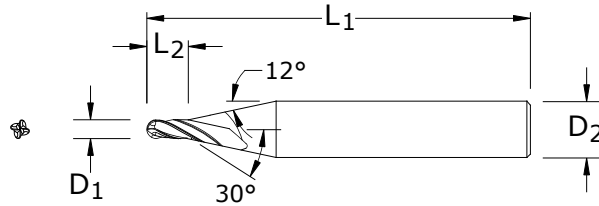
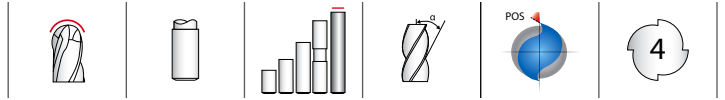
**.010-.120 DIAMETER**

D<sub>1</sub> = +0.000/-0.001

D<sub>2</sub> = h<sub>6</sub>







**M4XB 12xD**  
FRACTIONAL SERIES

**TOLERANCES (inch)**

**.015-.120 DIAMETER**

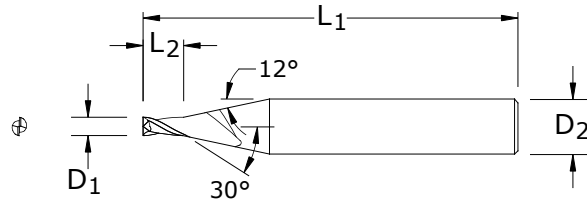
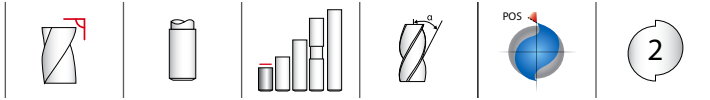
$D_1 = +0.000/-0.001$

$D_2 = h_6$

- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES

inch				EDP NO.
CUTTING DIAMETER $D_1$	SHANK DIAMETER $D_2$	LENGTH OF CUT $L_2$	OVERALL LENGTH $L_1$	TI-NAMITE-A (AlTiN)
0.015	1/8	0.180	2-1/2	02774
0.020	1/8	0.240	2-1/2	02775
0.025	1/8	0.300	2-1/2	02776
0.030	1/8	0.360	2-1/2	02777
0.031	1/8	0.372	2-1/2	02778
0.035	1/8	0.420	2-1/2	02779
0.040	1/8	0.480	2-1/2	02780
0.045	1/8	0.540	2-1/2	02781
0.047	1/8	0.564	2-1/2	02782
0.050	1/8	0.600	2-1/2	02783
0.055	1/8	0.660	2-1/2	02784
0.060	1/8	0.720	2-1/2	02785
0.062	1/8	0.744	2-1/2	02786
0.065	1/8	0.780	2-1/2	02787
0.070	1/8	0.840	2-1/2	02788
0.075	1/8	0.900	2-1/2	02789
0.078	1/8	0.936	2-1/2	02790
0.080	1/8	0.960	2-1/2	02791
0.085	1/8	1.020	2-1/2	02792
0.090	1/8	1.080	2-1/2	02793
0.093	1/8	1.116	2-1/2	02794
0.095	1/8	1.140	2-1/2	02795
0.100	1/8	1.200	2-1/2	02796
0.110	1/8	1.320	2-1/2	02797
0.115	1/8	1.380	2-1/2	02798
0.120	1/8	1.440	2-1/2	02799

- Four flute design allows for higher feed rates and decreased deflection, improving productivity and surface finish.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.



## M2M 1.5xD

METRIC SERIES

- Two flute design is ideal for softer alloyed, non-ferrous material applications that require slotting or involve heavy chip loads.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.

CUTTING DIAMETER D <sub>1</sub>	DECIMAL EQUIVALENT	mm			OVERALL LENGTH L <sub>1</sub>	EDP NO.
		SHANK DIAMETER D <sub>2</sub>	LENGTH OF CUT L <sub>2</sub>	TI-NAMITE-A (AITIN)		
0,2	0.0079	3,0	0,3	38,0	02801	
0,3	0.0118	3,0	0,4	38,0	02802	
0,4	0.0157	3,0	0,6	38,0	02803	
0,5	0.0197	3,0	0,7	38,0	02804	
0,6	0.0236	3,0	0,9	38,0	02805	
0,7	0.0276	3,0	1,0	38,0	02806	
0,8	0.0315	3,0	1,2	38,0	02807	
0,9	0.0354	3,0	1,3	38,0	02808	
1,0	0.0394	3,0	1,5	38,0	02809	
1,0	0.0394	4,0	1,5	50,0	02819	
1,1	0.0433	3,0	1,6	38,0	02860	
1,1	0.0433	4,0	1,6	50,0	02892	
1,2	0.0472	3,0	1,8	38,0	02861	
1,2	0.0472	4,0	1,8	50,0	02893	
1,3	0.0512	3,0	1,9	38,0	02862	
1,3	0.0512	4,0	1,9	50,0	02894	
1,4	0.0551	3,0	2,1	38,0	02863	
1,4	0.0551	4,0	2,1	50,0	02895	
1,5	0.0591	3,0	2,2	38,0	02864	
1,5	0.0591	4,0	2,2	50,0	02896	
1,6	0.0630	3,0	2,4	38,0	02865	
1,6	0.0630	4,0	2,4	50,0	02897	
1,7	0.0669	3,0	2,5	38,0	02866	
1,7	0.0669	4,0	2,5	50,0	02898	
1,8	0.0709	3,0	2,7	38,0	02867	
1,8	0.0709	4,0	2,7	50,0	02899	
1,9	0.0748	3,0	2,8	38,0	02868	
1,9	0.0748	4,0	2,8	50,0	02900	
2,0	0.0787	3,0	3,0	38,0	02869	
2,0	0.0787	4,0	3,0	50,0	02901	
2,5	0.0984	3,0	3,7	38,0	02870	
2,5	0.0984	4,0	3,7	50,0	02902	
3,0	0.1181	3,0	4,5	38,0	02871	
3,0	0.1181	4,0	4,5	50,0	02903	

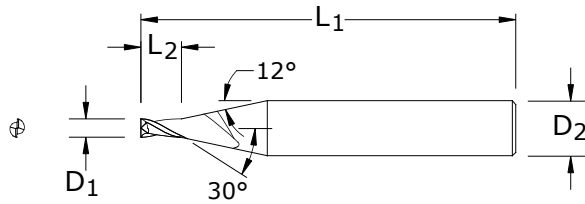
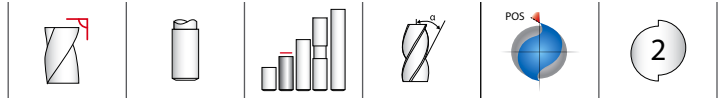
### TOLERANCES (mm)

0,2–3,0 DIAMETER

D<sub>1</sub> = +0.0000/–0.0254

D<sub>2</sub> = h<sub>6</sub>

- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES



**TOLERANCES (mm)**

**0,2–3,0 DIAMETER**

$D_1 = +0.0000/-0.0254$

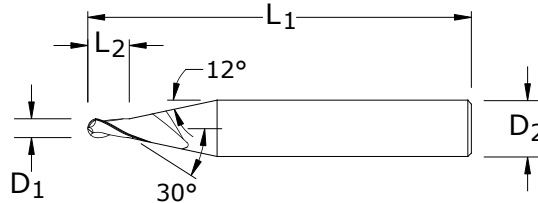
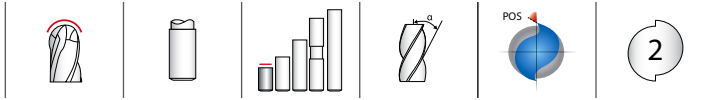
$D_2 = h_6$

- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES

**M2M 3xD**  
METRIC SERIES

mm					EDP NO.
CUTTING DIAMETER $D_1$	DECIMAL EQUIVALENT	SHANK DIAMETER $D_2$	LENGTH OF CUT $L_2$	OVERALL LENGTH $L_1$	TI-NAMITE-A (AITIN)
0,2	0.0079	3,0	0,6	38,0	02811
0,2	0.0079	4,0	0,6	50,0	02349
0,3	0.0118	3,0	0,9	38,0	02350
0,3	0.0118	4,0	0,9	50,0	02360
0,4	0.0157	3,0	1,2	38,0	02351
0,4	0.0157	4,0	1,2	50,0	02361
0,5	0.0197	3,0	1,5	38,0	02352
0,5	0.0197	4,0	1,5	50,0	02362
0,6	0.0236	3,0	1,8	38,0	02353
0,6	0.0236	4,0	1,8	50,0	02363
0,7	0.0276	3,0	2,1	38,0	02354
0,7	0.0276	4,0	2,1	50,0	02364
0,8	0.0315	3,0	2,4	38,0	02355
0,8	0.0315	4,0	2,4	50,0	02365
0,9	0.0354	3,0	2,7	38,0	02356
0,9	0.0354	4,0	2,7	50,0	02366
1,0	0.0394	3,0	3,0	38,0	02357
1,0	0.0394	4,0	3,0	50,0	02367
1,1	0.0433	3,0	3,3	38,0	02872
1,1	0.0433	4,0	3,3	50,0	02904
1,2	0.0472	3,0	3,6	38,0	02873
1,2	0.0472	4,0	3,6	50,0	02905
1,3	0.0512	3,0	3,9	38,0	02874
1,3	0.0512	4,0	3,9	50,0	02906
1,4	0.0551	3,0	4,2	38,0	02875
1,4	0.0551	4,0	4,2	50,0	02907
1,5	0.0591	3,0	4,5	38,0	02876
1,5	0.0591	4,0	4,5	50,0	02908
1,6	0.0630	3,0	4,8	38,0	02877
1,6	0.0630	4,0	4,8	50,0	02909
1,7	0.0669	3,0	5,1	38,0	02878
1,7	0.0669	4,0	5,1	50,0	02910
1,8	0.0709	3,0	5,4	38,0	02879
1,8	0.0709	4,0	5,4	50,0	02911
1,9	0.0748	3,0	5,7	38,0	02880
1,9	0.0748	4,0	5,7	50,0	02912
2,0	0.0787	3,0	6,0	38,0	02881
2,0	0.0787	4,0	6,0	50,0	02913
2,1	0.0827	3,0	6,3	38,0	02882
2,2	0.0866	3,0	6,6	38,0	02883
2,3	0.0906	3,0	6,9	38,0	02884
2,4	0.0945	3,0	7,2	38,0	02885
2,5	0.0984	3,0	7,5	38,0	02886
2,5	0.0984	4,0	7,5	50,0	02914
2,6	0.1024	3,0	7,8	38,0	02887
2,7	0.1063	3,0	8,1	38,0	02888
2,8	0.1102	3,0	8,4	38,0	02889
2,9	0.1142	3,0	8,7	38,0	02890
3,0	0.1181	3,0	9,0	38,0	02891
3,0	0.1181	4,0	9,0	50,0	02915

- Two flute design is ideal for softer alloyed, non-ferrous material applications that require slotting or involve heavy chip loads.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.



## M2MB 1.5xD

METRIC SERIES

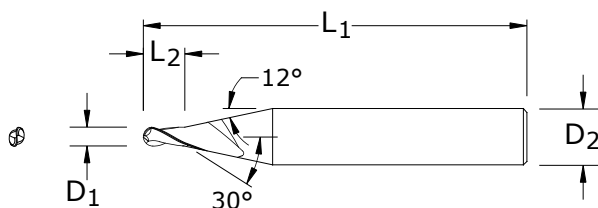
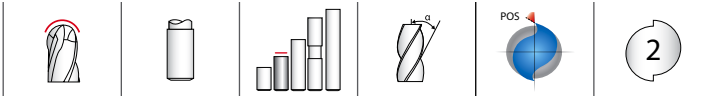
- Two flute design is ideal for softer alloyed, non-ferrous material applications that require slotting or involve heavy chip loads.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.

CUTTING DIAMETER D <sub>1</sub>	DECIMAL EQUIVALENT	mm		LENGTH OF CUT L <sub>2</sub>	OVERALL LENGTH L <sub>1</sub>	EDP NO.
		SHANK DIAMETER D <sub>2</sub>				TI-NAMITE-A (AITIN)
0,5	0.0197	3,0		0,7	38,0	03180
0,6	0.0236	3,0		0,9	38,0	03181
0,7	0.0276	3,0		1,0	38,0	03182
0,8	0.0315	3,0		1,2	38,0	03183
0,9	0.0354	3,0		1,3	38,0	03184
1,0	0.0394	3,0		1,5	38,0	03185
1,0	0.0394	4,0		1,5	50,0	02849
1,1	0.0433	3,0		1,6	38,0	02916
1,1	0.0433	4,0		1,6	50,0	02980
1,2	0.0472	3,0		1,8	38,0	02917
1,2	0.0472	4,0		1,8	50,0	02981
1,3	0.0512	3,0		1,9	38,0	02918
1,3	0.0512	4,0		1,9	50,0	02982
1,4	0.0551	3,0		2,1	38,0	02919
1,4	0.0551	4,0		2,1	50,0	02983
1,5	0.0591	3,0		2,2	38,0	02920
1,5	0.0591	4,0		2,2	50,0	02984
1,6	0.0630	3,0		2,4	38,0	02921
1,6	0.0630	4,0		2,4	50,0	02985
1,7	0.0669	3,0		2,5	38,0	02922
1,7	0.0669	4,0		2,5	50,0	02986
1,8	0.0709	3,0		2,7	38,0	02923
1,8	0.0709	4,0		2,7	50,0	02987
1,9	0.0748	3,0		2,8	38,0	02924
1,9	0.0748	4,0		2,8	50,0	02988
2,0	0.0787	3,0		3,0	38,0	02925
2,0	0.0787	4,0		3,0	50,0	02989
2,5	0.0984	3,0		3,7	38,0	02926
2,5	0.0984	4,0		3,7	50,0	02990
3,0	0.1181	3,0		4,5	38,0	02927
3,0	0.1181	4,0		4,5	50,0	02991

### TOLERANCES (mm)

**0,5–3,0 DIAMETER**  
 D<sub>1</sub> = +0.0000/–0.0254  
 D<sub>2</sub> = h<sub>6</sub>

- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES



**TOLERANCES (mm)**

**0,5–3,0 DIAMETER**

$D_1 = +0.0000/-0.0254$

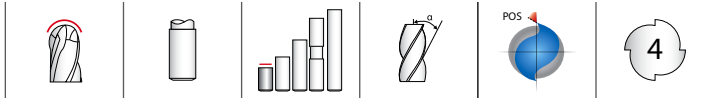
$D_2 = h_6$

- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES

**M2MB 3xD**  
METRIC SERIES

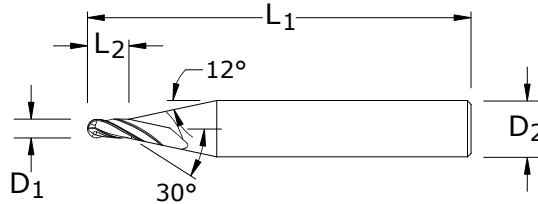
CUTTING DIAMETER $D_1$	DECIMAL EQUIVALENT	mm			OVERALL LENGTH $L_1$	EDP NO.
		SHANK DIAMETER $D_2$	LENGTH OF CUT $L_2$	TI-NAMITE-A (AITIN)		
0,5	0.0197	4,0	1,5	50,0	03200	
0,6	0.0236	4,0	1,8	50,0	03201	
0,7	0.0276	4,0	2,1	50,0	03202	
0,8	0.0315	4,0	2,4	50,0	03203	
0,9	0.0354	4,0	2,7	50,0	03204	
1,0	0.0394	3,0	3,0	38,0	02829	
1,0	0.0394	4,0	3,0	50,0	03205	
1,1	0.0433	3,0	3,3	38,0	02940	
1,1	0.0433	4,0	3,3	50,0	03004	
1,2	0.0472	3,0	3,6	38,0	02941	
1,2	0.0472	4,0	3,6	50,0	03005	
1,3	0.0512	3,0	3,9	38,0	02942	
1,3	0.0512	4,0	3,9	50,0	03006	
1,4	0.0551	3,0	4,2	38,0	02943	
1,4	0.0551	4,0	4,2	50,0	03007	
1,5	0.0591	3,0	4,5	38,0	02944	
1,5	0.0591	4,0	4,5	50,0	03008	
1,6	0.0630	3,0	4,8	38,0	02945	
1,6	0.0630	4,0	4,8	50,0	03009	
1,7	0.0669	3,0	5,1	38,0	02946	
1,7	0.0669	4,0	5,1	50,0	03010	
1,8	0.0709	3,0	5,4	38,0	02947	
1,8	0.0709	4,0	5,4	50,0	03011	
1,9	0.0748	3,0	5,7	38,0	02948	
1,9	0.0748	4,0	5,7	50,0	03012	
2,0	0.0787	3,0	6,0	38,0	02949	
2,0	0.0787	4,0	6,0	50,0	03013	
2,1	0.0827	3,0	6,3	38,0	02950	
2,2	0.0866	3,0	6,6	38,0	02951	
2,3	0.0906	3,0	6,9	38,0	02952	
2,4	0.0945	3,0	7,2	38,0	02953	
2,5	0.0984	3,0	7,5	38,0	02954	
2,5	0.0984	4,0	7,5	50,0	03014	
2,6	0.1024	3,0	7,8	38,0	02955	
2,7	0.1063	3,0	8,1	38,0	02956	
2,8	0.1102	3,0	8,4	38,0	02957	
2,9	0.1142	3,0	8,7	38,0	02958	
3,0	0.1181	3,0	9,0	38,0	02959	
3,0	0.1181	4,0	9,0	50,0	03015	

