



VALUE AT THE SPINDLE®



## 2023 Micro Tool Catalog



[www.kyocera-sgstool.com](http://www.kyocera-sgstool.com)

ISO 9001:2015 Certified



## VALUE AT THE SPINDLE®

KYOCERA SGS Precision Tools (KSPT) is an ISO 9001:2015 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®.



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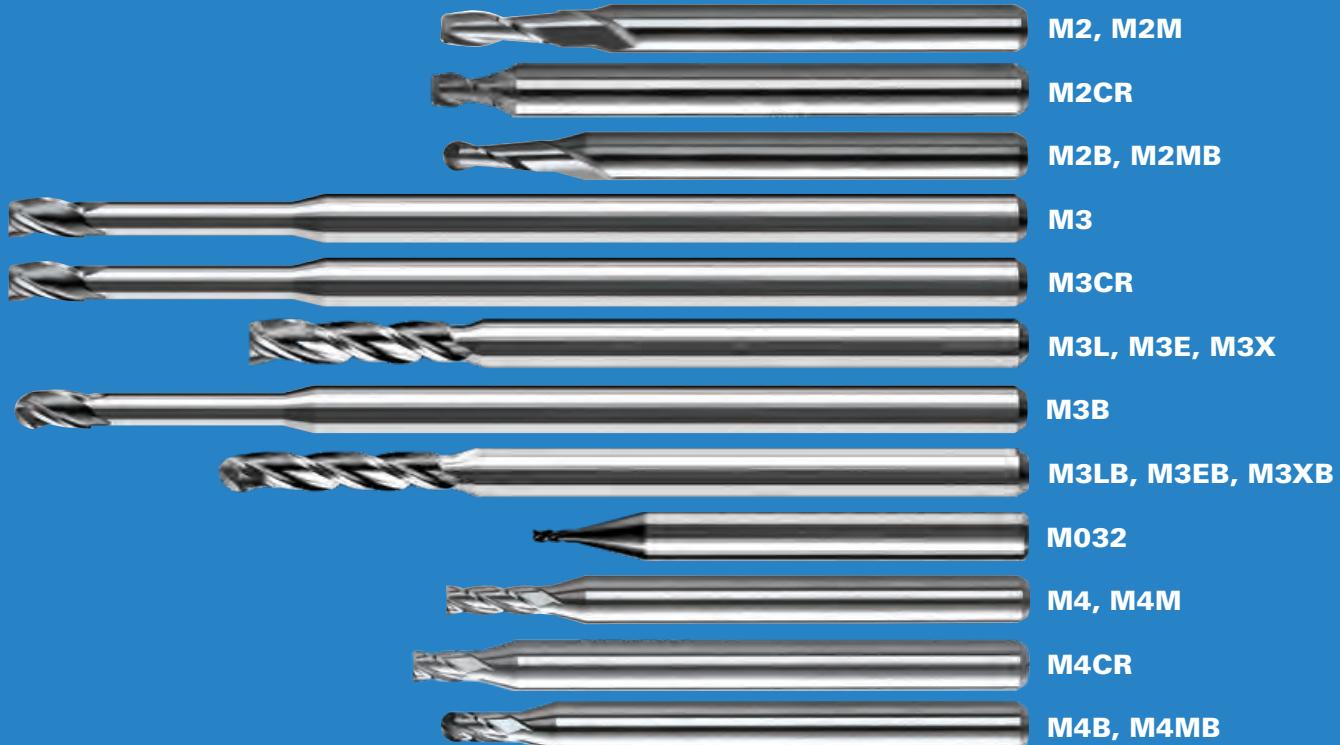
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# KSPT MICRO END MILLS

KYOCERA SGS Precision Tools (KSPT) commitment to providing superior quality round solid carbide cutting tools is unwavering, and these efforts are being taken another step further with an impressive micro tool lineup. With over 5,200 tools in various lengths of cut, reach variations, end configurations and coating options, the portfolio can satisfy a variety of machining applications tailored for small diameter milling environments. Explore the portfolio below and discover how these small tools can deliver epic VALUE AT THE SPINDLE®!

## END MILL PORTFOLIO HIGHLIGHTS:

- 2, 3, and 4 flutes in square, corner radii, and ball end configurations options standard
- Lengths of cut ranging from 1.5 times diameter through 12 times diameter
- Expansive reach options ranging from 3 times diameter through 25 times diameter overall reach
- Fractional tools on 1/8" common shank and metric tools on 3MM and 4MM shanks to suit global application demands
- Offered uncoated and with Ti-NAMITE®-A coating for superior chip flow at low spindle speeds in a variety of applications
- All micro tools are manufactured in accordance with KSPT ISO 9001:2015 quality standards



# CASE STUDY M4 8XD MICRO END MILL

**INDUSTRY**

AEROSPACE

**MATERIAL**

347 Stainless Steel (28 HRc Hardness)

**PRODUCT**

M4 8XD Micro End Mills

**APPLICATION**

Plunging

**COMPETITOR**

3 Flute Extended Reach Micro End Mill

**COOLANT**

Soluble Flood

**TOOL INFORMATION**

0.07" Dia / 0.21" LOC / 2" OAL

**GOALS**

The goals of this study were to significantly reduce job cost through the implementation of superior tooling and increased manufacturing efficiencies.

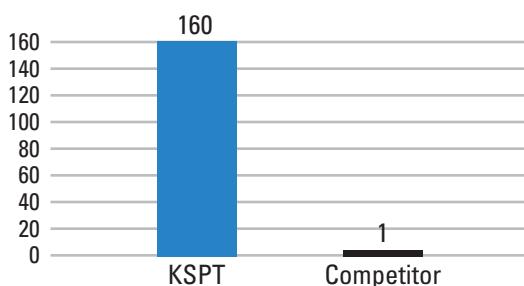
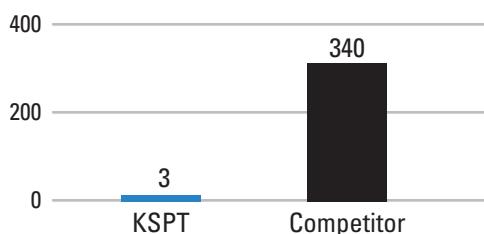
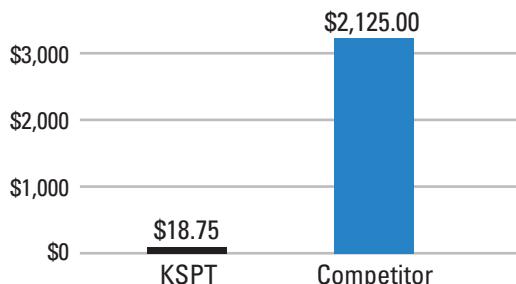
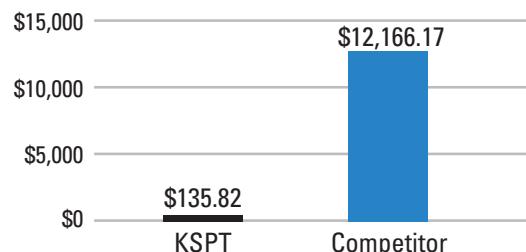
**STRATEGY**

KSPT approached the job with a 4 flute 8XD Micro End Mill. The four flute design allows for higher feed rates and decreased deflection, improving productivity and surface finish.

	KSPT	COMPETITOR
TOOL DIAMETER	.07"	.07"
SPEED	6600 RPM	3400 RPM
FEED	4 IPM	2 IPM
RADIAL CUT (AE)	N/A	N/A
AXIAL CUT (AP)	0.38	0.38
CYCLE TIME	6 SECONDS	11.4 SECONDS

**RESULTS**

The overall findings of this study indicate **KSPT's 4 flute micro end mill blew away the competitor's 3 flute tool** in efficiency and effectiveness. **KSPT's tool was able to capacitate a 94% higher speed and a 100% greater feed rate**. Those combined efficiencies were able to **cut the cycle time in half!** Because of the higher quality tool, the customer was able to **produce 160 parts per KSPT tool**. The competitor's 3 flute end mill was only able to produce 1 part per tool. Thus, the **tool change cost was reduced by over 99%**! Additionally, since KSPT only used 3 total tools to complete the job, the customer benefited from a **new tool cost reduction by over 99%**. The **M4 8XD 4 flute micro end mill ultimately saved the customer a grand total of \$12,030.34**, resulting in a **98.88% cost reduction!** These tools, albeit small, are an epic step forward for micro machining.

**TOTAL PARTS AVAILABLE PERTOOL****NEW TOOLS REQUIRED TO COMPLETE THE JOB****TOOL CHANGE COST****TOTAL COST**

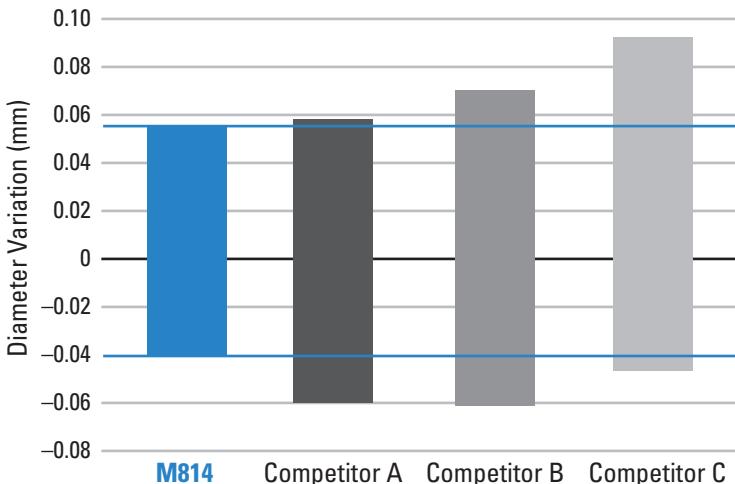
# KSPT MICRO DRILLS

KYOCERA SGS Precision Tools (KSPT) commitment to providing superior quality round solid carbide cutting tools is unwavering with an extensive micro drill portfolio. KSPT micro drills total more than 1,500 tools with a variety of coolant and length options to meet the demands of global hole making applications. Explore the portfolio below and discover how these small tools can deliver epic VALUE AT THE SPINDLE®!

## DRILL PORTFOLIO HIGHLIGHTS:

- 2 flutes for optimal chip evacuation and cutting edge strength
- Internal coolant options on select series promotes controlled and consistent operating temperatures
- Lengths of cut ranging from 3 times diameter through 15 times diameter
- Fractional tools on 1/8" common shank and metric tools on 3MM and 4MM shanks to suit global market demands
- Uncoated options standard in select series
- Offered with Ti-NAMITE®-A coating for superior tool life and all-around value across a variety of applications
- Select series offered with Ti-NAMITE®-Cr (AlCrN) coating for exceptional wear resistance in wet and dry drilling of cast iron and steel materials up to 52 HRc
- All micro tools are manufactured in accordance with KSPT ISO 9001: 2015 quality standards

HOLE DIAMETER VARIATION  
SERIES M814



	No. of Holes	Dia. Variation (mm)
M814	600	0.0937
Competitor A	600	0.1141
Competitor B	269 (Broken)	0.1281
Competitor C	600	0.1347

### Cutting Conditions:

N = 6468 rpm, Vf = 575 mm/min

Drill Diameter 3,0 mm

Drilling Depth 25,4 mm, 17-4PH-900

## **M080 & M081**

- 4-facet point design, stub length, and mirror finish provide the highest quality spot
- Ti-NAMITE®-A coating and uncoated options for the ultimate performance and tool life in a variety of ferrous and non-ferrous workpiece materials
- Available from stock in all popular diameters and point configurations
- Application specific sub-micron grain carbide designed specifically for micro-tool applications
- Manufactured in accordance with KSPT ISO certified quality procedures



**M080**



**M081**

## **M105**

- 4-facet point design stabilizes on entry for superior hole size control and tool life
- Mirror surface finishes improve chip flow as hole depth increases
- Ti-NAMITE®-A coating and uncoated options for the ultimate performance in a variety of ferrous and non-ferrous workpiece materials
- Available from stock in a selection of popular lengths and diameters
- Application specific sub-micron grain carbide designed specifically for micro-tool applications
- Manufactured in accordance with KSPT ISO certified quality procedures



**M105**

## **M226 & L226**

- 4-facet point design stabilizes on entry for superior hole size control and tool life (>.08mm)
- Mirror surface finishes improve chip flow as hole depth increases
- Ti-NAMITE®-A coating and uncoated options for the ultimate performance in a variety of ferrous and non-ferrous workpiece materials
- Right and left hand cut available from stock in a wide selection of popular lengths and diameters
- Application specific sub-micron grain carbide designed specifically for micro-tool applications
- Manufactured in accordance with KSPT ISO certified quality procedures



**M226**



**L226**

## **M814**

- Split point and double margin design provide superior hole finish and size control
- Coolant hole feature allows straight through drilling without a peck cycle
- High-performance Ti-NAMITE®-Cr coating and mirror polished fluting increase tool life and productivity in moderate-to-difficult workpiece materials
- Available from stock in a selection of popular lengths and diameters
- Application specific sub-micron grain carbide designed specifically for micro-tool applications
- Manufactured in accordance with KSPT ISO certified quality procedures



**M814 8XD**



**M814 15XD**

## **M155**

- Optimal end geometry ideal for a variety of materials
- 4-faceted point geometry provides centering assistance upon entry
- Mirror surface finish is applied to allow for smooth chip flow
- Wide diameters offer ability to drill larger than average holes than is commonly possible in micro spindles
- Application specific sub-micron grain carbide designed specifically for micro-tool applications
- Manufactured in accordance with KSPT ISO certified quality procedures



**M155**

# KSPT COATINGS

## 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

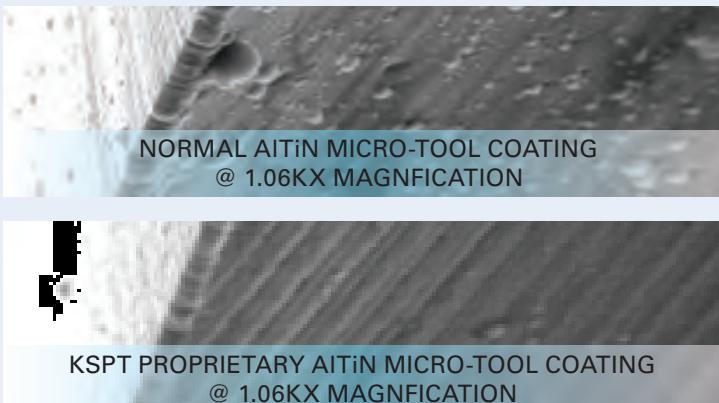
Oxidation Temperature: 1100°C / 2010°F

Coefficient of Friction: 0.30

Thickness: 1 – 3 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.



## Ti-NAMITE CR®

With very high wear resistance and excellent hot hardness, Ti-NAMITE®-Cr (AlCrN) allows for wet and dry machining versatility at the highest of cutting speeds for increased machine utilization and productivity. The coating provides optimal thermal shock stability and is ideal for cast iron and steel applications up to 52 HRc.

Hardness (HV): 3200

Oxidation Temperature: 1100°C / 2010°F

Coefficient of Friction: 0.35

Thickness: 1 – 3 Microns (based on tool diameter)

# Common 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



Non-Ferrous



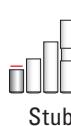
High Temp Alloys



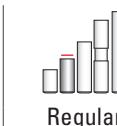
Hardened Steels

## END MILLS

### TOOL LENGTH



Stub



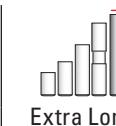
Regular



Long



Long Reach



Extra Long

### FLUTES



2 Flutes



3 Flutes



4 Flutes

### END CONFIGURATIONS



Ball



Corner



Square

### SHANK TYPE



Common

### HELIX ANGLE



Right Spiral

### PROFILE ANGLE



Profile Angle

### RAKE ANGLE



Positive

All tools are in Right Cut Direction unless noted

## DRILLS

### SHANK TYPE



Common



Straight

### HELIX ANGLES



Right Spiral

### COOLANT OPTIONS



Internal Coolant



External Coolant

### POINT ANGLE



Drill Point

### REACH

1.5xD

1.5xD Reach

3xD

3xD Reach

5xD

5xD Reach

8xD

8xD Reach

12xD

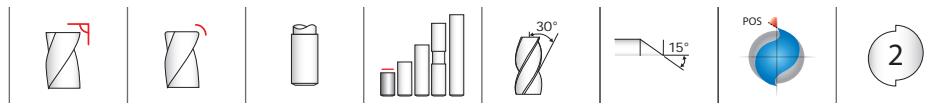
12xD Reach

15xD

15xD Reach

## FRACTIONAL

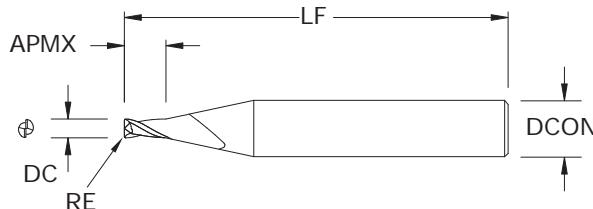
# M2 • M2CR • 1.5xD



## M2 • M2CR 1.5xD

### FRACTIONAL SERIES

- Two flute design is ideal for softer alloyed, non-ferrous material applications that require slotting or involve heavy chip loads
- Enhanced corner geometry with tight tolerance corner radii
- 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



### TOLERANCES (inch)

#### .004-.120 DIAMETER

DC = +0.000/-0.001

DCON = h6

RE = +0.0000/-0.0005

STEELS

STAINLESS STEELS

CAST IRON

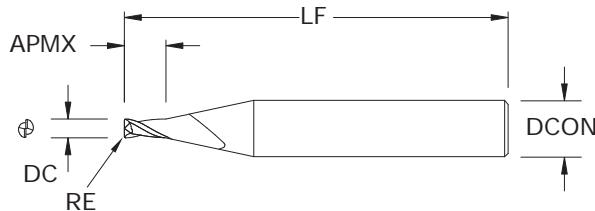
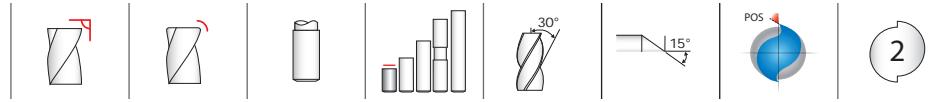
NON-FERROUS

HIGH TEMP ALLOYS

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	CORNER RADIUS RE	EDP NO.	
					UNCOATED	TI-NAMITE®-A (AITIN)
0.004	1/8	0.006	1-1/2	—	<a href="#">04004</a>	<a href="#">04000</a>
0.005	1/8	0.008	1-1/2	—	<a href="#">00301</a>	<a href="#">02201</a>
0.006	1/8	0.009	1-1/2	—	<a href="#">00302</a>	<a href="#">02202</a>
0.007	1/8	0.011	1-1/2	—	<a href="#">00303</a>	<a href="#">02203</a>
0.008	1/8	0.012	1-1/2	—	<a href="#">00304</a>	<a href="#">02204</a>
0.009	1/8	0.014	1-1/2	—	<a href="#">00305</a>	<a href="#">02205</a>
0.010	1/8	0.015	1-1/2	—	<a href="#">00306</a>	<a href="#">02206</a>
0.011	1/8	0.017	1-1/2	—	<a href="#">00307</a>	<a href="#">02207</a>
0.012	1/8	0.018	1-1/2	—	<a href="#">00308</a>	<a href="#">02208</a>
0.013	1/8	0.020	1-1/2	—	<a href="#">00309</a>	<a href="#">02209</a>
0.014	1/8	0.021	1-1/2	—	<a href="#">00310</a>	<a href="#">02210</a>
0.015	1/8	0.023	1-1/2	0.003	<a href="#">08500</a>	<a href="#">08641</a>
0.016	1/8	0.024	1-1/2	—	<a href="#">00312</a>	<a href="#">02212</a>
0.017	1/8	0.026	1-1/2	—	<a href="#">00313</a>	<a href="#">02213</a>
0.018	1/8	0.027	1-1/2	—	<a href="#">00314</a>	<a href="#">02214</a>
0.019	1/8	0.029	1-1/2	—	<a href="#">00315</a>	<a href="#">02215</a>
0.020	1/8	0.030	1-1/2	—	<a href="#">00316</a>	<a href="#">02216</a>
0.020	1/8	0.030	1-1/2	0.003	<a href="#">08502</a>	<a href="#">08643</a>
0.020	1/8	0.030	1-1/2	0.005	<a href="#">08504</a>	<a href="#">08645</a>
0.021	1/8	0.032	1-1/2	—	<a href="#">00317</a>	<a href="#">02217</a>
0.022	1/8	0.033	1-1/2	—	<a href="#">00318</a>	<a href="#">02218</a>
0.023	1/8	0.035	1-1/2	—	<a href="#">00319</a>	<a href="#">02219</a>
0.024	1/8	0.036	1-1/2	—	<a href="#">00320</a>	<a href="#">02220</a>
0.025	1/8	0.038	1-1/2	—	<a href="#">00321</a>	<a href="#">02221</a>
0.025	1/8	0.038	1-1/2	0.010	<a href="#">08505</a>	<a href="#">08646</a>
0.026	1/8	0.039	1-1/2	—	<a href="#">00322</a>	<a href="#">02222</a>
0.027	1/8	0.041	1-1/2	—	<a href="#">00323</a>	<a href="#">02223</a>
0.028	1/8	0.042	1-1/2	—	<a href="#">00324</a>	<a href="#">02224</a>
0.029	1/8	0.044	1-1/2	—	<a href="#">00325</a>	<a href="#">02225</a>
0.030	1/8	0.045	1-1/2	—	<a href="#">00326</a>	<a href="#">02226</a>
0.030	1/8	0.045	1-1/2	0.010	<a href="#">08507</a>	<a href="#">08648</a>
0.031	1/8	0.047	1-1/2	—	<a href="#">00327</a>	<a href="#">02227</a>
0.032	1/8	0.048	1-1/2	—	<a href="#">00328</a>	<a href="#">02228</a>
0.033	1/8	0.050	1-1/2	—	<a href="#">00329</a>	<a href="#">02229</a>
0.034	1/8	0.051	1-1/2	—	<a href="#">00330</a>	<a href="#">02230</a>

continued on next page

FRACTIONAL  
M2 • M2CR • 1.5xD



M2 • M2CR  
1.5xD

FRACTIONAL SERIES

*continued*

TOLERANCES (inch)

.004-.120 DIAMETER

DC = +0.000/-0.001

DCON = h<sub>6</sub>

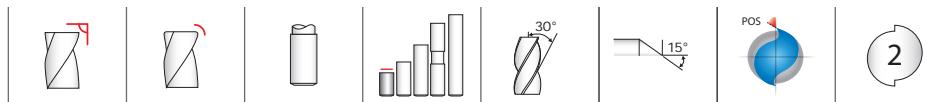
RE = +0.0000/-0.0005

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

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	CORNER RADIUS RE	EDP NO.	
					UNCOATED	TI-NAMITE®-A (AITIN)
0.035	1/8	0.053	1-1/2	—	<a href="#">00331</a>	<a href="#">02231</a>
0.035	1/8	0.053	1-1/2	0.005	<a href="#">08509</a>	<a href="#">08650</a>
0.035	1/8	0.053	1-1/2	0.010	<a href="#">08511</a>	<a href="#">08652</a>
0.036	1/8	0.054	1-1/2	—	<a href="#">00332</a>	<a href="#">02232</a>
0.037	1/8	0.056	1-1/2	—	<a href="#">00333</a>	<a href="#">02233</a>
0.038	1/8	0.057	1-1/2	—	<a href="#">00334</a>	<a href="#">02234</a>
0.039	1/8	0.059	1-1/2	—	<a href="#">00335</a>	<a href="#">02235</a>
0.040	1/8	0.060	1-1/2	—	<a href="#">00336</a>	<a href="#">02236</a>
0.040	1/8	0.060	1-1/2	0.005	<a href="#">08513</a>	<a href="#">08654</a>
0.040	1/8	0.060	1-1/2	0.010	<a href="#">08515</a>	<a href="#">08656</a>
0.041	1/8	0.062	1-1/2	—	<a href="#">00337</a>	<a href="#">02368</a>
0.042	1/8	0.063	1-1/2	—	<a href="#">00338</a>	<a href="#">02369</a>
0.043	1/8	0.065	1-1/2	—	<a href="#">00339</a>	<a href="#">02370</a>
0.044	1/8	0.066	1-1/2	—	<a href="#">00340</a>	<a href="#">02371</a>
0.045	1/8	0.068	1-1/2	—	<a href="#">00341</a>	<a href="#">02372</a>
0.045	1/8	0.068	1-1/2	0.005	<a href="#">08517</a>	<a href="#">08658</a>
0.045	1/8	0.068	1-1/2	0.010	<a href="#">08519</a>	<a href="#">08660</a>
0.046	1/8	0.069	1-1/2	—	<a href="#">00342</a>	<a href="#">02373</a>
0.047	1/8	0.071	1-1/2	—	<a href="#">00343</a>	<a href="#">02374</a>
0.048	1/8	0.072	1-1/2	—	<a href="#">00344</a>	<a href="#">02375</a>
0.049	1/8	0.074	1-1/2	—	<a href="#">00345</a>	<a href="#">02376</a>
0.050	1/8	0.075	1-1/2	—	<a href="#">00346</a>	<a href="#">02377</a>
0.050	1/8	0.075	1-1/2	0.005	<a href="#">08521</a>	<a href="#">08662</a>
0.050	1/8	0.075	1-1/2	0.010	<a href="#">08523</a>	<a href="#">08664</a>
0.050	1/8	0.075	1-1/2	0.015	<a href="#">08525</a>	<a href="#">08666</a>
0.051	1/8	0.077	1-1/2	—	<a href="#">00347</a>	<a href="#">02378</a>
0.052	1/8	0.078	1-1/2	—	<a href="#">00348</a>	<a href="#">02379</a>
0.053	1/8	0.080	1-1/2	—	<a href="#">00349</a>	<a href="#">02380</a>
0.054	1/8	0.081	1-1/2	—	<a href="#">00350</a>	<a href="#">02381</a>
0.055	1/8	0.083	1-1/2	—	<a href="#">00351</a>	<a href="#">02382</a>
0.055	1/8	0.083	1-1/2	0.005	<a href="#">08527</a>	<a href="#">08668</a>
0.055	1/8	0.083	1-1/2	0.010	<a href="#">08529</a>	<a href="#">08670</a>
0.055	1/8	0.083	1-1/2	0.015	<a href="#">08531</a>	<a href="#">08672</a>
0.056	1/8	0.084	1-1/2	—	<a href="#">00352</a>	<a href="#">02383</a>
0.057	1/8	0.086	1-1/2	—	<a href="#">00353</a>	<a href="#">02384</a>
0.058	1/8	0.087	1-1/2	—	<a href="#">00354</a>	<a href="#">02385</a>

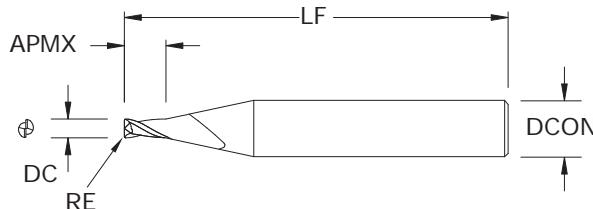
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## FRACTIONAL

**M2 • M2CR • 1.5xD****M2 • M2CR  
1.5xD**

FRACTIONAL SERIES

continued

**TOLERANCES (inch)****.004-.120 DIAMETER**

DC = +0.000/-0.001

DCON = h6

RE = +0.0000/-0.0005

STEELS

STAINLESS STEELS

CAST IRON

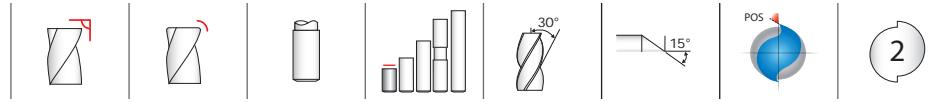
NON-FERROUS

HIGH TEMP ALLOYS

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	CORNER RADIUS RE	EDP NO.	
					UNCOATED	TI-NAMITE®-A (AITIN)
0.059	1/8	0.089	1-1/2	—	<a href="#">00355</a>	<a href="#">02386</a>
0.060	1/8	0.090	1-1/2	—	<a href="#">00356</a>	<a href="#">02387</a>
0.060	1/8	0.090	1-1/2	0.005	<a href="#">08533</a>	<a href="#">08674</a>
0.060	1/8	0.090	1-1/2	0.010	<a href="#">08535</a>	<a href="#">08676</a>
0.060	1/8	0.090	1-1/2	0.015	<a href="#">08537</a>	<a href="#">08678</a>
0.062	1/8	0.093	1-1/2	—	<a href="#">00357</a>	<a href="#">02388</a>
0.065	1/8	0.098	1-1/2	—	<a href="#">00358</a>	<a href="#">02389</a>
0.065	1/8	0.098	1-1/2	0.005	<a href="#">08539</a>	<a href="#">08680</a>
0.065	1/8	0.098	1-1/2	0.010	<a href="#">08541</a>	<a href="#">08682</a>
0.065	1/8	0.098	1-1/2	0.015	<a href="#">08543</a>	<a href="#">08684</a>
0.070	1/8	0.105	1-1/2	—	<a href="#">00359</a>	<a href="#">02390</a>
0.070	1/8	0.105	1-1/2	0.005	<a href="#">08545</a>	<a href="#">08686</a>
0.070	1/8	0.105	1-1/2	0.010	<a href="#">08547</a>	<a href="#">08688</a>
0.070	1/8	0.105	1-1/2	0.015	<a href="#">08549</a>	<a href="#">08690</a>
0.075	1/8	0.112	1-1/2	—	<a href="#">04006</a>	<a href="#">04002</a>
0.075	1/8	0.113	1-1/2	0.005	<a href="#">08551</a>	<a href="#">08692</a>
0.075	1/8	0.113	1-1/2	0.010	<a href="#">08553</a>	<a href="#">08694</a>
0.075	1/8	0.113	1-1/2	0.015	<a href="#">08555</a>	<a href="#">08696</a>
0.075	1/8	0.113	1-1/2	0.020	<a href="#">08557</a>	<a href="#">08698</a>
0.078	1/8	0.117	1-1/2	—	<a href="#">00360</a>	<a href="#">02391</a>
0.080	1/8	0.120	1-1/2	—	<a href="#">00361</a>	<a href="#">02392</a>
0.080	1/8	0.120	1-1/2	0.005	<a href="#">08559</a>	<a href="#">08700</a>
0.080	1/8	0.120	1-1/2	0.010	<a href="#">08561</a>	<a href="#">08702</a>
0.080	1/8	0.120	1-1/2	0.015	<a href="#">08563</a>	<a href="#">08704</a>
0.080	1/8	0.120	1-1/2	0.020	<a href="#">08565</a>	<a href="#">08706</a>
0.085	1/8	0.128	1-1/2	—	<a href="#">00362</a>	<a href="#">02393</a>
0.085	1/8	0.128	1-1/2	0.005	<a href="#">08567</a>	<a href="#">08708</a>
0.085	1/8	0.128	1-1/2	0.010	<a href="#">08569</a>	<a href="#">08710</a>
0.085	1/8	0.128	1-1/2	0.015	<a href="#">08571</a>	<a href="#">08712</a>
0.085	1/8	0.128	1-1/2	0.020	<a href="#">08573</a>	<a href="#">08714</a>
0.090	1/8	0.135	1-1/2	—	<a href="#">00363</a>	<a href="#">02394</a>
0.090	1/8	0.135	1-1/2	0.005	<a href="#">08575</a>	<a href="#">08716</a>
0.090	1/8	0.135	1-1/2	0.010	<a href="#">08577</a>	<a href="#">08718</a>
0.090	1/8	0.135	1-1/2	0.015	<a href="#">08579</a>	<a href="#">08720</a>
0.090	1/8	0.135	1-1/2	0.020	<a href="#">08581</a>	<a href="#">08722</a>
0.093	1/8	0.140	1-1/2	—	<a href="#">00364</a>	<a href="#">02395</a>

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FRACTIONAL  
M2 • M2CR • 1.5xD



**TOLERANCES (inch)**

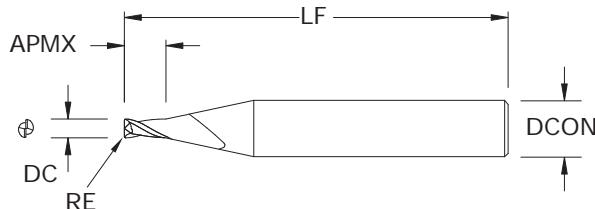
.004-.120 DIAMETER

DC = +0.000/-0.001

DCON = h<sub>6</sub>

RE = +0.0000/-0.0005

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



**M2 • M2CR  
1.5xD**

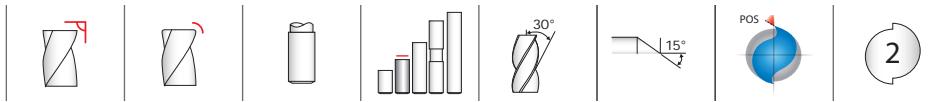
FRACTIONAL SERIES

*continued*

CUTTING DIAMETER DC	SHANK DIAMETER DCON	inch			EDP NO.	
		LENGTH OF CUT APMX	OVERALL LENGTH LF	CORNER RADIUS RE	UNCOATED	TI-NAMITE®-A (AITIN)
0.095	1/8	0.143	1-1/2	—	<a href="#">00365</a>	<a href="#">02396</a>
0.095	1/8	0.143	1-1/2	0.005	<a href="#">08583</a>	<a href="#">08724</a>
0.095	1/8	0.143	1-1/2	0.010	<a href="#">08585</a>	<a href="#">08726</a>
0.095	1/8	0.143	1-1/2	0.015	<a href="#">08587</a>	<a href="#">08728</a>
0.095	1/8	0.143	1-1/2	0.020	<a href="#">08589</a>	<a href="#">08730</a>
0.100	1/8	0.150	1-1/2	—	<a href="#">00366</a>	<a href="#">02397</a>
0.100	1/8	0.150	1-1/2	0.005	<a href="#">08591</a>	<a href="#">08732</a>
0.100	1/8	0.150	1-1/2	0.010	<a href="#">08593</a>	<a href="#">08734</a>
0.100	1/8	0.150	1-1/2	0.015	<a href="#">08595</a>	<a href="#">08736</a>
0.100	1/8	0.150	1-1/2	0.020	<a href="#">08597</a>	<a href="#">08738</a>
0.100	1/8	0.150	1-1/2	0.030	<a href="#">08599</a>	<a href="#">08740</a>
0.105	1/8	0.158	1-1/2	—	<a href="#">00367</a>	<a href="#">02398</a>
0.105	1/8	0.158	1-1/2	0.005	<a href="#">08601</a>	<a href="#">08742</a>
0.105	1/8	0.158	1-1/2	0.010	<a href="#">08603</a>	<a href="#">08744</a>
0.105	1/8	0.158	1-1/2	0.015	<a href="#">08605</a>	<a href="#">08746</a>
0.105	1/8	0.158	1-1/2	0.020	<a href="#">08607</a>	<a href="#">08748</a>
0.105	1/8	0.158	1-1/2	0.030	<a href="#">08609</a>	<a href="#">08750</a>
0.110	1/8	0.165	1-1/2	—	<a href="#">00368</a>	<a href="#">02399</a>
0.110	1/8	0.165	1-1/2	0.005	<a href="#">08611</a>	<a href="#">08752</a>
0.110	1/8	0.165	1-1/2	0.010	<a href="#">08613</a>	<a href="#">08754</a>
0.110	1/8	0.165	1-1/2	0.015	<a href="#">08615</a>	<a href="#">08756</a>
0.110	1/8	0.165	1-1/2	0.020	<a href="#">08617</a>	<a href="#">08758</a>
0.110	1/8	0.165	1-1/2	0.030	<a href="#">08619</a>	<a href="#">08760</a>
0.115	1/8	0.173	1-1/2	—	<a href="#">00369</a>	<a href="#">02400</a>
0.115	1/8	0.173	1-1/2	0.005	<a href="#">08621</a>	<a href="#">08762</a>
0.115	1/8	0.173	1-1/2	0.010	<a href="#">08623</a>	<a href="#">08764</a>
0.115	1/8	0.173	1-1/2	0.015	<a href="#">08625</a>	<a href="#">08766</a>
0.115	1/8	0.173	1-1/2	0.020	<a href="#">08627</a>	<a href="#">08768</a>
0.115	1/8	0.173	1-1/2	0.030	<a href="#">08629</a>	<a href="#">08770</a>
0.120	1/8	0.180	1-1/2	—	<a href="#">00370</a>	<a href="#">02401</a>
0.120	1/8	0.180	1-1/2	0.005	<a href="#">08631</a>	<a href="#">08772</a>
0.120	1/8	0.180	1-1/2	0.010	<a href="#">08633</a>	<a href="#">08774</a>
0.120	1/8	0.180	1-1/2	0.015	<a href="#">08635</a>	<a href="#">08776</a>
0.120	1/8	0.180	1-1/2	0.020	<a href="#">08637</a>	<a href="#">08778</a>
0.120	1/8	0.180	1-1/2	0.030	<a href="#">08639</a>	<a href="#">08780</a>

## FRACTIONAL

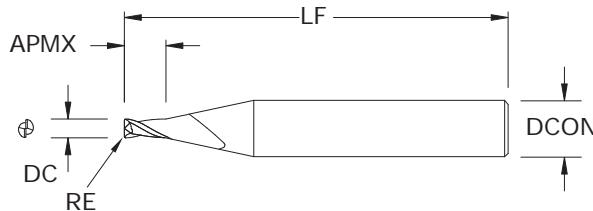
# M2 • M2CR • 3xD



## M2 • M2CR 3xD

### FRACTIONAL SERIES

- Two flute design is ideal for softer alloyed, non-ferrous material applications that require slotting or involve heavy chip loads
- Enhanced corner geometry with tight tolerance corner radii
- 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