- Two flute design is ideal for softer alloyed, non-ferrous material applications that require slotting or involve heavy chip loads.
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- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
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## M4MB 1.5xD

METRIC SERIES



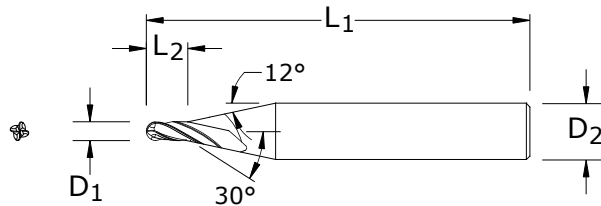
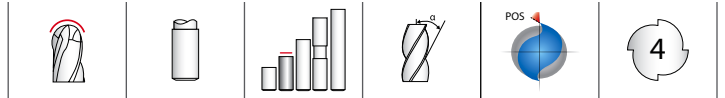
- Four flute design allows for higher feed rates and decreased deflection, improving productivity and surface finish.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.

CUTTING DIAMETER D <sub>1</sub>	DECIMAL EQUIVALENT	mm			EDP NO.
		SHANK DIAMETER D <sub>2</sub>	LENGTH OF CUT L <sub>2</sub>	OVERALL LENGTH L <sub>1</sub>	TI-NAMITE-A (AlTiN)
1,0	0.0394	3,0	1,5	38,0	03195
1,0	0.0394	4,0	1,5	50,0	02859
1,1	0.0433	3,0	1,6	38,0	02928
1,1	0.0433	4,0	1,6	50,0	02992
1,2	0.0472	3,0	1,8	38,0	02929
1,2	0.0472	4,0	1,8	50,0	02993
1,3	0.0512	3,0	1,9	38,0	02930
1,3	0.0512	4,0	1,9	50,0	02994
1,4	0.0551	3,0	2,1	38,0	02931
1,4	0.0551	4,0	2,1	50,0	02995
1,5	0.0591	3,0	2,2	38,0	02932
1,5	0.0591	4,0	2,2	50,0	02996
1,6	0.0630	3,0	2,4	38,0	02933
1,6	0.0630	4,0	2,4	50,0	02997
1,7	0.0669	3,0	2,5	38,0	02934
1,7	0.0669	4,0	2,5	50,0	02998
1,8	0.0709	3,0	2,7	38,0	02935
1,8	0.0709	4,0	2,7	50,0	02999
1,9	0.0748	3,0	2,8	38,0	02936
1,9	0.0748	4,0	2,8	50,0	03000
2,0	0.0787	3,0	3,0	38,0	02937
2,0	0.0787	4,0	3,0	50,0	03001
2,5	0.0984	3,0	3,7	38,0	02938
2,5	0.0984	4,0	3,7	50,0	03002
3,0	0.1181	3,0	4,5	38,0	02939
3,0	0.1181	4,0	4,5	50,0	03003

### TOLERANCES (mm)

1,0–3,0 DIAMETER  
 D<sub>1</sub> = +0.0000/–0.0254  
 D<sub>2</sub> = h<sub>6</sub>

- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES



**M4MB 3xD**  
METRIC SERIES

**TOLERANCES (mm)**

**1,0–3,0 DIAMETER**

$D_1 = +0.0000/-0.0254$















$D_2 = h_6$

- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES

CUTTING DIAMETER $D_1$	DECIMAL EQUIVALENT	mm		OVERALL LENGTH $L_1$	EDP NO.
		SHANK DIAMETER $D_2$	LENGTH OF CUT $L_2$		TI-NAMITE-A (AITIN)
1,0	0.0394	3,0	3,0	38,0	02839
1,0	0.0394	4,0	3,0	50,0	03215
1,1	0.0433	3,0	3,3	38,0	02960
1,1	0.0433	4,0	3,3	50,0	03016
1,2	0.0472	3,0	3,6	38,0	02961
1,2	0.0472	4,0	3,6	50,0	03017
1,3	0.0512	3,0	3,9	38,0	02962
1,3	0.0512	4,0	3,9	50,0	03018
1,4	0.0551	3,0	4,2	38,0	02963
1,4	0.0551	4,0	4,2	50,0	03019
1,5	0.0591	3,0	4,5	38,0	02964
1,5	0.0591	4,0	4,5	50,0	03020
1,6	0.0630	3,0	4,8	38,0	02965
1,6	0.0630	4,0	4,8	50,0	03021
1,7	0.0669	3,0	5,1	38,0	02966
1,7	0.0669	4,0	5,1	50,0	03022
1,8	0.0709	3,0	5,4	38,0	02967
1,8	0.0709	4,0	5,4	50,0	03023
1,9	0.0748	3,0	5,7	38,0	02968
1,9	0.0748	4,0	5,7	50,0	03024
2,0	0.0787	3,0	6,0	38,0	02969
2,0	0.0787	4,0	6,0	50,0	03025
2,1	0.0827	3,0	6,3	38,0	02970
2,2	0.0866	3,0	6,6	38,0	02971
2,3	0.0906	3,0	6,9	38,0	02972
2,4	0.0945	3,0	7,2	38,0	02973
2,5	0.0984	3,0	7,5	38,0	02974
2,5	0.0984	4,0	7,5	50,0	03026
2,6	0.1024	3,0	7,8	38,0	02975
2,7	0.1063	3,0	8,1	38,0	02976
2,8	0.1102	3,0	8,4	38,0	02977
2,9	0.1142	3,0	8,7	38,0	02978
3,0	0.1181	3,0	9,0	38,0	02979
3,0	0.1181	4,0	9,0	50,0	03027