### TOLERANCES (inch)

#### .004-.120 DIAMETER

DC = +0.000/-0.001

DCON = h6

RE = +0.0000/-0.0005

STEELS

STAINLESS STEELS

CAST IRON

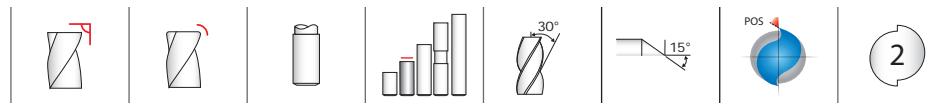
NON-FERROUS

HIGH TEMP ALLOYS

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	CORNER RADIUS RE	EDP NO.	
					UNCOATED	TI-NAMITE®-A (AlTiN)
0.004	1/8	0.012	1-1/2	—	<a href="#">04005</a>	<a href="#">04001</a>
0.005	1/8	0.015	1-1/2	—	<a href="#">00811</a>	<a href="#">02275</a>
0.006	1/8	0.018	1-1/2	—	<a href="#">00812</a>	<a href="#">02276</a>
0.007	1/8	0.021	1-1/2	—	<a href="#">00813</a>	<a href="#">02277</a>
0.008	1/8	0.024	1-1/2	—	<a href="#">00814</a>	<a href="#">02278</a>
0.009	1/8	0.027	1-1/2	—	<a href="#">00815</a>	<a href="#">02279</a>
0.010	1/8	0.030	1-1/2	—	<a href="#">00816</a>	<a href="#">02280</a>
0.011	1/8	0.033	1-1/2	—	<a href="#">00817</a>	<a href="#">02281</a>
0.012	1/8	0.036	1-1/2	—	<a href="#">00818</a>	<a href="#">02282</a>
0.013	1/8	0.039	1-1/2	—	<a href="#">00819</a>	<a href="#">02283</a>
0.014	1/8	0.042	1-1/2	—	<a href="#">00820</a>	<a href="#">02284</a>
0.015	1/8	0.045	1-1/2	0.003	<a href="#">08501</a>	<a href="#">08642</a>
0.016	1/8	0.048	1-1/2	—	<a href="#">00822</a>	<a href="#">02286</a>
0.017	1/8	0.051	1-1/2	—	<a href="#">00823</a>	<a href="#">02287</a>
0.018	1/8	0.054	1-1/2	—	<a href="#">00824</a>	<a href="#">02288</a>
0.019	1/8	0.057	1-1/2	—	<a href="#">00825</a>	<a href="#">02289</a>
0.020	1/8	0.060	1-1/2	—	<a href="#">00826</a>	<a href="#">02290</a>
0.020	1/8	0.060	1-1/2	0.003	<a href="#">08503</a>	<a href="#">08644</a>
0.020	1/8	0.060	1-1/2	0.005	<a href="#">04020</a>	<a href="#">04021</a>
0.021	1/8	0.063	1-1/2	—	<a href="#">00827</a>	<a href="#">02291</a>
0.022	1/8	0.066	1-1/2	—	<a href="#">00828</a>	<a href="#">02292</a>
0.023	1/8	0.069	1-1/2	—	<a href="#">00829</a>	<a href="#">02293</a>
0.024	1/8	0.072	1-1/2	—	<a href="#">00830</a>	<a href="#">02294</a>
0.025	1/8	0.075	1-1/2	—	<a href="#">00831</a>	<a href="#">02295</a>
0.025	1/8	0.075	1-1/2	0.005	<a href="#">04022</a>	<a href="#">04023</a>
0.025	1/8	0.075	1-1/2	0.010	<a href="#">08506</a>	<a href="#">08647</a>
0.026	1/8	0.078	1-1/2	—	<a href="#">00832</a>	<a href="#">02296</a>
0.027	1/8	0.081	1-1/2	—	<a href="#">00833</a>	<a href="#">02297</a>
0.028	1/8	0.084	1-1/2	—	<a href="#">00834</a>	<a href="#">02298</a>
0.029	1/8	0.087	1-1/2	—	<a href="#">00835</a>	<a href="#">02299</a>
0.030	1/8	0.090	1-1/2	—	<a href="#">00836</a>	<a href="#">02300</a>
0.030	1/8	0.090	1-1/2	0.010	<a href="#">08508</a>	<a href="#">08649</a>
0.031	1/8	0.093	1-1/2	—	<a href="#">00837</a>	<a href="#">02301</a>
0.032	1/8	0.096	1-1/2	—	<a href="#">00838</a>	<a href="#">02302</a>
0.033	1/8	0.099	1-1/2	—	<a href="#">00839</a>	<a href="#">02303</a>

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FRACTIONAL  
M2 • M2CR • 3xD



TOLERANCES (inch)

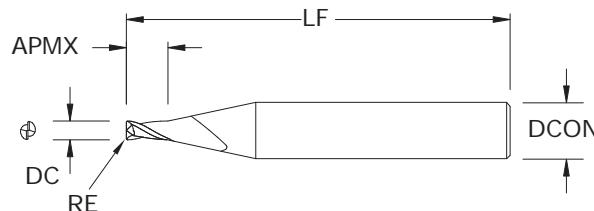
.004-.120 DIAMETER

DC = +0.000/-0.001

DCON = h<sub>6</sub>

RE = +0.0000/-0.0005

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



M2 • M2CR  
3xD

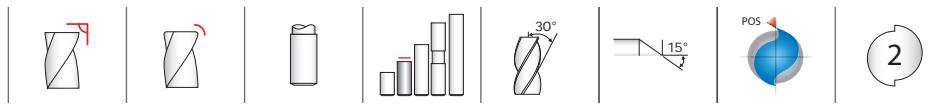
FRACTIONAL SERIES

*continued*

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	CORNER RADIUS RE	EDP NO.	
					UNCOATED	TI-NAMITE®-A (AITIN)
0.034	1/8	0.102	1-1/2	—	<a href="#">00840</a>	<a href="#">02304</a>
0.035	1/8	0.105	1-1/2	—	<a href="#">00841</a>	<a href="#">02305</a>
0.035	1/8	0.105	1-1/2	0.005	<a href="#">08510</a>	<a href="#">08651</a>
0.035	1/8	0.105	1-1/2	0.010	<a href="#">08512</a>	<a href="#">08653</a>
0.036	1/8	0.108	1-1/2	—	<a href="#">00842</a>	<a href="#">02306</a>
0.037	1/8	0.111	1-1/2	—	<a href="#">00843</a>	<a href="#">02307</a>
0.038	1/8	0.114	1-1/2	—	<a href="#">00844</a>	<a href="#">02308</a>
0.039	1/8	0.117	1-1/2	—	<a href="#">00845</a>	<a href="#">02309</a>
0.040	1/8	0.120	1-1/2	—	<a href="#">00846</a>	<a href="#">02310</a>
0.040	1/8	0.120	1-1/2	0.005	<a href="#">08514</a>	<a href="#">08655</a>
0.040	1/8	0.120	1-1/2	0.010	<a href="#">08516</a>	<a href="#">08657</a>
0.041	1/8	0.123	1-1/2	—	<a href="#">00479</a>	<a href="#">02436</a>
0.042	1/8	0.126	1-1/2	—	<a href="#">00480</a>	<a href="#">02437</a>
0.043	1/8	0.129	1-1/2	—	<a href="#">00481</a>	<a href="#">02438</a>
0.044	1/8	0.132	1-1/2	—	<a href="#">00482</a>	<a href="#">02439</a>
0.045	1/8	0.135	1-1/2	—	<a href="#">00483</a>	<a href="#">02440</a>
0.045	1/8	0.135	1-1/2	0.005	<a href="#">08518</a>	<a href="#">08659</a>
0.045	1/8	0.135	1-1/2	0.010	<a href="#">08520</a>	<a href="#">08661</a>
0.046	1/8	0.138	1-1/2	—	<a href="#">00484</a>	<a href="#">02441</a>
0.047	1/8	0.141	1-1/2	—	<a href="#">00485</a>	<a href="#">02442</a>
0.048	1/8	0.144	1-1/2	—	<a href="#">00486</a>	<a href="#">02443</a>
0.049	1/8	0.147	1-1/2	—	<a href="#">00487</a>	<a href="#">02444</a>
0.050	1/8	0.150	1-1/2	—	<a href="#">00488</a>	<a href="#">02445</a>
0.050	1/8	0.150	1-1/2	0.005	<a href="#">08522</a>	<a href="#">08663</a>
0.050	1/8	0.150	1-1/2	0.010	<a href="#">08524</a>	<a href="#">08665</a>
0.050	1/8	0.150	1-1/2	0.015	<a href="#">08526</a>	<a href="#">08667</a>
0.051	1/8	0.153	1-1/2	—	<a href="#">00489</a>	<a href="#">02446</a>
0.052	1/8	0.156	1-1/2	—	<a href="#">00490</a>	<a href="#">02447</a>
0.053	1/8	0.159	1-1/2	—	<a href="#">00491</a>	<a href="#">02448</a>
0.054	1/8	0.162	1-1/2	—	<a href="#">00492</a>	<a href="#">02449</a>
0.055	1/8	0.165	1-1/2	—	<a href="#">00493</a>	<a href="#">02450</a>
0.055	1/8	0.165	1-1/2	0.005	<a href="#">08528</a>	<a href="#">08669</a>
0.055	1/8	0.165	1-1/2	0.010	<a href="#">08530</a>	<a href="#">08671</a>
0.055	1/8	0.165	1-1/2	0.015	<a href="#">08532</a>	<a href="#">08673</a>
0.056	1/8	0.168	1-1/2	—	<a href="#">00494</a>	<a href="#">02451</a>
0.057	1/8	0.171	1-1/2	—	<a href="#">00495</a>	<a href="#">02452</a>

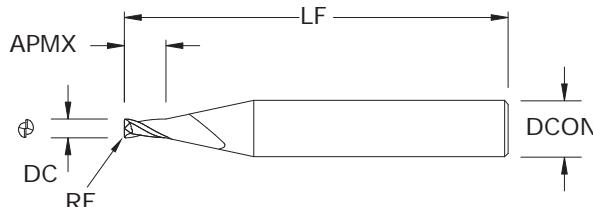
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## FRACTIONAL

**M2 • M2CR • 3xD****M2 • M2CR  
3xD**

FRACTIONAL SERIES

continued

**TOLERANCES (inch)****.004-.120 DIAMETER**

DC = +0.000/-0.001

DCON = h6

RE = +0.0000/-0.0005

STEELS

STAINLESS STEELS

CAST IRON

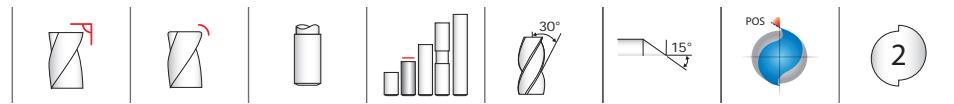
NON-FERROUS

HIGHTEMP ALLOYS

CUTTING DIAMETER DC	SHANK DIAMETER DCON	inch			EDP NO.	
		LENGTH OF CUT APMX	OVERALL LENGTH LF	CORNER RADIUS RE	UNCOATED	TI-NAMITE®-A (AITiN)
0.058	1/8	0.174	1-1/2	—	<a href="#">00496</a>	<a href="#">02453</a>
0.059	1/8	0.177	1-1/2	—	<a href="#">00865</a>	<a href="#">02454</a>
0.060	1/8	0.180	1-1/2	—	<a href="#">00498</a>	<a href="#">02455</a>
0.060	1/8	0.180	1-1/2	0.005	<a href="#">08534</a>	<a href="#">08675</a>
0.060	1/8	0.180	1-1/2	0.010	<a href="#">08536</a>	<a href="#">08677</a>
0.060	1/8	0.180	1-1/2	0.015	<a href="#">08538</a>	<a href="#">08679</a>
0.062	1/8	0.186	1-1/2	—	<a href="#">00499</a>	<a href="#">02456</a>
0.065	1/8	0.195	1-1/2	—	<a href="#">00500</a>	<a href="#">02457</a>
0.065	1/8	0.195	1-1/2	0.005	<a href="#">08540</a>	<a href="#">08681</a>
0.065	1/8	0.195	1-1/2	0.010	<a href="#">08542</a>	<a href="#">08683</a>
0.065	1/8	0.195	1-1/2	0.015	<a href="#">08544</a>	<a href="#">08685</a>
0.070	1/8	0.210	1-1/2	—	<a href="#">00501</a>	<a href="#">02458</a>
0.070	1/8	0.210	1-1/2	0.005	<a href="#">08546</a>	<a href="#">08687</a>
0.070	1/8	0.210	1-1/2	0.010	<a href="#">08548</a>	<a href="#">08689</a>
0.070	1/8	0.210	1-1/2	0.015	<a href="#">08550</a>	<a href="#">08691</a>
0.075	1/8	0.225	1-1/2	—	<a href="#">04007</a>	<a href="#">04003</a>
0.075	1/8	0.225	1-1/2	0.005	<a href="#">08552</a>	<a href="#">08693</a>
0.075	1/8	0.225	1-1/2	0.010	<a href="#">08554</a>	<a href="#">08695</a>
0.075	1/8	0.225	1-1/2	0.015	<a href="#">08556</a>	<a href="#">08697</a>
0.075	1/8	0.225	1-1/2	0.020	<a href="#">08558</a>	<a href="#">08699</a>
0.078	1/8	0.234	1-1/2	—	<a href="#">00870</a>	<a href="#">02459</a>
0.080	1/8	0.240	1-1/2	—	<a href="#">00503</a>	<a href="#">02460</a>
0.080	1/8	0.240	1-1/2	0.005	<a href="#">08560</a>	<a href="#">08701</a>
0.080	1/8	0.240	1-1/2	0.010	<a href="#">08562</a>	<a href="#">08703</a>
0.080	1/8	0.240	1-1/2	0.015	<a href="#">08564</a>	<a href="#">08705</a>
0.080	1/8	0.240	1-1/2	0.020	<a href="#">08566</a>	<a href="#">08707</a>
0.085	1/8	0.255	1-1/2	—	<a href="#">00504</a>	<a href="#">02461</a>
0.085	1/8	0.255	1-1/2	0.005	<a href="#">08568</a>	<a href="#">08709</a>
0.085	1/8	0.255	1-1/2	0.010	<a href="#">08570</a>	<a href="#">08711</a>
0.085	1/8	0.255	1-1/2	0.015	<a href="#">08572</a>	<a href="#">08713</a>
0.085	1/8	0.255	1-1/2	0.020	<a href="#">08574</a>	<a href="#">08715</a>
0.090	1/8	0.270	1-1/2	—	<a href="#">00505</a>	<a href="#">02462</a>
0.090	1/8	0.270	1-1/2	0.005	<a href="#">08576</a>	<a href="#">08717</a>
0.090	1/8	0.270	1-1/2	0.010	<a href="#">08578</a>	<a href="#">08719</a>
0.090	1/8	0.270	1-1/2	0.015	<a href="#">08580</a>	<a href="#">08721</a>
0.090	1/8	0.270	1-1/2	0.020	<a href="#">08582</a>	<a href="#">08723</a>

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FRACTIONAL  
M2 • M2CR • 3xD



**TOLERANCES (inch)**

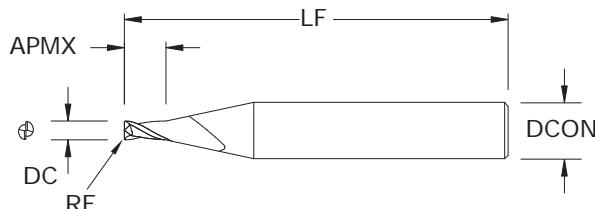
.004-.120 DIAMETER

DC = +0.000/-0.001

DCON = h<sub>6</sub>

RE = +0.0000/-0.0005

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



**M2 • M2CR  
3xD**

FRACTIONAL SERIES

*continued*

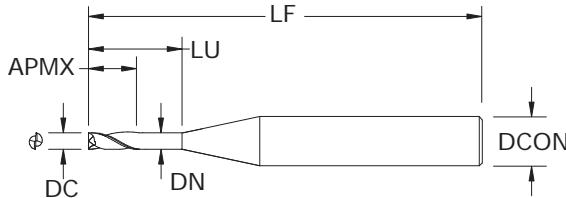
CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	CORNER RADIUS RE	EDP NO.	
					UNCOATED	TI-NAMITE®-A (AITIN)
0.093	1/8	0.279	1-1/2	—	<a href="#">00506</a>	<a href="#">02463</a>
0.095	1/8	0.285	1-1/2	—	<a href="#">00507</a>	<a href="#">02464</a>
0.095	1/8	0.285	1-1/2	0.005	<a href="#">08584</a>	<a href="#">08725</a>
0.095	1/8	0.285	1-1/2	0.010	<a href="#">08586</a>	<a href="#">08727</a>
0.095	1/8	0.285	1-1/2	0.015	<a href="#">08588</a>	<a href="#">08729</a>
0.095	1/8	0.285	1-1/2	0.020	<a href="#">08590</a>	<a href="#">08731</a>
0.100	1/8	0.300	1-1/2	—	<a href="#">00508</a>	<a href="#">02465</a>
0.100	1/8	0.300	1-1/2	0.005	<a href="#">08592</a>	<a href="#">08733</a>
0.100	1/8	0.300	1-1/2	0.010	<a href="#">08594</a>	<a href="#">08735</a>
0.100	1/8	0.300	1-1/2	0.015	<a href="#">08596</a>	<a href="#">08737</a>
0.100	1/8	0.300	1-1/2	0.020	<a href="#">08598</a>	<a href="#">08739</a>
0.100	1/8	0.300	1-1/2	0.030	<a href="#">08600</a>	<a href="#">08741</a>
0.105	1/8	0.315	1-1/2	—	<a href="#">00509</a>	<a href="#">02466</a>
0.105	1/8	0.315	1-1/2	0.005	<a href="#">08602</a>	<a href="#">08743</a>
0.105	1/8	0.315	1-1/2	0.010	<a href="#">08604</a>	<a href="#">08745</a>
0.105	1/8	0.315	1-1/2	0.015	<a href="#">08606</a>	<a href="#">08747</a>
0.105	1/8	0.315	1-1/2	0.020	<a href="#">08608</a>	<a href="#">08749</a>
0.105	1/8	0.315	1-1/2	0.030	<a href="#">08610</a>	<a href="#">08751</a>
0.110	1/8	0.330	1-1/2	—	<a href="#">00878</a>	<a href="#">02467</a>
0.110	1/8	0.330	1-1/2	0.005	<a href="#">08612</a>	<a href="#">08753</a>
0.110	1/8	0.330	1-1/2	0.010	<a href="#">08614</a>	<a href="#">08755</a>
0.110	1/8	0.330	1-1/2	0.015	<a href="#">08616</a>	<a href="#">08757</a>
0.110	1/8	0.330	1-1/2	0.020	<a href="#">08618</a>	<a href="#">08759</a>
0.110	1/8	0.330	1-1/2	0.030	<a href="#">08620</a>	<a href="#">08761</a>
0.115	1/8	0.345	1-1/2	—	<a href="#">00511</a>	<a href="#">02468</a>
0.115	1/8	0.345	1-1/2	0.005	<a href="#">08622</a>	<a href="#">08763</a>
0.115	1/8	0.345	1-1/2	0.010	<a href="#">08624</a>	<a href="#">08765</a>
0.115	1/8	0.345	1-1/2	0.015	<a href="#">08626</a>	<a href="#">08767</a>
0.115	1/8	0.345	1-1/2	0.020	<a href="#">08628</a>	<a href="#">08769</a>
0.115	1/8	0.345	1-1/2	0.030	<a href="#">08630</a>	<a href="#">08771</a>
0.120	1/8	0.360	1-1/2	—	<a href="#">00512</a>	<a href="#">02469</a>
0.120	1/8	0.360	1-1/2	0.005	<a href="#">08632</a>	<a href="#">08773</a>
0.120	1/8	0.360	1-1/2	0.010	<a href="#">08634</a>	<a href="#">08775</a>
0.120	1/8	0.360	1-1/2	0.015	<a href="#">08636</a>	<a href="#">08777</a>
0.120	1/8	0.360	1-1/2	0.020	<a href="#">08638</a>	<a href="#">08779</a>
0.120	1/8	0.360	1-1/2	0.030	<a href="#">08640</a>	<a href="#">08781</a>

## FRACTIONAL

**M2 • 3xD • 8xD Overall Reach****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

**TOLERANCES (inch)****.010-.120 DIAMETER**

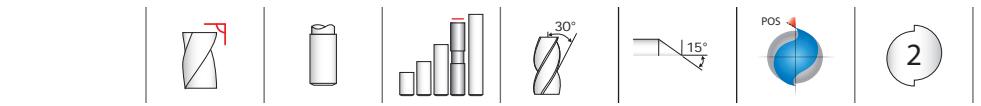
DC = +0.000/-0.001

DCON = h6



CUTTING DIAMETER DC	SHANK DIAMETER DCON	inch				EDP NO.	
		LENGTH OF CUT APMX	REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	UNCOATED	TI-NAMITE® A (AITiN)
0.010	1/8	0.030	0.080	0.009	1-1/2	<a href="#">09353</a>	<a href="#">03400</a>
0.015	1/8	0.045	0.120	0.014	1-1/2	<a href="#">09355</a>	<a href="#">03401</a>
0.020	1/8	0.060	0.160	0.018	1-1/2	<a href="#">09357</a>	<a href="#">03402</a>
0.025	1/8	0.075	0.200	0.023	1-1/2	<a href="#">09359</a>	<a href="#">03403</a>
0.030	1/8	0.090	0.240	0.028	1-1/2	<a href="#">09361</a>	<a href="#">03404</a>
0.031	1/8	0.093	0.248	0.029	1-1/2	<a href="#">09363</a>	<a href="#">03405</a>
0.035	1/8	0.105	0.280	0.032	1-1/2	<a href="#">09365</a>	<a href="#">03406</a>
0.040	1/8	0.120	0.320	0.037	1-1/2	<a href="#">09367</a>	<a href="#">03407</a>
0.045	1/8	0.135	0.360	0.042	2	<a href="#">09369</a>	<a href="#">03408</a>
0.047	1/8	0.141	0.376	0.044	2	<a href="#">09371</a>	<a href="#">03409</a>
0.050	1/8	0.150	0.400	0.047	2	<a href="#">09373</a>	<a href="#">03410</a>
0.055	1/8	0.165	0.440	0.051	2	<a href="#">09375</a>	<a href="#">03411</a>
0.060	1/8	0.180	0.480	0.056	2	<a href="#">09377</a>	<a href="#">03412</a>
0.062	1/8	0.186	0.496	0.058	2	<a href="#">09379</a>	<a href="#">03413</a>
0.065	1/8	0.195	0.520	0.061	2	<a href="#">09381</a>	<a href="#">03414</a>
0.070	1/8	0.210	0.560	0.065	2	<a href="#">09383</a>	<a href="#">03415</a>
0.075	1/8	0.225	0.600	0.070	2	<a href="#">09385</a>	<a href="#">03416</a>
0.078	1/8	0.234	0.624	0.073	2	<a href="#">09387</a>	<a href="#">03417</a>
0.080	1/8	0.240	0.640	0.075	2	<a href="#">09389</a>	<a href="#">03418</a>
0.085	1/8	0.255	0.680	0.079	2	<a href="#">09391</a>	<a href="#">03419</a>
0.090	1/8	0.270	0.720	0.084	2	<a href="#">09393</a>	<a href="#">03420</a>
0.093	1/8	0.279	0.744	0.087	2	<a href="#">09395</a>	<a href="#">03421</a>
0.095	1/8	0.285	0.760	0.089	2	<a href="#">09397</a>	<a href="#">03422</a>
0.100	1/8	0.300	0.800	0.094	2	<a href="#">09399</a>	<a href="#">03423</a>
0.110	1/8	0.330	0.880	0.103	2	<a href="#">09401</a>	<a href="#">03424</a>
0.115	1/8	0.345	0.920	0.108	2	<a href="#">09403</a>	<a href="#">03425</a>
0.120	1/8	0.360	0.960	0.112	2	<a href="#">09405</a>	<a href="#">03426</a>

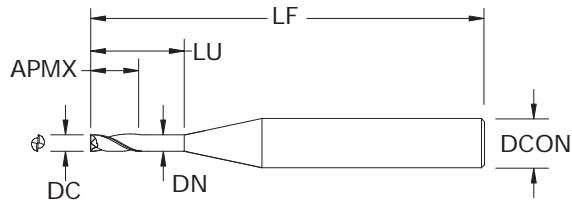
# M2 • 3xD • 12xD Overall Reach

**TOLERANCES (inch)****.010-.120 DIAMETER**

DC = +0.000/-0.001

DCON = h<sub>6</sub>

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



## M2 • 3xD 12xD

FRACTIONAL SERIES

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	inch			EDP NO.
			REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	
0.010	1/8	0.030	0.120	0.009	1-1/2	<a href="#">09352</a> <a href="#">03427</a>
0.015	1/8	0.045	0.180	0.014	1-1/2	<a href="#">09354</a> <a href="#">03428</a>
0.020	1/8	0.060	0.240	0.018	1-1/2	<a href="#">09356</a> <a href="#">03429</a>
0.025	1/8	0.075	0.300	0.023	1-1/2	<a href="#">09358</a> <a href="#">03430</a>
0.030	1/8	0.090	0.360	0.028	2	<a href="#">09360</a> <a href="#">03431</a>
0.031	1/8	0.093	0.372	0.029	2	<a href="#">09362</a> <a href="#">03432</a>
0.035	1/8	0.105	0.420	0.032	2	<a href="#">09364</a> <a href="#">03433</a>
0.040	1/8	0.120	0.480	0.037	2	<a href="#">09366</a> <a href="#">03434</a>
0.045	1/8	0.135	0.540	0.042	2	<a href="#">09368</a> <a href="#">03435</a>
0.047	1/8	0.141	0.564	0.044	2	<a href="#">09370</a> <a href="#">03436</a>
0.050	1/8	0.150	0.600	0.047	2	<a href="#">09372</a> <a href="#">03437</a>
0.055	1/8	0.165	0.660	0.051	2	<a href="#">09374</a> <a href="#">03438</a>
0.060	1/8	0.180	0.720	0.056	2	<a href="#">09376</a> <a href="#">03439</a>
0.062	1/8	0.186	0.744	0.058	2	<a href="#">09378</a> <a href="#">03440</a>
0.065	1/8	0.195	0.780	0.061	2	<a href="#">09380</a> <a href="#">03441</a>
0.070	1/8	0.210	0.840	0.065	2	<a href="#">09382</a> <a href="#">03442</a>
0.075	1/8	0.225	0.900	0.070	2	<a href="#">09384</a> <a href="#">03443</a>
0.078	1/8	0.234	0.936	0.073	2-1/2	<a href="#">09386</a> <a href="#">03444</a>
0.080	1/8	0.240	0.960	0.075	2-1/2	<a href="#">09388</a> <a href="#">03445</a>
0.085	1/8	0.255	1.020	0.079	2-1/2	<a href="#">09390</a> <a href="#">03446</a>
0.090	1/8	0.270	1.080	0.084	2-1/2	<a href="#">09392</a> <a href="#">03447</a>
0.093	1/8	0.279	1.116	0.087	2-1/2	<a href="#">09394</a> <a href="#">03448</a>
0.095	1/8	0.285	1.140	0.089	2-1/2	<a href="#">09396</a> <a href="#">03449</a>
0.100	1/8	0.300	1.200	0.094	2-1/2	<a href="#">09398</a> <a href="#">03450</a>
0.110	1/8	0.330	1.320	0.103	2-1/2	<a href="#">09400</a> <a href="#">03451</a>
0.115	1/8	0.345	1.380	0.108	2-1/2	<a href="#">09402</a> <a href="#">03452</a>
0.120	1/8	0.360	1.440	0.112	2-1/2	<a href="#">09404</a> <a href="#">03453</a>

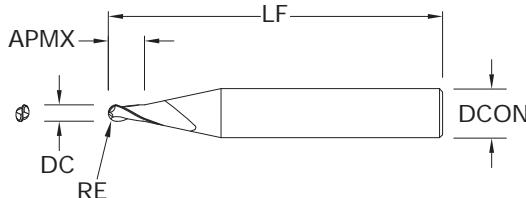
- Two flute design is ideal for softer alloyed, non-ferrous material applications that require slotting or involve heavy chip loads
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds
- High performance carbide substrate designed 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
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## TOLERANCES (inch)

.005-.120 DIAMETER

DC = +0.000/-0.001

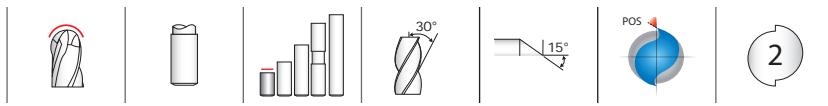
DCON = h6



inch				EDP NO.	
CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	UNCOATED	TI-NAMITE®-A (AITIN)
0.005	1/8	0.008	1-1/2	<a href="#">00669</a>	<a href="#">03029</a>
0.006	1/8	0.009	1-1/2	<a href="#">00670</a>	<a href="#">03030</a>
0.007	1/8	0.011	1-1/2	<a href="#">00671</a>	<a href="#">03031</a>
0.008	1/8	0.012	1-1/2	<a href="#">00672</a>	<a href="#">03032</a>
0.009	1/8	0.014	1-1/2	<a href="#">00673</a>	<a href="#">03033</a>
0.010	1/8	0.015	1-1/2	<a href="#">00674</a>	<a href="#">03034</a>
0.011	1/8	0.017	1-1/2	<a href="#">00675</a>	<a href="#">03035</a>
0.012	1/8	0.018	1-1/2	<a href="#">00676</a>	<a href="#">03036</a>
0.013	1/8	0.020	1-1/2	<a href="#">00677</a>	<a href="#">03037</a>
0.014	1/8	0.021	1-1/2	<a href="#">00678</a>	<a href="#">03038</a>
0.015	1/8	0.023	1-1/2	<a href="#">00679</a>	<a href="#">03039</a>
0.016	1/8	0.024	1-1/2	<a href="#">00680</a>	<a href="#">03040</a>
0.017	1/8	0.026	1-1/2	<a href="#">00681</a>	<a href="#">03041</a>
0.018	1/8	0.027	1-1/2	<a href="#">00682</a>	<a href="#">03042</a>
0.019	1/8	0.029	1-1/2	<a href="#">00683</a>	<a href="#">03043</a>
0.020	1/8	0.030	1-1/2	<a href="#">00684</a>	<a href="#">03044</a>
0.021	1/8	0.032	1-1/2	<a href="#">00685</a>	<a href="#">03045</a>
0.022	1/8	0.033	1-1/2	<a href="#">00686</a>	<a href="#">03046</a>
0.023	1/8	0.035	1-1/2	<a href="#">00687</a>	<a href="#">03047</a>
0.024	1/8	0.036	1-1/2	<a href="#">00688</a>	<a href="#">03048</a>
0.025	1/8	0.038	1-1/2	<a href="#">00689</a>	<a href="#">03049</a>
0.026	1/8	0.039	1-1/2	<a href="#">00690</a>	<a href="#">03050</a>
0.027	1/8	0.041	1-1/2	<a href="#">00691</a>	<a href="#">03051</a>
0.028	1/8	0.042	1-1/2	<a href="#">00692</a>	<a href="#">03052</a>
0.029	1/8	0.044	1-1/2	<a href="#">00693</a>	<a href="#">03053</a>
0.030	1/8	0.045	1-1/2	<a href="#">00694</a>	<a href="#">03054</a>
0.031	1/8	0.047	1-1/2	<a href="#">00695</a>	<a href="#">03055</a>
0.032	1/8	0.048	1-1/2	<a href="#">00696</a>	<a href="#">03056</a>
0.033	1/8	0.050	1-1/2	<a href="#">00697</a>	<a href="#">03057</a>
0.034	1/8	0.051	1-1/2	<a href="#">00698</a>	<a href="#">03058</a>
0.035	1/8	0.053	1-1/2	<a href="#">00699</a>	<a href="#">03059</a>
0.036	1/8	0.054	1-1/2	<a href="#">00700</a>	<a href="#">03060</a>
0.037	1/8	0.056	1-1/2	<a href="#">00701</a>	<a href="#">03061</a>
0.038	1/8	0.057	1-1/2	<a href="#">00702</a>	<a href="#">03062</a>
0.039	1/8	0.059	1-1/2	<a href="#">00703</a>	<a href="#">03063</a>
0.040	1/8	0.060	1-1/2	<a href="#">00704</a>	<a href="#">03064</a>

RE = 1/2 Cutting Diameter (DC)

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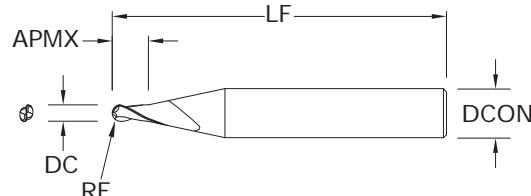
**TOLERANCES (inch)**

.005-.120 DIAMETER

DC = +0.000/-0.001

DCON = h<sub>6</sub>

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



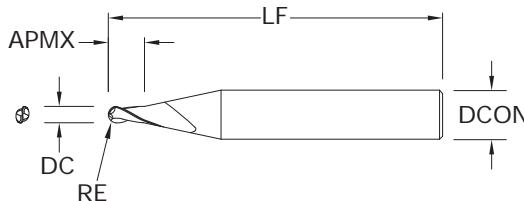
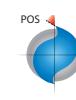
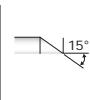
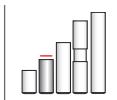
**M2B • 1.5xD**  
FRACTIONAL SERIES

*continued*

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	EDP NO.	UNCOATED	TI-NAMITE® A (AITIN)
0.041	1/8	0.062	1-1/2	<a href="#">00705</a>	<a href="#">02504</a>	
0.042	1/8	0.063	1-1/2	<a href="#">00706</a>	<a href="#">02505</a>	
0.043	1/8	0.065	1-1/2	<a href="#">00707</a>	<a href="#">02506</a>	
0.044	1/8	0.066	1-1/2	<a href="#">00708</a>	<a href="#">02507</a>	
0.045	1/8	0.068	1-1/2	<a href="#">00709</a>	<a href="#">02508</a>	
0.046	1/8	0.069	1-1/2	<a href="#">00710</a>	<a href="#">02509</a>	
0.047	1/8	0.071	1-1/2	<a href="#">00711</a>	<a href="#">02510</a>	
0.048	1/8	0.072	1-1/2	<a href="#">00712</a>	<a href="#">02511</a>	
0.049	1/8	0.074	1-1/2	<a href="#">00713</a>	<a href="#">02512</a>	
0.050	1/8	0.075	1-1/2	<a href="#">00714</a>	<a href="#">02513</a>	
0.051	1/8	0.077	1-1/2	<a href="#">00715</a>	<a href="#">02514</a>	
0.052	1/8	0.078	1-1/2	<a href="#">00716</a>	<a href="#">02515</a>	
0.053	1/8	0.080	1-1/2	<a href="#">00717</a>	<a href="#">02516</a>	
0.054	1/8	0.081	1-1/2	<a href="#">00718</a>	<a href="#">02517</a>	
0.055	1/8	0.083	1-1/2	<a href="#">00719</a>	<a href="#">02518</a>	
0.056	1/8	0.084	1-1/2	<a href="#">00720</a>	<a href="#">02519</a>	
0.057	1/8	0.086	1-1/2	<a href="#">00721</a>	<a href="#">02520</a>	
0.058	1/8	0.087	1-1/2	<a href="#">00722</a>	<a href="#">02521</a>	
0.059	1/8	0.089	1-1/2	<a href="#">00723</a>	<a href="#">02522</a>	
0.060	1/8	0.090	1-1/2	<a href="#">00724</a>	<a href="#">02523</a>	
0.062	1/8	0.093	1-1/2	<a href="#">00725</a>	<a href="#">02524</a>	
0.065	1/8	0.098	1-1/2	<a href="#">00726</a>	<a href="#">02525</a>	
0.070	1/8	0.105	1-1/2	<a href="#">00727</a>	<a href="#">02526</a>	
0.075	1/8	0.112	1-1/2	<a href="#">04010</a>	<a href="#">04008</a>	
0.078	1/8	0.117	1-1/2	<a href="#">00728</a>	<a href="#">02527</a>	
0.080	1/8	0.120	1-1/2	<a href="#">00729</a>	<a href="#">02528</a>	
0.085	1/8	0.128	1-1/2	<a href="#">00730</a>	<a href="#">02529</a>	
0.090	1/8	0.135	1-1/2	<a href="#">00731</a>	<a href="#">02530</a>	
0.093	1/8	0.140	1-1/2	<a href="#">00732</a>	<a href="#">02531</a>	
0.095	1/8	0.143	1-1/2	<a href="#">00733</a>	<a href="#">02532</a>	
0.100	1/8	0.150	1-1/2	<a href="#">00734</a>	<a href="#">02533</a>	
0.105	1/8	0.158	1-1/2	<a href="#">00735</a>	<a href="#">02534</a>	
0.110	1/8	0.165	1-1/2	<a href="#">00736</a>	<a href="#">02535</a>	
0.115	1/8	0.173	1-1/2	<a href="#">00737</a>	<a href="#">02536</a>	
0.120	1/8	0.180	1-1/2	<a href="#">00738</a>	<a href="#">02537</a>	

RE = 1/2 Cutting Diameter (DC)

## FRACTIONAL

**M2B • 3xD****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
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- 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 DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	UNCOATED	TI-NAMITE®-A (AITIN)
0.005	1/8	0.015	1-1/2	<a href="#">00443</a>	<a href="#">03103</a>
0.006	1/8	0.018	1-1/2	<a href="#">00444</a>	<a href="#">03104</a>
0.007	1/8	0.021	1-1/2	<a href="#">00445</a>	<a href="#">03105</a>
0.008	1/8	0.024	1-1/2	<a href="#">00446</a>	<a href="#">03106</a>
0.009	1/8	0.027	1-1/2	<a href="#">00447</a>	<a href="#">03107</a>
0.010	1/8	0.030	1-1/2	<a href="#">00448</a>	<a href="#">03108</a>
0.011	1/8	0.033	1-1/2	<a href="#">00449</a>	<a href="#">03109</a>
0.012	1/8	0.036	1-1/2	<a href="#">00450</a>	<a href="#">03110</a>
0.013	1/8	0.039	1-1/2	<a href="#">00451</a>	<a href="#">03111</a>
0.014	1/8	0.042	1-1/2	<a href="#">00452</a>	<a href="#">03112</a>
0.015	1/8	0.045	1-1/2	<a href="#">00453</a>	<a href="#">03113</a>
0.016	1/8	0.048	1-1/2	<a href="#">00454</a>	<a href="#">03114</a>
0.017	1/8	0.051	1-1/2	<a href="#">00455</a>	<a href="#">03115</a>
0.018	1/8	0.054	1-1/2	<a href="#">00456</a>	<a href="#">03116</a>
0.019	1/8	0.057	1-1/2	<a href="#">00457</a>	<a href="#">03117</a>
0.020	1/8	0.060	1-1/2	<a href="#">00458</a>	<a href="#">03118</a>
0.021	1/8	0.063	1-1/2	<a href="#">00459</a>	<a href="#">03119</a>
0.022	1/8	0.066	1-1/2	<a href="#">00460</a>	<a href="#">03120</a>
0.023	1/8	0.069	1-1/2	<a href="#">00461</a>	<a href="#">03121</a>
0.024	1/8	0.072	1-1/2	<a href="#">00462</a>	<a href="#">03122</a>
0.025	1/8	0.075	1-1/2	<a href="#">00463</a>	<a href="#">03123</a>
0.026	1/8	0.078	1-1/2	<a href="#">00464</a>	<a href="#">03124</a>
0.027	1/8	0.081	1-1/2	<a href="#">00465</a>	<a href="#">03125</a>
0.028	1/8	0.084	1-1/2	<a href="#">00466</a>	<a href="#">03126</a>
0.029	1/8	0.087	1-1/2	<a href="#">00467</a>	<a href="#">03127</a>
0.030	1/8	0.090	1-1/2	<a href="#">00468</a>	<a href="#">03128</a>
0.031	1/8	0.093	1-1/2	<a href="#">00469</a>	<a href="#">03129</a>
0.032	1/8	0.096	1-1/2	<a href="#">00470</a>	<a href="#">03130</a>
0.033	1/8	0.099	1-1/2	<a href="#">00471</a>	<a href="#">03131</a>
0.034	1/8	0.102	1-1/2	<a href="#">00472</a>	<a href="#">03132</a>
0.035	1/8	0.105	1-1/2	<a href="#">00473</a>	<a href="#">03133</a>
0.036	1/8	0.108	1-1/2	<a href="#">00474</a>	<a href="#">03134</a>
0.037	1/8	0.111	1-1/2	<a href="#">00475</a>	<a href="#">03135</a>
0.038	1/8	0.114	1-1/2	<a href="#">00476</a>	<a href="#">03136</a>
0.039	1/8	0.117	1-1/2	<a href="#">00477</a>	<a href="#">03137</a>
0.040	1/8	0.120	1-1/2	<a href="#">00478</a>	<a href="#">03138</a>