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# Baseline

INCH Baseline Speed and Feed Square & Ball End With and Without Reach		Hardness	Vc (m/min)	RPM	Diameter (D <sub>1</sub> ) (inch)						
					0.0050	0.0156	0.0312	0.0625	0.0938	0.1200	
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 Bhn or ≤ 28 HRc	Profile 	365	RPM	278860	89378	44689	22309	14865	11619
				(292-438)	Fz	0.000022	0.00007	0.00013	0.00027	0.00041	0.00052
				Feed (ipm)	12.05	12.05	12.05	12.05	12.05	12.05	
		Slot 	290	RPM	221560	71013	35506	17725	11810	9232	
			(232-348)	Fz	0.000022	0.00007	0.00013	0.00027	0.00041	0.00052	
			Feed (ipm)	9.57	9.57	9.57	9.57	9.57	9.57		
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100	≤ 375 Bhn or ≤ 40 HRc	Profile 	210	RPM	160440	51423	25712	12835	8552	6685
				(168-252)	Fz	0.000019	0.00006	0.00012	0.00024	0.00036	0.00046
				Feed (ipm)	6.16	6.16	6.16	6.16	6.16	6.16	
		Slot 	165	RPM	126060	40404	20202	10085	6720	5253	
			(132-198)	Fz	0.000019	0.00006	0.00012	0.00024	0.00036	0.00046	
			Feed (ipm)	4.84	4.84	4.84	4.84	4.84	4.84		
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 Bhn or ≤ 40 HRc	Profile 	175	RPM	133700	42853	21426	10696	7127	5571
				(140-210)	Fz	0.000016	0.00005	0.00010	0.00020	0.00030	0.00038
				Feed (ipm)	4.28	4.28	4.28	4.28	4.28	4.28	
		Slot 	140	RPM	106960	34282	17141	8557	5701	4457	
			(112-168)	Fz	0.000016	0.00005	0.00010	0.00020	0.00030	0.00038	
			Feed (ipm)	3.42	3.42	3.42	3.42	3.42	3.42		
K	CAST IRONS (LOW & MEDIUM ALLOY) Gray, Malleable, Ductile	≤ 220 Bhn or ≤ 19 HRc	Profile 	305	RPM	233020	74686	37343	18642	12421	9709
				(244-366)	Fz	0.000022	0.00007	0.00014	0.00027	0.00041	0.00052
				Feed (ipm)	10.08	10.08	10.08	10.08	10.08	10.08	
		Slot 	245	RPM	187180	59994	29997	14974	9978	7799	
			(196-294)	Fz	0.000022	0.00007	0.00014	0.00027	0.00041	0.00052	
			Feed (ipm)	8.10	8.10	8.10	8.10	8.10	8.10		
M	STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 Bhn or ≤ 28 HRc	Profile 	340	RPM	259760	83256	41628	20781	13846	10823
				(272-408)	Fz	0.000022	0.00007	0.00013	0.00027	0.00041	0.00052
				Feed (ipm)	11.22	11.22	11.22	11.22	11.22	11.22	
		Slot 	270	RPM	206280	66115	33058	16502	10996	8595	
			(216-324)	Fz	0.000022	0.00007	0.00013	0.00027	0.00041	0.00052	
			Feed (ipm)	8.91	8.91	8.91	8.91	8.91	8.91		
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 Bhn or ≤ 28 HRc	Profile 	235	RPM	179540	57545	28772	14363	9570	7481
				(188-282)	Fz	0.000019	0.00006	0.00012	0.00024	0.00036	0.00046
				Feed (ipm)	6.90	6.90	6.90	6.90	6.90	6.90	
		Slot 	185	RPM	141340	45301	22651	11307	7534	5889	
			(148-222)	Fz	0.000019	0.00006	0.00012	0.00024	0.00036	0.00046	
			Feed (ipm)	5.43	5.43	5.43	5.43	5.43	5.43		
STAINLESS STEELS (PH) 13-8 PH, 15-5PH, 17-4 PH, CUSTOM 450	≤ 325 Bhn or ≤ 35 HRc	Profile 	215	RPM	164260	52647	26324	13141	8756	6844	
			(172-258)	Fz	0.000014	0.00004	0.00008	0.00017	0.00025	0.00033	
			Feed (ipm)	4.46	4.46	4.46	4.46	4.46	4.46		
	Slot 	170	RPM	129880	41628	20814	10390	6923	5412		
		(136-204)	Fz	0.000014	0.00004	0.00008	0.00017	0.00025	0.00033		
		Feed (ipm)	3.53	3.53	3.53	3.53	3.53	3.53			















continued on next page



INCH Baseline Speed and Feed Square & Ball End With and Without Reach	Hardness	Vc (m/min)	Diameter (D <sub>1</sub> ) (inch)						
			0.0050	0.0156	0.0312	0.0625	0.0938	0.1200	
<b>SUPER ALLOYS (NICKEL, COBALT, IRON BASE) Inconel 601, 617, 625, Incoloy, Monel 400</b>	≤ 300 Bhn or ≤ 32 HRc	Profile 	60 RPM	45840	14692	7346	3667	2443	1910
			(48-72) Fz	0.000012	0.00004	0.00008	0.00015	0.00023	0.00029
			Feed (ipm)	1.11	1.11	1.11	1.11	1.11	1.11
		Slot 	45 RPM	34380	11019	5510	2750	1833	1433
			(36-54) Fz	0.000012	0.00004	0.00008	0.00015	0.00023	0.00029
			Feed (ipm)	0.83	0.83	0.83	0.83	0.83	0.83
	≤ 400 Bhn or ≤ 43 HRc	Profile 	45 RPM	34380	11019	5510	2750	1833	1433
			(36-54) Fz	0.000008	0.00003	0.00005	0.00010	0.00015	0.00019
			Feed (ipm)	0.55	0.55	0.55	0.55	0.55	0.55
		Slot 	35 RPM	26740	8571	4285	2139	1425	1114
			(28-42) Fz	0.000008	0.00003	0.00005	0.00010	0.00015	0.00019
			Feed (ipm)	0.43	0.43	0.43	0.43	0.43	0.43
<b>TITANIUM ALLOYS Pure Titanium, Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si</b>	≤ 350 Bhn or ≤ 38 HRc	Profile 	160 RPM	122240	39179	19590	9779	6516	5093
			(128-192) Fz	0.000014	0.00004	0.00008	0.00017	0.00025	0.00033
			Feed (ipm)	3.32	3.32	3.32	3.32	3.32	3.32
		Slot 	130 RPM	99320	31833	15917	7946	5294	4138
			(104-156) Fz	0.000014	0.00004	0.00008	0.00017	0.00025	0.00033
			Feed (ipm)	2.70	2.70	2.70	2.70	2.70	2.70
<b>TITANIUM ALLOYS (DIFFICULT) Ti10Al2Fe3Al, Ti5Al5V5Mo3Cr, Ti7Al4Mo, Ti3Al8V6Cr4Zr4Mo, Ti6Al6V6Sn, Ti15V3 Cr3Sn3Al</b>	≤ 440 Bhn or ≤ 47 HRc	Profile 	60 RPM	45840	14692	7346	3667	2443	1910
			(48-72) Fz	0.000010	0.00003	0.00006	0.00012	0.00018	0.00023
			Feed (ipm)	0.88	0.88	0.88	0.88	0.88	0.88
		Slot 	45 RPM	34380	11019	5510	2750	1833	1433
			(36-54) Fz	0.000010	0.00003	0.00006	0.00012	0.00018	0.00023
			Feed (ipm)	0.66	0.66	0.66	0.66	0.66	0.66
<b>ALUMINUM ALLOYS 2017, 2024, 356, 6061, 7075</b>	≤ 150 Bhn or ≤ 7 HRc	Profile 	1000 RPM	764000	244872	122436	61120	40725	31833
			(800-1200) Fz	0.000064	0.00020	0.00040	0.00080	0.00120	0.00153
			Feed (ipm)	97.50	97.50	97.50	97.50	97.50	97.50
		Slot 	800 RPM	611200	195897	97949	48896	32580	25467
			(640-960) Fz	0.000064	0.00020	0.00040	0.00080	0.00120	0.00153
			Feed (ipm)	78.00	78.00	78.00	78.00	78.00	78.00
<b>COPPER ALLOYS Alum Bronze, C110, Muntz Brass</b>	≤ 140 Bhn or ≤ 3 HRc	Profile 	515 RPM	393460	126109	63054	31477	20973	16394
			(412-618) Fz	0.000048	0.00015	0.00030	0.00060	0.00090	0.00115
			Feed (ipm)	37.68	37.68	37.68	37.68	37.68	37.68
		Slot 	410 RPM	313240	100397	50199	25059	16697	13052
			(328-492) Fz	0.000048	0.00015	0.00030	0.00060	0.00090	0.00115
			Feed (ipm)	30.00	30.00	30.00	30.00	30.00	30.00
<b>PLASTICS Polycarbonate, PVC, Polypropylene</b>		Profile 	1000 RPM	764000	244872	122436	61120	40725	31833
			(800-1200) Fz	0.000064	0.00020	0.00040	0.00080	0.00120	0.00153
			Feed (ipm)	97.50	97.50	97.50	97.50	97.50	97.50
		Slot 	800 RPM	611200	195897	97949	48896	32580	25467
			(640-960) Fz	0.000064	0.00020	0.00040	0.00080	0.00120	0.00153
			Feed (ipm)	78.00	78.00	78.00	78.00	78.00	78.00

- Note:**
- Bhn (Brinell) HRc (Rockwell C)
  - when recommended speed exceeds your capability, use maximum available and recalculate ipm
  - rpm = Vc x 3.82 / D<sub>1</sub>
  - ipm = Fz x No. of flutes x rpm
  - reduce speed and feed for materials harder than listed
  - reduce feed and Ae when finish milling (.02 x D<sub>1</sub> maximum)
  - refer to the KYOCERA SGS Tool Wizard® or ksptmicrotools.com for detailed technical charts by series

# Baseline

METRIC Baseline Speed and Feed Square & Ball End With and Without Reach			Hardness	Vc (m/min)		Diameter (D <sub>1</sub> ) (mm)						
						0.1	0.5	1	1.5	2	2.5	3
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 Bhn or ≤ 28 HRc	Profile 	111	RPM	353837	70767	35384	23589	17692	14153	11795
				(89-134)	Fz	0.00043	0.00216	0.00432	0.00648	0.00865	0.01081	0.01297
				Feed (mm/min)	306	306	306	306	306	306	306	
		Slot 	88	RPM	281131	56226	28113	18742	14057	11245	9371	
			(71-106)	Fz	0.00043	0.00216	0.00432	0.00648	0.00865	0.01081	0.01297	
			Feed (mm/min)	243	243	243	243	243	243	243	243	
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100	≤ 375 Bhn or ≤ 40 HRc	Profile 	64	RPM	203577	40715	20358	13572	10179	8143	6786
				(51-77)	Fz	0.00038	0.00192	0.00384	0.00576	0.00769	0.00961	0.01153
				Feed (mm/min)	156	156	156	156	156	156	156	156
		Slot 	50	RPM	159954	31991	15995	10664	7998	6398	5332	
			(40-60)	Fz	0.00038	0.00192	0.00384	0.00576	0.00769	0.00961	0.01153	
			Feed (mm/min)	123	123	123	123	123	123	123	123	
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 Bhn or ≤ 40 HRc	Profile 	53	RPM	169648	33930	16965	11310	8482	6786	5655
				(43-64)	Fz	0.00032	0.00160	0.00320	0.00480	0.00640	0.00800	0.00962
				Feed (mm/min)	109	109	109	109	109	109	109	109
		Slot 	43	RPM	135718	27144	13572	9048	6786	5429	4524	
			(34-51)	Fz	0.00032	0.00160	0.00320	0.00480	0.00640	0.00800	0.00962	
			Feed (mm/min)	87	87	87	87	87	87	87	87	
K	CAST IRONS (LOW & MEDIUM ALLOY) Gray, Malleable, Ductile	≤ 220 Bhn or ≤ 19 HRc	Profile 	93	RPM	295672	59134	29567	19711	14784	11827	9856
				(74-112)	Fz	0.00043	0.00217	0.00433	0.00650	0.00866	0.01083	0.01301
				Feed (mm/min)	256	256	256	256	256	256	256	256
		Slot 	75	RPM	237507	47501	23751	15834	11875	9500	7917	
			(60-90)	Fz	0.00043	0.00217	0.00433	0.00650	0.00866	0.01083	0.01301	
			Feed (mm/min)	206	206	206	206	206	206	206	206	
M	STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 Bhn or ≤ 28 HRc	Profile 	104	RPM	329602	65920	32960	21973	16480	13184	10987
				(83-124)	Fz	0.00043	0.00216	0.00432	0.00648	0.00865	0.01081	0.01295
				Feed (mm/min)	285	285	285	285	285	285	285	285
		Slot 	82	RPM	261742	52348	26174	17449	13087	10470	8725	
			(66-99)	Fz	0.00043	0.00216	0.00432	0.00648	0.00865	0.01081	0.01295	
			Feed (mm/min)	226	226	226	226	226	226	226	226	
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 Bhn or ≤ 28 HRc	Profile 	72	RPM	227813	45563	22781	15188	11391	9113	7594
				(57-86)	Fz	0.00038	0.00192	0.00385	0.00577	0.00769	0.00961	0.01154
				Feed (mm/min)	175	175	175	175	175	175	175	175
		Slot 	56	RPM	179342	35868	17934	11956	8967	7174	5978	
			(45-68)	Fz	0.00038	0.00192	0.00385	0.00577	0.00769	0.00961	0.01154	
			Feed (mm/min)	138	138	138	138	138	138	138	138	
	STAINLESS STEELS (PH) 13-8 PH, 15-5PH, 17-4 PH, CUSTOM 450	≤ 325 Bhn or ≤ 35 HRc	Profile 	66	RPM	208425	41685	20842	13895	10421	8337	6947
				(52-79)	Fz	0.00027	0.00136	0.00272	0.00408	0.00544	0.00680	0.00819
				Feed (mm/min)	113	113	113	113	113	113	113	113
		Slot 	52	RPM	164801	32960	16480	10987	8240	6592	5493	
			(41-62)	Fz	0.00027	0.00136	0.00272	0.00408	0.00544	0.00680	0.00819	
			Feed (mm/min)	90	90	90	90	90	90	90	90	

continued on next page

METRIC Baseline Speed and Feed Square & Ball End With and Without Reach		Hardness	Vc (m/min)	Diameter (D <sub>1</sub> ) (mm)								
				0.1	0.5	1	1.5	2	2.5	3		
S	SUPER ALLOYS (NICKEL, COBALT, IRON BASE) Inconel 601, 617, 625, Incoloy, Monel 400	≤ 300 Bhn or ≤ 32 HRc	Profile 	18	RPM	58165	11633	5816	3878	2908	2327	1939
				(15-22)	Fz	0.00024	0.00121	0.00242	0.00362	0.00483	0.00604	0.00722
					Feed (mm/min)	28	28	28	28	28	28	28
		Slot 	14	RPM	43624	8725	4362	2908	2181	1745	1454	
			(11-16)	Fz	0.00024	0.00121	0.00242	0.00362	0.00483	0.00604	0.00722	
				Feed (mm/min)	21	21	21	21	21	21	21	
	SUPER ALLOYS (NICKEL, COBALT, IRON BASE) Inconel 718, X-750, Incoloy, Waspaloy, Hastelloy, Rene	≤ 400 Bhn or ≤ 43 HRc	Profile 	14	RPM	43624	8725	4362	2908	2181	1745	1454
				(11-16)	Fz	0.00016	0.00080	0.00161	0.00241	0.00322	0.00402	0.00486
					Feed (mm/min)	14	14	14	14	14	14	14
		Slot 	11	RPM	33930	6786	3393	2262	1696	1357	1131	
			(9-13)	Fz	0.00016	0.00080	0.00161	0.00241	0.00322	0.00402	0.00486	
				Feed (mm/min)	11	11	11	11	11	11	11	
TITANIUM ALLOYS Pure Titanium, Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si	≤ 350 Bhn or ≤ 38 HRc	Profile 	49	RPM	155107	31021	15511	10340	7755	6204	5170	
			(39-59)	Fz	0.00027	0.00136	0.00272	0.00408	0.00544	0.00680	0.00821	
				Feed (mm/min)	84	84	84	84	84	84	84	
	Slot 	40	RPM	126024	25205	12602	8402	6301	5041	4201		
		(32-48)	Fz	0.00027	0.00136	0.00272	0.00408	0.00544	0.00680	0.00821		
			Feed (mm/min)	69	69	69	69	69	69	69		
TITANIUM ALLOYS (DIFFICULT) Ti10Al2Fe3Al, Ti5Al5V5Mo3Cr, Ti7Al4Mo, Ti3Al8V6Cr4Zr4Mo, Ti6Al6V6Sn, Ti15V3 Cr3Sn3Al	≤ 440 Bhn or ≤ 47 HRc	Profile 	18	RPM	58165	11633	5816	3878	2908	2327	1939	
			(15-22)	Fz	0.00019	0.00096	0.00192	0.00288	0.00384	0.00480	0.00585	
				Feed (mm/min)	22	22	22	22	22	22	22	
	Slot 	14	RPM	43624	8725	4362	2908	2181	1745	1454		
		(11-16)	Fz	0.00019	0.00096	0.00192	0.00288	0.00384	0.00480	0.00585		
			Feed (mm/min)	17	17	17	17	17	17	17		
ALUMINUM ALLOYS 2017, 2024, 356, 6061, 7075	≤ 150 Bhn or ≤ 7 HRc	Profile 	305	RPM	969416	193883	96942	64628	48471	38777	32314	
			(244-366)	Fz	0.00128	0.00639	0.01277	0.01916	0.02555	0.03193	0.03832	
				Feed (mm/min)	2477	2477	2477	2477	2477	2477	2477	
	Slot 	244	RPM	775533	155107	77553	51702	38777	31021	25851		
		(195-293)	Fz	0.00128	0.00639	0.01277	0.01916	0.02555	0.03193	0.03832		
			Feed (mm/min)	1981	1981	1981	1981	1981	1981	1981		
N	COPPER ALLOYS Alum Bronze, C110, Muntz Brass	≤ 140 Bhn or ≤ 3 HRc	Profile 	157	RPM	499249	99850	49925	33283	24962	19970	16642
				(126-188)	Fz	0.00096	0.00479	0.00959	0.01438	0.01917	0.02396	0.02876
					Feed (mm/min)	957	957	957	957	957	957	957
	Slot 	125	RPM	397461	79492	39746	26497	19873	15898	13249		
		(100-150)	Fz	0.00096	0.00479	0.00959	0.01438	0.01917	0.02396	0.02876		
			Feed (mm/min)	762	762	762	762	762	762	762		
PLASTICS Polycarbonate, PVC, Polypropylene	Profile 	(244-366)	305	RPM	969416	193883	96942	64628	48471	38777	32314	
			Fz	0.00128	0.00639	0.01277	0.01916	0.02555	0.03193	0.03832		
			Feed (mm/min)	2477	2477	2477	2477	2477	2477	2477		
	Slot 	(195-293)	244	RPM	775533	155107	77553	51702	38777	31021	25851	
			Fz	0.00128	0.00639	0.01277	0.01916	0.02555	0.03193	0.03832		
			Feed (mm/min)	1981	1981	1981	1981	1981	1981	1981		