RE = 1/2 Cutting Diameter (DC)

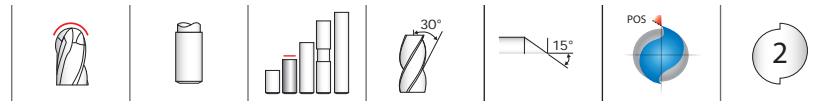
**TOLERANCES (inch)****.005-.120 DIAMETER**

DC = +0.000/-0.001

DCON = h6

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

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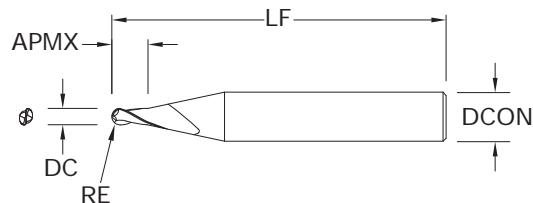
**TOLERANCES (inch)**

.005-.120 DIAMETER

DC = +0.000/-0.001

DCON = h<sub>6</sub>

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



**M2B • 3xD**  
FRACTIONAL SERIES

*continued*

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	EDP NO.	UNCOATED	TI-NAMITE®-A (AITIN)
0.041	1/8	0.123	1-1/2	<a href="#">00847</a>	<a href="#">02572</a>	
0.042	1/8	0.126	1-1/2	<a href="#">00848</a>	<a href="#">02573</a>	
0.043	1/8	0.129	1-1/2	<a href="#">00849</a>	<a href="#">02574</a>	
0.044	1/8	0.132	1-1/2	<a href="#">00850</a>	<a href="#">02575</a>	
0.045	1/8	0.135	1-1/2	<a href="#">00851</a>	<a href="#">02576</a>	
0.046	1/8	0.138	1-1/2	<a href="#">00852</a>	<a href="#">02577</a>	
0.047	1/8	0.141	1-1/2	<a href="#">00853</a>	<a href="#">02578</a>	
0.048	1/8	0.144	1-1/2	<a href="#">00854</a>	<a href="#">02579</a>	
0.049	1/8	0.147	1-1/2	<a href="#">00855</a>	<a href="#">02580</a>	
0.050	1/8	0.150	1-1/2	<a href="#">00856</a>	<a href="#">02581</a>	
0.051	1/8	0.153	1-1/2	<a href="#">00857</a>	<a href="#">02582</a>	
0.052	1/8	0.156	1-1/2	<a href="#">00858</a>	<a href="#">02583</a>	
0.053	1/8	0.159	1-1/2	<a href="#">00859</a>	<a href="#">02584</a>	
0.054	1/8	0.162	1-1/2	<a href="#">00860</a>	<a href="#">02585</a>	
0.055	1/8	0.165	1-1/2	<a href="#">00861</a>	<a href="#">02586</a>	
0.056	1/8	0.168	1-1/2	<a href="#">00862</a>	<a href="#">02587</a>	
0.057	1/8	0.171	1-1/2	<a href="#">00863</a>	<a href="#">02588</a>	
0.058	1/8	0.174	1-1/2	<a href="#">00864</a>	<a href="#">02589</a>	
0.059	1/8	0.177	1-1/2	<a href="#">00497</a>	<a href="#">02590</a>	
0.060	1/8	0.180	1-1/2	<a href="#">00866</a>	<a href="#">02591</a>	
0.062	1/8	0.186	1-1/2	<a href="#">00867</a>	<a href="#">02592</a>	
0.065	1/8	0.195	1-1/2	<a href="#">00868</a>	<a href="#">02593</a>	
0.070	1/8	0.210	1-1/2	<a href="#">00869</a>	<a href="#">02594</a>	
0.075	1/8	0.225	1-1/2	<a href="#">04011</a>	<a href="#">04009</a>	
0.078	1/8	0.234	1-1/2	<a href="#">00502</a>	<a href="#">02595</a>	
0.080	1/8	0.240	1-1/2	<a href="#">00871</a>	<a href="#">02596</a>	
0.085	1/8	0.255	1-1/2	<a href="#">00872</a>	<a href="#">02597</a>	
0.090	1/8	0.270	1-1/2	<a href="#">00873</a>	<a href="#">02598</a>	
0.093	1/8	0.279	1-1/2	<a href="#">00874</a>	<a href="#">02599</a>	
0.095	1/8	0.285	1-1/2	<a href="#">00875</a>	<a href="#">02600</a>	
0.100	1/8	0.300	1-1/2	<a href="#">00876</a>	<a href="#">02601</a>	
0.105	1/8	0.315	1-1/2	<a href="#">00877</a>	<a href="#">02602</a>	
0.110	1/8	0.330	1-1/2	<a href="#">00510</a>	<a href="#">02603</a>	
0.115	1/8	0.345	1-1/2	<a href="#">00879</a>	<a href="#">02604</a>	
0.120	1/8	0.360	1-1/2	<a href="#">00880</a>	<a href="#">02605</a>	

RE = 1/2 Cutting Diameter (DC)

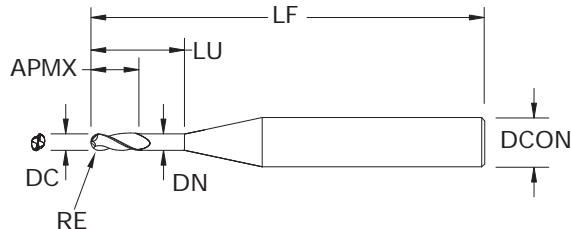
# M2B • 3xD • 8xD Overall Reach



## 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



## TOLERANCES (inch)

.010-.120 DIAMETER

DC = +0.000/-0.001

DCON = h<sub>6</sub>

STEELS

STAINLESS STEELS

CAST IRON

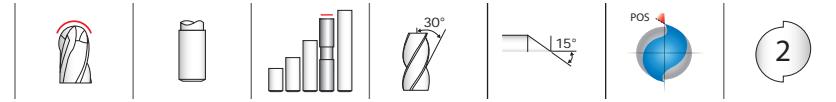
NON-FERROUS

HIGH TEMP ALLOYS

CUTTING DIAMETER DC	SHANK DIAMETER DCON	inch				EDP NO.	
		LENGTH OF CUT APMX	REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	UNCOATED	TI-NAMITE® A (AITiN)
0.010	1/8	0.030	0.080	0.009	1-1/2	<a href="#">09299</a>	<a href="#">03697</a>
0.015	1/8	0.045	0.120	0.014	1-1/2	<a href="#">09301</a>	<a href="#">03698</a>
0.020	1/8	0.060	0.160	0.018	1-1/2	<a href="#">09303</a>	<a href="#">03699</a>
0.025	1/8	0.075	0.200	0.023	1-1/2	<a href="#">09305</a>	<a href="#">03700</a>
0.030	1/8	0.090	0.240	0.028	1-1/2	<a href="#">09307</a>	<a href="#">03701</a>
0.031	1/8	0.093	0.248	0.029	1-1/2	<a href="#">09309</a>	<a href="#">03702</a>
0.035	1/8	0.105	0.280	0.032	1-1/2	<a href="#">09311</a>	<a href="#">03703</a>
0.040	1/8	0.120	0.320	0.037	1-1/2	<a href="#">09313</a>	<a href="#">03704</a>
0.045	1/8	0.135	0.360	0.042	2	<a href="#">09315</a>	<a href="#">03705</a>
0.047	1/8	0.141	0.376	0.044	2	<a href="#">09317</a>	<a href="#">03706</a>
0.050	1/8	0.150	0.400	0.047	2	<a href="#">09319</a>	<a href="#">03707</a>
0.055	1/8	0.165	0.440	0.051	2	<a href="#">09321</a>	<a href="#">03708</a>
0.060	1/8	0.180	0.480	0.056	2	<a href="#">09323</a>	<a href="#">03709</a>
0.062	1/8	0.186	0.496	0.058	2	<a href="#">09325</a>	<a href="#">03710</a>
0.065	1/8	0.195	0.520	0.061	2	<a href="#">09327</a>	<a href="#">03711</a>
0.070	1/8	0.210	0.560	0.065	2	<a href="#">09329</a>	<a href="#">03712</a>
0.075	1/8	0.225	0.600	0.070	2	<a href="#">09331</a>	<a href="#">03713</a>
0.078	1/8	0.234	0.624	0.073	2	<a href="#">09333</a>	<a href="#">03714</a>
0.080	1/8	0.240	0.640	0.075	2	<a href="#">09335</a>	<a href="#">03715</a>
0.085	1/8	0.255	0.680	0.079	2	<a href="#">09337</a>	<a href="#">03716</a>
0.090	1/8	0.270	0.720	0.084	2	<a href="#">09339</a>	<a href="#">03717</a>
0.093	1/8	0.279	0.744	0.087	2	<a href="#">09341</a>	<a href="#">03718</a>
0.095	1/8	0.285	0.760	0.089	2	<a href="#">09343</a>	<a href="#">03719</a>
0.100	1/8	0.300	0.800	0.094	2	<a href="#">09345</a>	<a href="#">03720</a>
0.110	1/8	0.330	0.880	0.103	2	<a href="#">09347</a>	<a href="#">03721</a>
0.115	1/8	0.345	0.920	0.108	2	<a href="#">09349</a>	<a href="#">03722</a>
0.120	1/8	0.360	0.960	0.112	2	<a href="#">09351</a>	<a href="#">03723</a>

RE = 1/2 Cutting Diameter (DC)

# M2B • 3xD • 12xD Overall Reach



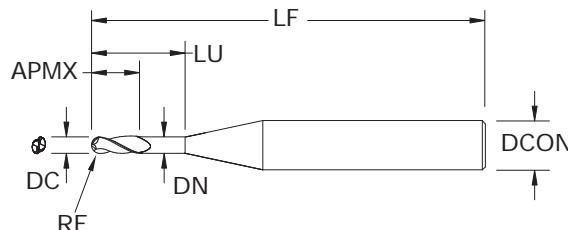
## TOLERANCES (inch)

.010-.120 DIAMETER

DC = +0.000/-0.001

DCON = h<sub>6</sub>

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



## M2B • 3xD 12xD

FRACTIONAL SERIES

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	EDP NO.	
						UNCOATED	TI-NAMITE® A (AlTiN)
0.010	1/8	0.030	0.120	0.009	1-1/2	<a href="#">09298</a>	<a href="#">03724</a>
0.015	1/8	0.045	0.180	0.014	1-1/2	<a href="#">09300</a>	<a href="#">03725</a>
0.020	1/8	0.060	0.240	0.018	1-1/2	<a href="#">09302</a>	<a href="#">03726</a>
0.025	1/8	0.075	0.300	0.023	1-1/2	<a href="#">09304</a>	<a href="#">03727</a>
0.030	1/8	0.090	0.360	0.028	2	<a href="#">09306</a>	<a href="#">03728</a>
0.031	1/8	0.093	0.372	0.029	2	<a href="#">09308</a>	<a href="#">03729</a>
0.035	1/8	0.105	0.420	0.032	2	<a href="#">09310</a>	<a href="#">03730</a>
0.040	1/8	0.120	0.480	0.037	2	<a href="#">09312</a>	<a href="#">03731</a>
0.045	1/8	0.135	0.540	0.042	2	<a href="#">09314</a>	<a href="#">03732</a>
0.047	1/8	0.141	0.564	0.044	2	<a href="#">09316</a>	<a href="#">03733</a>
0.050	1/8	0.150	0.600	0.047	2	<a href="#">09318</a>	<a href="#">03734</a>
0.055	1/8	0.165	0.660	0.051	2	<a href="#">09320</a>	<a href="#">03735</a>
0.060	1/8	0.180	0.720	0.056	2	<a href="#">09322</a>	<a href="#">03736</a>
0.062	1/8	0.186	0.744	0.058	2	<a href="#">09324</a>	<a href="#">03737</a>
0.065	1/8	0.195	0.780	0.061	2	<a href="#">09326</a>	<a href="#">03738</a>
0.070	1/8	0.210	0.840	0.065	2	<a href="#">09328</a>	<a href="#">03739</a>
0.075	1/8	0.225	0.900	0.070	2	<a href="#">09330</a>	<a href="#">03740</a>
0.078	1/8	0.234	0.936	0.073	2-1/2	<a href="#">09332</a>	<a href="#">03741</a>
0.080	1/8	0.240	0.960	0.075	2-1/2	<a href="#">09334</a>	<a href="#">03742</a>
0.085	1/8	0.255	1.020	0.079	2-1/2	<a href="#">09336</a>	<a href="#">03743</a>
0.090	1/8	0.270	1.080	0.084	2-1/2	<a href="#">09338</a>	<a href="#">03744</a>
0.093	1/8	0.279	1.116	0.087	2-1/2	<a href="#">09340</a>	<a href="#">03745</a>
0.095	1/8	0.285	1.140	0.089	2-1/2	<a href="#">09342</a>	<a href="#">03746</a>
0.100	1/8	0.300	1.200	0.094	2-1/2	<a href="#">09344</a>	<a href="#">03747</a>
0.110	1/8	0.330	1.320	0.103	2-1/2	<a href="#">09346</a>	<a href="#">03748</a>
0.115	1/8	0.345	1.380	0.108	2-1/2	<a href="#">09348</a>	<a href="#">03749</a>
0.120	1/8	0.360	1.440	0.112	2-1/2	<a href="#">09350</a>	<a href="#">03750</a>

RE = 1/2 Cutting Diameter (DC)

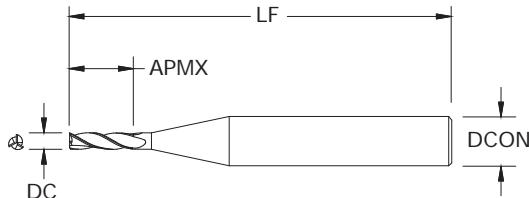
- Two flute design is ideal for softer alloyed, non-ferrous material applications that require slotting or involve heavy chip loads
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds
- High performance carbide substrate designed 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

**M3 • 1.5xD****M3 • 1.5xD**

## 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

**TOLERANCES (inch)****.005-.120 DIAMETER**

DC = +0.000/-0.001

DCON = h6

STEELS

STAINLESS STEELS

CAST IRON

NON-FERROUS

HIGH TEMP ALLOYS

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	EDP NO.	
				UNCOATED	TI-NAMITE®-A (AITIN)
0.005	1/8	0.008	1-1/2	<a href="#">04040</a>	<a href="#">01085</a>
0.006	1/8	0.009	1-1/2	<a href="#">04041</a>	<a href="#">01086</a>
0.007	1/8	0.011	1-1/2	<a href="#">04042</a>	<a href="#">01087</a>
0.008	1/8	0.012	1-1/2	<a href="#">04043</a>	<a href="#">01088</a>
0.009	1/8	0.014	1-1/2	<a href="#">04044</a>	<a href="#">01089</a>
0.010	1/8	0.015	1-1/2	<a href="#">04045</a>	<a href="#">01090</a>
0.011	1/8	0.017	1-1/2	<a href="#">04046</a>	<a href="#">01091</a>
0.012	1/8	0.018	1-1/2	<a href="#">04047</a>	<a href="#">01092</a>
0.013	1/8	0.020	1-1/2	<a href="#">04048</a>	<a href="#">01093</a>
0.014	1/8	0.021	1-1/2	<a href="#">04049</a>	<a href="#">01094</a>
0.015	1/8	0.023	1-1/2	<a href="#">04050</a>	<a href="#">01095</a>
0.016	1/8	0.024	1-1/2	<a href="#">04051</a>	<a href="#">01096</a>
0.017	1/8	0.026	1-1/2	<a href="#">04052</a>	<a href="#">01097</a>
0.018	1/8	0.027	1-1/2	<a href="#">04053</a>	<a href="#">01098</a>
0.019	1/8	0.029	1-1/2	<a href="#">04054</a>	<a href="#">01099</a>
0.020	1/8	0.030	1-1/2	<a href="#">04055</a>	<a href="#">01100</a>
0.021	1/8	0.032	1-1/2	<a href="#">04056</a>	<a href="#">01101</a>
0.022	1/8	0.033	1-1/2	<a href="#">04057</a>	<a href="#">01102</a>
0.023	1/8	0.035	1-1/2	<a href="#">04058</a>	<a href="#">01103</a>
0.024	1/8	0.036	1-1/2	<a href="#">04059</a>	<a href="#">01104</a>
0.025	1/8	0.038	1-1/2	<a href="#">04060</a>	<a href="#">01105</a>
0.026	1/8	0.039	1-1/2	<a href="#">04061</a>	<a href="#">01106</a>
0.027	1/8	0.041	1-1/2	<a href="#">04062</a>	<a href="#">01107</a>
0.028	1/8	0.042	1-1/2	<a href="#">04063</a>	<a href="#">01108</a>
0.029	1/8	0.044	1-1/2	<a href="#">04064</a>	<a href="#">01109</a>
0.030	1/8	0.045	1-1/2	<a href="#">04065</a>	<a href="#">01110</a>
0.031	1/8	0.047	1-1/2	<a href="#">04066</a>	<a href="#">01111</a>
0.032	1/8	0.048	1-1/2	<a href="#">04067</a>	<a href="#">01112</a>
0.033	1/8	0.050	1-1/2	<a href="#">04068</a>	<a href="#">01113</a>
0.034	1/8	0.051	1-1/2	<a href="#">04069</a>	<a href="#">01114</a>
0.035	1/8	0.053	1-1/2	<a href="#">04070</a>	<a href="#">01115</a>
0.036	1/8	0.054	1-1/2	<a href="#">04071</a>	<a href="#">01116</a>
0.037	1/8	0.056	1-1/2	<a href="#">04072</a>	<a href="#">01117</a>
0.038	1/8	0.057	1-1/2	<a href="#">04073</a>	<a href="#">01118</a>
0.039	1/8	0.059	1-1/2	<a href="#">04074</a>	<a href="#">01119</a>
0.040	1/8	0.060	1-1/2	<a href="#">04075</a>	<a href="#">01120</a>

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**TOLERANCES (inch)**

.005-.120 DIAMETER

DC = +0.000/-0.001

DCON = h<sub>6</sub>

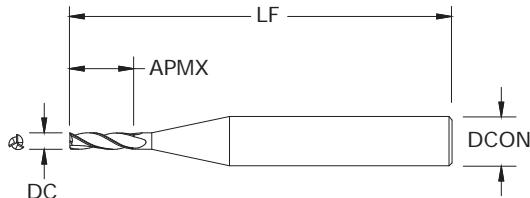
**STEELS**

**STAINLESS STEELS**

**CAST IRON**

**NON-FERROUS**

**HIGH TEMP ALLOYS**



**M3 • 1.5xD**  
FRACTIONAL SERIES

*continued*

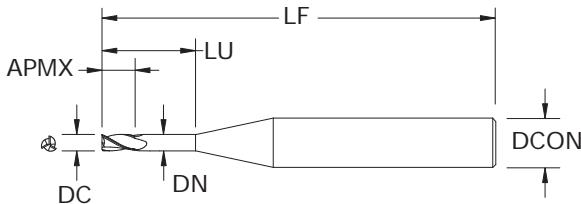
CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	EDP NO.	UNCOATED	TI-NAMITE®-A (AITIN)
0.041	1/8	0.062	1-1/2	<a href="#">04076</a>	<a href="#">01121</a>	
0.042	1/8	0.063	1-1/2	<a href="#">04077</a>	<a href="#">01122</a>	
0.043	1/8	0.065	1-1/2	<a href="#">04078</a>	<a href="#">01123</a>	
0.044	1/8	0.066	1-1/2	<a href="#">04079</a>	<a href="#">01124</a>	
0.045	1/8	0.068	1-1/2	<a href="#">04080</a>	<a href="#">01125</a>	
0.046	1/8	0.069	1-1/2	<a href="#">04081</a>	<a href="#">01126</a>	
0.047	1/8	0.071	1-1/2	<a href="#">04082</a>	<a href="#">01127</a>	
0.048	1/8	0.072	1-1/2	<a href="#">04083</a>	<a href="#">01128</a>	
0.049	1/8	0.074	1-1/2	<a href="#">04084</a>	<a href="#">01129</a>	
0.050	1/8	0.075	1-1/2	<a href="#">04085</a>	<a href="#">01130</a>	
0.051	1/8	0.077	1-1/2	<a href="#">04086</a>	<a href="#">01131</a>	
0.052	1/8	0.078	1-1/2	<a href="#">04087</a>	<a href="#">01132</a>	
0.053	1/8	0.080	1-1/2	<a href="#">04088</a>	<a href="#">01133</a>	
0.054	1/8	0.081	1-1/2	<a href="#">04089</a>	<a href="#">01134</a>	
0.055	1/8	0.083	1-1/2	<a href="#">04090</a>	<a href="#">01135</a>	
0.056	1/8	0.084	1-1/2	<a href="#">04091</a>	<a href="#">01136</a>	
0.057	1/8	0.086	1-1/2	<a href="#">04092</a>	<a href="#">01137</a>	
0.058	1/8	0.087	1-1/2	<a href="#">04093</a>	<a href="#">01138</a>	
0.059	1/8	0.089	1-1/2	<a href="#">04094</a>	<a href="#">01139</a>	
0.060	1/8	0.090	1-1/2	<a href="#">04095</a>	<a href="#">01140</a>	
0.062	1/8	0.093	1-1/2	<a href="#">04096</a>	<a href="#">01141</a>	
0.065	1/8	0.098	1-1/2	<a href="#">04097</a>	<a href="#">01142</a>	
0.070	1/8	0.105	1-1/2	<a href="#">04098</a>	<a href="#">01143</a>	
0.075	1/8	0.113	1-1/2	<a href="#">04099</a>	<a href="#">01144</a>	
0.078	1/8	0.117	1-1/2	<a href="#">04100</a>	<a href="#">01145</a>	
0.080	1/8	0.120	1-1/2	<a href="#">04101</a>	<a href="#">01146</a>	
0.085	1/8	0.128	1-1/2	<a href="#">04102</a>	<a href="#">01147</a>	
0.090	1/8	0.135	1-1/2	<a href="#">04103</a>	<a href="#">01148</a>	
0.093	1/8	0.140	1-1/2	<a href="#">04104</a>	<a href="#">01149</a>	
0.095	1/8	0.143	1-1/2	<a href="#">04105</a>	<a href="#">01150</a>	
0.100	1/8	0.150	1-1/2	<a href="#">04106</a>	<a href="#">01151</a>	
0.105	1/8	0.158	1-1/2	<a href="#">04107</a>	<a href="#">01152</a>	
0.110	1/8	0.165	1-1/2	<a href="#">04108</a>	<a href="#">01153</a>	
0.115	1/8	0.173	1-1/2	<a href="#">04109</a>	<a href="#">01154</a>	
0.120	1/8	0.180	1-1/2	<a href="#">04110</a>	<a href="#">01155</a>	

## FRACTIONAL

**M3 • 1.5xD • 3xD Overall Reach****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



## TOLERANCES (inch)

## .010-.120 DIAMETER

DC = +0.000/-0.001

DCON = h6

STEELS

STAINLESS STEELS

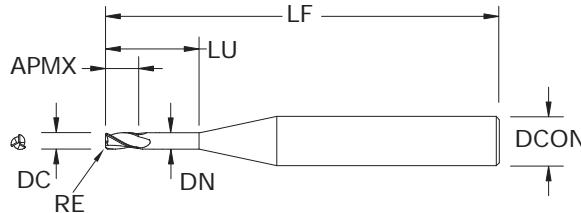
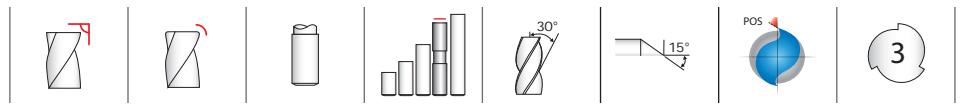
CAST IRON

NON-FERROUS

HIGH TEMP ALLOYS

inch						EDP NO.	
CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	UNCOATED	TI-NAMITE®-A (AITIN)
0.010	1/8	0.015	0.030	0.009	2-1/2	<a href="#">09599</a>	<a href="#">03508</a>
0.015	1/8	0.023	0.045	0.014	2-1/2	<a href="#">09606</a>	<a href="#">03509</a>
0.020	1/8	0.030	0.060	0.018	2-1/2	<a href="#">09613</a>	<a href="#">03510</a>
0.025	1/8	0.038	0.075	0.023	2-1/2	<a href="#">09620</a>	<a href="#">03511</a>
0.030	1/8	0.045	0.090	0.028	2-1/2	<a href="#">09627</a>	<a href="#">03512</a>
0.031	1/8	0.047	0.093	0.029	2-1/2	<a href="#">09634</a>	<a href="#">03513</a>
0.035	1/8	0.053	0.105	0.032	2-1/2	<a href="#">09641</a>	<a href="#">03514</a>
0.040	1/8	0.060	0.120	0.037	2-1/2	<a href="#">09648</a>	<a href="#">03515</a>
0.045	1/8	0.068	0.135	0.042	2-1/2	<a href="#">09655</a>	<a href="#">03516</a>
0.047	1/8	0.071	0.141	0.044	2-1/2	<a href="#">09662</a>	<a href="#">03517</a>
0.050	1/8	0.075	0.150	0.047	2-1/2	<a href="#">09669</a>	<a href="#">03518</a>
0.055	1/8	0.083	0.165	0.051	2-1/2	<a href="#">09676</a>	<a href="#">03519</a>
0.060	1/8	0.090	0.180	0.056	2-1/2	<a href="#">09683</a>	<a href="#">03520</a>
0.062	1/8	0.093	0.186	0.058	2-1/2	<a href="#">09690</a>	<a href="#">03521</a>
0.065	1/8	0.098	0.195	0.061	2-1/2	<a href="#">09697</a>	<a href="#">03522</a>
0.070	1/8	0.105	0.210	0.065	2-1/2	<a href="#">09704</a>	<a href="#">03523</a>
0.075	1/8	0.113	0.225	0.070	2-1/2	<a href="#">09711</a>	<a href="#">03524</a>
0.078	1/8	0.117	0.234	0.073	2-1/2	<a href="#">09718</a>	<a href="#">03525</a>
0.080	1/8	0.120	0.240	0.075	2-1/2	<a href="#">09725</a>	<a href="#">03526</a>
0.085	1/8	0.128	0.255	0.079	2-1/2	<a href="#">09732</a>	<a href="#">03527</a>
0.090	1/8	0.135	0.270	0.084	2-1/2	<a href="#">09739</a>	<a href="#">03528</a>
0.093	1/8	0.140	0.279	0.087	2-1/2	<a href="#">09746</a>	<a href="#">03529</a>
0.095	1/8	0.143	0.285	0.089	2-1/2	<a href="#">09753</a>	<a href="#">03530</a>
0.100	1/8	0.150	0.300	0.094	2-1/2	<a href="#">09760</a>	<a href="#">03531</a>
0.110	1/8	0.165	0.330	0.103	2-1/2	<a href="#">09767</a>	<a href="#">03532</a>
0.115	1/8	0.173	0.345	0.108	2-1/2	<a href="#">09774</a>	<a href="#">03533</a>
0.120	1/8	0.180	0.360	0.112	2-1/2	<a href="#">09781</a>	<a href="#">03534</a>

# M3 • M3CR • 1.5xD • 5xD Overall Reach



## M3 • M3CR • 1.5xD 5xD

FRACTIONAL SERIES

**TOLERANCES (inch)****.010–.120 DIAMETER**

DC = +0.000/-0.001

DCON = h<sub>6</sub>

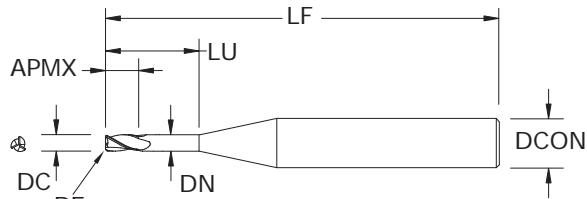
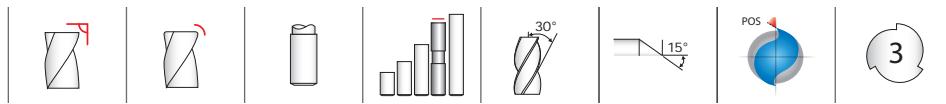
RE = +0.0000/-0.0005

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

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	inch				EDP NO.
			REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	CORNER RADIUS RE	
0.010	1/8	0.015	0.050	0.009	2-1/2	—	<a href="#">09600</a> <a href="#">03535</a>
0.015	1/8	0.023	0.075	0.014	2-1/2	—	<a href="#">09607</a> <a href="#">03536</a>
0.015	1/8	0.023	0.075	0.014	2-1/2	0.003	<a href="#">08782</a> <a href="#">08884</a>
0.020	1/8	0.030	0.100	0.018	2-1/2	—	<a href="#">09614</a> <a href="#">03537</a>
0.020	1/8	0.030	0.100	0.018	2-1/2	0.005	<a href="#">08785</a> <a href="#">08887</a>
0.025	1/8	0.038	0.125	0.023	2-1/2	—	<a href="#">09621</a> <a href="#">03538</a>
0.025	1/8	0.038	0.125	0.023	2-1/2	0.005	<a href="#">08788</a> <a href="#">08890</a>
0.030	1/8	0.045	0.150	0.028	2-1/2	—	<a href="#">09628</a> <a href="#">03539</a>
0.030	1/8	0.045	0.150	0.028	2-1/2	0.005	<a href="#">08791</a> <a href="#">08893</a>
0.031	1/8	0.047	0.155	0.029	2-1/2	—	<a href="#">09635</a> <a href="#">03540</a>
0.035	1/8	0.053	0.175	0.032	2-1/2	—	<a href="#">09642</a> <a href="#">03541</a>
0.035	1/8	0.053	0.175	0.032	2-1/2	0.005	<a href="#">08794</a> <a href="#">08896</a>
0.035	1/8	0.053	0.175	0.032	2-1/2	0.010	<a href="#">08797</a> <a href="#">08899</a>
0.040	1/8	0.060	0.200	0.037	2-1/2	—	<a href="#">09649</a> <a href="#">03542</a>
0.040	1/8	0.060	0.200	0.037	2-1/2	0.005	<a href="#">08800</a> <a href="#">08902</a>
0.040	1/8	0.060	0.200	0.037	2-1/2	0.010	<a href="#">08803</a> <a href="#">08905</a>
0.045	1/8	0.068	0.225	0.042	2-1/2	—	<a href="#">09656</a> <a href="#">03543</a>
0.045	1/8	0.068	0.225	0.042	2-1/2	0.005	<a href="#">08806</a> <a href="#">08908</a>
0.045	1/8	0.068	0.225	0.042	2-1/2	0.010	<a href="#">08809</a> <a href="#">08911</a>
0.047	1/8	0.071	0.235	0.044	2-1/2	—	<a href="#">09663</a> <a href="#">03544</a>
0.050	1/8	0.075	0.250	0.047	2-1/2	—	<a href="#">09670</a> <a href="#">03545</a>
0.050	1/8	0.075	0.250	0.047	2-1/2	0.005	<a href="#">08812</a> <a href="#">08914</a>
0.050	1/8	0.075	0.250	0.047	2-1/2	0.010	<a href="#">08815</a> <a href="#">08917</a>
0.050	1/8	0.075	0.250	0.047	2-1/2	0.015	<a href="#">08818</a> <a href="#">08920</a>
0.055	1/8	0.083	0.275	0.051	2-1/2	—	<a href="#">09677</a> <a href="#">03546</a>
0.060	1/8	0.090	0.300	0.056	2-1/2	—	<a href="#">09684</a> <a href="#">03547</a>
0.060	1/8	0.090	0.300	0.056	2-1/2	0.005	<a href="#">08821</a> <a href="#">08923</a>
0.060	1/8	0.090	0.300	0.056	2-1/2	0.010	<a href="#">08824</a> <a href="#">08926</a>
0.060	1/8	0.090	0.300	0.056	2-1/2	0.015	<a href="#">08827</a> <a href="#">08929</a>
0.062	1/8	0.093	0.310	0.058	2-1/2	—	<a href="#">09691</a> <a href="#">03548</a>
0.065	1/8	0.098	0.325	0.061	2-1/2	—	<a href="#">09698</a> <a href="#">03549</a>
0.070	1/8	0.105	0.350	0.065	2-1/2	—	<a href="#">09705</a> <a href="#">03550</a>
0.070	1/8	0.105	0.350	0.065	2-1/2	0.005	<a href="#">08830</a> <a href="#">08932</a>
0.070	1/8	0.105	0.350	0.065	2-1/2	0.010	<a href="#">08833</a> <a href="#">08935</a>

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## FRACTIONAL

**M3 • M3CR • 1.5xD • 5xD Overall Reach****M3 • M3CR • 1.5xD  
5xD**

FRACTIONAL SERIES

continued

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	inch				EDP NO.	
			REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	CORNER RADIUS RE	UNCOATED	TI-NAMITE® A (AlTiN)
0.070	1/8	0.105	0.350	0.065	2-1/2	0.015	<a href="#">08836</a>	<a href="#">08938</a>
0.075	1/8	0.113	0.375	0.070	2-1/2	—	<a href="#">09712</a>	<a href="#">03551</a>
0.078	1/8	0.117	0.390	0.073	2-1/2	—	<a href="#">09719</a>	<a href="#">03552</a>
0.080	1/8	0.120	0.400	0.075	2-1/2	—	<a href="#">09726</a>	<a href="#">03553</a>
0.080	1/8	0.120	0.400	0.075	2-1/2	0.005	<a href="#">08839</a>	<a href="#">08941</a>
0.080	1/8	0.120	0.400	0.075	2-1/2	0.010	<a href="#">08842</a>	<a href="#">08944</a>
0.080	1/8	0.120	0.400	0.075	2-1/2	0.015	<a href="#">08845</a>	<a href="#">08947</a>
0.085	1/8	0.128	0.425	0.079	2-1/2	—	<a href="#">09733</a>	<a href="#">03554</a>
0.090	1/8	0.135	0.450	0.084	2-1/2	—	<a href="#">09740</a>	<a href="#">03555</a>
0.090	1/8	0.135	0.450	0.084	2-1/2	0.005	<a href="#">08848</a>	<a href="#">08950</a>
0.090	1/8	0.135	0.450	0.084	2-1/2	0.010	<a href="#">08851</a>	<a href="#">08953</a>
0.090	1/8	0.135	0.450	0.084	2-1/2	0.015	<a href="#">08854</a>	<a href="#">08956</a>
0.093	1/8	0.140	0.465	0.087	2-1/2	—	<a href="#">09747</a>	<a href="#">03556</a>
0.095	1/8	0.143	0.475	0.089	2-1/2	—	<a href="#">09754</a>	<a href="#">03557</a>
0.100	1/8	0.150	0.500	0.094	2-1/2	—	<a href="#">09761</a>	<a href="#">03558</a>
0.100	1/8	0.150	0.500	0.094	2-1/2	0.005	<a href="#">08857</a>	<a href="#">08959</a>
0.100	1/8	0.150	0.500	0.094	2-1/2	0.010	<a href="#">08860</a>	<a href="#">08962</a>
0.100	1/8	0.150	0.500	0.094	2-1/2	0.015	<a href="#">08863</a>	<a href="#">08965</a>
0.110	1/8	0.165	0.550	0.103	2-1/2	—	<a href="#">09768</a>	<a href="#">03559</a>
0.110	1/8	0.165	0.550	0.103	2-1/2	0.005	<a href="#">08866</a>	<a href="#">08968</a>
0.110	1/8	0.165	0.550	0.103	2-1/2	0.010	<a href="#">08869</a>	<a href="#">08971</a>
0.110	1/8	0.165	0.550	0.103	2-1/2	0.015	<a href="#">08872</a>	<a href="#">08974</a>
0.115	1/8	0.173	0.575	0.108	2-1/2	—	<a href="#">09775</a>	<a href="#">03560</a>
0.120	1/8	0.180	0.600	0.112	2-1/2	—	<a href="#">09782</a>	<a href="#">03561</a>
0.120	1/8	0.180	0.600	0.112	2-1/2	0.005	<a href="#">08875</a>	<a href="#">08977</a>
0.120	1/8	0.180	0.600	0.112	2-1/2	0.010	<a href="#">08878</a>	<a href="#">08980</a>
0.120	1/8	0.180	0.600	0.112	2-1/2	0.015	<a href="#">08881</a>	<a href="#">08983</a>

## TOLERANCES (inch)

## .010-.120 DIAMETER

DC = +0.000/-0.001

DCON = h6

RE = +0.0000/-0.0005

STEELS

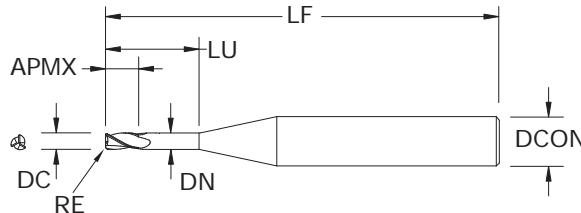
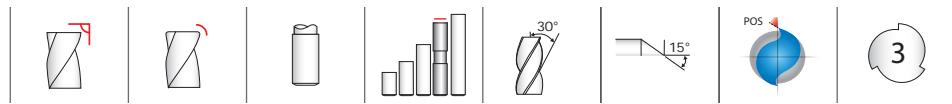
STAINLESS STEELS

CAST IRON

NON-FERROUS

HIGH TEMP ALLOYS

# M3 • M3CR • 1.5xD • 8xD Overall Reach



## M3 • M3CR • 1.5xD 8xD

FRACTIONAL SERIES

**TOLERANCES (inch)****.010–.120 DIAMETER**

DC = +0.000/-0.001

DCON = h<sub>6</sub>

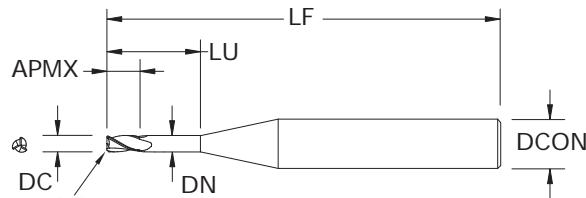
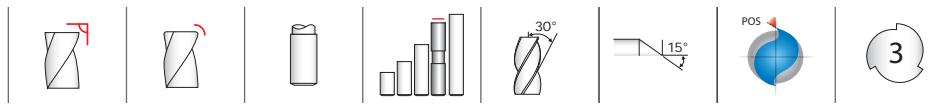
RE = +0.0000/-0.0005

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

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	inch				EDP NO.
			REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	CORNER RADIUS RE	
0.010	1/8	0.015	0.080	0.009	2-1/2	—	<a href="#">09601</a> <a href="#">03562</a>
0.015	1/8	0.023	0.120	0.014	2-1/2	—	<a href="#">09608</a> <a href="#">03563</a>
0.015	1/8	0.023	0.120	0.014	2-1/2	0.003	<a href="#">08783</a> <a href="#">08885</a>
0.020	1/8	0.030	0.160	0.018	2-1/2	—	<a href="#">09615</a> <a href="#">03564</a>
0.020	1/8	0.030	0.160	0.018	2-1/2	0.005	<a href="#">08786</a> <a href="#">08888</a>
0.025	1/8	0.038	0.200	0.023	2-1/2	—	<a href="#">09622</a> <a href="#">03565</a>
0.025	1/8	0.038	0.200	0.023	2-1/2	0.005	<a href="#">08789</a> <a href="#">08891</a>
0.030	1/8	0.045	0.240	0.028	2-1/2	—	<a href="#">09629</a> <a href="#">03566</a>
0.030	1/8	0.045	0.240	0.028	2-1/2	0.005	<a href="#">08792</a> <a href="#">08894</a>
0.031	1/8	0.047	0.248	0.029	2-1/2	—	<a href="#">09636</a> <a href="#">03567</a>
0.035	1/8	0.053	0.280	0.032	2-1/2	—	<a href="#">09643</a> <a href="#">03568</a>
0.035	1/8	0.053	0.280	0.032	2-1/2	0.005	<a href="#">08795</a> <a href="#">08897</a>
0.035	1/8	0.053	0.280	0.032	2-1/2	0.010	<a href="#">08798</a> <a href="#">08900</a>
0.040	1/8	0.060	0.320	0.037	2-1/2	—	<a href="#">09650</a> <a href="#">03569</a>
0.040	1/8	0.060	0.320	0.037	2-1/2	0.005	<a href="#">08801</a> <a href="#">08903</a>
0.040	1/8	0.060	0.320	0.037	2-1/2	0.010	<a href="#">08804</a> <a href="#">08906</a>
0.045	1/8	0.068	0.360	0.042	2-1/2	—	<a href="#">09657</a> <a href="#">03570</a>
0.045	1/8	0.068	0.360	0.042	2-1/2	0.005	<a href="#">08807</a> <a href="#">08909</a>
0.045	1/8	0.068	0.360	0.042	2-1/2	0.010	<a href="#">08810</a> <a href="#">08912</a>
0.047	1/8	0.071	0.376	0.044	2-1/2	—	<a href="#">09664</a> <a href="#">03571</a>
0.050	1/8	0.075	0.400	0.047	2-1/2	—	<a href="#">09671</a> <a href="#">03572</a>
0.050	1/8	0.075	0.400	0.047	2-1/2	0.005	<a href="#">08813</a> <a href="#">08915</a>
0.050	1/8	0.075	0.400	0.047	2-1/2	0.010	<a href="#">08816</a> <a href="#">08918</a>
0.050	1/8	0.075	0.400	0.047	2-1/2	0.015	<a href="#">08819</a> <a href="#">08921</a>
0.055	1/8	0.083	0.440	0.051	2-1/2	—	<a href="#">09678</a> <a href="#">03573</a>
0.060	1/8	0.090	0.480	0.056	2-1/2	—	<a href="#">09685</a> <a href="#">03574</a>
0.060	1/8	0.090	0.480	0.056	2-1/2	0.005	<a href="#">08822</a> <a href="#">08924</a>
0.060	1/8	0.090	0.480	0.056	2-1/2	0.010	<a href="#">08825</a> <a href="#">08927</a>
0.060	1/8	0.090	0.480	0.056	2-1/2	0.015	<a href="#">08828</a> <a href="#">08930</a>
0.062	1/8	0.093	0.496	0.058	2-1/2	—	<a href="#">09692</a> <a href="#">03575</a>
0.065	1/8	0.098	0.520	0.061	2-1/2	—	<a href="#">09699</a> <a href="#">03576</a>
0.070	1/8	0.105	0.560	0.065	2-1/2	—	<a href="#">09706</a> <a href="#">03577</a>
0.070	1/8	0.105	0.560	0.065	2-1/2	0.005	<a href="#">08831</a> <a href="#">08933</a>
0.070	1/8	0.105	0.560	0.065	2-1/2	0.010	<a href="#">08834</a> <a href="#">08936</a>
0.070	1/8	0.105	0.560	0.065	2-1/2	0.015	<a href="#">08837</a> <a href="#">08939</a>
0.075	1/8	0.113	0.600	0.070	2-1/2	—	<a href="#">09713</a> <a href="#">03578</a>

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## FRACTIONAL

**M3 • M3CR • 1.5xD • 8xD Overall Reach****M3 • M3CR • 1.5xD  
8xD**

FRACTIONAL SERIES

continued

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	inch				EDP NO.	
			REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	CORNER RADIUS RE	UNCOATED	TI-NAMITE® A (AlTiN)
0.078	1/8	0.117	0.624	0.073	2-1/2	—	<a href="#">09720</a>	<a href="#">03579</a>
0.080	1/8	0.120	0.640	0.075	2-1/2	—	<a href="#">09727</a>	<a href="#">03580</a>
0.080	1/8	0.120	0.640	0.075	2-1/2	0.005	<a href="#">08840</a>	<a href="#">08942</a>
0.080	1/8	0.120	0.640	0.075	2-1/2	0.010	<a href="#">08843</a>	<a href="#">08945</a>
0.080	1/8	0.120	0.640	0.075	2-1/2	0.015	<a href="#">08846</a>	<a href="#">08948</a>
0.085	1/8	0.128	0.680	0.079	2-1/2	—	<a href="#">09734</a>	<a href="#">03581</a>
0.090	1/8	0.135	0.720	0.084	2-1/2	—	<a href="#">09741</a>	<a href="#">03582</a>
0.090	1/8	0.135	0.720	0.084	2-1/2	0.005	<a href="#">08849</a>	<a href="#">08951</a>
0.090	1/8	0.135	0.720	0.084	2-1/2	0.010	<a href="#">08852</a>	<a href="#">08954</a>
0.090	1/8	0.135	0.720	0.084	2-1/2	0.015	<a href="#">08855</a>	<a href="#">08957</a>
0.093	1/8	0.140	0.744	0.087	2-1/2	—	<a href="#">09748</a>	<a href="#">03583</a>
0.095	1/8	0.143	0.760	0.089	2-1/2	—	<a href="#">09755</a>	<a href="#">03584</a>
0.100	1/8	0.150	0.800	0.094	2-1/2	—	<a href="#">09762</a>	<a href="#">03585</a>
0.100	1/8	0.150	0.800	0.094	2-1/2	0.005	<a href="#">08858</a>	<a href="#">08960</a>
0.100	1/8	0.150	0.800	0.094	2-1/2	0.010	<a href="#">08861</a>	<a href="#">08963</a>
0.100	1/8	0.150	0.800	0.094	2-1/2	0.015	<a href="#">08864</a>	<a href="#">08966</a>
0.110	1/8	0.165	0.880	0.103	2-1/2	—	<a href="#">09769</a>	<a href="#">03586</a>
0.110	1/8	0.165	0.880	0.103	2-1/2	0.005	<a href="#">08867</a>	<a href="#">08969</a>
0.110	1/8	0.165	0.880	0.103	2-1/2	0.010	<a href="#">08870</a>	<a href="#">08972</a>
0.110	1/8	0.165	0.880	0.103	2-1/2	0.015	<a href="#">08873</a>	<a href="#">08975</a>
0.115	1/8	0.173	0.920	0.108	2-1/2	—	<a href="#">09776</a>	<a href="#">03587</a>
0.120	1/8	0.180	0.960	0.112	2-1/2	—	<a href="#">09783</a>	<a href="#">03588</a>
0.120	1/8	0.180	0.960	0.112	2-1/2	0.005	<a href="#">08876</a>	<a href="#">08978</a>
0.120	1/8	0.180	0.960	0.112	2-1/2	0.010	<a href="#">08879</a>	<a href="#">08981</a>
0.120	1/8	0.180	0.960	0.112	2-1/2	0.015	<a href="#">08882</a>	<a href="#">08984</a>

## TOLERANCES (inch)

## .010-.120 DIAMETER

DC = +0.000/-0.001

DCON = h6

RE = +0.0000/-0.0005

STEELS

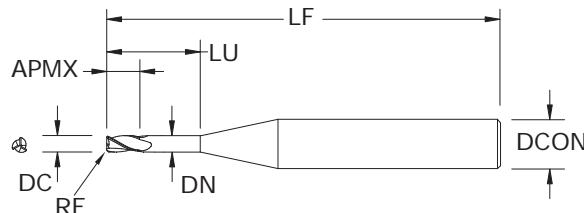
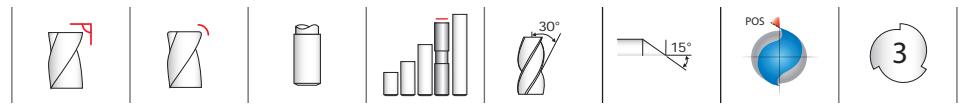
STAINLESS STEELS

CAST IRON

NON-FERROUS

HIGH TEMP ALLOYS

# M3 • M3CR • 1.5xD • 12xD Overall Reach



## M3 • M3CR • 1.5xD 12xD

FRACTIONAL SERIES

**TOLERANCES (inch)****.010–.120 DIAMETER**

DC = +0.000/-0.001

DCON = h<sub>6</sub>

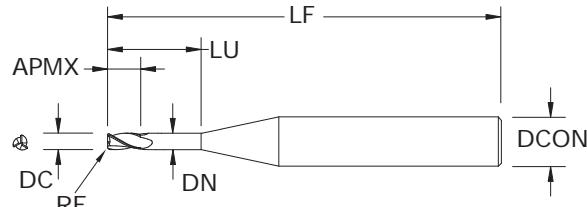
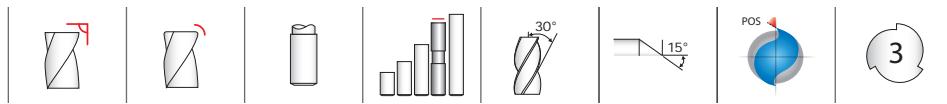
RE = +0.0000/-0.0005

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

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	CORNER RADIUS RE	EDP NO.	
							TI-UNCOATED	NAMITE®-A (AITIN)
0.010	1/8	0.015	0.120	0.009	2-1/2	—	<a href="#">09595</a>	<a href="#">03589</a>
0.015	1/8	0.023	0.180	0.014	2-1/2	—	<a href="#">09602</a>	<a href="#">03590</a>
0.015	1/8	0.023	0.180	0.014	2-1/2	0.003	<a href="#">08784</a>	<a href="#">08886</a>
0.020	1/8	0.030	0.240	0.018	2-1/2	—	<a href="#">09609</a>	<a href="#">03591</a>
0.020	1/8	0.030	0.240	0.018	2-1/2	0.005	<a href="#">08787</a>	<a href="#">08889</a>
0.025	1/8	0.038	0.300	0.023	2-1/2	—	<a href="#">09616</a>	<a href="#">03592</a>
0.025	1/8	0.038	0.300	0.023	2-1/2	0.005	<a href="#">08790</a>	<a href="#">08892</a>
0.030	1/8	0.045	0.360	0.028	2-1/2	—	<a href="#">09623</a>	<a href="#">03593</a>
0.030	1/8	0.045	0.360	0.028	2-1/2	0.005	<a href="#">08793</a>	<a href="#">08895</a>
0.031	1/8	0.047	0.372	0.029	2-1/2	—	<a href="#">09630</a>	<a href="#">03594</a>
0.035	1/8	0.053	0.420	0.032	2-1/2	—	<a href="#">09637</a>	<a href="#">03595</a>
0.035	1/8	0.053	0.420	0.032	2-1/2	0.005	<a href="#">08796</a>	<a href="#">08898</a>
0.035	1/8	0.053	0.420	0.032	2-1/2	0.010	<a href="#">08799</a>	<a href="#">08901</a>
0.040	1/8	0.060	0.480	0.037	2-1/2	—	<a href="#">09644</a>	<a href="#">03596</a>
0.040	1/8	0.060	0.480	0.037	2-1/2	0.005	<a href="#">08802</a>	<a href="#">08904</a>
0.040	1/8	0.060	0.480	0.037	2-1/2	0.010	<a href="#">08805</a>	<a href="#">08907</a>
0.045	1/8	0.068	0.540	0.042	2-1/2	—	<a href="#">09651</a>	<a href="#">03597</a>
0.045	1/8	0.068	0.540	0.042	2-1/2	0.005	<a href="#">08808</a>	<a href="#">08910</a>
0.045	1/8	0.068	0.540	0.042	2-1/2	0.010	<a href="#">08811</a>	<a href="#">08913</a>
0.047	1/8	0.071	0.564	0.044	2-1/2	—	<a href="#">09658</a>	<a href="#">03598</a>
0.050	1/8	0.075	0.600	0.047	2-1/2	—	<a href="#">09665</a>	<a href="#">03599</a>
0.050	1/8	0.075	0.600	0.047	2-1/2	0.005	<a href="#">08814</a>	<a href="#">08916</a>
0.050	1/8	0.075	0.600	0.047	2-1/2	0.010	<a href="#">08817</a>	<a href="#">08919</a>
0.050	1/8	0.075	0.600	0.047	2-1/2	0.015	<a href="#">08820</a>	<a href="#">08922</a>
0.055	1/8	0.083	0.660	0.051	2-1/2	—	<a href="#">09672</a>	<a href="#">03600</a>
0.060	1/8	0.090	0.720	0.056	2-1/2	—	<a href="#">09679</a>	<a href="#">03601</a>
0.060	1/8	0.090	0.720	0.056	2-1/2	0.005	<a href="#">08823</a>	<a href="#">08925</a>
0.060	1/8	0.090	0.720	0.056	2-1/2	0.010	<a href="#">08826</a>	<a href="#">08928</a>
0.060	1/8	0.090	0.720	0.056	2-1/2	0.015	<a href="#">08829</a>	<a href="#">08931</a>
0.062	1/8	0.093	0.744	0.058	2-1/2	—	<a href="#">09686</a>	<a href="#">03602</a>
0.065	1/8	0.098	0.780	0.061	2-1/2	—	<a href="#">09693</a>	<a href="#">03603</a>
0.070	1/8	0.105	0.840	0.065	2-1/2	—	<a href="#">09700</a>	<a href="#">03604</a>
0.070	1/8	0.105	0.840	0.065	2-1/2	0.005	<a href="#">08832</a>	<a href="#">08934</a>
0.070	1/8	0.105	0.840	0.065	2-1/2	0.010	<a href="#">08835</a>	<a href="#">08937</a>
0.070	1/8	0.105	0.840	0.065	2-1/2	0.015	<a href="#">08838</a>	<a href="#">08940</a>
0.075	1/8	0.113	0.900	0.070	2-1/2	—	<a href="#">09707</a>	<a href="#">03605</a>

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## FRACTIONAL

**M3 • M3CR • 1.5xD • 12xD Overall Reach****M3 • M3CR • 1.5xD  
12xD**

FRACTIONAL SERIES

continued

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	inch				EDP NO.	
			REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	CORNER RADIUS RE	UNCOATED	NAMITE®-A (AITIN)
0.078	1/8	0.117	0.936	0.073	2-1/2	—	<a href="#">09714</a>	<a href="#">03606</a>
0.080	1/8	0.120	0.960	0.075	2-1/2	—	<a href="#">09721</a>	<a href="#">03607</a>
0.080	1/8	0.120	0.960	0.075	2-1/2	0.005	<a href="#">08841</a>	<a href="#">08943</a>
0.080	1/8	0.120	0.960	0.075	2-1/2	0.010	<a href="#">08844</a>	<a href="#">08946</a>
0.080	1/8	0.120	0.960	0.075	2-1/2	0.015	<a href="#">08847</a>	<a href="#">08949</a>
0.085	1/8	0.128	1.020	0.079	2-1/2	—	<a href="#">09728</a>	<a href="#">03608</a>
0.090	1/8	0.135	1.080	0.084	2-1/2	—	<a href="#">09735</a>	<a href="#">03609</a>
0.090	1/8	0.135	1.080	0.084	2-1/2	0.005	<a href="#">08850</a>	<a href="#">08952</a>
0.090	1/8	0.135	1.080	0.084	2-1/2	0.010	<a href="#">08853</a>	<a href="#">08955</a>
0.090	1/8	0.135	1.080	0.084	2-1/2	0.015	<a href="#">08856</a>	<a href="#">08958</a>
0.093	1/8	0.140	1.116	0.087	2-1/2	—	<a href="#">09742</a>	<a href="#">03610</a>
0.095	1/8	0.143	1.140	0.089	2-1/2	—	<a href="#">09749</a>	<a href="#">03611</a>
0.100	1/8	0.150	1.200	0.094	2-1/2	—	<a href="#">09756</a>	<a href="#">03612</a>
0.100	1/8	0.150	1.200	0.094	2-1/2	0.005	<a href="#">08859</a>	<a href="#">08961</a>
0.100	1/8	0.150	1.200	0.094	2-1/2	0.010	<a href="#">08862</a>	<a href="#">08964</a>
0.100	1/8	0.150	1.200	0.094	2-1/2	0.015	<a href="#">08865</a>	<a href="#">08967</a>
0.110	1/8	0.165	1.320	0.103	2-1/2	—	<a href="#">09763</a>	<a href="#">03613</a>
0.110	1/8	0.165	1.320	0.103	2-1/2	0.005	<a href="#">08868</a>	<a href="#">08970</a>
0.110	1/8	0.165	1.320	0.103	2-1/2	0.010	<a href="#">08871</a>	<a href="#">08973</a>
0.110	1/8	0.165	1.320	0.103	2-1/2	0.015	<a href="#">08874</a>	<a href="#">08976</a>
0.115	1/8	0.173	1.380	0.108	2-1/2	—	<a href="#">09770</a>	<a href="#">03614</a>
0.120	1/8	0.180	1.440	0.112	2-1/2	—	<a href="#">09777</a>	<a href="#">03615</a>
0.120	1/8	0.180	1.440	0.112	2-1/2	0.005	<a href="#">08877</a>	<a href="#">08979</a>
0.120	1/8	0.180	1.440	0.112	2-1/2	0.010	<a href="#">08880</a>	<a href="#">08982</a>
0.120	1/8	0.180	1.440	0.112	2-1/2	0.015	<a href="#">08883</a>	<a href="#">08985</a>

## TOLERANCES (inch)

## .010-.120 DIAMETER

DC = +0.000/-0.001

DCON = h6

RE = +0.0000/-0.0005

STEELS

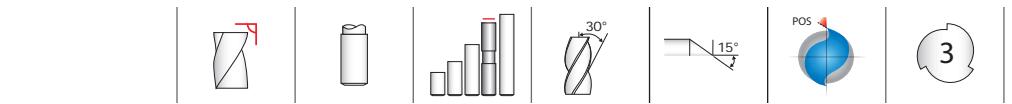
STAINLESS STEELS

CAST IRON

NON-FERROUS

HIGH TEMP ALLOYS

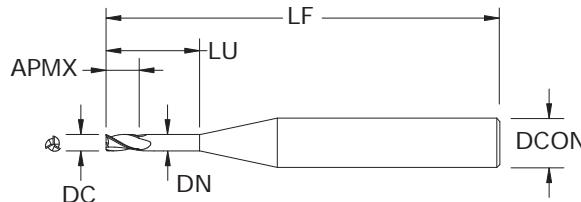
# M3 • 1.5xD • 15xD Overall Reach

**TOLERANCES (inch)****.010-.120 DIAMETER**

DC = +0.000/-0.001

DCON = h<sub>6</sub>

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



## M3 • 1.5xD 15xD

FRACTIONAL SERIES

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	EDP NO.	
						UNCOATED	TI-NAMITE® A (AlTiN)
0.010	1/8	0.015	0.150	0.009	2-1/2	<a href="#">09596</a>	<a href="#">03616</a>
0.015	1/8	0.023	0.225	0.014	2-1/2	<a href="#">09603</a>	<a href="#">03617</a>
0.020	1/8	0.030	0.300	0.018	2-1/2	<a href="#">09610</a>	<a href="#">03618</a>
0.025	1/8	0.038	0.375	0.023	2-1/2	<a href="#">09617</a>	<a href="#">03619</a>
0.030	1/8	0.045	0.450	0.028	2-1/2	<a href="#">09624</a>	<a href="#">03620</a>
0.031	1/8	0.047	0.465	0.029	2-1/2	<a href="#">09631</a>	<a href="#">03621</a>
0.035	1/8	0.053	0.525	0.032	2-1/2	<a href="#">09638</a>	<a href="#">03622</a>
0.040	1/8	0.060	0.600	0.037	2-1/2	<a href="#">09645</a>	<a href="#">03623</a>
0.045	1/8	0.068	0.675	0.042	2-1/2	<a href="#">09652</a>	<a href="#">03624</a>
0.047	1/8	0.071	0.705	0.044	2-1/2	<a href="#">09659</a>	<a href="#">03625</a>
0.050	1/8	0.075	0.750	0.047	2-1/2	<a href="#">09666</a>	<a href="#">03626</a>
0.055	1/8	0.083	0.825	0.051	2-1/2	<a href="#">09673</a>	<a href="#">03627</a>
0.060	1/8	0.090	0.900	0.056	2-1/2	<a href="#">09680</a>	<a href="#">03628</a>
0.062	1/8	0.093	0.930	0.058	2-1/2	<a href="#">09687</a>	<a href="#">03629</a>
0.065	1/8	0.098	0.975	0.061	2-1/2	<a href="#">09694</a>	<a href="#">03630</a>
0.070	1/8	0.105	1.050	0.065	2-1/2	<a href="#">09701</a>	<a href="#">03631</a>
0.075	1/8	0.113	1.125	0.070	2-1/2	<a href="#">09708</a>	<a href="#">03632</a>
0.078	1/8	0.117	1.170	0.073	2-1/2	<a href="#">09715</a>	<a href="#">03633</a>
0.080	1/8	0.120	1.200	0.075	2-1/2	<a href="#">09722</a>	<a href="#">03634</a>
0.085	1/8	0.128	1.275	0.079	2-1/2	<a href="#">09729</a>	<a href="#">03635</a>
0.090	1/8	0.135	1.350	0.084	2-1/2	<a href="#">09736</a>	<a href="#">03636</a>
0.093	1/8	0.140	1.395	0.087	3	<a href="#">09743</a>	<a href="#">03637</a>
0.095	1/8	0.143	1.425	0.089	3	<a href="#">09750</a>	<a href="#">03638</a>
0.100	1/8	0.150	1.500	0.094	3	<a href="#">09757</a>	<a href="#">03639</a>
0.110	1/8	0.165	1.650	0.103	3	<a href="#">09764</a>	<a href="#">03640</a>
0.115	1/8	0.173	1.725	0.108	3	<a href="#">09771</a>	<a href="#">03641</a>
0.120	1/8	0.180	1.800	0.112	3	<a href="#">09778</a>	<a href="#">03642</a>

- 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

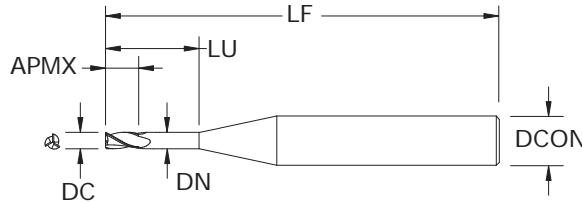
# M3 • 1.5xD • 20xD Overall Reach



## M3 • 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

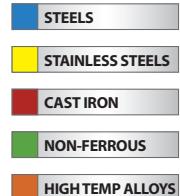


## TOLERANCES (inch)

## .010-.120 DIAMETER

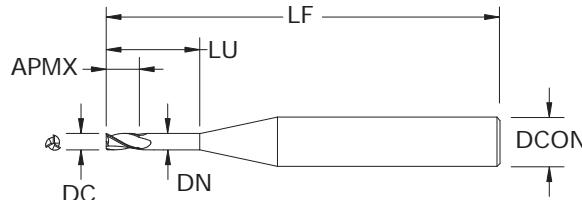
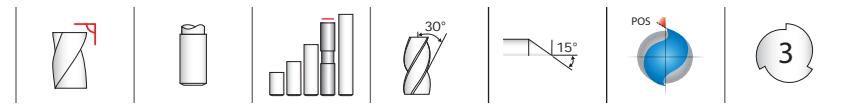
DC = +0.000/-0.001

DCON = h6



CUTTING DIAMETER DC	SHANK DIAMETER DCON	inch				EDP NO.	
		LENGTH OF CUT APMX	REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	UNCOATED	TI-NAMITE® A (AlTiN)
0.010	1/8	0.015	0.200	0.009	2-1/2	<a href="#">09597</a>	<a href="#">03643</a>
0.015	1/8	0.023	0.300	0.014	2-1/2	<a href="#">09604</a>	<a href="#">03644</a>
0.020	1/8	0.030	0.400	0.018	2-1/2	<a href="#">09611</a>	<a href="#">03645</a>
0.025	1/8	0.038	0.500	0.023	2-1/2	<a href="#">09618</a>	<a href="#">03646</a>
0.030	1/8	0.045	0.600	0.028	2-1/2	<a href="#">09625</a>	<a href="#">03647</a>
0.031	1/8	0.047	0.620	0.029	2-1/2	<a href="#">09632</a>	<a href="#">03648</a>
0.035	1/8	0.053	0.700	0.032	2-1/2	<a href="#">09639</a>	<a href="#">03649</a>
0.040	1/8	0.060	0.800	0.037	2-1/2	<a href="#">09646</a>	<a href="#">03650</a>
0.045	1/8	0.068	0.900	0.042	2-1/2	<a href="#">09653</a>	<a href="#">03651</a>
0.047	1/8	0.071	0.940	0.044	2-1/2	<a href="#">09660</a>	<a href="#">03652</a>
0.050	1/8	0.075	1.000	0.047	2-1/2	<a href="#">09667</a>	<a href="#">03653</a>
0.055	1/8	0.083	1.100	0.051	2-1/2	<a href="#">09674</a>	<a href="#">03654</a>
0.060	1/8	0.090	1.200	0.056	2-1/2	<a href="#">09681</a>	<a href="#">03655</a>
0.062	1/8	0.093	1.240	0.058	2-1/2	<a href="#">09688</a>	<a href="#">03656</a>
0.065	1/8	0.098	1.300	0.061	3	<a href="#">09695</a>	<a href="#">03657</a>
0.070	1/8	0.105	1.400	0.065	3	<a href="#">09702</a>	<a href="#">03658</a>
0.075	1/8	0.113	1.500	0.070	3	<a href="#">09709</a>	<a href="#">03659</a>
0.078	1/8	0.117	1.560	0.073	3	<a href="#">09716</a>	<a href="#">03660</a>
0.080	1/8	0.120	1.600	0.075	3	<a href="#">09723</a>	<a href="#">03661</a>
0.085	1/8	0.128	1.700	0.079	3	<a href="#">09730</a>	<a href="#">03662</a>
0.090	1/8	0.135	1.800	0.084	3	<a href="#">09737</a>	<a href="#">03663</a>
0.093	1/8	0.140	1.860	0.087	3	<a href="#">09744</a>	<a href="#">03664</a>
0.095	1/8	0.143	1.900	0.089	3	<a href="#">09751</a>	<a href="#">03665</a>
0.100	1/8	0.150	2.000	0.094	4	<a href="#">09758</a>	<a href="#">03666</a>
0.110	1/8	0.165	2.200	0.103	4	<a href="#">09765</a>	<a href="#">03667</a>
0.115	1/8	0.173	2.300	0.108	4	<a href="#">09772</a>	<a href="#">03668</a>
0.120	1/8	0.180	2.400	0.112	4	<a href="#">09779</a>	<a href="#">03669</a>

# M3 • 1.5xD • 25xD Overall Reach



## M3 • 1.5xD 25xD

FRACTIONAL SERIES

**TOLERANCES (inch)****.010-.120 DIAMETER**

DC = +0.000/-0.001

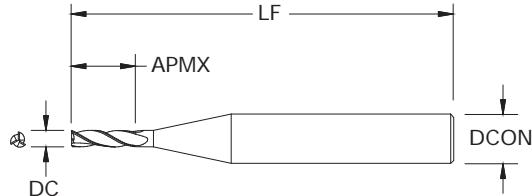
DCON = h<sub>6</sub>

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

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	EDP NO.	
						UNCOATED	TI-NAMITE® A (AlTiN)
0.010	1/8	0.015	0.250	0.009	2-1/2	<a href="#">09598</a>	<a href="#">03670</a>
0.015	1/8	0.023	0.375	0.014	2-1/2	<a href="#">09605</a>	<a href="#">03671</a>
0.020	1/8	0.030	0.500	0.018	2-1/2	<a href="#">09612</a>	<a href="#">03672</a>
0.025	1/8	0.038	0.625	0.023	2-1/2	<a href="#">09619</a>	<a href="#">03673</a>
0.030	1/8	0.045	0.750	0.028	2-1/2	<a href="#">09626</a>	<a href="#">03674</a>
0.031	1/8	0.047	0.775	0.029	2-1/2	<a href="#">09633</a>	<a href="#">03675</a>
0.035	1/8	0.053	0.875	0.032	2-1/2	<a href="#">09640</a>	<a href="#">03676</a>
0.040	1/8	0.060	1.000	0.037	2-1/2	<a href="#">09647</a>	<a href="#">03677</a>
0.045	1/8	0.068	1.125	0.042	2-1/2	<a href="#">09654</a>	<a href="#">03678</a>
0.047	1/8	0.071	1.175	0.044	2-1/2	<a href="#">09661</a>	<a href="#">03679</a>
0.050	1/8	0.075	1.250	0.047	2-1/2	<a href="#">09668</a>	<a href="#">03680</a>
0.055	1/8	0.083	1.375	0.051	3	<a href="#">09675</a>	<a href="#">03681</a>
0.060	1/8	0.090	1.500	0.056	3	<a href="#">09682</a>	<a href="#">03682</a>
0.062	1/8	0.093	1.550	0.058	3	<a href="#">09689</a>	<a href="#">03683</a>
0.065	1/8	0.098	1.625	0.061	3	<a href="#">09696</a>	<a href="#">03684</a>
0.070	1/8	0.105	1.750	0.065	3	<a href="#">09703</a>	<a href="#">03685</a>
0.075	1/8	0.113	1.875	0.070	3	<a href="#">09710</a>	<a href="#">03686</a>
0.078	1/8	0.117	1.950	0.073	4	<a href="#">09717</a>	<a href="#">03687</a>
0.080	1/8	0.120	2.000	0.075	4	<a href="#">09724</a>	<a href="#">03688</a>
0.085	1/8	0.128	2.125	0.079	4	<a href="#">09731</a>	<a href="#">03689</a>
0.090	1/8	0.135	2.250	0.084	4	<a href="#">09738</a>	<a href="#">03690</a>
0.093	1/8	0.140	2.325	0.087	4	<a href="#">09745</a>	<a href="#">03691</a>
0.095	1/8	0.143	2.375	0.089	4	<a href="#">09752</a>	<a href="#">03692</a>
0.100	1/8	0.150	2.500	0.094	4	<a href="#">09759</a>	<a href="#">03693</a>
0.110	1/8	0.165	2.750	0.103	4	<a href="#">09766</a>	<a href="#">03694</a>
0.115	1/8	0.173	2.875	0.108	4	<a href="#">09773</a>	<a href="#">03695</a>
0.120	1/8	0.180	3.000	0.112	4	<a href="#">09780</a>	<a href="#">03696</a>

- 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

**M3 • 3xD****M3 • 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
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CUTTING DIAMETER DC	SHANK DIAMETER DCON	inch		EDP NO.	
		LENGTH OF CUT APMX	OVERALL LENGTH LF	UNCOATED	TI-NAMITE®-A (AITIN)
0.005	1/8	0.015	1-1/2	<a href="#">04111</a>	<a href="#">01156</a>
0.006	1/8	0.018	1-1/2	<a href="#">04112</a>	<a href="#">01157</a>
0.007	1/8	0.021	1-1/2	<a href="#">04113</a>	<a href="#">01158</a>
0.008	1/8	0.024	1-1/2	<a href="#">04114</a>	<a href="#">01159</a>
0.009	1/8	0.027	1-1/2	<a href="#">04115</a>	<a href="#">01160</a>
0.010	1/8	0.030	1-1/2	<a href="#">04116</a>	<a href="#">01161</a>
0.011	1/8	0.033	1-1/2	<a href="#">04117</a>	<a href="#">01162</a>
0.012	1/8	0.036	1-1/2	<a href="#">04118</a>	<a href="#">01163</a>
0.013	1/8	0.039	1-1/2	<a href="#">04119</a>	<a href="#">01164</a>
0.014	1/8	0.042	1-1/2	<a href="#">04120</a>	<a href="#">01165</a>
0.015	1/8	0.045	1-1/2	<a href="#">04121</a>	<a href="#">01166</a>
0.016	1/8	0.048	1-1/2	<a href="#">04122</a>	<a href="#">01167</a>
0.017	1/8	0.051	1-1/2	<a href="#">04123</a>	<a href="#">01168</a>
0.018	1/8	0.054	1-1/2	<a href="#">04124</a>	<a href="#">01169</a>
0.019	1/8	0.057	1-1/2	<a href="#">04125</a>	<a href="#">01170</a>
0.020	1/8	0.060	1-1/2	<a href="#">04126</a>	<a href="#">01171</a>
0.021	1/8	0.063	1-1/2	<a href="#">04127</a>	<a href="#">01172</a>
0.022	1/8	0.066	1-1/2	<a href="#">04128</a>	<a href="#">01173</a>
0.023	1/8	0.069	1-1/2	<a href="#">04129</a>	<a href="#">01174</a>
0.024	1/8	0.072	1-1/2	<a href="#">04130</a>	<a href="#">01175</a>
0.025	1/8	0.075	1-1/2	<a href="#">04131</a>	<a href="#">01176</a>
0.026	1/8	0.078	1-1/2	<a href="#">04132</a>	<a href="#">01177</a>
0.027	1/8	0.081	1-1/2	<a href="#">04133</a>	<a href="#">01178</a>
0.028	1/8	0.084	1-1/2	<a href="#">04134</a>	<a href="#">01179</a>
0.029	1/8	0.087	1-1/2	<a href="#">04135</a>	<a href="#">01180</a>
0.030	1/8	0.090	1-1/2	<a href="#">04136</a>	<a href="#">01181</a>
0.031	1/8	0.093	1-1/2	<a href="#">04137</a>	<a href="#">01182</a>
0.032	1/8	0.096	1-1/2	<a href="#">04138</a>	<a href="#">01183</a>
0.033	1/8	0.099	1-1/2	<a href="#">04139</a>	<a href="#">01184</a>
0.034	1/8	0.102	1-1/2	<a href="#">04140</a>	<a href="#">01185</a>
0.035	1/8	0.105	1-1/2	<a href="#">04141</a>	<a href="#">01186</a>
0.036	1/8	0.108	1-1/2	<a href="#">04142</a>	<a href="#">01187</a>
0.037	1/8	0.111	1-1/2	<a href="#">04143</a>	<a href="#">01188</a>
0.038	1/8	0.114	1-1/2	<a href="#">04144</a>	<a href="#">01189</a>
0.039	1/8	0.117	1-1/2	<a href="#">04145</a>	<a href="#">01190</a>
0.040	1/8	0.120	1-1/2	<a href="#">04146</a>	<a href="#">01191</a>

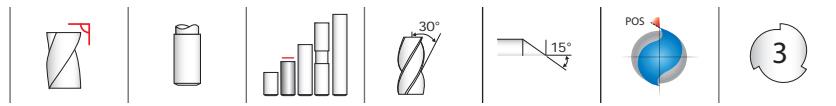
**TOLERANCES (inch)****.005-.120 DIAMETER**

DC = +0.000/-0.001

DCON = h6

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

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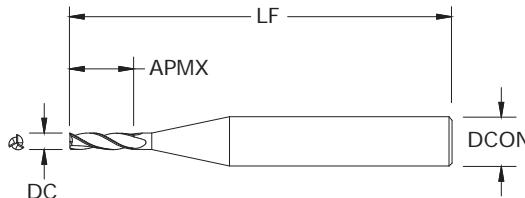
**TOLERANCES (inch)**

.005-.120 DIAMETER

DC = +0.000/-0.001

DCON = h<sub>6</sub>

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



**M3 • 3xD**  
FRACTIONAL SERIES

*continued*

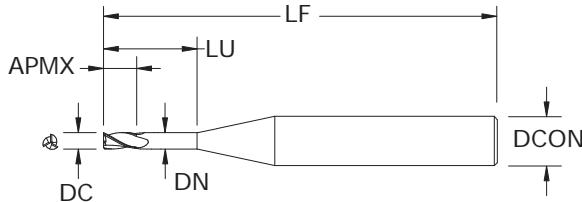
CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	EDP NO.	
				UNCOATED	TI-NAMITE®-A (AITIN)
0.041	1/8	0.123	1-1/2	<a href="#">04147</a>	<a href="#">01192</a>
0.042	1/8	0.126	1-1/2	<a href="#">04148</a>	<a href="#">01193</a>
0.043	1/8	0.129	1-1/2	<a href="#">04149</a>	<a href="#">01194</a>
0.044	1/8	0.132	1-1/2	<a href="#">04150</a>	<a href="#">01195</a>
0.045	1/8	0.135	1-1/2	<a href="#">04151</a>	<a href="#">01196</a>
0.046	1/8	0.138	1-1/2	<a href="#">04152</a>	<a href="#">01197</a>
0.047	1/8	0.141	1-1/2	<a href="#">04153</a>	<a href="#">01198</a>
0.048	1/8	0.144	1-1/2	<a href="#">04154</a>	<a href="#">01199</a>
0.049	1/8	0.147	1-1/2	<a href="#">04155</a>	<a href="#">01200</a>
0.050	1/8	0.150	1-1/2	<a href="#">04156</a>	<a href="#">01201</a>
0.051	1/8	0.153	1-1/2	<a href="#">04157</a>	<a href="#">01202</a>
0.052	1/8	0.156	1-1/2	<a href="#">04158</a>	<a href="#">01203</a>
0.053	1/8	0.159	1-1/2	<a href="#">04159</a>	<a href="#">01204</a>
0.054	1/8	0.162	1-1/2	<a href="#">04160</a>	<a href="#">01205</a>
0.055	1/8	0.165	1-1/2	<a href="#">04161</a>	<a href="#">01206</a>
0.056	1/8	0.168	1-1/2	<a href="#">04162</a>	<a href="#">01207</a>
0.057	1/8	0.171	1-1/2	<a href="#">04163</a>	<a href="#">01208</a>
0.058	1/8	0.174	1-1/2	<a href="#">04164</a>	<a href="#">01209</a>
0.059	1/8	0.177	1-1/2	<a href="#">04165</a>	<a href="#">01210</a>
0.060	1/8	0.180	1-1/2	<a href="#">04166</a>	<a href="#">01211</a>
0.062	1/8	0.186	1-1/2	<a href="#">04167</a>	<a href="#">01212</a>
0.065	1/8	0.195	1-1/2	<a href="#">04168</a>	<a href="#">01213</a>
0.070	1/8	0.210	1-1/2	<a href="#">04169</a>	<a href="#">01214</a>
0.075	1/8	0.225	1-1/2	<a href="#">04170</a>	<a href="#">01215</a>
0.078	1/8	0.234	1-1/2	<a href="#">04171</a>	<a href="#">01216</a>
0.080	1/8	0.240	1-1/2	<a href="#">04172</a>	<a href="#">01217</a>
0.085	1/8	0.255	1-1/2	<a href="#">04173</a>	<a href="#">01218</a>
0.090	1/8	0.270	1-1/2	<a href="#">04174</a>	<a href="#">01219</a>
0.093	1/8	0.279	1-1/2	<a href="#">04175</a>	<a href="#">01220</a>
0.095	1/8	0.285	1-1/2	<a href="#">04176</a>	<a href="#">01221</a>
0.100	1/8	0.300	1-1/2	<a href="#">04177</a>	<a href="#">01222</a>
0.105	1/8	0.315	1-1/2	<a href="#">04178</a>	<a href="#">01223</a>
0.110	1/8	0.330	1-1/2	<a href="#">04179</a>	<a href="#">01224</a>
0.115	1/8	0.345	1-1/2	<a href="#">04180</a>	<a href="#">01225</a>
0.120	1/8	0.360	1-1/2	<a href="#">04181</a>	<a href="#">01226</a>