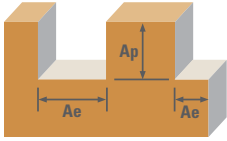
**Note:**

- Bhn (Brinell)      HRc (Rockwell C)
- when recommended speed exceeds your capability, use maximum available and recalculate mm/min
- rpm = (Vc x 1000) / (D<sub>1</sub> x 3.14)
- mm/min = Fz x No. of flutes x rpm
- helical ramp at 2 degrees or less, using slotting speed and feed rates (plunging is not recommended)
- reduce speed and feed for materials harder than listed
- reduce feed and Ae when finish milling (.02 x D<sub>1</sub> maximum)
- refer to the KYOCERA SGS Tool Wizard® or ksptmicrotools.com for detailed technical charts by series

# Speeds and Feeds

**Instructions:**

- rpm = use speed from INCH or METRIC Baseline chart
- ipm = INCH Baseline Feed (ipm) x Feed Multiplier [from selected chart below]
- mm/min = METRIC Baseline Feed (mm/min) x Feed Multiplier [from selected chart below]
- Find Width of Cut (Ae) and Depth of Cut (Ap) recommendations on chart below
- refer to the KYOCERA SGS Tool Wizard® or ksptmicrotools.com for detailed technical charts by series



INCH 2-Flute Square & Ball Without Reach	Flute Length	1.5 x D <sub>1</sub>		3 x D <sub>1</sub>			
	Feed Multiplier	1		0.9			
	Width/Depth	Ae x D <sub>1</sub>	Ap x D <sub>1</sub>	Ae x D <sub>1</sub>	Ap x D <sub>1</sub>		
	Diameter	≤0.0312	>0.0312	≤0.0312	>0.0312		
P H K M S N	Profile	≤.30	≤.50	≤1	≤.10	≤.25	≤2
ALL	Slot	1	≤.20	≤.50	1	≤.15	≤.35

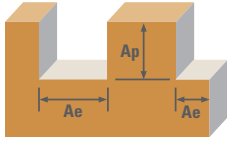
INCH 4-Flute Square & Ball Without Reach	Flute Length	1.5 x D <sub>1</sub>		3 x D <sub>1</sub>		5 x D <sub>1</sub>		8 x D <sub>1</sub>		12 x D <sub>1</sub>						
	Feed Multiplier	1.57		1.41		0.59		0.59		0.36						
	Width/Depth	Ae x D <sub>1</sub>	Ap x D <sub>1</sub>	Ae x D <sub>1</sub>	Ap x D <sub>1</sub>	Ae x D <sub>1</sub>	Ap x D <sub>1</sub>	Ae x D <sub>1</sub>	Ap x D <sub>1</sub>	Ae x D <sub>1</sub>	Ap x D <sub>1</sub>					
	Diameter	≤0.0312	>0.0312	≤0.0312	>0.0312	≤0.0312	>0.0312	≤0.0312	>0.0312	≤0.0312	>0.0312					
P H K M S N	Profile	≤.30	≤.50	≤1	≤.10	≤.25	≤2	≤.10	≤.25	≤3	≤.05	≤.10	≤4	≤.03	≤.06	≤6
ALL	Slot	1	≤.20	≤.50	1	≤.15	≤.35	1	≤.10	≤.20						

METRIC 2-Flute Square & Ball Without Reach	Flute Length	1.5 x D <sub>1</sub>		3 x D <sub>1</sub>			
	Feed Multiplier	1		0.9			
	Width/Depth	Ae x D <sub>1</sub>	Ap x D <sub>1</sub>	Ae x D <sub>1</sub>	Ap x D <sub>1</sub>		
	Diameter	≤0.0312	>0.0312	≤0.0312	>0.0312		
P H K M S N	Profile	≤.30	≤.50	≤1	≤.10	≤.25	≤2
ALL	Slot	1	≤.20	≤.50	1	≤.15	≤.35

METRIC 4-Flute Square & Ball Without Reach	Flute Length	1.5 x D <sub>1</sub>		3 x D <sub>1</sub>			
	Feed Multiplier	1.57		1.41			
	Width/Depth	Ae x D <sub>1</sub>	Ap x D <sub>1</sub>	Ae x D <sub>1</sub>	Ap x D <sub>1</sub>		
	Diameter	≤0.0312	>0.0312	≤0.0312	>0.0312		
P H K M S N	Profile	≤.30	≤.50	≤1	≤.10	≤.25	≤2
ALL	Slot	1	≤.20	≤.50	1	≤.15	≤.35

**Instructions:**

- rpm = use speed from INCH or METRIC Baseline chart
- ipm = INCH Baseline Feed (ipm) x Feed Multiplier [from selected chart below]
- mm/min = METRIC Baseline Feed (mm/min) x Feed Multiplier [from selected chart below]
- Find Width of Cut (Ae) and Depth of Cut (Ap) recommendations on chart below
- refer to the KYOCERA SGS Tool Wizard® or ksptmicrotools.com for detailed technical charts by series



INCH 2-Flute Square & Ball With Reach	Flute Length	8 x D <sub>1</sub>		12 x D <sub>1</sub>			
	Feed Multiplier	0.6		0.5			
	Width/Depth	Ae x D <sub>1</sub>	Ap x D <sub>1</sub>	Ae x D <sub>1</sub>	Ap x D <sub>1</sub>		
	Diameter	≤0.0312	>0.0312	≤0.0312	>0.0312		
P H K M S N	Profile	≤.25	≤.50	≤.30	≤.22	≤.45	≤.25
ALL		Slot	1	≤.07	≤.17	1	≤.06

INCH 3-Flute Square & Ball With Reach	Flute Length	3 x D <sub>1</sub>		5 x D <sub>1</sub>		8 x D <sub>1</sub>		12 x D <sub>1</sub>		15 x D <sub>1</sub>		20 x D <sub>1</sub>		25 x D <sub>1</sub>								
	Feed Multiplier	1.57		1.41		0.59		0.59		0.36		0.45		0.35								
	Width/Depth	Ae x D <sub>1</sub>	Ap x D <sub>1</sub>	Ae x D <sub>1</sub>	Ap x D <sub>1</sub>	Ae x D <sub>1</sub>	Ap x D <sub>1</sub>	Ae x D <sub>1</sub>	Ap x D <sub>1</sub>	Ae x D <sub>1</sub>	Ap x D <sub>1</sub>	Ae x D <sub>1</sub>	Ap x D <sub>1</sub>	Ae x D <sub>1</sub>	Ap x D <sub>1</sub>							
	Diameter	≤0.0312	>0.0312	≤0.0312	>0.0312	≤0.0312	>0.0312	≤0.0312	>0.0312	≤0.0312	>0.0312	≤0.0312	>0.0312	≤0.0312	>0.0312							
P H K M S N	Profile	≤.30	≤.60	≤.5	≤.30	≤.60	≤.35	≤.25	≤.50	≤.30	≤.22	≤.45	≤.25	≤.15	≤.30	≤.25	≤.12	≤.25	≤.20	≤.12	≤.25	≤.20
ALL		Slot	1	≤.15	≤.30	1	≤.08	≤.20	1	≤.07	≤.17	1	≤.06	≤.15	1	≤.06	≤.15	1	≤.04	≤.10	1	≤.04