## FRACTIONAL

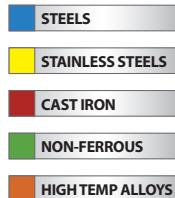
**M3 • 3xD • 8xD Overall Reach****M3 • 3xD  
8xD**

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
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- All tools in stock to meet customer order requirements
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures

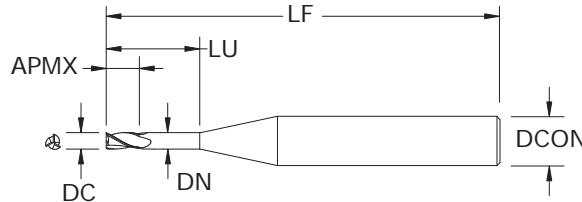
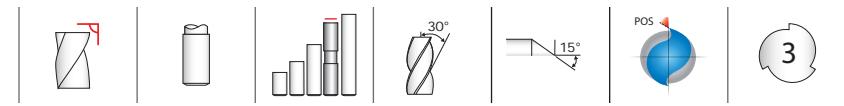
**TOLERANCES (inch)****.010-.120 DIAMETER**

DC = +0.000/-0.001

DCON = h<sub>6</sub>

CUTTING DIAMETER DC	SHANK DIAMETER DCON	inch				EDP NO.	
		LENGTH OF CUT APMX	REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	UNCOATED	TI-NAMITE® A (AITiN)
0.010	1/8	0.030	0.080	0.009	1-1/2	<a href="#">01311</a>	<a href="#">04266</a>
0.015	1/8	0.045	0.120	0.014	1-1/2	<a href="#">01312</a>	<a href="#">04267</a>
0.020	1/8	0.060	0.160	0.019	1-1/2	<a href="#">01313</a>	<a href="#">04268</a>
0.025	1/8	0.075	0.200	0.024	1-1/2	<a href="#">01314</a>	<a href="#">04269</a>
0.030	1/8	0.090	0.240	0.028	1-1/2	<a href="#">01315</a>	<a href="#">04270</a>
0.031	1/8	0.093	0.248	0.029	1-1/2	<a href="#">01316</a>	<a href="#">04271</a>
0.035	1/8	0.105	0.280	0.033	1-1/2	<a href="#">01317</a>	<a href="#">04272</a>
0.040	1/8	0.120	0.320	0.038	1-1/2	<a href="#">01318</a>	<a href="#">04273</a>
0.045	1/8	0.135	0.360	0.042	2	<a href="#">01319</a>	<a href="#">04274</a>
0.047	1/8	0.141	0.376	0.044	2	<a href="#">01320</a>	<a href="#">04275</a>
0.050	1/8	0.150	0.400	0.047	2	<a href="#">01321</a>	<a href="#">04276</a>
0.055	1/8	0.165	0.440	0.052	2	<a href="#">01322</a>	<a href="#">04277</a>
0.060	1/8	0.180	0.480	0.056	2	<a href="#">01323</a>	<a href="#">04278</a>
0.062	1/8	0.186	0.496	0.058	2	<a href="#">01324</a>	<a href="#">04279</a>
0.065	1/8	0.195	0.520	0.061	2	<a href="#">01325</a>	<a href="#">04280</a>
0.070	1/8	0.210	0.560	0.066	2	<a href="#">01326</a>	<a href="#">04281</a>
0.075	1/8	0.225	0.600	0.071	2	<a href="#">01327</a>	<a href="#">04282</a>
0.078	1/8	0.234	0.624	0.073	2	<a href="#">01328</a>	<a href="#">04283</a>
0.080	1/8	0.240	0.640	0.075	2	<a href="#">01329</a>	<a href="#">04284</a>
0.085	1/8	0.255	0.680	0.080	2	<a href="#">01330</a>	<a href="#">04285</a>
0.090	1/8	0.270	0.720	0.085	2	<a href="#">01331</a>	<a href="#">04286</a>
0.093	1/8	0.279	0.744	0.087	2	<a href="#">01332</a>	<a href="#">04287</a>
0.095	1/8	0.285	0.760	0.089	2	<a href="#">01333</a>	<a href="#">04288</a>
0.100	1/8	0.300	0.800	0.094	2	<a href="#">01334</a>	<a href="#">04289</a>
0.105	1/8	0.315	0.840	0.099	2	<a href="#">01335</a>	<a href="#">04290</a>
0.110	1/8	0.330	0.880	0.103	2	<a href="#">01336</a>	<a href="#">04291</a>
0.115	1/8	0.345	0.920	0.108	2	<a href="#">01337</a>	<a href="#">04292</a>
0.120	1/8	0.360	0.960	0.113	2	<a href="#">01338</a>	<a href="#">04293</a>

# M3 • 3xD • 12xD Overall Reach



**M3 • 3xD  
12xD**  
FRACTIONAL SERIES

**TOLERANCES (inch)**

.010-.120 DIAMETER

DC = +0.000/-0.001

DCON = h<sub>6</sub>

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

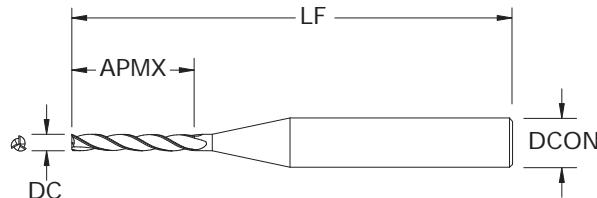
CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	inch			EDP NO.	
			REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	UNCOATED	TI-NAMITE®-A (AITIN)
0.010	1/8	0.030	0.120	0.009	1-1/2	<a href="#">01339</a>	<a href="#">04294</a>
0.015	1/8	0.045	0.180	0.014	1-1/2	<a href="#">01340</a>	<a href="#">04295</a>
0.020	1/8	0.060	0.240	0.019	1-1/2	<a href="#">01341</a>	<a href="#">04296</a>
0.025	1/8	0.075	0.300	0.024	1-1/2	<a href="#">01342</a>	<a href="#">04297</a>
0.030	1/8	0.090	0.360	0.028	2	<a href="#">01343</a>	<a href="#">04298</a>
0.031	1/8	0.093	0.372	0.029	2	<a href="#">01344</a>	<a href="#">04299</a>
0.035	1/8	0.105	0.420	0.033	2	<a href="#">01345</a>	<a href="#">04300</a>
0.040	1/8	0.120	0.480	0.038	2	<a href="#">01346</a>	<a href="#">04301</a>
0.045	1/8	0.135	0.540	0.042	2	<a href="#">01347</a>	<a href="#">04302</a>
0.047	1/8	0.141	0.564	0.044	2	<a href="#">01348</a>	<a href="#">04303</a>
0.050	1/8	0.150	0.600	0.047	2	<a href="#">01349</a>	<a href="#">04304</a>
0.055	1/8	0.165	0.660	0.052	2	<a href="#">01350</a>	<a href="#">04305</a>
0.060	1/8	0.180	0.720	0.056	2	<a href="#">01351</a>	<a href="#">04306</a>
0.062	1/8	0.186	0.744	0.058	2	<a href="#">01352</a>	<a href="#">04307</a>
0.065	1/8	0.195	0.780	0.061	2	<a href="#">01353</a>	<a href="#">04308</a>
0.070	1/8	0.210	0.840	0.066	2	<a href="#">01354</a>	<a href="#">04309</a>
0.075	1/8	0.225	0.900	0.071	2	<a href="#">01355</a>	<a href="#">04310</a>
0.078	1/8	0.234	0.936	0.073	2-1/2	<a href="#">01356</a>	<a href="#">04311</a>
0.080	1/8	0.240	0.960	0.075	2-1/2	<a href="#">01357</a>	<a href="#">04312</a>
0.085	1/8	0.255	1.020	0.080	2-1/2	<a href="#">01358</a>	<a href="#">04313</a>
0.090	1/8	0.270	1.080	0.085	2-1/2	<a href="#">01359</a>	<a href="#">04314</a>
0.093	1/8	0.279	1.116	0.087	2-1/2	<a href="#">01360</a>	<a href="#">04315</a>
0.095	1/8	0.285	1.140	0.089	2-1/2	<a href="#">01361</a>	<a href="#">04316</a>
0.100	1/8	0.300	1.200	0.094	2-1/2	<a href="#">01362</a>	<a href="#">04317</a>
0.105	1/8	0.315	1.260	0.099	2-1/2	<a href="#">01363</a>	<a href="#">04318</a>
0.110	1/8	0.330	1.320	0.103	2-1/2	<a href="#">01364</a>	<a href="#">04319</a>
0.115	1/8	0.345	1.380	0.108	2-1/2	<a href="#">01365</a>	<a href="#">04320</a>
0.120	1/8	0.360	1.440	0.113	2-1/2	<a href="#">01366</a>	<a href="#">04321</a>

- 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
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- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures

## FRACTIONAL

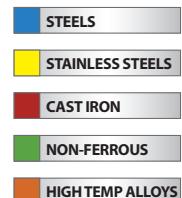
**M3L • 5xD****M3L • 5xD**  
FRACTIONAL SERIES

- 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
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- 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

**TOLERANCES (inch)****.010-.120 DIAMETER**

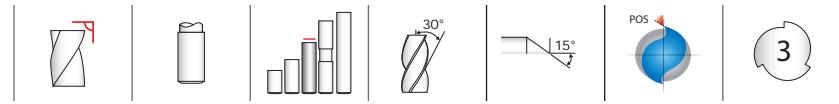
DC = +0.000/-0.001

DCON = h6



CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	EDP NO.	
				UNCOATED	TI-NAMITE®-A (AITIN)
0.010	1/8	0.050	2-1/2	<a href="#">01227</a>	<a href="#">04182</a>
0.015	1/8	0.075	2-1/2	<a href="#">01228</a>	<a href="#">04183</a>
0.020	1/8	0.100	2-1/2	<a href="#">01229</a>	<a href="#">04184</a>
0.025	1/8	0.125	2-1/2	<a href="#">01230</a>	<a href="#">04185</a>
0.030	1/8	0.150	2-1/2	<a href="#">01231</a>	<a href="#">04186</a>
0.031	1/8	0.155	2-1/2	<a href="#">01232</a>	<a href="#">04187</a>
0.035	1/8	0.175	2-1/2	<a href="#">01233</a>	<a href="#">04188</a>
0.040	1/8	0.200	2-1/2	<a href="#">01234</a>	<a href="#">04189</a>
0.045	1/8	0.225	2-1/2	<a href="#">01235</a>	<a href="#">04190</a>
0.047	1/8	0.235	2-1/2	<a href="#">01236</a>	<a href="#">04191</a>
0.050	1/8	0.250	2-1/2	<a href="#">01237</a>	<a href="#">04192</a>
0.055	1/8	0.275	2-1/2	<a href="#">01238</a>	<a href="#">04193</a>
0.060	1/8	0.300	2-1/2	<a href="#">01239</a>	<a href="#">04194</a>
0.062	1/8	0.310	2-1/2	<a href="#">01240</a>	<a href="#">04195</a>
0.065	1/8	0.325	2-1/2	<a href="#">01241</a>	<a href="#">04196</a>
0.070	1/8	0.350	2-1/2	<a href="#">01242</a>	<a href="#">04197</a>
0.075	1/8	0.375	2-1/2	<a href="#">01243</a>	<a href="#">04198</a>
0.078	1/8	0.390	2-1/2	<a href="#">01244</a>	<a href="#">04199</a>
0.080	1/8	0.400	2-1/2	<a href="#">01245</a>	<a href="#">04200</a>
0.085	1/8	0.425	2-1/2	<a href="#">01246</a>	<a href="#">04201</a>
0.090	1/8	0.450	2-1/2	<a href="#">01247</a>	<a href="#">04202</a>
0.093	1/8	0.465	2-1/2	<a href="#">01248</a>	<a href="#">04203</a>
0.095	1/8	0.475	2-1/2	<a href="#">01249</a>	<a href="#">04204</a>
0.100	1/8	0.500	2-1/2	<a href="#">01250</a>	<a href="#">04205</a>
0.105	1/8	0.525	2-1/2	<a href="#">01251</a>	<a href="#">04206</a>
0.110	1/8	0.550	2-1/2	<a href="#">01252</a>	<a href="#">04207</a>
0.115	1/8	0.575	2-1/2	<a href="#">01253</a>	<a href="#">04208</a>
0.120	1/8	0.600	2-1/2	<a href="#">01254</a>	<a href="#">04209</a>

FRACTIONAL  
M3E • 8xD

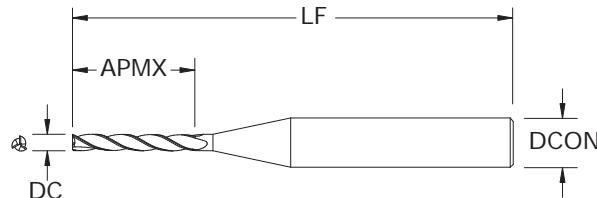
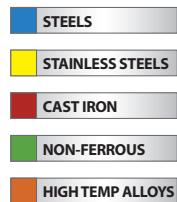


**TOLERANCES (inch)**

.010-.120 DIAMETER

DC = +0.000/-0.001

DCON = h<sub>6</sub>

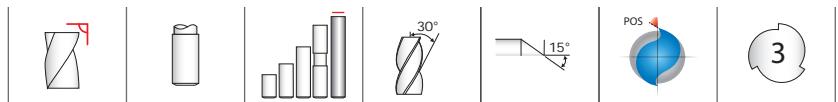


M3E • 8xD  
FRACTIONAL SERIES

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	UNCOATED EDP NO.	TI-NAMITE®-A (AlTiN) EDP NO.
0.010	1/8	0.080	2-1/2	<a href="#">01255</a>	<a href="#">04210</a>
0.015	1/8	0.120	2-1/2	<a href="#">01256</a>	<a href="#">04211</a>
0.020	1/8	0.160	2-1/2	<a href="#">01257</a>	<a href="#">04212</a>
0.025	1/8	0.200	2-1/2	<a href="#">01258</a>	<a href="#">04213</a>
0.030	1/8	0.240	2-1/2	<a href="#">01259</a>	<a href="#">04214</a>
0.031	1/8	0.248	2-1/2	<a href="#">01260</a>	<a href="#">04215</a>
0.035	1/8	0.280	2-1/2	<a href="#">01261</a>	<a href="#">04216</a>
0.040	1/8	0.320	2-1/2	<a href="#">01262</a>	<a href="#">04217</a>
0.045	1/8	0.360	2-1/2	<a href="#">01263</a>	<a href="#">04218</a>
0.047	1/8	0.376	2-1/2	<a href="#">01264</a>	<a href="#">04219</a>
0.050	1/8	0.400	2-1/2	<a href="#">01265</a>	<a href="#">04220</a>
0.055	1/8	0.440	2-1/2	<a href="#">01266</a>	<a href="#">04221</a>
0.060	1/8	0.480	2-1/2	<a href="#">01267</a>	<a href="#">04222</a>
0.062	1/8	0.496	2-1/2	<a href="#">01268</a>	<a href="#">04223</a>
0.065	1/8	0.520	2-1/2	<a href="#">01269</a>	<a href="#">04224</a>
0.070	1/8	0.560	2-1/2	<a href="#">01270</a>	<a href="#">04225</a>
0.075	1/8	0.600	2-1/2	<a href="#">01271</a>	<a href="#">04226</a>
0.078	1/8	0.624	2-1/2	<a href="#">01272</a>	<a href="#">04227</a>
0.080	1/8	0.640	2-1/2	<a href="#">01273</a>	<a href="#">04228</a>
0.085	1/8	0.680	2-1/2	<a href="#">01274</a>	<a href="#">04229</a>
0.090	1/8	0.720	2-1/2	<a href="#">01275</a>	<a href="#">04230</a>
0.093	1/8	0.744	2-1/2	<a href="#">01276</a>	<a href="#">04231</a>
0.095	1/8	0.760	2-1/2	<a href="#">01277</a>	<a href="#">04232</a>
0.100	1/8	0.800	2-1/2	<a href="#">01278</a>	<a href="#">04233</a>
0.105	1/8	0.840	2-1/2	<a href="#">01279</a>	<a href="#">04234</a>
0.110	1/8	0.880	2-1/2	<a href="#">01280</a>	<a href="#">04235</a>
0.115	1/8	0.920	2-1/2	<a href="#">01281</a>	<a href="#">04236</a>
0.120	1/8	0.960	2-1/2	<a href="#">01282</a>	<a href="#">04237</a>

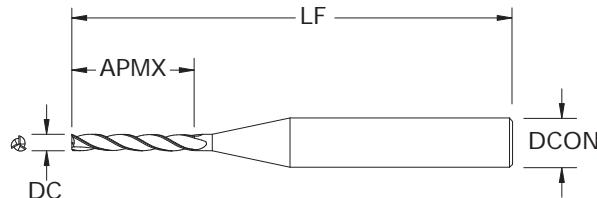
- Three flute design features improved chip space over four flutes and increased strength and feed capability over two flutes
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds
- High performance carbide substrate designed 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

**M3X • 12xD****M3X • 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

**TOLERANCES (inch)****.010-.120 DIAMETER**

DC = +0.000/-0.001

DCON = h6

STEELS

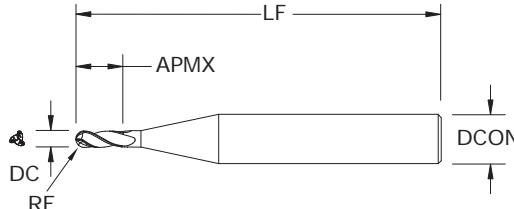
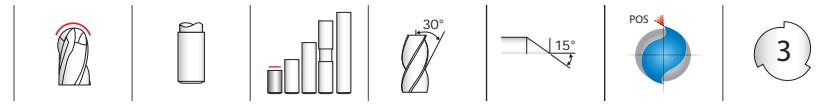
STAINLESS STEELS

CAST IRON

NON-FERROUS

HIGH TEMP ALLOYS

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	EDP NO.	
				UNCOATED	TI-NAMITE®-A (AITIN)
0.010	1/8	0.120	2-1/2	<a href="#">01283</a>	<a href="#">04238</a>
0.015	1/8	0.180	2-1/2	<a href="#">01284</a>	<a href="#">04239</a>
0.020	1/8	0.240	2-1/2	<a href="#">01285</a>	<a href="#">04240</a>
0.025	1/8	0.300	2-1/2	<a href="#">01286</a>	<a href="#">04241</a>
0.030	1/8	0.360	2-1/2	<a href="#">01287</a>	<a href="#">04242</a>
0.031	1/8	0.372	2-1/2	<a href="#">01288</a>	<a href="#">04243</a>
0.035	1/8	0.420	2-1/2	<a href="#">01289</a>	<a href="#">04244</a>
0.040	1/8	0.480	2-1/2	<a href="#">01290</a>	<a href="#">04245</a>
0.045	1/8	0.540	2-1/2	<a href="#">01291</a>	<a href="#">04246</a>
0.047	1/8	0.564	2-1/2	<a href="#">01292</a>	<a href="#">04247</a>
0.050	1/8	0.600	2-1/2	<a href="#">01293</a>	<a href="#">04248</a>
0.055	1/8	0.660	2-1/2	<a href="#">01294</a>	<a href="#">04249</a>
0.060	1/8	0.720	2-1/2	<a href="#">01295</a>	<a href="#">04250</a>
0.062	1/8	0.744	2-1/2	<a href="#">01296</a>	<a href="#">04251</a>
0.065	1/8	0.780	2-1/2	<a href="#">01297</a>	<a href="#">04252</a>
0.070	1/8	0.840	2-1/2	<a href="#">01298</a>	<a href="#">04253</a>
0.075	1/8	0.900	2-1/2	<a href="#">01299</a>	<a href="#">04254</a>
0.078	1/8	0.936	2-1/2	<a href="#">01300</a>	<a href="#">04255</a>
0.080	1/8	0.960	2-1/2	<a href="#">01301</a>	<a href="#">04256</a>
0.085	1/8	1.020	2-1/2	<a href="#">01302</a>	<a href="#">04257</a>
0.090	1/8	1.080	2-1/2	<a href="#">01303</a>	<a href="#">04258</a>
0.093	1/8	1.116	2-1/2	<a href="#">01304</a>	<a href="#">04259</a>
0.095	1/8	1.140	2-1/2	<a href="#">01305</a>	<a href="#">04260</a>
0.100	1/8	1.200	2-1/2	<a href="#">01306</a>	<a href="#">04261</a>
0.105	1/8	1.260	2-1/2	<a href="#">01307</a>	<a href="#">04262</a>
0.110	1/8	1.320	2-1/2	<a href="#">01308</a>	<a href="#">04263</a>
0.115	1/8	1.380	2-1/2	<a href="#">01309</a>	<a href="#">04264</a>
0.120	1/8	1.440	2-1/2	<a href="#">01310</a>	<a href="#">04265</a>



**TOLERANCES (inch)**

.010-.120 DIAMETER

DC = +0.000/-0.001

DCON = h<sub>6</sub>



**M3B • 1.5xD**

FRACTIONAL SERIES

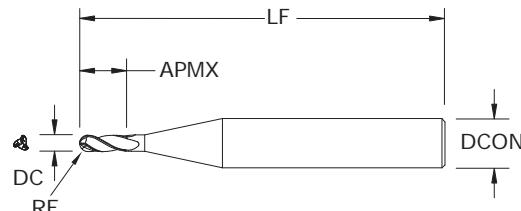
CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	EDP NO.	
				UNCOATED	TI-NAMITE®-A (AlTiN)
0.010	1/8	0.015	1-1/2	<a href="#">01367</a>	<a href="#">04322</a>
0.011	1/8	0.017	1-1/2	<a href="#">01368</a>	<a href="#">04323</a>
0.012	1/8	0.018	1-1/2	<a href="#">01369</a>	<a href="#">04324</a>
0.013	1/8	0.020	1-1/2	<a href="#">01370</a>	<a href="#">04325</a>
0.014	1/8	0.021	1-1/2	<a href="#">01371</a>	<a href="#">04326</a>
0.015	1/8	0.023	1-1/2	<a href="#">01372</a>	<a href="#">04327</a>
0.016	1/8	0.024	1-1/2	<a href="#">01373</a>	<a href="#">04328</a>
0.017	1/8	0.026	1-1/2	<a href="#">01374</a>	<a href="#">04329</a>
0.018	1/8	0.027	1-1/2	<a href="#">01375</a>	<a href="#">04330</a>
0.019	1/8	0.029	1-1/2	<a href="#">01376</a>	<a href="#">04331</a>
0.020	1/8	0.030	1-1/2	<a href="#">01377</a>	<a href="#">04332</a>
0.021	1/8	0.032	1-1/2	<a href="#">01378</a>	<a href="#">04333</a>
0.022	1/8	0.033	1-1/2	<a href="#">01379</a>	<a href="#">04334</a>
0.023	1/8	0.035	1-1/2	<a href="#">01380</a>	<a href="#">04335</a>
0.024	1/8	0.036	1-1/2	<a href="#">01381</a>	<a href="#">04336</a>
0.025	1/8	0.038	1-1/2	<a href="#">01382</a>	<a href="#">04337</a>
0.026	1/8	0.039	1-1/2	<a href="#">01383</a>	<a href="#">04338</a>
0.027	1/8	0.041	1-1/2	<a href="#">01384</a>	<a href="#">04339</a>
0.028	1/8	0.042	1-1/2	<a href="#">01385</a>	<a href="#">04340</a>
0.029	1/8	0.044	1-1/2	<a href="#">01386</a>	<a href="#">04341</a>
0.030	1/8	0.045	1-1/2	<a href="#">01387</a>	<a href="#">04342</a>
0.031	1/8	0.047	1-1/2	<a href="#">01388</a>	<a href="#">04343</a>
0.032	1/8	0.048	1-1/2	<a href="#">01389</a>	<a href="#">04344</a>
0.033	1/8	0.050	1-1/2	<a href="#">01390</a>	<a href="#">04345</a>
0.034	1/8	0.051	1-1/2	<a href="#">01391</a>	<a href="#">04346</a>
0.035	1/8	0.053	1-1/2	<a href="#">01392</a>	<a href="#">04347</a>
0.036	1/8	0.054	1-1/2	<a href="#">01393</a>	<a href="#">04348</a>
0.037	1/8	0.056	1-1/2	<a href="#">01394</a>	<a href="#">04349</a>
0.038	1/8	0.057	1-1/2	<a href="#">01395</a>	<a href="#">04350</a>
0.039	1/8	0.059	1-1/2	<a href="#">01396</a>	<a href="#">04351</a>
0.040	1/8	0.060	1-1/2	<a href="#">01397</a>	<a href="#">04352</a>
0.041	1/8	0.062	1-1/2	<a href="#">01398</a>	<a href="#">04353</a>
0.042	1/8	0.063	1-1/2	<a href="#">01399</a>	<a href="#">04354</a>
0.043	1/8	0.065	1-1/2	<a href="#">01400</a>	<a href="#">04355</a>

RE = 1/2 Cutting Diameter (DC)

continued on next page

- 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

**M3B • 1.5xD****M3B • 1.5xD**

FRACTIONAL SERIES

continued

CUTTING DIAMETER DC	SHANK DIAMETER DCON	inch		EDP NO.	
		LENGTH OF CUT APMX	OVERALL LENGTH LF	UNCOATED	TI-NAMITE®-A (AITIN)
0.044	1/8	0.066	1-1/2	<a href="#">01401</a>	<a href="#">04356</a>
0.045	1/8	0.068	1-1/2	<a href="#">01402</a>	<a href="#">04357</a>
0.046	1/8	0.069	1-1/2	<a href="#">01403</a>	<a href="#">04358</a>
0.047	1/8	0.071	1-1/2	<a href="#">01404</a>	<a href="#">04359</a>
0.048	1/8	0.072	1-1/2	<a href="#">01405</a>	<a href="#">04360</a>
0.049	1/8	0.074	1-1/2	<a href="#">01406</a>	<a href="#">04361</a>
0.050	1/8	0.075	1-1/2	<a href="#">01407</a>	<a href="#">04362</a>
0.051	1/8	0.077	1-1/2	<a href="#">01408</a>	<a href="#">04363</a>
0.052	1/8	0.078	1-1/2	<a href="#">01409</a>	<a href="#">04364</a>
0.053	1/8	0.080	1-1/2	<a href="#">01410</a>	<a href="#">04365</a>
0.054	1/8	0.081	1-1/2	<a href="#">01411</a>	<a href="#">04366</a>
0.055	1/8	0.083	1-1/2	<a href="#">01412</a>	<a href="#">04367</a>
0.056	1/8	0.084	1-1/2	<a href="#">01413</a>	<a href="#">04368</a>
0.057	1/8	0.086	1-1/2	<a href="#">01414</a>	<a href="#">04369</a>
0.058	1/8	0.087	1-1/2	<a href="#">01415</a>	<a href="#">04370</a>
0.059	1/8	0.089	1-1/2	<a href="#">01416</a>	<a href="#">04371</a>
0.060	1/8	0.090	1-1/2	<a href="#">01417</a>	<a href="#">04372</a>
0.062	1/8	0.093	1-1/2	<a href="#">01418</a>	<a href="#">04373</a>
0.065	1/8	0.098	1-1/2	<a href="#">01419</a>	<a href="#">04374</a>
0.070	1/8	0.105	1-1/2	<a href="#">01420</a>	<a href="#">04375</a>
0.075	1/8	0.113	1-1/2	<a href="#">01421</a>	<a href="#">04376</a>
0.078	1/8	0.117	1-1/2	<a href="#">01422</a>	<a href="#">04377</a>
0.080	1/8	0.120	1-1/2	<a href="#">01423</a>	<a href="#">04378</a>
0.085	1/8	0.128	1-1/2	<a href="#">01424</a>	<a href="#">04379</a>
0.090	1/8	0.135	1-1/2	<a href="#">01425</a>	<a href="#">04380</a>
0.093	1/8	0.140	1-1/2	<a href="#">01426</a>	<a href="#">04381</a>
0.095	1/8	0.143	1-1/2	<a href="#">01427</a>	<a href="#">04382</a>
0.100	1/8	0.150	1-1/2	<a href="#">01428</a>	<a href="#">04383</a>
0.105	1/8	0.158	1-1/2	<a href="#">01429</a>	<a href="#">04384</a>
0.110	1/8	0.165	1-1/2	<a href="#">01430</a>	<a href="#">04385</a>
0.115	1/8	0.173	1-1/2	<a href="#">01431</a>	<a href="#">04386</a>
0.120	1/8	0.180	1-1/2	<a href="#">01432</a>	<a href="#">04387</a>

RE = 1/2 Cutting Diameter (DC)

**TOLERANCES (inch)****.010-.120 DIAMETER**

DC = +0.000/-0.001

DCON = h6

STEELS

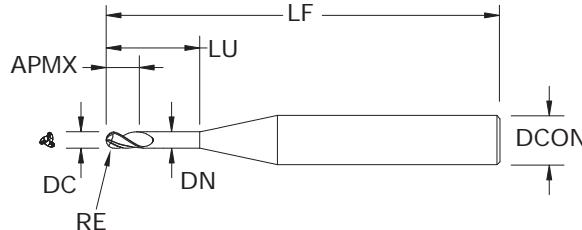
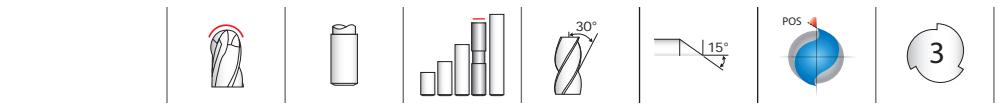
STAINLESS STEELS

CAST IRON

NON-FERROUS

HIGH TEMP ALLOYS

# M3B • 1.5xD • 3xD Overall Reach

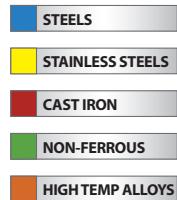


## M3B • 1.5xD 3xD

FRACTIONAL SERIES

**TOLERANCES (inch)****.010-.120 DIAMETER**

DC = +0.000/-0.001

DCON = h<sub>6</sub>

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	EDP NO.	
						UNCOATED	TI-NAMITE® A (AlTiN)
0.010	1/8	0.015	0.030	0.009	2-1/2	<a href="#">09410</a>	<a href="#">03805</a>
0.015	1/8	0.023	0.045	0.014	2-1/2	<a href="#">09417</a>	<a href="#">03806</a>
0.020	1/8	0.030	0.060	0.018	2-1/2	<a href="#">09424</a>	<a href="#">03807</a>
0.025	1/8	0.038	0.075	0.023	2-1/2	<a href="#">09431</a>	<a href="#">03808</a>
0.030	1/8	0.045	0.090	0.028	2-1/2	<a href="#">09438</a>	<a href="#">03809</a>
0.031	1/8	0.047	0.093	0.029	2-1/2	<a href="#">09445</a>	<a href="#">03810</a>
0.035	1/8	0.053	0.105	0.032	2-1/2	<a href="#">09452</a>	<a href="#">03811</a>
0.040	1/8	0.060	0.120	0.037	2-1/2	<a href="#">09459</a>	<a href="#">03812</a>
0.045	1/8	0.068	0.135	0.042	2-1/2	<a href="#">09466</a>	<a href="#">03813</a>
0.047	1/8	0.071	0.141	0.044	2-1/2	<a href="#">09473</a>	<a href="#">03814</a>
0.050	1/8	0.075	0.150	0.047	2-1/2	<a href="#">09480</a>	<a href="#">03815</a>
0.055	1/8	0.083	0.165	0.051	2-1/2	<a href="#">09487</a>	<a href="#">03816</a>
0.060	1/8	0.090	0.180	0.056	2-1/2	<a href="#">09494</a>	<a href="#">03817</a>
0.062	1/8	0.093	0.186	0.058	2-1/2	<a href="#">09501</a>	<a href="#">03818</a>
0.065	1/8	0.098	0.195	0.061	2-1/2	<a href="#">09508</a>	<a href="#">03819</a>
0.070	1/8	0.105	0.210	0.065	2-1/2	<a href="#">09515</a>	<a href="#">03820</a>
0.075	1/8	0.113	0.225	0.070	2-1/2	<a href="#">09522</a>	<a href="#">03821</a>
0.078	1/8	0.117	0.234	0.073	2-1/2	<a href="#">09529</a>	<a href="#">03822</a>
0.080	1/8	0.120	0.240	0.075	2-1/2	<a href="#">09536</a>	<a href="#">03823</a>
0.085	1/8	0.128	0.255	0.079	2-1/2	<a href="#">09543</a>	<a href="#">03824</a>
0.090	1/8	0.135	0.270	0.084	2-1/2	<a href="#">09550</a>	<a href="#">03825</a>
0.093	1/8	0.140	0.279	0.087	2-1/2	<a href="#">09557</a>	<a href="#">03826</a>
0.095	1/8	0.143	0.285	0.089	2-1/2	<a href="#">09564</a>	<a href="#">03827</a>
0.100	1/8	0.150	0.300	0.094	2-1/2	<a href="#">09571</a>	<a href="#">03828</a>
0.110	1/8	0.165	0.330	0.103	2-1/2	<a href="#">09578</a>	<a href="#">03829</a>
0.115	1/8	0.173	0.345	0.108	2-1/2	<a href="#">09585</a>	<a href="#">03830</a>
0.120	1/8	0.180	0.360	0.112	2-1/2	<a href="#">09592</a>	<a href="#">03831</a>

RE = 1/2 Cutting Diameter (DC)

- 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

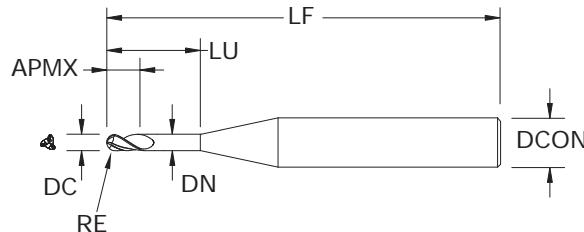
# M3B • 1.5xD • 5xD Overall Reach



## 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
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- All tools in stock to meet customer order requirements
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures



## TOLERANCES (inch)

## .010-.120 DIAMETER

DC = +0.000/-0.001

DCON = h6

STEELS

STAINLESS STEELS

CAST IRON

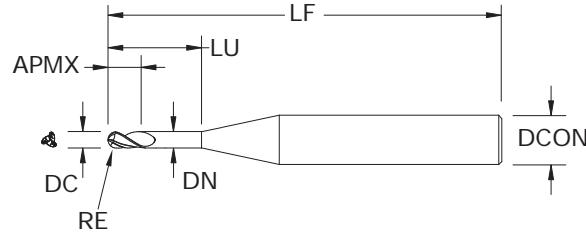
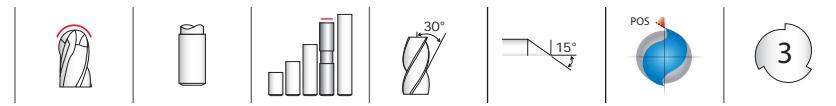
NON-FERROUS

HIGH TEMP ALLOYS

CUTTING DIAMETER DC	SHANK DIAMETER DCON	inch				EDP NO.	
		LENGTH OF CUT APMX	REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	UNCOATED	TI-NAMITE® A (AITiN)
0.010	1/8	0.015	0.050	0.009	2-1/2	<a href="#">09411</a>	<a href="#">03832</a>
0.015	1/8	0.023	0.075	0.014	2-1/2	<a href="#">09418</a>	<a href="#">03833</a>
0.020	1/8	0.030	0.100	0.018	2-1/2	<a href="#">09425</a>	<a href="#">03834</a>
0.025	1/8	0.038	0.125	0.023	2-1/2	<a href="#">09432</a>	<a href="#">03835</a>
0.030	1/8	0.045	0.150	0.028	2-1/2	<a href="#">09439</a>	<a href="#">03836</a>
0.031	1/8	0.047	0.155	0.029	2-1/2	<a href="#">09446</a>	<a href="#">03837</a>
0.035	1/8	0.053	0.175	0.032	2-1/2	<a href="#">09453</a>	<a href="#">03838</a>
0.040	1/8	0.060	0.200	0.037	2-1/2	<a href="#">09460</a>	<a href="#">03839</a>
0.045	1/8	0.068	0.225	0.042	2-1/2	<a href="#">09467</a>	<a href="#">03840</a>
0.047	1/8	0.071	0.235	0.044	2-1/2	<a href="#">09474</a>	<a href="#">03841</a>
0.050	1/8	0.075	0.250	0.047	2-1/2	<a href="#">09481</a>	<a href="#">03842</a>
0.055	1/8	0.083	0.275	0.051	2-1/2	<a href="#">09488</a>	<a href="#">03843</a>
0.060	1/8	0.090	0.300	0.056	2-1/2	<a href="#">09495</a>	<a href="#">03844</a>
0.062	1/8	0.093	0.310	0.058	2-1/2	<a href="#">09502</a>	<a href="#">03845</a>
0.065	1/8	0.098	0.325	0.061	2-1/2	<a href="#">09509</a>	<a href="#">03846</a>
0.070	1/8	0.105	0.350	0.065	2-1/2	<a href="#">09516</a>	<a href="#">03847</a>
0.075	1/8	0.113	0.375	0.070	2-1/2	<a href="#">09523</a>	<a href="#">03848</a>
0.078	1/8	0.117	0.390	0.073	2-1/2	<a href="#">09530</a>	<a href="#">03849</a>
0.080	1/8	0.120	0.400	0.075	2-1/2	<a href="#">09537</a>	<a href="#">03850</a>
0.085	1/8	0.128	0.425	0.079	2-1/2	<a href="#">09544</a>	<a href="#">03851</a>
0.090	1/8	0.135	0.450	0.084	2-1/2	<a href="#">09551</a>	<a href="#">03852</a>
0.093	1/8	0.140	0.465	0.087	2-1/2	<a href="#">09558</a>	<a href="#">03853</a>
0.095	1/8	0.143	0.475	0.089	2-1/2	<a href="#">09565</a>	<a href="#">03854</a>
0.100	1/8	0.150	0.500	0.094	2-1/2	<a href="#">09572</a>	<a href="#">03855</a>
0.110	1/8	0.165	0.550	0.103	2-1/2	<a href="#">09579</a>	<a href="#">03856</a>
0.115	1/8	0.173	0.575	0.108	2-1/2	<a href="#">09586</a>	<a href="#">03857</a>
0.120	1/8	0.180	0.600	0.112	2-1/2	<a href="#">09593</a>	<a href="#">03858</a>

RE = 1/2 Cutting Diameter (DC)