INCH 4-Flute Square & Ball With Reach	Flute Length	8 x D <sub>1</sub>		12 x D <sub>1</sub>			
	Feed Multiplier	0.95		0.75			
	Width/Depth	Ae x D <sub>1</sub>	Ap x D <sub>1</sub>	Ae x D <sub>1</sub>	Ap x D <sub>1</sub>		
	Diameter	≤0.0312	>0.0312	≤0.0312	>0.0312		
P H K M S N	Profile	≤.25	≤.50	≤.30	≤.22	≤.45	≤.25
ALL		Slot	1	≤.07	≤.17	1	≤.06

**Note:**

- Bhn (Brinell)    Hrc (Rockwell C)
- when recommended speed exceeds your capability, use maximum available and recalculate feed
- helical ramp at 1 degrees or less, using slotting speed and feed rates (plunging is not recommended)
- reduce speed and feed for materials harder than listed
- reduce feed and Ae when finish milling (.02 x D<sub>1</sub> maximum)
- refer to the KYOCERA SGS Tool Wizard® or ksptmicrotools.com for detailed technical charts by series

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02206.....	6	02262.....	32	02319.....	34	02377.....	7	02432.....	33	02487.....	35	02542.....	42
02207.....	6	02263.....	32	02320.....	34	02378.....	7	02433.....	33	02488.....	35	02543.....	42
02208.....	6	02264.....	32	02321.....	34	02379.....	7	02434.....	33	02489.....	35	02544.....	42
02209.....	6	02265.....	32	02322.....	34	02380.....	7	02435.....	33	02490.....	35	02545.....	42
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02211.....	6	02267.....	32	02324.....	34	02382.....	7	02437.....	9	02492.....	35	02547.....	42
02212.....	6	02268.....	32	02325.....	34	02383.....	7	02438.....	9	02493.....	35	02548.....	42
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02214.....	6	02270.....	32	02327.....	34	02385.....	7	02440.....	9	02495.....	35	02550.....	42
02215.....	6	02271.....	32	02328.....	34	02386.....	7	02441.....	9	02496.....	35	02551.....	42
02216.....	6	02272.....	32	02329.....	34	02387.....	7	02442.....	9	02497.....	35	02552.....	42
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02220.....	6	02277.....	8	02333.....	34	02391.....	7	02446.....	9	02501.....	35	02556.....	42
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02246.....	32	02302.....	8	02361.....	51	02416.....	33	02471.....	35	02526.....	13	02581.....	15
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# Decimal Equivalents

Fraction • Number • Letter • Metric Sizes

INCH	METRIC	DECIMAL EQUIVALENT	INCH	METRIC	DECIMAL EQUIVALENT	INCH	METRIC	DECIMAL EQUIVALENT	INCH	METRIC	DECIMAL EQUIVALENT	INCH	METRIC	DECIMAL EQUIVALENT	INCH	METRIC	DECIMAL EQUIVALENT
–	0,10	0.0039	–	1,60	0.0630	9/64	3,57	0.1406	#1	5,79	0.2280	R	8,61	0.3390	–	13,00	0.5118
–	0,20	0.0079	#52	1,61	0.0635	–	3,60	0.1417	–	5,80	0.2283	–	8,70	0.3425	33/64	13,10	0.5156
–	0,25	0.0098	–	1,65	0.0650	#27	3,66	0.1440	–	5,90	0.2323	11/32	8,73	0.3438	17/32	13,49	0.5312
–	0,30	0.0118	#51	1,70	0.0669	–	3,70	0.1457	A	5,94	0.2340	–	8,75	0.3445	–	13,50	0.5315
#80	0,34	0.0135	–	1,75	0.0689	#26	3,73	0.1470	15/64	5,95	0.2344	–	8,80	0.3465	35/64	13,89	0.5469
–	0,35	0.0138	#50	1,78	0.0700	–	3,75	0.1476	–	6,00	0.2362	S	8,84	0.3480	–	14,00	0.5512
#79	0,37	0.0145	–	1,80	0.0709	#25	3,80	0.1495	B	6,05	0.2380	–	8,90	0.3504	9/16	14,29	0.5625
1/64	0,40	0.0156	#49	1,85	0.0728	–	3,80	0.1496	–	6,10	0.2402	–	9,00	0.3543	–	14,50	0.5709
#78	0,41	0.0160	–	1,90	0.0748	#24	3,86	0.1520	C	6,15	0.2420	T	9,09	0.3580	37/64	14,68	0.5781
–	0,45	0.0177	#48	1,93	0.0760	–	3,90	0.1535	–	6,20	0.2441	–	9,10	0.3583	–	15,00	0.5906
#77	0,46	0.0180	–	1,95	0.0768	#23	3,91	0.1540	D	6,25	0.2461	23/64	9,13	0.3594	19/32	15,08	0.5938
–	0,50	0.0197	5/64	1,98	0.0781	5/32	3,97	0.1562	–	6,30	0.2480	–	9,20	0.3622	39/64	15,48	0.6094
#76	0,51	0.0200	#47	1,99	0.0785	#22	3,99	0.1570	E	6,35	0.2500	–	9,25	0.3642	–	15,50	0.6102
#75	0,53	0.0210	–	2,00	0.0787	–	4,00	0.1575	1/4	6,35	0.2500	–	9,30	0.3661	5/8	15,88	0.6250
–	0,55	0.0217	–	2,05	0.0807	#21	4,04	0.1590	–	6,40	0.2520	U	9,35	0.3680	–	16,00	0.6299
#74	0,57	0.0225	#46	2,06	0.0810	#20	4,09	0.1610	–	6,50	0.2559	–	9,40	0.3701	41/64	16,27	0.6406
–	0,60	0.0236	#45	2,08	0.0820	–	4,10	0.1614	F	6,53	0.2570	–	9,50	0.3740	–	16,50	0.6496
#73	0,61	0.0240	–	2,10	0.0827	–	4,20	0.1654	–	6,60	0.2598	3/8	9,53	0.3750	21/32	16,67	0.6562
#72	0,64	0.0250	–	2,15	0.0846	#19	4,22	0.1660	G	6,63	0.2610	V	9,56	0.3770	–	17,00	0.6693
–	0,65	0.0256	#44	2,18	0.0860	–	4,25	0.1673	–	6,70	0.2638	–	9,60	0.3780	43/64	17,07	0.6719
#71	0,66	0.0260	–	2,20	0.0866	–	4,30	0.1693	17/64	6,75	0.2656	–	9,70	0.3819	11/16	17,46	0.6875
–	0,70	0.0276	–	2,25	0.0886	#18	4,31	0.1695	H	6,76	0.2667	–	9,75	0.3839	–	17,50	0.6890
#70	0,71	0.0280	#43	2,26	0.0890	11/64	4,37	0.1719	–	6,80	0.2677	W	9,80	0.3858	45/64	17,86	0.7031
#69	0,74	0.0292	–	2,30	0.0906	#17	4,39	0.1730	–	6,90	0.2717	–	9,90	0.3898	–	18,00	0.7087
–	0,75	0.0295	–	2,35	0.0925	–	4,40	0.1732	I	6,91	0.2720	25/64	9,92	0.3906	23/32	18,26	0.7188
#68	0,79	0.0310	#42	2,37	0.0935	#16	4,50	0.1770	–	7,00	0.2756	–	10,00	0.3937	–	18,50	0.7283
1/32	0,79	0.0313	3/32	2,38	0.0938	–	4,50	0.1772	J	7,04	0.2770	X	10,08	0.3970	47/64	18,65	0.7344
–	0,80	0.0315	–	2,40	0.0945	#15	4,57	0.1800	–	7,10	0.2795	–	10,10	0.3976	–	19,00	0.7480
#67	0,81	0.0320	#41	2,44	0.0960	–	4,60	0.1811	K	7,14	0.2810	–	10,20	0.4016	3/4	19,05	0.7500
#66	0,84	0.0330	–	2,45	0.0965	#14	4,62	0.1820	9/32	7,14	0.2812	Y	10,26	0.4040	49/64	19,45	0.7656
–	0,85	0.0335	#40	2,50	0.0984	#13	4,70	0.1850	–	7,20	0.2835	–	10,30	0.4055	–	19,50	0.7677
#65	0,89	0.0350	#39	2,53	0.0995	–	4,75	0.1870	–	7,25	0.2854	13/32	10,32	0.4062	25/32	19,84	0.7812
–	0,90	0.0354	#38	2,58	0.1015	3/16	4,76	0.1875	–	7,30	0.2874	–	10,40	0.4094	–	20,00	0.7874
#64	0,91	0.0360	–	2,60	0.1024	#12	4,80	0.1890	L	7,37	0.2900	Z	10,49	0.4130	51/64	20,24	0.7969
#63	0,94	0.0370	#37	2,64	0.1040	#11	4,85	0.1910	–	7,40	0.2913	–	10,50	0.4134	–	20,50	0.8071
–	0,95	0.0374	–	2,70	0.1063	–	4,90	0.1929	M	7,49	0.2950	–	10,60	0.4173	13/16	20,64	0.8125
#62	0,97	0.0380	#36	2,71	0.1065	#10	4,91	0.1935	–	7,50	0.2953	–	10,70	0.4213	–	21,00	0.8268
#61	0,99	0.0390	–	2,75	0.1083	#9	4,98	0.1960	19/64	7,54	0.2969	27/64	10,72	0.4219	53/64	21,03	0.8281
–	1,00	0.0394	7/64	2,78	0.1094	–	5,00	0.1969	–	7,60	0.2992	–	10,80	0.4252	27/32	21,43	0.8438
#60	1,02	0.0400	#35	2,79	0.1100	#8	5,05	0.1990	N	7,67	0.3020	–	10,90	0.4291	–	21,50	0.8465
#59	1,04	0.0410	–	2,80	0.1102	–	5,10	0.2008	–	7,70	0.3031	–	11,00	0.4331	55/64	21,84	0.8594
–	1,05	0.0413	#34	2,82	0.1110	#7	5,11	0.2010	–	7,75	0.3051	–	11,10	0.4370	–	22,00	0.8661
#58	1,07	0.0420	#33	2,87	0.1130	13/64	5,16	0.2031	–	7,80	0.3071	7/16	11,11	0.4375	7/8	22,23	0.8750
#57	1,09	0.0430	–	2,90	0.1142	#6	5,18	0.2040	–	7,90	0.3110	–	11,20	0.4409	–	22,50	0.8858
–	1,10	0.0433	#32	2,95	0.1160	–	5,20	0.2047	5/16	7,94	0.3125	–	11,30	0.4449	57/64	22,62	0.8906
–	1,15	0.0453	–	3,00	0.1181	#5	5,22	0.2055	–	8,00	0.3150	–	11,40	0.4488	–	23,00	0.9055
#56	1,18	0.0465	#31	3,05	0.1200	–	5,25	0.2067	O	8,03	0.3160	–	11,50	0.4528	29/32	23,02	0.9062
3/64	1,19	0.0469	–	3,10	0.1220	–	5,3	0.2087	–	8,10	0.3189	29/64	11,51	0.4531	59/64	23,42	0.9219
–	1,20	0.0472	1/8	3,18	0.1250	#4	5,31	0.2090	–	8,20	0.3228	–	11,60	0.4567	–	23,50	0.9252
–	1,25	0.0492	–	3,20	0.1260	–	5,40	0.2126	P	8,20	0.3230	–	11,70	0.4606	15/16	23,81	0.9375
–	1,30	0.0512	–	3,25	0.1280	#3	5,41	0.2130	–	8,25	0.3248	–	11,80	0.4646	–	24,00	0.9449
#55	1,32	0.0520	#30	3,26	0.1285	–	5,50	0.2165	–	8,30	0.3268	–	11,90	0.4685	61/64	24,21	0.9531
–	1,35	0.0531	–	3,30	0.1299	7/32	5,56	0.2188	21/64	8,33	0.3281	15/32	11,91	0.4688	–	24,50	0.9646
#54	1,40	0.0550	–	3,40	0.1339	–	5,60	0.2205	–	8,40	0.3307	–	12,00	0.4724	31/32	24,61	0.9688
#53	1,51	0.0595	#29	3,45	0.1360	#2	5,61	0.2210	Q	8,43	0.3320	31/64	12,30	0.4844	–	25,00	0.9843
–	1,55	0.0610	–	3,50	0.1378	–	5,70	0.2244	–	8,50	0.3346	–	12,50	0.4921	63/64	25,00	0.9844
1/16	1,59	0.0625	#28	3,57	0.1405	–	5,75	0.2264	–	8,60	0.3386	1/2	12,70	0.5000	1	25,40	1.0000

# Hardness Conversion Chart

ROCKWELL HARDNESS (HRb)	ROCKWELL HARDNESS (HRc)	BRINELL HARDNESS (HB)	VICKERS HARDNESS (HV)	TENSILE STRENGTH (N/mm <sup>2</sup> )	PSI (1000lb/in <sup>2</sup> )
67	—	121	122	401	58
70	—	126	127	432	63
73	—	132	132	448	65
75	—	136	137	455	66
77	—	140	143	463	67
80	—	147	150	479	69
82	—	153	156	494	72
84	—	159	163	525	76
86	—	165	171	540	78
89	—	177	178	556	81
91	—	186	188	602	88
93	—	197	196	632	92
96	—	216	212	664	97
97	—	223	218	695	101
98	21	230	234	756	110
—	22	236	241	772	112
—	23	242	247	787	114
—	24	248	255	818	118
—	25	254	261	849	123
—	27	266	269	865	125
—	28	272	275	895	130
—	29	278	284	911	132
—	30	284	292	942	136
—	31	293	300	973	141
—	32	302	308	988	143
—	33	310	318	1019	147
—	34	319	327	1050	152
—	35	328	337	1096	159
—	37	345	349	1127	163
—	38	353	359	1158	168
—	39	362	370	1189	172
—	40	370	381	1235	179
—	41	381	395	1266	183
—	42	391	408	1312	190
—	44	411	422	1359	197
—	45	422	437	1420	206
—	46	433	452	1467	212
—	48	455	470	1513	219
—	50	479	497	1559	226
—	51	485	517	1621	235
—	52	497	532	1668	241
—	54	—	573	1729	250
—	56	—	609	1807	262
—	57	—	630	1884	273
—	59	—	670	1961	284
—	60	—	698	2039	295
—	61	—	725	—	—
—	62	—	740	—	—
—	63	—	780	—	—
—	64	—	812	—	—
—	65	—	847	—	—
—	66	—	885	—	—
—	67	—	926	—	—
—	68	—	971	—	—

Conversions from each scale are approximate

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### UNITED STATES OF AMERICA

KYOCERA SGS Precision Tools  
P.O. Box 187  
55 South Main Street  
Munroe Falls, Ohio 44262 U.S.A.  
customer service -  
US and Canada: (330) 686-5700  
fax - US & Canada: (800) 447-4017  
international fax: (330) 686-2146  
web: [www.kyocera-sgstool.com](http://www.kyocera-sgstool.com)

### UNITED KINGDOM

KYOCERA SGS Precision Tools Europe Ltd.  
10 Ashville Way  
Wokingham, Berkshire  
RG41 2PL England  
phone: (44) 1189-795-200  
fax: (44) 1189-795-295  
e-mail: [SalesEU@kyocera-sgstool.com](mailto:SalesEU@kyocera-sgstool.com)  
web: [www.kyocera-sgstool.eu](http://www.kyocera-sgstool.eu)

### FRANCE

DOGA-KSPTE FRANCE  
8, Avenue Gutenberg  
78310 Maurepas  
France  
phone: +33 (0) 1 30 66 41 64  
fax: +33 (0) 1 30 66 41 49  
e-mail: [KSPTF@kyocera-sgstool.com](mailto:KSPTF@kyocera-sgstool.com)  
web: [www.doga.fr](http://www.doga.fr)

### POLAND

KYOCERA SGS Precision Tools  
phone: +48 530 432 002  
e-mail: [SalesEU@kyocera-sgstool.com](mailto:SalesEU@kyocera-sgstool.com)

### SPAIN

KYOCERA SGS Precision Tools IBERICA  
e-mail: [SalesEU@kyocera-sgstool.com](mailto:SalesEU@kyocera-sgstool.com)

### EASTERN EUROPE

SINTCOM  
Sintcom Tools  
95 Arsenalski Blvd.  
1421 Sofia, Bulgaria  
phone: (359) 283-64421  
fax: (359) 286-52493  
e-mail: [sintcom@sintcomtools.com](mailto:sintcom@sintcomtools.com)

### RUSSIA

HALTEC  
phone: (7) 495-252-05-00  
e-mail: [info@haltec.ru](mailto:info@haltec.ru)  
web: [www.haltec.ru](http://www.haltec.ru)

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