# M3B • 1.5xD • 8xD Overall Reach

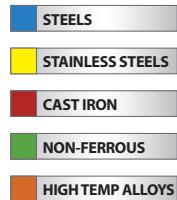


## M3B • 1.5xD 8xD

FRACTIONAL SERIES

**TOLERANCES (inch)****.010-.120 DIAMETER**

DC = +0.000/-0.001

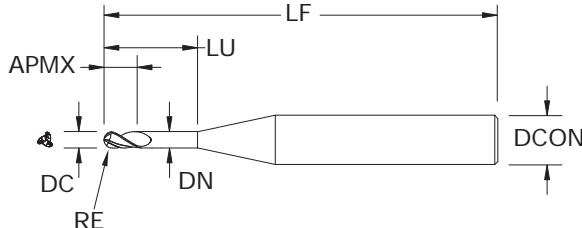
DCON = h<sub>6</sub>

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	inch			EDP NO.	
			REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	UNCOATED	TI-NAMITE® A (AlTiN)
0.010	1/8	0.015	0.080	0.009	2-1/2	<a href="#">09412</a>	<a href="#">03859</a>
0.015	1/8	0.023	0.120	0.014	2-1/2	<a href="#">09419</a>	<a href="#">03860</a>
0.020	1/8	0.030	0.160	0.018	2-1/2	<a href="#">09426</a>	<a href="#">03861</a>
0.025	1/8	0.038	0.200	0.023	2-1/2	<a href="#">09433</a>	<a href="#">03862</a>
0.030	1/8	0.045	0.240	0.028	2-1/2	<a href="#">09440</a>	<a href="#">03863</a>
0.031	1/8	0.047	0.248	0.029	2-1/2	<a href="#">09447</a>	<a href="#">03864</a>
0.035	1/8	0.053	0.280	0.032	2-1/2	<a href="#">09454</a>	<a href="#">03865</a>
0.040	1/8	0.060	0.320	0.037	2-1/2	<a href="#">09461</a>	<a href="#">03866</a>
0.045	1/8	0.068	0.360	0.042	2-1/2	<a href="#">09468</a>	<a href="#">03867</a>
0.047	1/8	0.071	0.376	0.044	2-1/2	<a href="#">09475</a>	<a href="#">03868</a>
0.050	1/8	0.075	0.400	0.047	2-1/2	<a href="#">09482</a>	<a href="#">03869</a>
0.055	1/8	0.083	0.440	0.051	2-1/2	<a href="#">09489</a>	<a href="#">03870</a>
0.060	1/8	0.090	0.480	0.056	2-1/2	<a href="#">09496</a>	<a href="#">03871</a>
0.062	1/8	0.093	0.496	0.058	2-1/2	<a href="#">09503</a>	<a href="#">03872</a>
0.065	1/8	0.098	0.520	0.061	2-1/2	<a href="#">09510</a>	<a href="#">03873</a>
0.070	1/8	0.105	0.560	0.065	2-1/2	<a href="#">09517</a>	<a href="#">03874</a>
0.075	1/8	0.113	0.600	0.070	2-1/2	<a href="#">09524</a>	<a href="#">03875</a>
0.078	1/8	0.117	0.624	0.073	2-1/2	<a href="#">09531</a>	<a href="#">03876</a>
0.080	1/8	0.120	0.640	0.075	2-1/2	<a href="#">09538</a>	<a href="#">03877</a>
0.085	1/8	0.128	0.680	0.079	2-1/2	<a href="#">09545</a>	<a href="#">03878</a>
0.090	1/8	0.135	0.720	0.084	2-1/2	<a href="#">09552</a>	<a href="#">03879</a>
0.093	1/8	0.140	0.744	0.087	2-1/2	<a href="#">09559</a>	<a href="#">03880</a>
0.095	1/8	0.143	0.760	0.089	2-1/2	<a href="#">09566</a>	<a href="#">03881</a>
0.100	1/8	0.150	0.800	0.094	2-1/2	<a href="#">09573</a>	<a href="#">03882</a>
0.110	1/8	0.165	0.880	0.103	2-1/2	<a href="#">09580</a>	<a href="#">03883</a>
0.115	1/8	0.173	0.920	0.108	2-1/2	<a href="#">09587</a>	<a href="#">03884</a>
0.120	1/8	0.180	0.960	0.112	2-1/2	<a href="#">09594</a>	<a href="#">03885</a>

RE = 1/2 Cutting Diameter (DC)

- Three flute design features improved chip space over four flutes and increased strength and feed capability over two flutes
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## FRACTIONAL

**M3B • 1.5xD • 12xD Overall Reach****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
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CUTTING DIAMETER DC	SHANK DIAMETER DCON	inch				EDP NO.	
		LENGTH OF CUT APMX	REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	UNCOATED	TI-NAMITE® A (AITiN)
0.010	1/8	0.015	0.120	0.009	2-1/2	<a href="#">09406</a>	<a href="#">03886</a>
0.015	1/8	0.023	0.180	0.014	2-1/2	<a href="#">09413</a>	<a href="#">03887</a>
0.020	1/8	0.030	0.240	0.018	2-1/2	<a href="#">09420</a>	<a href="#">03888</a>
0.025	1/8	0.038	0.300	0.023	2-1/2	<a href="#">09427</a>	<a href="#">03889</a>
0.030	1/8	0.045	0.360	0.028	2-1/2	<a href="#">09434</a>	<a href="#">03890</a>
0.031	1/8	0.047	0.372	0.029	2-1/2	<a href="#">09441</a>	<a href="#">03891</a>
0.035	1/8	0.053	0.420	0.032	2-1/2	<a href="#">09448</a>	<a href="#">03892</a>
0.040	1/8	0.060	0.480	0.037	2-1/2	<a href="#">09455</a>	<a href="#">03893</a>
0.045	1/8	0.068	0.540	0.042	2-1/2	<a href="#">09462</a>	<a href="#">03894</a>
0.047	1/8	0.071	0.564	0.044	2-1/2	<a href="#">09469</a>	<a href="#">03895</a>
0.050	1/8	0.075	0.600	0.047	2-1/2	<a href="#">09476</a>	<a href="#">03896</a>
0.055	1/8	0.083	0.660	0.051	2-1/2	<a href="#">09483</a>	<a href="#">03897</a>
0.060	1/8	0.090	0.720	0.056	2-1/2	<a href="#">09490</a>	<a href="#">03898</a>
0.062	1/8	0.093	0.744	0.058	2-1/2	<a href="#">09497</a>	<a href="#">03899</a>
0.065	1/8	0.098	0.780	0.061	2-1/2	<a href="#">09504</a>	<a href="#">03900</a>
0.070	1/8	0.105	0.840	0.065	2-1/2	<a href="#">09511</a>	<a href="#">03901</a>
0.075	1/8	0.113	0.900	0.070	2-1/2	<a href="#">09518</a>	<a href="#">03902</a>
0.078	1/8	0.117	0.936	0.073	2-1/2	<a href="#">09525</a>	<a href="#">03903</a>
0.080	1/8	0.120	0.960	0.075	2-1/2	<a href="#">09532</a>	<a href="#">03904</a>
0.085	1/8	0.128	1.020	0.079	2-1/2	<a href="#">09539</a>	<a href="#">03905</a>
0.090	1/8	0.135	1.080	0.084	2-1/2	<a href="#">09546</a>	<a href="#">03906</a>
0.093	1/8	0.140	1.116	0.087	2-1/2	<a href="#">09553</a>	<a href="#">03907</a>
0.095	1/8	0.143	1.140	0.089	2-1/2	<a href="#">09560</a>	<a href="#">03908</a>
0.100	1/8	0.150	1.200	0.094	2-1/2	<a href="#">09567</a>	<a href="#">03909</a>
0.110	1/8	0.165	1.320	0.103	2-1/2	<a href="#">09574</a>	<a href="#">03910</a>
0.115	1/8	0.173	1.380	0.108	2-1/2	<a href="#">09581</a>	<a href="#">03911</a>
0.120	1/8	0.180	1.440	0.112	2-1/2	<a href="#">09588</a>	<a href="#">03912</a>

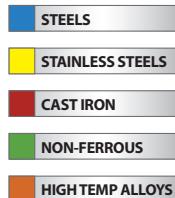
RE = 1/2 Cutting Diameter (DC)

## TOLERANCES (inch)

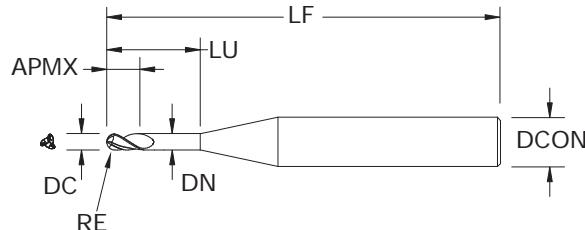
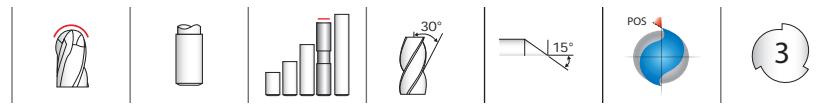
## .010-.120 DIAMETER

DC = +0.000/-0.001

DCON = h6



# M3B • 1.5xD • 15xD Overall Reach



## M3B • 1.5xD 15xD

FRACTIONAL SERIES

**TOLERANCES (inch)****.010-.120 DIAMETER**

DC = +0.000/-0.001

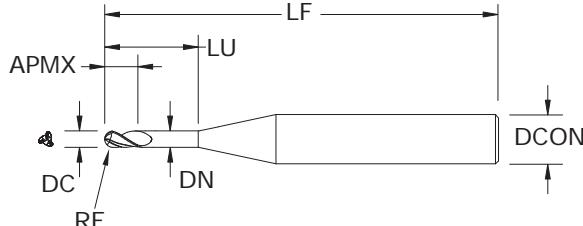
DCON = h<sub>6</sub>

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	inch			EDP NO.	
			REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	UNCOATED	TI-NAMITE® A (AlTiN)
0.010	1/8	0.015	0.150	0.009	2-1/2	<a href="#">09407</a>	<a href="#">03913</a>
0.015	1/8	0.023	0.225	0.014	2-1/2	<a href="#">09414</a>	<a href="#">03914</a>
0.020	1/8	0.030	0.300	0.018	2-1/2	<a href="#">09421</a>	<a href="#">03915</a>
0.025	1/8	0.038	0.375	0.023	2-1/2	<a href="#">09428</a>	<a href="#">03916</a>
0.030	1/8	0.045	0.450	0.028	2-1/2	<a href="#">09435</a>	<a href="#">03917</a>
0.031	1/8	0.047	0.465	0.029	2-1/2	<a href="#">09442</a>	<a href="#">03918</a>
0.035	1/8	0.053	0.525	0.032	2-1/2	<a href="#">09449</a>	<a href="#">03919</a>
0.040	1/8	0.060	0.600	0.037	2-1/2	<a href="#">09456</a>	<a href="#">03920</a>
0.045	1/8	0.068	0.675	0.042	2-1/2	<a href="#">09463</a>	<a href="#">03921</a>
0.047	1/8	0.071	0.705	0.044	2-1/2	<a href="#">09470</a>	<a href="#">03922</a>
0.050	1/8	0.075	0.750	0.047	2-1/2	<a href="#">09477</a>	<a href="#">03923</a>
0.055	1/8	0.083	0.825	0.051	2-1/2	<a href="#">09484</a>	<a href="#">03924</a>
0.060	1/8	0.090	0.900	0.056	2-1/2	<a href="#">09491</a>	<a href="#">03925</a>
0.062	1/8	0.093	0.930	0.058	2-1/2	<a href="#">09498</a>	<a href="#">03926</a>
0.065	1/8	0.098	0.975	0.061	2-1/2	<a href="#">09505</a>	<a href="#">03927</a>
0.070	1/8	0.105	1.050	0.065	2-1/2	<a href="#">09512</a>	<a href="#">03928</a>
0.075	1/8	0.113	1.125	0.070	2-1/2	<a href="#">09519</a>	<a href="#">03929</a>
0.078	1/8	0.117	1.170	0.073	2-1/2	<a href="#">09526</a>	<a href="#">03930</a>
0.080	1/8	0.120	1.200	0.075	2-1/2	<a href="#">09533</a>	<a href="#">03931</a>
0.085	1/8	0.128	1.275	0.079	2-1/2	<a href="#">09540</a>	<a href="#">03932</a>
0.090	1/8	0.135	1.350	0.084	2-1/2	<a href="#">09547</a>	<a href="#">03933</a>
0.093	1/8	0.140	1.395	0.087	3	<a href="#">09554</a>	<a href="#">03934</a>
0.095	1/8	0.143	1.425	0.089	3	<a href="#">09561</a>	<a href="#">03935</a>
0.100	1/8	0.150	1.500	0.094	3	<a href="#">09568</a>	<a href="#">03936</a>
0.110	1/8	0.165	1.650	0.103	3	<a href="#">09575</a>	<a href="#">03937</a>
0.115	1/8	0.173	1.725	0.108	3	<a href="#">09582</a>	<a href="#">03938</a>
0.120	1/8	0.180	1.800	0.112	3	<a href="#">09589</a>	<a href="#">03939</a>

RE = 1/2 Cutting Diameter (DC)

- Three flute design features improved chip space over four flutes and increased strength and feed capability over two flutes
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- 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

# M3B • 1.5xD • 20xD Overall Reach



## 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 DC	SHANK DIAMETER DCON	inch			OVERALL LENGTH LF	EDP NO.	
		LENGTH OF CUT APMX	REACH LU	NECK DIAMETER DN		UNCOATED TI-NAMITE®-A (AITIN)	TI-NAMITE®-A (AITIN)
0.010	1/8	0.015	0.200	0.009	2-1/2	<a href="#">09408</a>	<a href="#">03940</a>
0.015	1/8	0.023	0.300	0.014	2-1/2	<a href="#">09415</a>	<a href="#">03941</a>
0.020	1/8	0.030	0.400	0.018	2-1/2	<a href="#">09422</a>	<a href="#">03942</a>
0.025	1/8	0.038	0.500	0.023	2-1/2	<a href="#">09429</a>	<a href="#">03943</a>
0.030	1/8	0.045	0.600	0.028	2-1/2	<a href="#">09436</a>	<a href="#">03944</a>
0.031	1/8	0.047	0.620	0.029	2-1/2	<a href="#">09443</a>	<a href="#">03945</a>
0.035	1/8	0.053	0.700	0.032	2-1/2	<a href="#">09450</a>	<a href="#">03946</a>
0.040	1/8	0.060	0.800	0.037	2-1/2	<a href="#">09457</a>	<a href="#">03947</a>
0.045	1/8	0.068	0.900	0.042	2-1/2	<a href="#">09464</a>	<a href="#">03948</a>
0.047	1/8	0.071	0.940	0.044	2-1/2	<a href="#">09471</a>	<a href="#">03949</a>
0.050	1/8	0.075	1.000	0.047	2-1/2	<a href="#">09478</a>	<a href="#">03950</a>
0.055	1/8	0.083	1.100	0.051	2-1/2	<a href="#">09485</a>	<a href="#">03951</a>
0.060	1/8	0.090	1.200	0.056	2-1/2	<a href="#">09492</a>	<a href="#">03952</a>
0.062	1/8	0.093	1.240	0.058	2-1/2	<a href="#">09499</a>	<a href="#">03953</a>
0.065	1/8	0.098	1.300	0.061	3	<a href="#">09506</a>	<a href="#">03954</a>
0.070	1/8	0.105	1.400	0.065	3	<a href="#">09513</a>	<a href="#">03955</a>
0.075	1/8	0.113	1.500	0.070	3	<a href="#">09520</a>	<a href="#">03956</a>
0.078	1/8	0.117	1.560	0.073	3	<a href="#">09527</a>	<a href="#">03957</a>
0.080	1/8	0.120	1.600	0.075	3	<a href="#">09534</a>	<a href="#">03958</a>
0.085	1/8	0.128	1.700	0.079	3	<a href="#">09541</a>	<a href="#">03959</a>
0.090	1/8	0.135	1.800	0.084	3	<a href="#">09548</a>	<a href="#">03960</a>
0.093	1/8	0.140	1.860	0.087	3	<a href="#">09555</a>	<a href="#">03961</a>
0.095	1/8	0.143	1.900	0.089	3	<a href="#">09562</a>	<a href="#">03962</a>
0.100	1/8	0.150	2.000	0.094	4	<a href="#">09569</a>	<a href="#">03963</a>
0.110	1/8	0.165	2.200	0.103	4	<a href="#">09576</a>	<a href="#">03964</a>
0.115	1/8	0.173	2.300	0.108	4	<a href="#">09583</a>	<a href="#">03965</a>
0.120	1/8	0.180	2.400	0.112	4	<a href="#">09590</a>	<a href="#">03966</a>

RE = 1/2 Cutting Diameter (DC)

### TOLERANCES (inch)

#### .010-.120 DIAMETER

DC = +0.000/-0.001

DCON = h6

STEELS

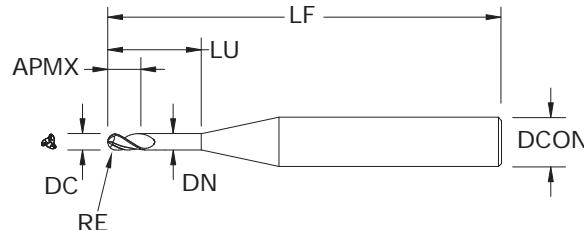
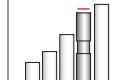
STAINLESS STEELS

CAST IRON

NON-FERROUS

HIGH TEMP ALLOYS

# M3B • 1.5xD • 25xD Overall Reach



**M3B • 1.5xD  
25xD**

FRACTIONAL SERIES

**TOLERANCES (inch)**

.010-.120 DIAMETER

DC = +0.000/-0.001

DCON = h<sub>6</sub>

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

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	EDP NO.	
						UNCOATED	TI-NAMITE® A (AlTiN)
0.010	1/8	0.015	0.250	0.009	2-1/2	<a href="#">09409</a>	<a href="#">03967</a>
0.015	1/8	0.023	0.375	0.014	2-1/2	<a href="#">09416</a>	<a href="#">03968</a>
0.020	1/8	0.030	0.500	0.018	2-1/2	<a href="#">09423</a>	<a href="#">03969</a>
0.025	1/8	0.038	0.625	0.023	2-1/2	<a href="#">09430</a>	<a href="#">03970</a>
0.030	1/8	0.045	0.750	0.028	2-1/2	<a href="#">09437</a>	<a href="#">03971</a>
0.031	1/8	0.047	0.775	0.029	2-1/2	<a href="#">09444</a>	<a href="#">03972</a>
0.035	1/8	0.053	0.875	0.032	2-1/2	<a href="#">09451</a>	<a href="#">03973</a>
0.040	1/8	0.060	1.000	0.037	2-1/2	<a href="#">09458</a>	<a href="#">03974</a>
0.045	1/8	0.068	1.125	0.042	2-1/2	<a href="#">09465</a>	<a href="#">03975</a>
0.047	1/8	0.071	1.175	0.044	2-1/2	<a href="#">09472</a>	<a href="#">03976</a>
0.050	1/8	0.075	1.250	0.047	2-1/2	<a href="#">09479</a>	<a href="#">03977</a>
0.055	1/8	0.083	1.375	0.051	3	<a href="#">09486</a>	<a href="#">03978</a>
0.060	1/8	0.090	1.500	0.056	3	<a href="#">09493</a>	<a href="#">03979</a>
0.062	1/8	0.093	1.550	0.058	3	<a href="#">09500</a>	<a href="#">03980</a>
0.065	1/8	0.098	1.625	0.061	3	<a href="#">09507</a>	<a href="#">03981</a>
0.070	1/8	0.105	1.750	0.065	3	<a href="#">09514</a>	<a href="#">03982</a>
0.075	1/8	0.113	1.875	0.070	3	<a href="#">09521</a>	<a href="#">03983</a>
0.078	1/8	0.117	1.950	0.073	4	<a href="#">09528</a>	<a href="#">03984</a>
0.080	1/8	0.120	2.000	0.075	4	<a href="#">09535</a>	<a href="#">03985</a>
0.085	1/8	0.128	2.125	0.079	4	<a href="#">09542</a>	<a href="#">03986</a>
0.090	1/8	0.135	2.250	0.084	4	<a href="#">09549</a>	<a href="#">03987</a>
0.093	1/8	0.140	2.325	0.087	4	<a href="#">09556</a>	<a href="#">03988</a>
0.095	1/8	0.143	2.375	0.089	4	<a href="#">09563</a>	<a href="#">03989</a>
0.100	1/8	0.150	2.500	0.094	4	<a href="#">09570</a>	<a href="#">03990</a>
0.110	1/8	0.165	2.750	0.103	4	<a href="#">09577</a>	<a href="#">03991</a>
0.115	1/8	0.173	2.875	0.108	4	<a href="#">09584</a>	<a href="#">03992</a>
0.120	1/8	0.180	3.000	0.112	4	<a href="#">09591</a>	<a href="#">03993</a>

RE = 1/2 Cutting Diameter (DC)

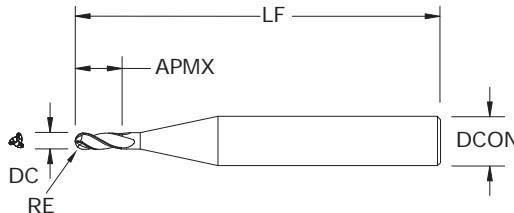
- Three flute design features improved chip space over four flutes and increased strength and feed capability over two flutes
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds
- High performance carbide substrate designed 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

**M3B • 3xD****M3B • 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
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**TOLERANCES (inch)****.010-.120 DIAMETER**

DC = +0.000/-0.001

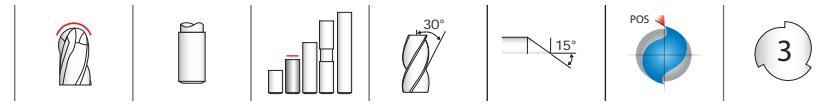
DCON = h6



CUTTING DIAMETER DC	SHANK DIAMETER DCON	inch		EDP NO.	
		LENGTH OF CUT APMX	OVERALL LENGTH LF	UNCOATED	TI-NAMITE®-A (AITIN)
0.010	1/8	0.030	1-1/2	<a href="#">01433</a>	<a href="#">04388</a>
0.011	1/8	0.033	1-1/2	<a href="#">01434</a>	<a href="#">04389</a>
0.012	1/8	0.036	1-1/2	<a href="#">01435</a>	<a href="#">04390</a>
0.013	1/8	0.039	1-1/2	<a href="#">01436</a>	<a href="#">04391</a>
0.014	1/8	0.042	1-1/2	<a href="#">01437</a>	<a href="#">04392</a>
0.015	1/8	0.045	1-1/2	<a href="#">01438</a>	<a href="#">04393</a>
0.016	1/8	0.048	1-1/2	<a href="#">01439</a>	<a href="#">04394</a>
0.017	1/8	0.051	1-1/2	<a href="#">01440</a>	<a href="#">04395</a>
0.018	1/8	0.054	1-1/2	<a href="#">01441</a>	<a href="#">04396</a>
0.019	1/8	0.057	1-1/2	<a href="#">01442</a>	<a href="#">04397</a>
0.020	1/8	0.060	1-1/2	<a href="#">01443</a>	<a href="#">04398</a>
0.021	1/8	0.063	1-1/2	<a href="#">01444</a>	<a href="#">04399</a>
0.022	1/8	0.066	1-1/2	<a href="#">01445</a>	<a href="#">04400</a>
0.023	1/8	0.069	1-1/2	<a href="#">01446</a>	<a href="#">04401</a>
0.024	1/8	0.072	1-1/2	<a href="#">01447</a>	<a href="#">04402</a>
0.025	1/8	0.075	1-1/2	<a href="#">01448</a>	<a href="#">04403</a>
0.026	1/8	0.078	1-1/2	<a href="#">01449</a>	<a href="#">04404</a>
0.027	1/8	0.081	1-1/2	<a href="#">01450</a>	<a href="#">04405</a>
0.028	1/8	0.084	1-1/2	<a href="#">01451</a>	<a href="#">04406</a>
0.029	1/8	0.087	1-1/2	<a href="#">01452</a>	<a href="#">04407</a>
0.030	1/8	0.090	1-1/2	<a href="#">01453</a>	<a href="#">04408</a>
0.031	1/8	0.093	1-1/2	<a href="#">01454</a>	<a href="#">04409</a>
0.032	1/8	0.096	1-1/2	<a href="#">01455</a>	<a href="#">04410</a>
0.033	1/8	0.099	1-1/2	<a href="#">01456</a>	<a href="#">04411</a>
0.034	1/8	0.102	1-1/2	<a href="#">01457</a>	<a href="#">04412</a>
0.035	1/8	0.105	1-1/2	<a href="#">01458</a>	<a href="#">04413</a>
0.036	1/8	0.108	1-1/2	<a href="#">01459</a>	<a href="#">04414</a>
0.037	1/8	0.111	1-1/2	<a href="#">01460</a>	<a href="#">04415</a>
0.038	1/8	0.114	1-1/2	<a href="#">01461</a>	<a href="#">04416</a>
0.039	1/8	0.117	1-1/2	<a href="#">01462</a>	<a href="#">04417</a>
0.040	1/8	0.120	1-1/2	<a href="#">01463</a>	<a href="#">04418</a>
0.041	1/8	0.123	1-1/2	<a href="#">01464</a>	<a href="#">04419</a>
0.042	1/8	0.126	1-1/2	<a href="#">01465</a>	<a href="#">04420</a>
0.043	1/8	0.129	1-1/2	<a href="#">01466</a>	<a href="#">04421</a>

RE = 1/2 Cutting Diameter (DC)

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**TOLERANCES (inch)**

.010-.120 DIAMETER

DC = +0.000/-0.001

DCON = h<sub>6</sub>

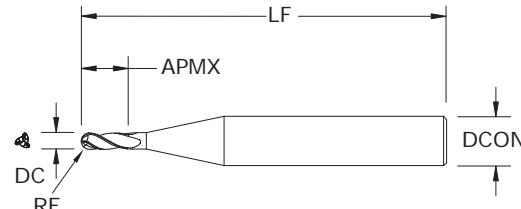
**STEELS**

**STAINLESS STEELS**

**CAST IRON**

**NON-FERROUS**

**HIGH TEMP ALLOYS**



**M3B • 3xD**  
FRACTIONAL SERIES

*continued*

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	EDP NO.	UNCOATED	TI-NAMITE® A (AITIn)
0.044	1/8	0.132	1-1/2	<a href="#">01467</a>	<a href="#">04422</a>	
0.045	1/8	0.135	1-1/2	<a href="#">01468</a>	<a href="#">04423</a>	
0.046	1/8	0.138	1-1/2	<a href="#">01469</a>	<a href="#">04424</a>	
0.047	1/8	0.141	1-1/2	<a href="#">01470</a>	<a href="#">04425</a>	
0.048	1/8	0.144	1-1/2	<a href="#">01471</a>	<a href="#">04426</a>	
0.049	1/8	0.147	1-1/2	<a href="#">01472</a>	<a href="#">04427</a>	
0.050	1/8	0.150	1-1/2	<a href="#">01473</a>	<a href="#">04428</a>	
0.051	1/8	0.153	1-1/2	<a href="#">01474</a>	<a href="#">04429</a>	
0.052	1/8	0.156	1-1/2	<a href="#">01475</a>	<a href="#">04430</a>	
0.053	1/8	0.159	1-1/2	<a href="#">01476</a>	<a href="#">04431</a>	
0.054	1/8	0.162	1-1/2	<a href="#">01477</a>	<a href="#">04432</a>	
0.055	1/8	0.165	1-1/2	<a href="#">01478</a>	<a href="#">04433</a>	
0.056	1/8	0.168	1-1/2	<a href="#">01479</a>	<a href="#">04434</a>	
0.057	1/8	0.171	1-1/2	<a href="#">01480</a>	<a href="#">04435</a>	
0.058	1/8	0.174	1-1/2	<a href="#">01481</a>	<a href="#">04436</a>	
0.059	1/8	0.177	1-1/2	<a href="#">01482</a>	<a href="#">04437</a>	
0.060	1/8	0.180	1-1/2	<a href="#">01483</a>	<a href="#">04438</a>	
0.062	1/8	0.186	1-1/2	<a href="#">01484</a>	<a href="#">04439</a>	
0.065	1/8	0.195	1-1/2	<a href="#">01485</a>	<a href="#">04440</a>	
0.070	1/8	0.210	1-1/2	<a href="#">01486</a>	<a href="#">04441</a>	
0.075	1/8	0.225	1-1/2	<a href="#">01487</a>	<a href="#">04442</a>	
0.078	1/8	0.234	1-1/2	<a href="#">01488</a>	<a href="#">04443</a>	
0.080	1/8	0.240	1-1/2	<a href="#">01489</a>	<a href="#">04444</a>	
0.085	1/8	0.255	1-1/2	<a href="#">01490</a>	<a href="#">04445</a>	
0.090	1/8	0.270	1-1/2	<a href="#">01491</a>	<a href="#">04446</a>	
0.093	1/8	0.279	1-1/2	<a href="#">01492</a>	<a href="#">04447</a>	
0.095	1/8	0.285	1-1/2	<a href="#">01493</a>	<a href="#">04448</a>	
0.100	1/8	0.300	1-1/2	<a href="#">01494</a>	<a href="#">04449</a>	
0.105	1/8	0.315	1-1/2	<a href="#">01495</a>	<a href="#">04450</a>	
0.110	1/8	0.330	1-1/2	<a href="#">01496</a>	<a href="#">04451</a>	
0.115	1/8	0.345	1-1/2	<a href="#">01497</a>	<a href="#">04452</a>	
0.120	1/8	0.360	1-1/2	<a href="#">01498</a>	<a href="#">04453</a>	

RE = 1/2 Cutting Diameter (DC)

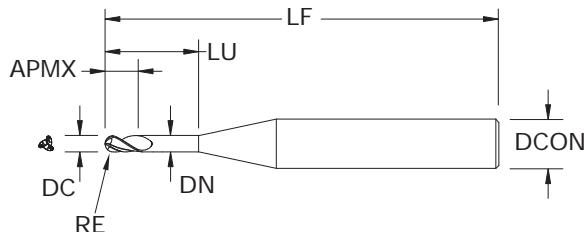
# M3B • 3xD • 8xD Overall Reach



## M3B • 3xD 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
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- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures

**TOLERANCES (inch)****.010-.120 DIAMETER**

DC = +0.000/-0.001

DCON = h6

STEELS

STAINLESS STEELS

CAST IRON

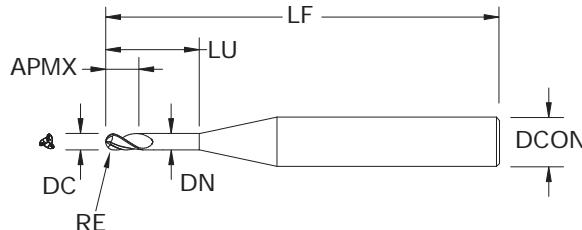
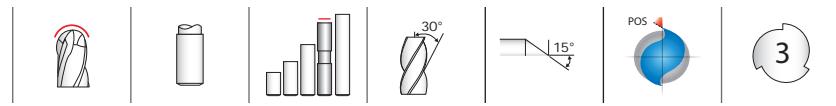
NON-FERROUS

HIGH TEMP ALLOYS

CUTTING DIAMETER DC	SHANK DIAMETER DCON	inch			OVERALL LENGTH LF	EDP NO.	
		LENGTH OF CUT APMX	REACH LU	NECK DIAMETER DN		UNCOATED TI-NAMITE®-A (AITIN)	TI-NAMITE®-A (AITIN)
0.010	1/8	0.030	0.080	0.009	1-1/2	<a href="#">01583</a>	<a href="#">04538</a>
0.015	1/8	0.045	0.120	0.014	1-1/2	<a href="#">01584</a>	<a href="#">04539</a>
0.020	1/8	0.060	0.160	0.019	1-1/2	<a href="#">01585</a>	<a href="#">04540</a>
0.025	1/8	0.075	0.200	0.024	1-1/2	<a href="#">01586</a>	<a href="#">04541</a>
0.030	1/8	0.090	0.240	0.028	1-1/2	<a href="#">01587</a>	<a href="#">04542</a>
0.031	1/8	0.093	0.248	0.029	1-1/2	<a href="#">01588</a>	<a href="#">04543</a>
0.035	1/8	0.105	0.280	0.033	1-1/2	<a href="#">01589</a>	<a href="#">04544</a>
0.040	1/8	0.120	0.320	0.038	1-1/2	<a href="#">01590</a>	<a href="#">04545</a>
0.045	1/8	0.135	0.360	0.042	2	<a href="#">01591</a>	<a href="#">04546</a>
0.047	1/8	0.141	0.376	0.044	2	<a href="#">01592</a>	<a href="#">04547</a>
0.050	1/8	0.150	0.400	0.047	2	<a href="#">01593</a>	<a href="#">04548</a>
0.055	1/8	0.165	0.440	0.052	2	<a href="#">01594</a>	<a href="#">04549</a>
0.060	1/8	0.180	0.480	0.056	2	<a href="#">01595</a>	<a href="#">04550</a>
0.062	1/8	0.186	0.496	0.058	2	<a href="#">01596</a>	<a href="#">04551</a>
0.065	1/8	0.195	0.520	0.061	2	<a href="#">01597</a>	<a href="#">04552</a>
0.070	1/8	0.210	0.560	0.066	2	<a href="#">01598</a>	<a href="#">04553</a>
0.075	1/8	0.225	0.600	0.071	2	<a href="#">01599</a>	<a href="#">04554</a>
0.078	1/8	0.234	0.624	0.073	2	<a href="#">01600</a>	<a href="#">04555</a>
0.080	1/8	0.240	0.640	0.075	2	<a href="#">01601</a>	<a href="#">04556</a>
0.085	1/8	0.255	0.680	0.080	2	<a href="#">01602</a>	<a href="#">04557</a>
0.090	1/8	0.270	0.720	0.085	2	<a href="#">01603</a>	<a href="#">04558</a>
0.093	1/8	0.279	0.744	0.087	2	<a href="#">01604</a>	<a href="#">04559</a>
0.095	1/8	0.285	0.760	0.089	2	<a href="#">01605</a>	<a href="#">04560</a>
0.100	1/8	0.300	0.800	0.094	2	<a href="#">01606</a>	<a href="#">04561</a>
0.105	1/8	0.315	0.840	0.099	2	<a href="#">01607</a>	<a href="#">04562</a>
0.110	1/8	0.330	0.880	0.103	2	<a href="#">01608</a>	<a href="#">04563</a>
0.115	1/8	0.345	0.920	0.108	2	<a href="#">01609</a>	<a href="#">04564</a>
0.120	1/8	0.360	0.960	0.113	2	<a href="#">01610</a>	<a href="#">04565</a>

RE = 1/2 Cutting Diameter (DC)

# M3B • 3xD • 12xD Overall Reach



## M3B • 3xD 12xD FRACTIONAL SERIES

### TOLERANCES (inch)

.010-.120 DIAMETER

DC = +0.000/-0.001

DCON = h<sub>6</sub>

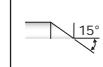
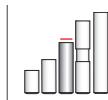
- STEELS
- STAINLESS STEELS
- CAST IRON
- NON-FERROUS
- HIGH TEMP ALLOYS

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	EDP NO.	
						UNCOATED	TI-NAMITE® A (AlTiN)
0.010	1/8	0.030	0.120	0.009	1-1/2	<a href="#">01611</a>	<a href="#">04566</a>
0.015	1/8	0.045	0.180	0.014	1-1/2	<a href="#">01612</a>	<a href="#">04567</a>
0.020	1/8	0.060	0.240	0.019	1-1/2	<a href="#">01613</a>	<a href="#">04568</a>
0.025	1/8	0.075	0.300	0.024	1-1/2	<a href="#">01614</a>	<a href="#">04569</a>
0.030	1/8	0.090	0.360	0.028	2	<a href="#">01615</a>	<a href="#">04570</a>
0.031	1/8	0.093	0.372	0.029	2	<a href="#">01616</a>	<a href="#">04571</a>
0.035	1/8	0.105	0.420	0.033	2	<a href="#">01617</a>	<a href="#">04572</a>
0.040	1/8	0.120	0.480	0.038	2	<a href="#">01618</a>	<a href="#">04573</a>
0.045	1/8	0.135	0.540	0.042	2	<a href="#">01619</a>	<a href="#">04574</a>
0.047	1/8	0.141	0.564	0.044	2	<a href="#">01620</a>	<a href="#">04575</a>
0.050	1/8	0.150	0.600	0.047	2	<a href="#">01621</a>	<a href="#">04576</a>
0.055	1/8	0.165	0.660	0.052	2	<a href="#">01622</a>	<a href="#">04577</a>
0.060	1/8	0.180	0.720	0.056	2	<a href="#">01623</a>	<a href="#">04578</a>
0.062	1/8	0.186	0.744	0.058	2	<a href="#">01624</a>	<a href="#">04579</a>
0.065	1/8	0.195	0.780	0.061	2	<a href="#">01625</a>	<a href="#">04580</a>
0.070	1/8	0.210	0.840	0.066	2	<a href="#">01626</a>	<a href="#">04581</a>
0.075	1/8	0.225	0.900	0.071	2	<a href="#">01627</a>	<a href="#">04582</a>
0.078	1/8	0.234	0.936	0.073	2-1/2	<a href="#">01628</a>	<a href="#">04583</a>
0.080	1/8	0.240	0.960	0.075	2-1/2	<a href="#">01629</a>	<a href="#">04584</a>
0.085	1/8	0.255	1.020	0.080	2-1/2	<a href="#">01630</a>	<a href="#">04585</a>
0.090	1/8	0.270	1.080	0.085	2-1/2	<a href="#">01631</a>	<a href="#">04586</a>
0.093	1/8	0.279	1.116	0.087	2-1/2	<a href="#">01632</a>	<a href="#">04587</a>
0.095	1/8	0.285	1.140	0.089	2-1/2	<a href="#">01633</a>	<a href="#">04588</a>
0.100	1/8	0.300	1.200	0.094	2-1/2	<a href="#">01634</a>	<a href="#">04589</a>
0.105	1/8	0.315	1.260	0.099	2-1/2	<a href="#">01635</a>	<a href="#">04590</a>
0.110	1/8	0.330	1.320	0.103	2-1/2	<a href="#">01636</a>	<a href="#">04591</a>
0.115	1/8	0.345	1.380	0.108	2-1/2	<a href="#">01637</a>	<a href="#">04592</a>
0.120	1/8	0.360	1.440	0.113	2-1/2	<a href="#">01638</a>	<a href="#">04593</a>

RE = 1/2 Cutting Diameter (DC)

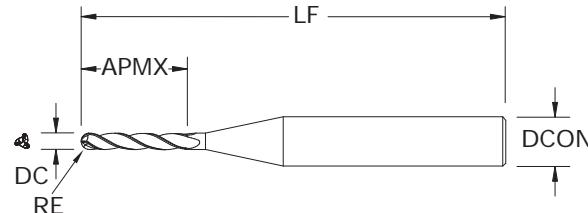
- Three flute design features improved chip space over four flutes and increased strength and feed capability over two flutes
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds
- High performance carbide substrate designed 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

**M3LB • 5xD****M3LB • 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

**TOLERANCES (inch)****.010-.120 DIAMETER**

DC = +0.000/-0.001

DCON = h6

STEELS

STAINLESS STEELS

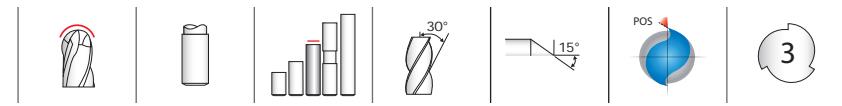
CAST IRON

NON-FERROUS

HIGH TEMP ALLOYS

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	EDP NO.	
				UNCOATED	TI-NAMITE®-A (AITIN)
0.010	1/8	0.050	2-1/2	<a href="#">01499</a>	<a href="#">04454</a>
0.015	1/8	0.075	2-1/2	<a href="#">01500</a>	<a href="#">04455</a>
0.020	1/8	0.100	2-1/2	<a href="#">01501</a>	<a href="#">04456</a>
0.025	1/8	0.125	2-1/2	<a href="#">01502</a>	<a href="#">04457</a>
0.030	1/8	0.150	2-1/2	<a href="#">01503</a>	<a href="#">04458</a>
0.031	1/8	0.155	2-1/2	<a href="#">01504</a>	<a href="#">04459</a>
0.035	1/8	0.175	2-1/2	<a href="#">01505</a>	<a href="#">04460</a>
0.040	1/8	0.200	2-1/2	<a href="#">01506</a>	<a href="#">04461</a>
0.045	1/8	0.225	2-1/2	<a href="#">01507</a>	<a href="#">04462</a>
0.047	1/8	0.235	2-1/2	<a href="#">01508</a>	<a href="#">04463</a>
0.050	1/8	0.250	2-1/2	<a href="#">01509</a>	<a href="#">04464</a>
0.055	1/8	0.275	2-1/2	<a href="#">01510</a>	<a href="#">04465</a>
0.060	1/8	0.300	2-1/2	<a href="#">01511</a>	<a href="#">04466</a>
0.062	1/8	0.310	2-1/2	<a href="#">01512</a>	<a href="#">04467</a>
0.065	1/8	0.325	2-1/2	<a href="#">01513</a>	<a href="#">04468</a>
0.070	1/8	0.350	2-1/2	<a href="#">01514</a>	<a href="#">04469</a>
0.075	1/8	0.375	2-1/2	<a href="#">01515</a>	<a href="#">04470</a>
0.078	1/8	0.390	2-1/2	<a href="#">01516</a>	<a href="#">04471</a>
0.080	1/8	0.400	2-1/2	<a href="#">01517</a>	<a href="#">04472</a>
0.085	1/8	0.425	2-1/2	<a href="#">01518</a>	<a href="#">04473</a>
0.090	1/8	0.450	2-1/2	<a href="#">01519</a>	<a href="#">04474</a>
0.093	1/8	0.465	2-1/2	<a href="#">01520</a>	<a href="#">04475</a>
0.095	1/8	0.475	2-1/2	<a href="#">01521</a>	<a href="#">04476</a>
0.100	1/8	0.500	2-1/2	<a href="#">01522</a>	<a href="#">04477</a>
0.105	1/8	0.525	2-1/2	<a href="#">01523</a>	<a href="#">04478</a>
0.110	1/8	0.550	2-1/2	<a href="#">01524</a>	<a href="#">04479</a>
0.115	1/8	0.575	2-1/2	<a href="#">01525</a>	<a href="#">04480</a>
0.120	1/8	0.600	2-1/2	<a href="#">01526</a>	<a href="#">04481</a>

RE = 1/2 Cutting Diameter (DC)



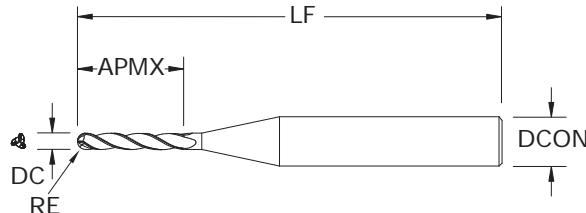
**TOLERANCES (inch)**

.010-.120 DIAMETER

DC = +0.000/-0.001

DCON = h<sub>6</sub>

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



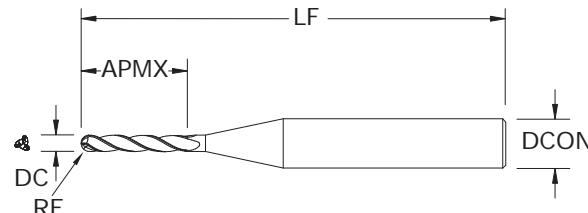
**M3EB • 8xD**  
FRACTIONAL SERIES

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	EDP NO.
		inch		UNCOATED TI-NAMITE® A (AITIN)
0.010	1/8	0.080	2-1/2	<a href="#">01527</a> <a href="#">04482</a>
0.015	1/8	0.120	2-1/2	<a href="#">01528</a> <a href="#">04483</a>
0.020	1/8	0.160	2-1/2	<a href="#">01529</a> <a href="#">04484</a>
0.025	1/8	0.200	2-1/2	<a href="#">01530</a> <a href="#">04485</a>
0.030	1/8	0.240	2-1/2	<a href="#">01531</a> <a href="#">04486</a>
0.031	1/8	0.248	2-1/2	<a href="#">01532</a> <a href="#">04487</a>
0.035	1/8	0.280	2-1/2	<a href="#">01533</a> <a href="#">04488</a>
0.040	1/8	0.320	2-1/2	<a href="#">01534</a> <a href="#">04489</a>
0.045	1/8	0.360	2-1/2	<a href="#">01535</a> <a href="#">04490</a>
0.047	1/8	0.376	2-1/2	<a href="#">01536</a> <a href="#">04491</a>
0.050	1/8	0.400	2-1/2	<a href="#">01537</a> <a href="#">04492</a>
0.055	1/8	0.440	2-1/2	<a href="#">01538</a> <a href="#">04493</a>
0.060	1/8	0.480	2-1/2	<a href="#">01539</a> <a href="#">04494</a>
0.062	1/8	0.496	2-1/2	<a href="#">01540</a> <a href="#">04495</a>
0.065	1/8	0.520	2-1/2	<a href="#">01541</a> <a href="#">04496</a>
0.070	1/8	0.560	2-1/2	<a href="#">01542</a> <a href="#">04497</a>
0.075	1/8	0.600	2-1/2	<a href="#">01543</a> <a href="#">04498</a>
0.078	1/8	0.624	2-1/2	<a href="#">01544</a> <a href="#">04499</a>
0.080	1/8	0.640	2-1/2	<a href="#">01545</a> <a href="#">04500</a>
0.085	1/8	0.680	2-1/2	<a href="#">01546</a> <a href="#">04501</a>
0.090	1/8	0.720	2-1/2	<a href="#">01547</a> <a href="#">04502</a>
0.093	1/8	0.744	2-1/2	<a href="#">01548</a> <a href="#">04503</a>
0.095	1/8	0.760	2-1/2	<a href="#">01549</a> <a href="#">04504</a>
0.100	1/8	0.800	2-1/2	<a href="#">01550</a> <a href="#">04505</a>
0.105	1/8	0.840	2-1/2	<a href="#">01551</a> <a href="#">04506</a>
0.110	1/8	0.880	2-1/2	<a href="#">01552</a> <a href="#">04507</a>
0.115	1/8	0.920	2-1/2	<a href="#">01553</a> <a href="#">04508</a>
0.120	1/8	0.960	2-1/2	<a href="#">01554</a> <a href="#">04509</a>

RE = 1/2 Cutting Diameter (DC)

- 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

**M3XB • 12xD****M3XB • 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 DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	EDP NO.	
				UNCOATED	TI-NAMITE®-A (AITIN)
0.010	1/8	0.120	2-1/2	<a href="#">01555</a>	<a href="#">04510</a>
0.015	1/8	0.180	2-1/2	<a href="#">01556</a>	<a href="#">04511</a>
0.020	1/8	0.240	2-1/2	<a href="#">01557</a>	<a href="#">04512</a>
0.025	1/8	0.300	2-1/2	<a href="#">01558</a>	<a href="#">04513</a>
0.030	1/8	0.360	2-1/2	<a href="#">01559</a>	<a href="#">04514</a>
0.031	1/8	0.372	2-1/2	<a href="#">01560</a>	<a href="#">04515</a>
0.035	1/8	0.420	2-1/2	<a href="#">01561</a>	<a href="#">04516</a>
0.040	1/8	0.480	2-1/2	<a href="#">01562</a>	<a href="#">04517</a>
0.045	1/8	0.540	2-1/2	<a href="#">01563</a>	<a href="#">04518</a>
0.047	1/8	0.564	2-1/2	<a href="#">01564</a>	<a href="#">04519</a>
0.050	1/8	0.600	2-1/2	<a href="#">01565</a>	<a href="#">04520</a>
0.055	1/8	0.660	2-1/2	<a href="#">01566</a>	<a href="#">04521</a>
0.060	1/8	0.720	2-1/2	<a href="#">01567</a>	<a href="#">04522</a>
0.062	1/8	0.744	2-1/2	<a href="#">01568</a>	<a href="#">04523</a>
0.065	1/8	0.780	2-1/2	<a href="#">01569</a>	<a href="#">04524</a>
0.070	1/8	0.840	2-1/2	<a href="#">01570</a>	<a href="#">04525</a>
0.075	1/8	0.900	2-1/2	<a href="#">01571</a>	<a href="#">04526</a>
0.078	1/8	0.936	2-1/2	<a href="#">01572</a>	<a href="#">04527</a>
0.080	1/8	0.960	2-1/2	<a href="#">01573</a>	<a href="#">04528</a>
0.085	1/8	1.020	2-1/2	<a href="#">01574</a>	<a href="#">04529</a>
0.090	1/8	1.080	2-1/2	<a href="#">01575</a>	<a href="#">04530</a>
0.093	1/8	1.116	2-1/2	<a href="#">01576</a>	<a href="#">04531</a>
0.095	1/8	1.140	2-1/2	<a href="#">01577</a>	<a href="#">04532</a>
0.100	1/8	1.200	2-1/2	<a href="#">01578</a>	<a href="#">04533</a>
0.105	1/8	1.260	2-1/2	<a href="#">01579</a>	<a href="#">04534</a>
0.110	1/8	1.320	2-1/2	<a href="#">01580</a>	<a href="#">04535</a>
0.115	1/8	1.380	2-1/2	<a href="#">01581</a>	<a href="#">04536</a>
0.120	1/8	1.440	2-1/2	<a href="#">01582</a>	<a href="#">04537</a>

RE = 1/2 Cutting Diameter (DC)

**TOLERANCES (inch)****.010-.120 DIAMETER**

DC = +0.000/-0.001

DCON = h6

STEELS

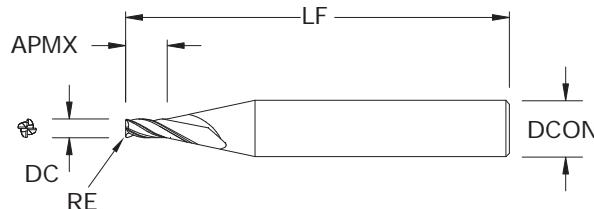
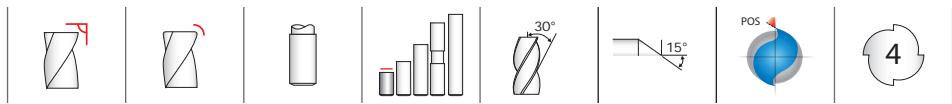
STAINLESS STEELS

CAST IRON

NON-FERROUS

HIGH TEMP ALLOYS

FRACTIONAL  
M4 • M4CR • 1.5xD



M4 • M4CR  
1.5xD  
FRACTIONAL SERIES

**TOLERANCES (inch)**

**.005-.120 DIAMETER**

DC = +0.000/-0.001

DCON = h<sub>6</sub>

RE = +0.0000/-0.0005

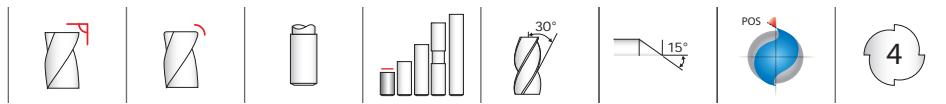
- STEELS
- STAINLESS STEELS
- CAST IRON
- NON-FERROUS
- HIGH TEMP ALLOYS

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	CORNER RADIUS RE	EDP NO.	
					UNCOATED	TI-NAMITE®-A (AlTiN)
0.005	1/8	0.008	1-1/2	—	<a href="#">00372</a>	<a href="#">02238</a>
0.006	1/8	0.009	1-1/2	—	<a href="#">00373</a>	<a href="#">02239</a>
0.007	1/8	0.011	1-1/2	—	<a href="#">00374</a>	<a href="#">02240</a>
0.008	1/8	0.012	1-1/2	—	<a href="#">00375</a>	<a href="#">02241</a>
0.009	1/8	0.014	1-1/2	—	<a href="#">00376</a>	<a href="#">02242</a>
0.010	1/8	0.015	1-1/2	—	<a href="#">00377</a>	<a href="#">02243</a>
0.011	1/8	0.017	1-1/2	—	<a href="#">00378</a>	<a href="#">02244</a>
0.012	1/8	0.018	1-1/2	—	<a href="#">00379</a>	<a href="#">02245</a>
0.013	1/8	0.020	1-1/2	—	<a href="#">00380</a>	<a href="#">02246</a>
0.014	1/8	0.021	1-1/2	—	<a href="#">00381</a>	<a href="#">02247</a>
0.015	1/8	0.023	1-1/2	0.003	<a href="#">08986</a>	<a href="#">09126</a>
0.016	1/8	0.024	1-1/2	—	<a href="#">00383</a>	<a href="#">02249</a>
0.017	1/8	0.026	1-1/2	—	<a href="#">00384</a>	<a href="#">02250</a>
0.018	1/8	0.027	1-1/2	—	<a href="#">00385</a>	<a href="#">02251</a>
0.019	1/8	0.029	1-1/2	—	<a href="#">00386</a>	<a href="#">02252</a>
0.020	1/8	0.030	1-1/2	—	<a href="#">00387</a>	<a href="#">02253</a>
0.020	1/8	0.030	1-1/2	0.003	<a href="#">08988</a>	<a href="#">09128</a>
0.020	1/8	0.030	1-1/2	0.005	<a href="#">04024</a>	<a href="#">04025</a>
0.021	1/8	0.032	1-1/2	—	<a href="#">00388</a>	<a href="#">02254</a>
0.022	1/8	0.033	1-1/2	—	<a href="#">00389</a>	<a href="#">02255</a>
0.023	1/8	0.035	1-1/2	—	<a href="#">00390</a>	<a href="#">02256</a>
0.024	1/8	0.036	1-1/2	—	<a href="#">00391</a>	<a href="#">02257</a>
0.025	1/8	0.038	1-1/2	—	<a href="#">00392</a>	<a href="#">02258</a>
0.025	1/8	0.038	1-1/2	0.005	<a href="#">04026</a>	<a href="#">04027</a>
0.025	1/8	0.038	1-1/2	0.010	<a href="#">08990</a>	<a href="#">09130</a>
0.026	1/8	0.039	1-1/2	—	<a href="#">00393</a>	<a href="#">02259</a>
0.027	1/8	0.041	1-1/2	—	<a href="#">00394</a>	<a href="#">02260</a>
0.028	1/8	0.042	1-1/2	—	<a href="#">00395</a>	<a href="#">02261</a>
0.029	1/8	0.044	1-1/2	—	<a href="#">00396</a>	<a href="#">02262</a>
0.030	1/8	0.045	1-1/2	—	<a href="#">00397</a>	<a href="#">02263</a>
0.030	1/8	0.045	1-1/2	0.010	<a href="#">08992</a>	<a href="#">09132</a>
0.031	1/8	0.047	1-1/2	—	<a href="#">00398</a>	<a href="#">02264</a>
0.032	1/8	0.048	1-1/2	—	<a href="#">00399</a>	<a href="#">02265</a>
0.033	1/8	0.050	1-1/2	—	<a href="#">00400</a>	<a href="#">02266</a>
0.034	1/8	0.051	1-1/2	—	<a href="#">00401</a>	<a href="#">02267</a>

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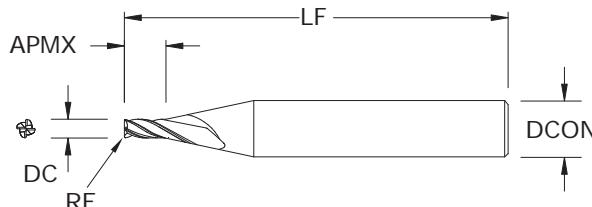
- Four flute design allows for higher feed rates and decreased deflection, improving productivity and surface finish
- Enhanced corner geometry with tight tolerance corner radii
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds
- 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 • M4CR • 1.5xD****M4 • M4CR  
1.5xD**

FRACTIONAL SERIES

continued

**TOLERANCES (inch)****.005-.120 DIAMETER**

DC = +0.000/-0.001

DCON = h<sub>6</sub>

RE = +0.0000/-0.0005

STEELS

STAINLESS STEELS

CAST IRON

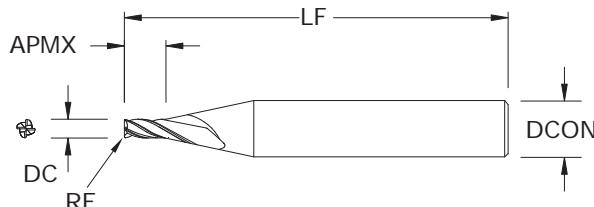
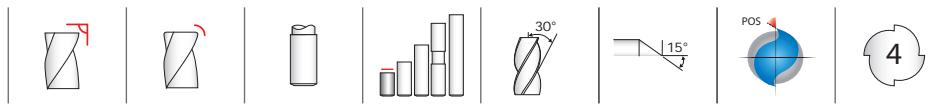
NON-FERROUS

HIGH TEMP ALLOYS

CUTTING DIAMETER DC	SHANK DIAMETER DCON	inch			EDP NO.	
		LENGTH OF CUT APMX	OVERALL LENGTH LF	CORNER RADIUS RE	UNCOATED	TI-NAMITE®-A (AITIN)
0.035	1/8	0.053	1-1/2	—	<a href="#">00402</a>	<a href="#">02268</a>
0.035	1/8	0.053	1-1/2	0.005	<a href="#">08994</a>	<a href="#">09134</a>
0.035	1/8	0.053	1-1/2	0.010	<a href="#">08996</a>	<a href="#">09136</a>
0.036	1/8	0.054	1-1/2	—	<a href="#">00403</a>	<a href="#">02269</a>
0.037	1/8	0.056	1-1/2	—	<a href="#">00404</a>	<a href="#">02270</a>
0.038	1/8	0.057	1-1/2	—	<a href="#">00405</a>	<a href="#">02271</a>
0.039	1/8	0.059	1-1/2	—	<a href="#">00406</a>	<a href="#">02272</a>
0.040	1/8	0.060	1-1/2	—	<a href="#">00407</a>	<a href="#">02273</a>
0.040	1/8	0.060	1-1/2	0.005	<a href="#">08998</a>	<a href="#">09138</a>
0.040	1/8	0.060	1-1/2	0.010	<a href="#">09000</a>	<a href="#">09140</a>
0.041	1/8	0.062	1-1/2	—	<a href="#">00408</a>	<a href="#">02402</a>
0.042	1/8	0.063	1-1/2	—	<a href="#">00409</a>	<a href="#">02403</a>
0.043	1/8	0.065	1-1/2	—	<a href="#">00410</a>	<a href="#">02404</a>
0.044	1/8	0.066	1-1/2	—	<a href="#">00411</a>	<a href="#">02405</a>
0.045	1/8	0.068	1-1/2	—	<a href="#">00412</a>	<a href="#">02406</a>
0.045	1/8	0.068	1-1/2	0.005	<a href="#">09002</a>	<a href="#">09142</a>
0.045	1/8	0.068	1-1/2	0.010	<a href="#">09004</a>	<a href="#">09144</a>
0.046	1/8	0.069	1-1/2	—	<a href="#">00413</a>	<a href="#">02407</a>
0.047	1/8	0.071	1-1/2	—	<a href="#">00414</a>	<a href="#">02408</a>
0.048	1/8	0.072	1-1/2	—	<a href="#">00415</a>	<a href="#">02409</a>
0.049	1/8	0.074	1-1/2	—	<a href="#">00416</a>	<a href="#">02410</a>
0.050	1/8	0.075	1-1/2	—	<a href="#">00417</a>	<a href="#">02411</a>
0.050	1/8	0.075	1-1/2	0.005	<a href="#">09006</a>	<a href="#">09146</a>
0.050	1/8	0.075	1-1/2	0.010	<a href="#">09008</a>	<a href="#">09148</a>
0.050	1/8	0.075	1-1/2	0.015	<a href="#">09010</a>	<a href="#">09150</a>
0.051	1/8	0.077	1-1/2	—	<a href="#">00418</a>	<a href="#">02412</a>
0.052	1/8	0.078	1-1/2	—	<a href="#">00419</a>	<a href="#">02413</a>
0.053	1/8	0.080	1-1/2	—	<a href="#">00420</a>	<a href="#">02414</a>
0.054	1/8	0.081	1-1/2	—	<a href="#">00421</a>	<a href="#">02415</a>
0.055	1/8	0.083	1-1/2	—	<a href="#">00422</a>	<a href="#">02416</a>
0.055	1/8	0.083	1-1/2	0.005	<a href="#">09012</a>	<a href="#">09152</a>
0.055	1/8	0.083	1-1/2	0.010	<a href="#">09014</a>	<a href="#">09154</a>
0.055	1/8	0.083	1-1/2	0.015	<a href="#">09016</a>	<a href="#">09156</a>
0.056	1/8	0.084	1-1/2	—	<a href="#">00423</a>	<a href="#">02417</a>

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FRACTIONAL  
M4 • M4CR • 1.5xD



M4 • M4CR  
1.5xD  
FRACTIONAL SERIES

**TOLERANCES (inch)**

.005-.120 DIAMETER

DC = +0.000/-0.001

DCON = h<sub>6</sub>

RE = +0.0000/-0.0005

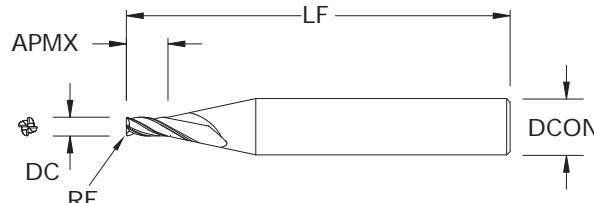
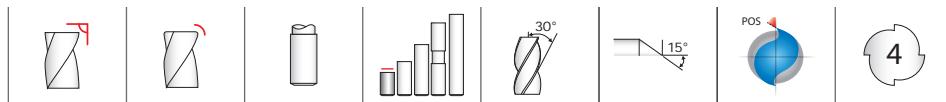
- STEELS
- STAINLESS STEELS
- CAST IRON
- NON-FERROUS
- HIGH TEMP ALLOYS

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	CORNER RADIUS RE	EDP NO.	
					UNCOATED	TI-NAMITE®-A (AITIN)
0.057	1/8	0.086	1-1/2	—	<a href="#">00424</a>	<a href="#">02418</a>
0.058	1/8	0.087	1-1/2	—	<a href="#">00425</a>	<a href="#">02419</a>
0.059	1/8	0.089	1-1/2	—	<a href="#">00426</a>	<a href="#">02420</a>
0.060	1/8	0.090	1-1/2	—	<a href="#">00427</a>	<a href="#">02421</a>
0.060	1/8	0.090	1-1/2	0.005	<a href="#">09018</a>	<a href="#">09158</a>
0.060	1/8	0.090	1-1/2	0.010	<a href="#">09020</a>	<a href="#">09160</a>
0.060	1/8	0.090	1-1/2	0.015	<a href="#">09022</a>	<a href="#">09162</a>
0.062	1/8	0.093	1-1/2	—	<a href="#">00428</a>	<a href="#">02422</a>
0.065	1/8	0.098	1-1/2	—	<a href="#">00429</a>	<a href="#">02423</a>
0.065	1/8	0.098	1-1/2	0.005	<a href="#">09024</a>	<a href="#">09164</a>
0.065	1/8	0.098	1-1/2	0.010	<a href="#">09026</a>	<a href="#">09166</a>
0.065	1/8	0.098	1-1/2	0.015	<a href="#">09028</a>	<a href="#">09168</a>
0.070	1/8	0.105	1-1/2	—	<a href="#">00430</a>	<a href="#">02424</a>
0.070	1/8	0.105	1-1/2	0.005	<a href="#">09030</a>	<a href="#">09170</a>
0.070	1/8	0.105	1-1/2	0.010	<a href="#">09032</a>	<a href="#">09172</a>
0.070	1/8	0.105	1-1/2	0.015	<a href="#">09034</a>	<a href="#">09174</a>
0.075	1/8	0.113	1-1/2	—	<a href="#">04014</a>	<a href="#">04012</a>
0.075	1/8	0.113	1-1/2	0.005	<a href="#">09036</a>	<a href="#">09176</a>
0.075	1/8	0.113	1-1/2	0.010	<a href="#">09038</a>	<a href="#">09178</a>
0.075	1/8	0.113	1-1/2	0.015	<a href="#">09040</a>	<a href="#">09180</a>
0.075	1/8	0.113	1-1/2	0.020	<a href="#">09042</a>	<a href="#">09182</a>
0.078	1/8	0.117	1-1/2	—	<a href="#">00431</a>	<a href="#">02425</a>
0.080	1/8	0.120	1-1/2	—	<a href="#">00432</a>	<a href="#">02426</a>
0.080	1/8	0.120	1-1/2	0.005	<a href="#">09044</a>	<a href="#">09184</a>
0.080	1/8	0.120	1-1/2	0.010	<a href="#">09046</a>	<a href="#">09186</a>
0.080	1/8	0.120	1-1/2	0.015	<a href="#">09048</a>	<a href="#">09188</a>
0.080	1/8	0.120	1-1/2	0.020	<a href="#">09050</a>	<a href="#">09190</a>
0.085	1/8	0.128	1-1/2	—	<a href="#">00433</a>	<a href="#">02427</a>
0.085	1/8	0.128	1-1/2	0.005	<a href="#">09052</a>	<a href="#">09192</a>
0.085	1/8	0.128	1-1/2	0.010	<a href="#">09054</a>	<a href="#">09194</a>
0.085	1/8	0.128	1-1/2	0.015	<a href="#">09056</a>	<a href="#">09196</a>
0.085	1/8	0.128	1-1/2	0.020	<a href="#">09058</a>	<a href="#">09198</a>
0.090	1/8	0.135	1-1/2	—	<a href="#">00434</a>	<a href="#">02428</a>
0.090	1/8	0.135	1-1/2	0.005	<a href="#">09060</a>	<a href="#">09200</a>

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## FRACTIONAL

**M4 • M4CR • 1.5xD****M4 • M4CR  
1.5xD**

FRACTIONAL SERIES

continued

CUTTING DIAMETER DC	SHANK DIAMETER DCON	inch			EDP NO.	
		LENGTH OF CUT APMX	OVERALL LENGTH LF	CORNER RADIUS RE	UNCOATED	TI-NAMITE®-A (AITIN)
0.090	1/8	0.135	1-1/2	0.010	<a href="#">09062</a>	<a href="#">09202</a>
0.090	1/8	0.135	1-1/2	0.015	<a href="#">09064</a>	<a href="#">09204</a>
0.090	1/8	0.135	1-1/2	0.020	<a href="#">09066</a>	<a href="#">09206</a>
0.093	1/8	0.140	1-1/2	—	<a href="#">00435</a>	<a href="#">02429</a>
0.095	1/8	0.143	1-1/2	—	<a href="#">00436</a>	<a href="#">02430</a>
0.095	1/8	0.143	1-1/2	0.005	<a href="#">09068</a>	<a href="#">09208</a>
0.095	1/8	0.143	1-1/2	0.010	<a href="#">09070</a>	<a href="#">09210</a>
0.095	1/8	0.143	1-1/2	0.015	<a href="#">09072</a>	<a href="#">09212</a>
0.095	1/8	0.143	1-1/2	0.020	<a href="#">09074</a>	<a href="#">09214</a>
0.100	1/8	0.150	1-1/2	—	<a href="#">00437</a>	<a href="#">02431</a>
0.100	1/8	0.150	1-1/2	0.005	<a href="#">09076</a>	<a href="#">09216</a>
0.100	1/8	0.150	1-1/2	0.010	<a href="#">09078</a>	<a href="#">09218</a>
0.100	1/8	0.150	1-1/2	0.015	<a href="#">09080</a>	<a href="#">09220</a>
0.100	1/8	0.150	1-1/2	0.020	<a href="#">09082</a>	<a href="#">09222</a>
0.100	1/8	0.150	1-1/2	0.030	<a href="#">09084</a>	<a href="#">09224</a>
0.105	1/8	0.158	1-1/2	—	<a href="#">00438</a>	<a href="#">02432</a>
0.105	1/8	0.158	1-1/2	0.005	<a href="#">09086</a>	<a href="#">09226</a>
0.105	1/8	0.158	1-1/2	0.010	<a href="#">09088</a>	<a href="#">09228</a>
0.105	1/8	0.158	1-1/2	0.015	<a href="#">09090</a>	<a href="#">09230</a>
0.105	1/8	0.158	1-1/2	0.020	<a href="#">09092</a>	<a href="#">09232</a>
0.105	1/8	0.158	1-1/2	0.030	<a href="#">09094</a>	<a href="#">09234</a>
0.110	1/8	0.165	1-1/2	—	<a href="#">00439</a>	<a href="#">02433</a>
0.110	1/8	0.165	1-1/2	0.005	<a href="#">09096</a>	<a href="#">09236</a>
0.110	1/8	0.165	1-1/2	0.010	<a href="#">09098</a>	<a href="#">09238</a>
0.110	1/8	0.165	1-1/2	0.015	<a href="#">09100</a>	<a href="#">09240</a>
0.110	1/8	0.165	1-1/2	0.020	<a href="#">09102</a>	<a href="#">09242</a>
0.110	1/8	0.165	1-1/2	0.030	<a href="#">09104</a>	<a href="#">09244</a>
0.115	1/8	0.173	1-1/2	—	<a href="#">00440</a>	<a href="#">02434</a>
0.115	1/8	0.173	1-1/2	0.005	<a href="#">09106</a>	<a href="#">09246</a>
0.115	1/8	0.173	1-1/2	0.010	<a href="#">09108</a>	<a href="#">09248</a>
0.115	1/8	0.173	1-1/2	0.015	<a href="#">09110</a>	<a href="#">09250</a>
0.115	1/8	0.173	1-1/2	0.020	<a href="#">09112</a>	<a href="#">09252</a>
0.115	1/8	0.173	1-1/2	0.030	<a href="#">09114</a>	<a href="#">09254</a>
0.120	1/8	0.180	1-1/2	—	<a href="#">00441</a>	<a href="#">02435</a>

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## TOLERANCES (inch)

## .005-.120 DIAMETER

DC = +0.000/-0.001

DCON = h6

RE = +0.0000 / -0.0005

STEELS

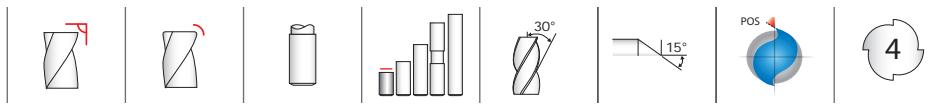
STAINLESS STEELS

CAST IRON

NON-FERROUS

HIGH TEMP ALLOYS

FRACTIONAL  
**M4 • M4CR • 1.5xD**



**TOLERANCES (inch)**

**.005–.120 DIAMETER**

DC = +0.000/-0.001

DCON = h<sub>6</sub>

RE = +0.0000/-0.0005

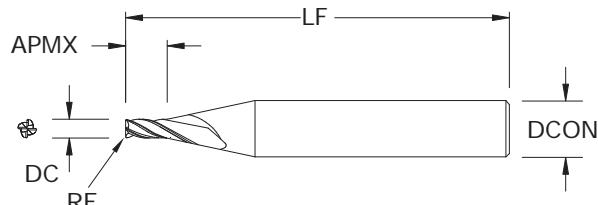
**STEELS**

**STAINLESS STEELS**

**CAST IRON**

**NON-FERROUS**

**HIGH TEMP ALLOYS**



**M4 • M4CR  
1.5xD**

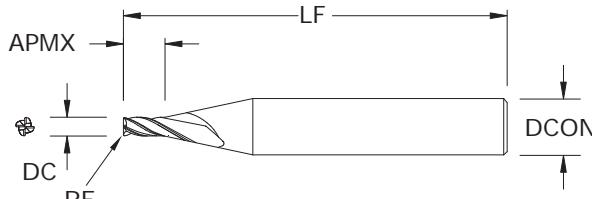
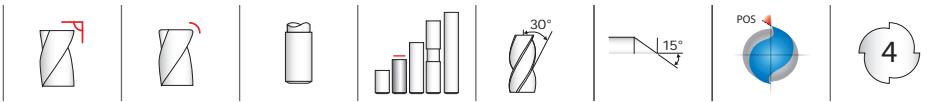
FRACTIONAL SERIES

*continued*

CUTTING DIAMETER DC	SHANK DIAMETER DCON	inch			EDP NO.	
		LENGTH OF CUT APMX	OVERALL LENGTH LF	CORNER RADIUS RE	UNCOATED	TI-NAMITE®-A (AITIN)
0.120	1/8	0.180	1-1/2	0.005	<a href="#">09116</a>	<a href="#">09256</a>
0.120	1/8	0.180	1-1/2	0.010	<a href="#">09118</a>	<a href="#">09258</a>
0.120	1/8	0.180	1-1/2	0.015	<a href="#">09120</a>	<a href="#">09260</a>
0.120	1/8	0.180	1-1/2	0.020	<a href="#">09122</a>	<a href="#">09262</a>
0.120	1/8	0.180	1-1/2	0.030	<a href="#">09124</a>	<a href="#">09264</a>

## FRACTIONAL

## M4 • M4CR • 3xD



## M4 • M4CR • 3xD

## FRACTIONAL SERIES

- Four flute design allows for higher feed rates and decreased deflection, improving productivity and surface finish
- Enhanced corner geometry with tight tolerance corner radii
- 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 KSP-T ISO certified quality procedures

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	CORNER RADIUS RE	EDP NO.	
					UNCOATED	TI-NAMITE®-A (AITiN)
0.005	1/8	0.015	1-1/2	—	<a href="#">00514</a>	<a href="#">02312</a>
0.006	1/8	0.018	1-1/2	—	<a href="#">00515</a>	<a href="#">02313</a>
0.007	1/8	0.021	1-1/2	—	<a href="#">00516</a>	<a href="#">02314</a>
0.008	1/8	0.024	1-1/2	—	<a href="#">00517</a>	<a href="#">02315</a>
0.009	1/8	0.027	1-1/2	—	<a href="#">00518</a>	<a href="#">02316</a>
0.010	1/8	0.030	1-1/2	—	<a href="#">00519</a>	<a href="#">02317</a>
0.011	1/8	0.033	1-1/2	—	<a href="#">00520</a>	<a href="#">02318</a>
0.012	1/8	0.036	1-1/2	—	<a href="#">00521</a>	<a href="#">02319</a>
0.013	1/8	0.039	1-1/2	—	<a href="#">00522</a>	<a href="#">02320</a>
0.014	1/8	0.042	1-1/2	—	<a href="#">00523</a>	<a href="#">02321</a>
0.015	1/8	0.045	1-1/2	—	<a href="#">00524</a>	<a href="#">02322</a>
0.015	1/8	0.045	1-1/2	0.003	<a href="#">08987</a>	<a href="#">09127</a>
0.016	1/8	0.048	1-1/2	—	<a href="#">00525</a>	<a href="#">02323</a>
0.017	1/8	0.051	1-1/2	—	<a href="#">00526</a>	<a href="#">02324</a>
0.018	1/8	0.054	1-1/2	—	<a href="#">00527</a>	<a href="#">02325</a>
0.019	1/8	0.057	1-1/2	—	<a href="#">00528</a>	<a href="#">02326</a>
0.020	1/8	0.060	1-1/2	—	<a href="#">00529</a>	<a href="#">02327</a>
0.020	1/8	0.060	1-1/2	0.003	<a href="#">08989</a>	<a href="#">09129</a>
0.020	1/8	0.060	1-1/2	0.005	<a href="#">04028</a>	<a href="#">04029</a>
0.021	1/8	0.063	1-1/2	—	<a href="#">00530</a>	<a href="#">02328</a>
0.022	1/8	0.066	1-1/2	—	<a href="#">00531</a>	<a href="#">02329</a>
0.023	1/8	0.069	1-1/2	—	<a href="#">00532</a>	<a href="#">02330</a>
0.024	1/8	0.072	1-1/2	—	<a href="#">00533</a>	<a href="#">02331</a>
0.025	1/8	0.075	1-1/2	—	<a href="#">00534</a>	<a href="#">02332</a>
0.025	1/8	0.075	1-1/2	0.005	<a href="#">04030</a>	<a href="#">04031</a>
0.025	1/8	0.075	1-1/2	0.010	<a href="#">08991</a>	<a href="#">09131</a>
0.026	1/8	0.078	1-1/2	—	<a href="#">00535</a>	<a href="#">02333</a>
0.027	1/8	0.081	1-1/2	—	<a href="#">00536</a>	<a href="#">02334</a>
0.028	1/8	0.084	1-1/2	—	<a href="#">00537</a>	<a href="#">02335</a>
0.029	1/8	0.087	1-1/2	—	<a href="#">00538</a>	<a href="#">02336</a>
0.030	1/8	0.090	1-1/2	—	<a href="#">00539</a>	<a href="#">02337</a>
0.030	1/8	0.090	1-1/2	0.010	<a href="#">08993</a>	<a href="#">09133</a>
0.031	1/8	0.093	1-1/2	—	<a href="#">00540</a>	<a href="#">02338</a>
0.032	1/8	0.096	1-1/2	—	<a href="#">00541</a>	<a href="#">02339</a>
0.033	1/8	0.099	1-1/2	—	<a href="#">00542</a>	<a href="#">02340</a>
0.034	1/8	0.102	1-1/2	—	<a href="#">00543</a>	<a href="#">02341</a>

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## TOLERANCES (inch)

## .005-.120 DIAMETER

DC = +0.000/-0.001

DCON = h6

RE = +0.0000 / -0.0005

STEELS

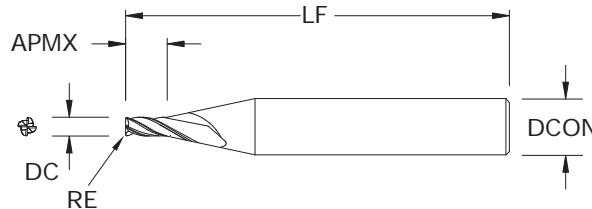
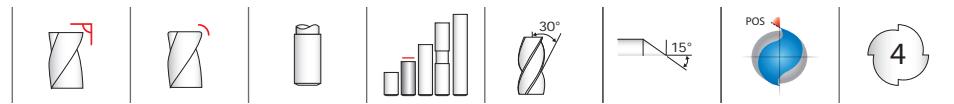
STAINLESS STEELS

CAST IRON

NON-FERROUS

HIGH TEMP ALLOYS

FRACTIONAL  
M4 • M4CR • 3xD



**TOLERANCES (inch)**

.005-.120 DIAMETER

DC = +0.000/-0.001

DCON = h<sub>6</sub>

RE = +0.0000/-0.0005

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

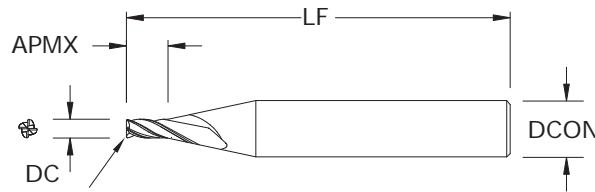
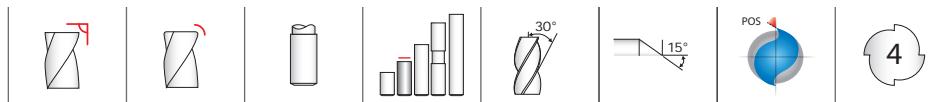
**M4 • M4CR • 3xD**  
FRACTIONAL SERIES

*continued*

CUTTING DIAMETER DC	SHANK DIAMETER DCON	inch			EDP NO.	
		LENGTH OF CUT APMX	OVERALL LENGTH LF	CORNER RADIUS RE	UNCOATED	TI-NAMITE®-A (AITIN)
0.035	1/8	0.105	1-1/2	—	<a href="#">00544</a>	<a href="#">02342</a>
0.035	1/8	0.105	1-1/2	0.005	<a href="#">08995</a>	<a href="#">09135</a>
0.035	1/8	0.105	1-1/2	0.010	<a href="#">08997</a>	<a href="#">09137</a>
0.036	1/8	0.108	1-1/2	—	<a href="#">00545</a>	<a href="#">02343</a>
0.037	1/8	0.111	1-1/2	—	<a href="#">00546</a>	<a href="#">02344</a>
0.038	1/8	0.114	1-1/2	—	<a href="#">00547</a>	<a href="#">02345</a>
0.039	1/8	0.117	1-1/2	—	<a href="#">00548</a>	<a href="#">02346</a>
0.040	1/8	0.120	1-1/2	—	<a href="#">00549</a>	<a href="#">02347</a>
0.040	1/8	0.120	1-1/2	0.005	<a href="#">08999</a>	<a href="#">09139</a>
0.040	1/8	0.120	1-1/2	0.010	<a href="#">09001</a>	<a href="#">09141</a>
0.041	1/8	0.123	1-1/2	—	<a href="#">00550</a>	<a href="#">02470</a>
0.042	1/8	0.126	1-1/2	—	<a href="#">00551</a>	<a href="#">02471</a>
0.043	1/8	0.129	1-1/2	—	<a href="#">00552</a>	<a href="#">02472</a>
0.044	1/8	0.132	1-1/2	—	<a href="#">00553</a>	<a href="#">02473</a>
0.045	1/8	0.135	1-1/2	—	<a href="#">00554</a>	<a href="#">02474</a>
0.045	1/8	0.135	1-1/2	0.005	<a href="#">09003</a>	<a href="#">09143</a>
0.045	1/8	0.135	1-1/2	0.010	<a href="#">09005</a>	<a href="#">09145</a>
0.046	1/8	0.138	1-1/2	—	<a href="#">00555</a>	<a href="#">02475</a>
0.047	1/8	0.141	1-1/2	—	<a href="#">00556</a>	<a href="#">02476</a>
0.048	1/8	0.144	1-1/2	—	<a href="#">00557</a>	<a href="#">02477</a>
0.049	1/8	0.147	1-1/2	—	<a href="#">00558</a>	<a href="#">02478</a>
0.050	1/8	0.150	1-1/2	—	<a href="#">00559</a>	<a href="#">02479</a>
0.050	1/8	0.150	1-1/2	0.005	<a href="#">09007</a>	<a href="#">09147</a>
0.050	1/8	0.150	1-1/2	0.010	<a href="#">09009</a>	<a href="#">09149</a>
0.050	1/8	0.150	1-1/2	0.015	<a href="#">09011</a>	<a href="#">09151</a>
0.051	1/8	0.153	1-1/2	—	<a href="#">00560</a>	<a href="#">02480</a>
0.052	1/8	0.156	1-1/2	—	<a href="#">00561</a>	<a href="#">02481</a>
0.053	1/8	0.159	1-1/2	—	<a href="#">00562</a>	<a href="#">02482</a>
0.054	1/8	0.162	1-1/2	—	<a href="#">00563</a>	<a href="#">02483</a>
0.055	1/8	0.165	1-1/2	—	<a href="#">00564</a>	<a href="#">02484</a>
0.055	1/8	0.165	1-1/2	0.005	<a href="#">09013</a>	<a href="#">09153</a>
0.055	1/8	0.165	1-1/2	0.010	<a href="#">09015</a>	<a href="#">09155</a>
0.055	1/8	0.165	1-1/2	0.015	<a href="#">09017</a>	<a href="#">09157</a>
0.056	1/8	0.168	1-1/2	—	<a href="#">00565</a>	<a href="#">02485</a>
0.057	1/8	0.171	1-1/2	—	<a href="#">00566</a>	<a href="#">02486</a>
0.058	1/8	0.174	1-1/2	—	<a href="#">00567</a>	<a href="#">02487</a>

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## FRACTIONAL

**M4 • M4CR • 3xD****M4 • M4CR • 3xD**

FRACTIONAL SERIES

continued

CUTTING DIAMETER DC	SHANK DIAMETER DCON	inch			EDP NO.	
		LENGTH OF CUT APMX	OVERALL LENGTH LF	CORNER RADIUS RE	UNCOATED	TI-NAMITE®-A (AITIN)
0.059	1/8	0.177	1-1/2	—	<a href="#">00568</a>	<a href="#">02488</a>
0.060	1/8	0.180	1-1/2	—	<a href="#">00569</a>	<a href="#">02489</a>
0.060	1/8	0.180	1-1/2	0.005	<a href="#">09019</a>	<a href="#">09159</a>
0.060	1/8	0.180	1-1/2	0.010	<a href="#">09021</a>	<a href="#">09161</a>
0.060	1/8	0.180	1-1/2	0.015	<a href="#">09023</a>	<a href="#">09163</a>
0.062	1/8	0.186	1-1/2	—	<a href="#">00570</a>	<a href="#">02490</a>
0.065	1/8	0.195	1-1/2	—	<a href="#">00571</a>	<a href="#">02491</a>
0.065	1/8	0.195	1-1/2	0.005	<a href="#">09025</a>	<a href="#">09165</a>
0.065	1/8	0.195	1-1/2	0.010	<a href="#">09027</a>	<a href="#">09167</a>
0.065	1/8	0.195	1-1/2	0.015	<a href="#">09029</a>	<a href="#">09169</a>
0.070	1/8	0.210	1-1/2	—	<a href="#">00572</a>	<a href="#">02492</a>
0.070	1/8	0.210	1-1/2	0.005	<a href="#">09031</a>	<a href="#">09171</a>
0.070	1/8	0.210	1-1/2	0.010	<a href="#">09033</a>	<a href="#">09173</a>
0.070	1/8	0.210	1-1/2	0.015	<a href="#">09035</a>	<a href="#">09175</a>
0.075	1/8	0.225	1-1/2	—	<a href="#">04015</a>	<a href="#">04013</a>
0.075	1/8	0.225	1-1/2	0.005	<a href="#">09037</a>	<a href="#">09177</a>
0.075	1/8	0.225	1-1/2	0.010	<a href="#">09039</a>	<a href="#">09179</a>
0.075	1/8	0.225	1-1/2	0.015	<a href="#">09041</a>	<a href="#">09181</a>
0.075	1/8	0.225	1-1/2	0.020	<a href="#">09043</a>	<a href="#">09183</a>
0.078	1/8	0.234	1-1/2	—	<a href="#">00573</a>	<a href="#">02493</a>
0.080	1/8	0.240	1-1/2	—	<a href="#">00574</a>	<a href="#">02494</a>
0.080	1/8	0.240	1-1/2	0.005	<a href="#">09045</a>	<a href="#">09185</a>
0.080	1/8	0.240	1-1/2	0.010	<a href="#">09047</a>	<a href="#">09187</a>
0.080	1/8	0.240	1-1/2	0.015	<a href="#">09049</a>	<a href="#">09189</a>
0.080	1/8	0.240	1-1/2	0.020	<a href="#">09051</a>	<a href="#">09191</a>
0.085	1/8	0.255	1-1/2	—	<a href="#">00575</a>	<a href="#">02495</a>
0.085	1/8	0.255	1-1/2	0.005	<a href="#">09053</a>	<a href="#">09193</a>
0.085	1/8	0.255	1-1/2	0.010	<a href="#">09055</a>	<a href="#">09195</a>
0.085	1/8	0.255	1-1/2	0.015	<a href="#">09057</a>	<a href="#">09197</a>
0.085	1/8	0.255	1-1/2	0.020	<a href="#">09059</a>	<a href="#">09199</a>
0.090	1/8	0.270	1-1/2	—	<a href="#">00576</a>	<a href="#">02496</a>
0.090	1/8	0.270	1-1/2	0.005	<a href="#">09061</a>	<a href="#">09201</a>
0.090	1/8	0.270	1-1/2	0.010	<a href="#">09063</a>	<a href="#">09203</a>
0.090	1/8	0.270	1-1/2	0.015	<a href="#">09065</a>	<a href="#">09205</a>
0.090	1/8	0.270	1-1/2	0.020	<a href="#">09067</a>	<a href="#">09207</a>
0.093	1/8	0.279	1-1/2	—	<a href="#">00577</a>	<a href="#">02497</a>

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## TOLERANCES (inch)

.005-.120 DIAMETER

DC = +0.000/-0.001

DCON = h6

RE = +0.0000 / -0.0005

STEELS

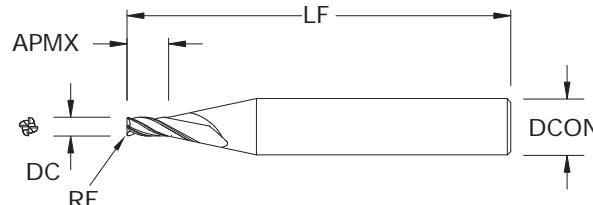
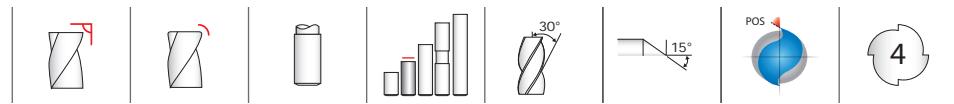
STAINLESS STEELS

CAST IRON

NON-FERROUS

HIGH TEMP ALLOYS

## M4 • M4CR • 3xD

M4 • M4CR • 3xD  
FRACTIONAL SERIES

## TOLERANCES (inch)

**.005–.120 DIAMETER**

DC = +0.000/-0.001

DCON = h<sub>6</sub>

RE = +0.0000/-0.0005

- STEELS
- STAINLESS STEELS
- CAST IRON
- NON-FERROUS
- HIGHTEMP ALLOYS

continued

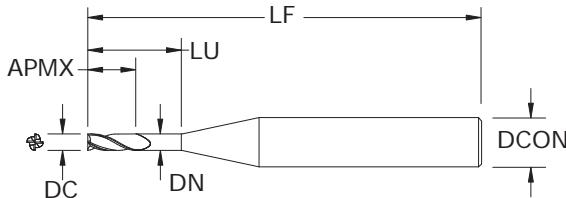
CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	CORNER RADIUS RE	EDP NO.	
					UNCOATED	TI-NAMITE®-A (AITIN)
0.095	1/8	0.285	1-1/2	—	<a href="#">00578</a>	<a href="#">02498</a>
0.095	1/8	0.285	1-1/2	0.005	<a href="#">09069</a>	<a href="#">09209</a>
0.095	1/8	0.285	1-1/2	0.010	<a href="#">09071</a>	<a href="#">09211</a>
0.095	1/8	0.285	1-1/2	0.015	<a href="#">09073</a>	<a href="#">09213</a>
0.095	1/8	0.285	1-1/2	0.020	<a href="#">09075</a>	<a href="#">09215</a>
0.100	1/8	0.300	1-1/2	—	<a href="#">00579</a>	<a href="#">02499</a>
0.100	1/8	0.300	1-1/2	0.005	<a href="#">09077</a>	<a href="#">09217</a>
0.100	1/8	0.300	1-1/2	0.010	<a href="#">09079</a>	<a href="#">09219</a>
0.100	1/8	0.300	1-1/2	0.015	<a href="#">09081</a>	<a href="#">09221</a>
0.100	1/8	0.300	1-1/2	0.020	<a href="#">09083</a>	<a href="#">09223</a>
0.100	1/8	0.300	1-1/2	0.030	<a href="#">09085</a>	<a href="#">09225</a>
0.105	1/8	0.315	1-1/2	—	<a href="#">00580</a>	<a href="#">02500</a>
0.105	1/8	0.315	1-1/2	0.005	<a href="#">09087</a>	<a href="#">09227</a>
0.105	1/8	0.315	1-1/2	0.010	<a href="#">09089</a>	<a href="#">09229</a>
0.105	1/8	0.315	1-1/2	0.015	<a href="#">09091</a>	<a href="#">09231</a>
0.105	1/8	0.315	1-1/2	0.020	<a href="#">09093</a>	<a href="#">09233</a>
0.105	1/8	0.315	1-1/2	0.030	<a href="#">09095</a>	<a href="#">09235</a>
0.110	1/8	0.330	1-1/2	—	<a href="#">00581</a>	<a href="#">02501</a>
0.110	1/8	0.330	1-1/2	0.005	<a href="#">09097</a>	<a href="#">09237</a>
0.110	1/8	0.330	1-1/2	0.010	<a href="#">09099</a>	<a href="#">09239</a>
0.110	1/8	0.330	1-1/2	0.015	<a href="#">09101</a>	<a href="#">09241</a>
0.110	1/8	0.330	1-1/2	0.020	<a href="#">09103</a>	<a href="#">09243</a>
0.110	1/8	0.330	1-1/2	0.030	<a href="#">09105</a>	<a href="#">09245</a>
0.115	1/8	0.345	1-1/2	—	<a href="#">00582</a>	<a href="#">02502</a>
0.115	1/8	0.345	1-1/2	0.005	<a href="#">09107</a>	<a href="#">09247</a>
0.115	1/8	0.345	1-1/2	0.010	<a href="#">09109</a>	<a href="#">09249</a>
0.115	1/8	0.345	1-1/2	0.015	<a href="#">09111</a>	<a href="#">09251</a>
0.115	1/8	0.345	1-1/2	0.020	<a href="#">09113</a>	<a href="#">09253</a>
0.115	1/8	0.345	1-1/2	0.030	<a href="#">09115</a>	<a href="#">09255</a>
0.120	1/8	0.360	1-1/2	—	<a href="#">00583</a>	<a href="#">02503</a>
0.120	1/8	0.360	1-1/2	0.005	<a href="#">09117</a>	<a href="#">09257</a>
0.120	1/8	0.360	1-1/2	0.010	<a href="#">09119</a>	<a href="#">09259</a>
0.120	1/8	0.360	1-1/2	0.015	<a href="#">09121</a>	<a href="#">09261</a>
0.120	1/8	0.360	1-1/2	0.020	<a href="#">09123</a>	<a href="#">09263</a>
0.120	1/8	0.360	1-1/2	0.030	<a href="#">09125</a>	<a href="#">09265</a>

## FRACTIONAL

**M4 • 3xD • 8xD Overall Reach****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



## TOLERANCES (inch)

## .010-.120 DIAMETER

DC = +0.000/-0.001

DCON = h6

STEELS

STAINLESS STEELS

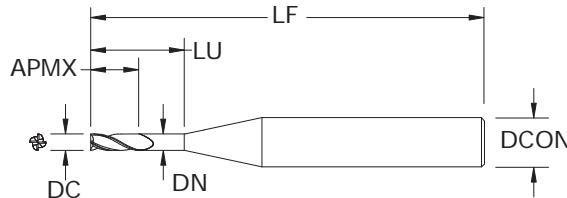
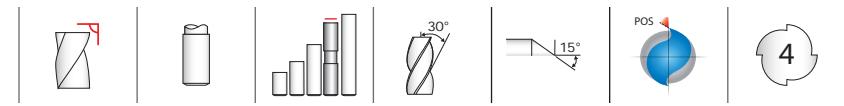
CAST IRON

NON-FERROUS

HIGH TEMP ALLOYS

CUTTING DIAMETER DC	SHANK DIAMETER DCON	inch				EDP NO.	
		LENGTH OF CUT APMX	REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	UNCOATED	TI-NAMITE® A (AlTiN)
0.010	1/8	0.030	0.080	0.009	1-1/2	<a href="#">09839</a>	<a href="#">03454</a>
0.015	1/8	0.045	0.120	0.014	1-1/2	<a href="#">09841</a>	<a href="#">03455</a>
0.020	1/8	0.060	0.160	0.018	1-1/2	<a href="#">09843</a>	<a href="#">03456</a>
0.025	1/8	0.075	0.200	0.023	1-1/2	<a href="#">09845</a>	<a href="#">03457</a>
0.030	1/8	0.090	0.240	0.028	1-1/2	<a href="#">09847</a>	<a href="#">03458</a>
0.031	1/8	0.093	0.248	0.029	1-1/2	<a href="#">09849</a>	<a href="#">03459</a>
0.035	1/8	0.105	0.280	0.032	1-1/2	<a href="#">09851</a>	<a href="#">03460</a>
0.040	1/8	0.120	0.320	0.037	1-1/2	<a href="#">09853</a>	<a href="#">03461</a>
0.045	1/8	0.135	0.360	0.042	2	<a href="#">09855</a>	<a href="#">03462</a>
0.047	1/8	0.141	0.376	0.044	2	<a href="#">09857</a>	<a href="#">03463</a>
0.050	1/8	0.150	0.400	0.047	2	<a href="#">09859</a>	<a href="#">03464</a>
0.055	1/8	0.165	0.440	0.051	2	<a href="#">09861</a>	<a href="#">03465</a>
0.060	1/8	0.180	0.480	0.056	2	<a href="#">09863</a>	<a href="#">03466</a>
0.062	1/8	0.186	0.496	0.058	2	<a href="#">09865</a>	<a href="#">03467</a>
0.065	1/8	0.195	0.520	0.061	2	<a href="#">09867</a>	<a href="#">03468</a>
0.070	1/8	0.210	0.560	0.065	2	<a href="#">09869</a>	<a href="#">03469</a>
0.075	1/8	0.225	0.600	0.070	2	<a href="#">09871</a>	<a href="#">03470</a>
0.078	1/8	0.234	0.624	0.073	2	<a href="#">09873</a>	<a href="#">03471</a>
0.080	1/8	0.240	0.640	0.075	2	<a href="#">09875</a>	<a href="#">03472</a>
0.085	1/8	0.255	0.680	0.079	2	<a href="#">09877</a>	<a href="#">03473</a>
0.090	1/8	0.270	0.720	0.084	2	<a href="#">09879</a>	<a href="#">03474</a>
0.093	1/8	0.279	0.744	0.087	2	<a href="#">09881</a>	<a href="#">03475</a>
0.095	1/8	0.285	0.760	0.089	2	<a href="#">09883</a>	<a href="#">03476</a>
0.100	1/8	0.300	0.800	0.094	2	<a href="#">09885</a>	<a href="#">03477</a>
0.110	1/8	0.330	0.880	0.103	2	<a href="#">09887</a>	<a href="#">03478</a>
0.115	1/8	0.345	0.920	0.108	2	<a href="#">09889</a>	<a href="#">03479</a>
0.120	1/8	0.360	0.960	0.112	2	<a href="#">09891</a>	<a href="#">03480</a>

# M4 • 3xD • 12xD Overall Reach



**M4 • 3xD  
12xD**  
FRACTIONAL SERIES

**TOLERANCES (inch)****.010-.120 DIAMETER**

DC = +0.000/-0.001

DCON = h<sub>6</sub>

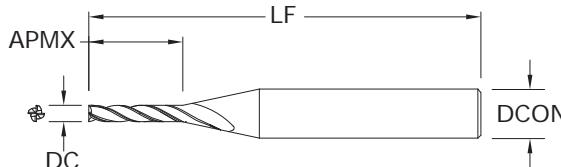
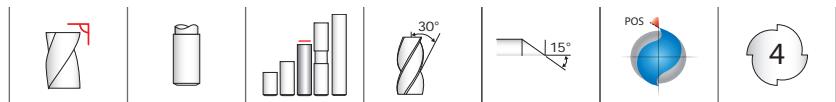
- STEELS
- STAINLESS STEELS
- CAST IRON
- NON-FERROUS
- HIGH TEMP ALLOYS

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	EDP NO.	
						UNCOATED	TI-NAMITE® A (AlTiN)
0.010	1/8	0.030	0.120	0.009	1-1/2	<a href="#">09838</a>	<a href="#">03481</a>
0.015	1/8	0.045	0.180	0.014	1-1/2	<a href="#">09840</a>	<a href="#">03482</a>
0.020	1/8	0.060	0.240	0.018	1-1/2	<a href="#">09842</a>	<a href="#">03483</a>
0.025	1/8	0.075	0.300	0.023	1-1/2	<a href="#">09844</a>	<a href="#">03484</a>
0.030	1/8	0.090	0.360	0.028	2	<a href="#">09846</a>	<a href="#">03485</a>
0.031	1/8	0.093	0.372	0.029	2	<a href="#">09848</a>	<a href="#">03486</a>
0.035	1/8	0.105	0.420	0.032	2	<a href="#">09850</a>	<a href="#">03487</a>
0.040	1/8	0.120	0.480	0.037	2	<a href="#">09852</a>	<a href="#">03488</a>
0.045	1/8	0.135	0.540	0.042	2	<a href="#">09854</a>	<a href="#">03489</a>
0.047	1/8	0.141	0.564	0.044	2	<a href="#">09856</a>	<a href="#">03490</a>
0.050	1/8	0.150	0.600	0.047	2	<a href="#">09858</a>	<a href="#">03491</a>
0.055	1/8	0.165	0.660	0.051	2	<a href="#">09860</a>	<a href="#">03492</a>
0.060	1/8	0.180	0.720	0.056	2	<a href="#">09862</a>	<a href="#">03493</a>
0.062	1/8	0.186	0.744	0.058	2	<a href="#">09864</a>	<a href="#">03494</a>
0.065	1/8	0.195	0.780	0.061	2	<a href="#">09866</a>	<a href="#">03495</a>
0.070	1/8	0.210	0.840	0.065	2	<a href="#">09868</a>	<a href="#">03496</a>
0.075	1/8	0.225	0.900	0.070	2	<a href="#">09870</a>	<a href="#">03497</a>
0.078	1/8	0.234	0.936	0.073	2-1/2	<a href="#">09872</a>	<a href="#">03498</a>
0.080	1/8	0.240	0.960	0.075	2-1/2	<a href="#">09874</a>	<a href="#">03499</a>
0.085	1/8	0.255	1.020	0.079	2-1/2	<a href="#">09876</a>	<a href="#">03500</a>
0.090	1/8	0.270	1.080	0.084	2-1/2	<a href="#">09878</a>	<a href="#">03501</a>
0.093	1/8	0.279	1.116	0.087	2-1/2	<a href="#">09880</a>	<a href="#">03502</a>
0.095	1/8	0.285	1.140	0.089	2-1/2	<a href="#">09882</a>	<a href="#">03503</a>
0.100	1/8	0.300	1.200	0.094	2-1/2	<a href="#">09884</a>	<a href="#">03504</a>
0.110	1/8	0.330	1.320	0.103	2-1/2	<a href="#">09886</a>	<a href="#">03505</a>
0.115	1/8	0.345	1.380	0.108	2-1/2	<a href="#">09888</a>	<a href="#">03506</a>
0.120	1/8	0.360	1.440	0.112	2-1/2	<a href="#">09890</a>	<a href="#">03507</a>

- 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
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inch				EDP NO.	
CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	UNCOATED	TI-NAMITE®-A (AITIN)
0.010	1/8	0.050	2-1/2	<a href="#">00584</a>	<a href="#">02640</a>
0.015	1/8	0.075	2-1/2	<a href="#">00585</a>	<a href="#">02641</a>
0.020	1/8	0.100	2-1/2	<a href="#">00586</a>	<a href="#">02642</a>
0.025	1/8	0.125	2-1/2	<a href="#">00587</a>	<a href="#">02643</a>
0.030	1/8	0.150	2-1/2	<a href="#">00588</a>	<a href="#">02644</a>
0.031	1/8	0.155	2-1/2	<a href="#">00589</a>	<a href="#">02645</a>
0.035	1/8	0.175	2-1/2	<a href="#">00590</a>	<a href="#">02646</a>
0.040	1/8	0.200	2-1/2	<a href="#">00591</a>	<a href="#">02647</a>
0.045	1/8	0.225	2-1/2	<a href="#">00592</a>	<a href="#">02648</a>
0.047	1/8	0.235	2-1/2	<a href="#">00593</a>	<a href="#">02649</a>
0.050	1/8	0.250	2-1/2	<a href="#">00594</a>	<a href="#">02650</a>
0.055	1/8	0.275	2-1/2	<a href="#">00595</a>	<a href="#">02651</a>
0.060	1/8	0.300	2-1/2	<a href="#">00596</a>	<a href="#">02652</a>
0.062	1/8	0.310	2-1/2	<a href="#">00597</a>	<a href="#">02653</a>
0.065	1/8	0.325	2-1/2	<a href="#">00598</a>	<a href="#">02654</a>
0.070	1/8	0.350	2-1/2	<a href="#">00599</a>	<a href="#">02655</a>
0.075	1/8	0.375	2-1/2	<a href="#">00600</a>	<a href="#">02656</a>
0.078	1/8	0.390	2-1/2	<a href="#">00601</a>	<a href="#">02657</a>
0.080	1/8	0.400	2-1/2	<a href="#">00602</a>	<a href="#">02658</a>
0.085	1/8	0.425	2-1/2	<a href="#">00603</a>	<a href="#">02659</a>
0.090	1/8	0.450	2-1/2	<a href="#">00604</a>	<a href="#">02660</a>
0.093	1/8	0.465	2-1/2	<a href="#">00605</a>	<a href="#">02661</a>
0.095	1/8	0.475	2-1/2	<a href="#">00606</a>	<a href="#">02662</a>
0.100	1/8	0.500	2-1/2	<a href="#">00607</a>	<a href="#">02663</a>
0.110	1/8	0.550	2-1/2	<a href="#">00608</a>	<a href="#">02664</a>
0.115	1/8	0.575	2-1/2	<a href="#">00609</a>	<a href="#">02665</a>
0.120	1/8	0.600	2-1/2	<a href="#">00610</a>	<a href="#">02666</a>

### TOLERANCES (inch)

#### .010-.120 DIAMETER

DC = +0.000/-0.001

DCON = h6

STEELS

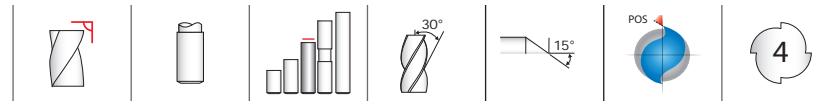
STAINLESS STEELS

CAST IRON

NON-FERROUS

HIGH TEMP ALLOYS

FRACTIONAL  
M4E • 8xD



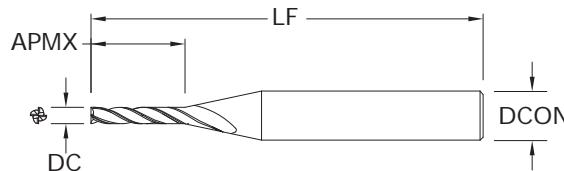
**TOLERANCES (inch)**

.010-.120 DIAMETER

DC = +0.000/-0.001

DCON = h<sub>6</sub>

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

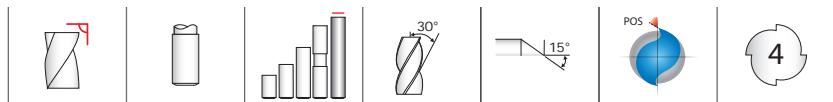


**M4E • 8xD**  
FRACTIONAL SERIES

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	EDP NO.
		inch		UNCOATED      TI-NAMITE®-A (AITIN)
0.010	1/8	0.080	2-1/2	<a href="#">00611</a> <a href="#">02667</a>
0.015	1/8	0.120	2-1/2	<a href="#">00612</a> <a href="#">02668</a>
0.020	1/8	0.160	2-1/2	<a href="#">00613</a> <a href="#">02669</a>
0.025	1/8	0.200	2-1/2	<a href="#">00614</a> <a href="#">02670</a>
0.030	1/8	0.240	2-1/2	<a href="#">00615</a> <a href="#">02671</a>
0.031	1/8	0.248	2-1/2	<a href="#">00616</a> <a href="#">02672</a>
0.035	1/8	0.280	2-1/2	<a href="#">00617</a> <a href="#">02673</a>
0.040	1/8	0.320	2-1/2	<a href="#">00618</a> <a href="#">02674</a>
0.045	1/8	0.360	2-1/2	<a href="#">00619</a> <a href="#">02675</a>
0.047	1/8	0.376	2-1/2	<a href="#">00620</a> <a href="#">02676</a>
0.050	1/8	0.400	2-1/2	<a href="#">00621</a> <a href="#">02677</a>
0.055	1/8	0.440	2-1/2	<a href="#">00622</a> <a href="#">02678</a>
0.060	1/8	0.480	2-1/2	<a href="#">00623</a> <a href="#">02679</a>
0.062	1/8	0.496	2-1/2	<a href="#">00624</a> <a href="#">02680</a>
0.065	1/8	0.520	2-1/2	<a href="#">00625</a> <a href="#">02681</a>
0.070	1/8	0.560	2-1/2	<a href="#">00626</a> <a href="#">02682</a>
0.075	1/8	0.600	2-1/2	<a href="#">00627</a> <a href="#">02683</a>
0.078	1/8	0.624	2-1/2	<a href="#">00628</a> <a href="#">02684</a>
0.080	1/8	0.640	2-1/2	<a href="#">00629</a> <a href="#">02685</a>
0.085	1/8	0.680	2-1/2	<a href="#">00630</a> <a href="#">02686</a>
0.090	1/8	0.720	2-1/2	<a href="#">00631</a> <a href="#">02687</a>
0.093	1/8	0.744	2-1/2	<a href="#">00632</a> <a href="#">02688</a>
0.095	1/8	0.760	2-1/2	<a href="#">00633</a> <a href="#">02689</a>
0.100	1/8	0.800	2-1/2	<a href="#">00634</a> <a href="#">02690</a>
0.110	1/8	0.880	2-1/2	<a href="#">00635</a> <a href="#">02691</a>
0.115	1/8	0.920	2-1/2	<a href="#">00636</a> <a href="#">02692</a>
0.120	1/8	0.960	2-1/2	<a href="#">00637</a> <a href="#">02693</a>

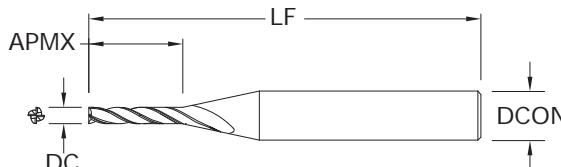
- Four flute design allows for higher feed rates and decreased deflection, improving productivity and surface finish
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds
- High performance carbide substrate designed specifically for Micro Tool applications
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## FRACTIONAL

**M4X • 12xD****M4X • 12xD**

## FRACTIONAL SERIES

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- 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
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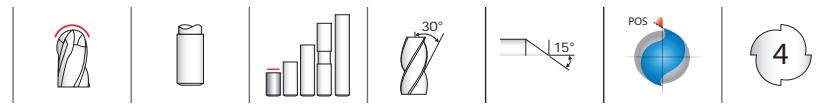
**TOLERANCES (inch)****.015-.120 DIAMETER**

DC = +0.000/-0.001

DCON = h6

STEELS
STAINLESS STEELS
CAST IRON
NON-FERROUS
HIGH TEMP ALLOYS

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	EDP NO.	
				UNCOATED	TI-NAMITE®-A (AITIN)
0.015	1/8	0.180	2-1/2	<a href="#">00639</a>	<a href="#">02694</a>
0.020	1/8	0.240	2-1/2	<a href="#">00640</a>	<a href="#">02695</a>
0.025	1/8	0.300	2-1/2	<a href="#">00641</a>	<a href="#">02696</a>
0.030	1/8	0.360	2-1/2	<a href="#">00642</a>	<a href="#">02697</a>
0.031	1/8	0.372	2-1/2	<a href="#">00643</a>	<a href="#">02698</a>
0.035	1/8	0.420	2-1/2	<a href="#">00644</a>	<a href="#">02699</a>
0.040	1/8	0.480	2-1/2	<a href="#">00645</a>	<a href="#">02700</a>
0.045	1/8	0.540	2-1/2	<a href="#">00646</a>	<a href="#">02701</a>
0.047	1/8	0.564	2-1/2	<a href="#">00647</a>	<a href="#">02702</a>
0.050	1/8	0.600	2-1/2	<a href="#">00648</a>	<a href="#">02703</a>
0.055	1/8	0.660	2-1/2	<a href="#">00649</a>	<a href="#">02704</a>
0.060	1/8	0.720	2-1/2	<a href="#">00650</a>	<a href="#">02705</a>
0.062	1/8	0.744	2-1/2	<a href="#">00651</a>	<a href="#">02706</a>
0.065	1/8	0.780	2-1/2	<a href="#">00652</a>	<a href="#">02707</a>
0.070	1/8	0.840	2-1/2	<a href="#">00653</a>	<a href="#">02708</a>
0.075	1/8	0.900	2-1/2	<a href="#">00654</a>	<a href="#">02709</a>
0.078	1/8	0.936	2-1/2	<a href="#">00655</a>	<a href="#">02710</a>
0.080	1/8	0.960	2-1/2	<a href="#">00656</a>	<a href="#">02711</a>
0.085	1/8	1.020	2-1/2	<a href="#">00657</a>	<a href="#">02712</a>
0.090	1/8	1.080	2-1/2	<a href="#">00658</a>	<a href="#">02713</a>
0.093	1/8	1.116	2-1/2	<a href="#">00659</a>	<a href="#">02714</a>
0.095	1/8	1.140	2-1/2	<a href="#">00660</a>	<a href="#">02715</a>
0.100	1/8	1.200	2-1/2	<a href="#">00661</a>	<a href="#">02716</a>
0.110	1/8	1.320	2-1/2	<a href="#">00662</a>	<a href="#">02717</a>
0.115	1/8	1.380	2-1/2	<a href="#">00663</a>	<a href="#">02718</a>
0.120	1/8	1.440	2-1/2	<a href="#">00664</a>	<a href="#">02719</a>

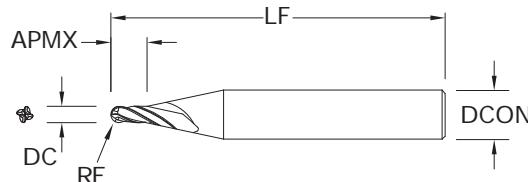
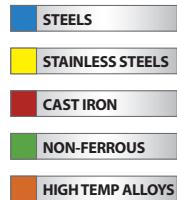


**TOLERANCES (inch)**

.010-.120 DIAMETER

DC = +0.000/-0.001

DCON = h<sub>6</sub>



**M4B • 1.5xD**  
FRACTIONAL SERIES

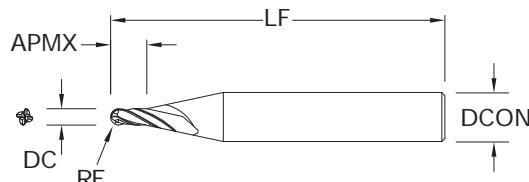
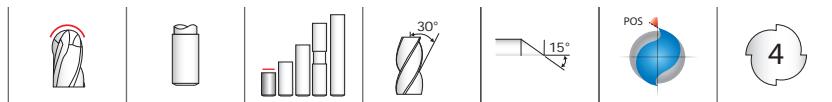
CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	EDP NO.
		inch		UNCOATED TI-NAMITE®-A (AITIN)
0.010	1/8	0.015	1-1/2	<a href="#">00745</a> <a href="#">03071</a>
0.011	1/8	0.017	1-1/2	<a href="#">00746</a> <a href="#">03072</a>
0.012	1/8	0.018	1-1/2	<a href="#">00747</a> <a href="#">03073</a>
0.013	1/8	0.020	1-1/2	<a href="#">00748</a> <a href="#">03074</a>
0.014	1/8	0.021	1-1/2	<a href="#">00749</a> <a href="#">03075</a>
0.015	1/8	0.023	1-1/2	<a href="#">00750</a> <a href="#">03076</a>
0.016	1/8	0.024	1-1/2	<a href="#">00751</a> <a href="#">03077</a>
0.017	1/8	0.026	1-1/2	<a href="#">00752</a> <a href="#">03078</a>
0.018	1/8	0.027	1-1/2	<a href="#">00753</a> <a href="#">03079</a>
0.019	1/8	0.029	1-1/2	<a href="#">00754</a> <a href="#">03080</a>
0.020	1/8	0.030	1-1/2	<a href="#">00755</a> <a href="#">03081</a>
0.021	1/8	0.032	1-1/2	<a href="#">00756</a> <a href="#">03082</a>
0.022	1/8	0.033	1-1/2	<a href="#">00757</a> <a href="#">03083</a>
0.023	1/8	0.035	1-1/2	<a href="#">00758</a> <a href="#">03084</a>
0.024	1/8	0.036	1-1/2	<a href="#">00759</a> <a href="#">03085</a>
0.025	1/8	0.038	1-1/2	<a href="#">00760</a> <a href="#">03086</a>
0.026	1/8	0.039	1-1/2	<a href="#">00761</a> <a href="#">03087</a>
0.027	1/8	0.041	1-1/2	<a href="#">00762</a> <a href="#">03088</a>
0.028	1/8	0.042	1-1/2	<a href="#">00763</a> <a href="#">03089</a>
0.029	1/8	0.044	1-1/2	<a href="#">00764</a> <a href="#">03090</a>
0.030	1/8	0.045	1-1/2	<a href="#">00765</a> <a href="#">03091</a>
0.031	1/8	0.047	1-1/2	<a href="#">00766</a> <a href="#">03092</a>
0.032	1/8	0.048	1-1/2	<a href="#">00767</a> <a href="#">03093</a>
0.033	1/8	0.050	1-1/2	<a href="#">00768</a> <a href="#">03094</a>
0.034	1/8	0.051	1-1/2	<a href="#">00769</a> <a href="#">03095</a>
0.035	1/8	0.053	1-1/2	<a href="#">00770</a> <a href="#">03096</a>
0.036	1/8	0.054	1-1/2	<a href="#">00771</a> <a href="#">03097</a>
0.037	1/8	0.056	1-1/2	<a href="#">00772</a> <a href="#">03098</a>
0.038	1/8	0.057	1-1/2	<a href="#">00773</a> <a href="#">03099</a>
0.039	1/8	0.059	1-1/2	<a href="#">00774</a> <a href="#">03100</a>
0.040	1/8	0.060	1-1/2	<a href="#">00775</a> <a href="#">03101</a>
0.041	1/8	0.062	1-1/2	<a href="#">00776</a> <a href="#">02538</a>
0.042	1/8	0.063	1-1/2	<a href="#">00777</a> <a href="#">02539</a>
0.043	1/8	0.065	1-1/2	<a href="#">00778</a> <a href="#">02540</a>

RE = 1/2 Cutting Diameter (DC)

continued on next page

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- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures

## FRACTIONAL

**M4B • 1.5xD****M4B • 1.5xD**

FRACTIONAL SERIES

continued

CUTTING DIAMETER DC	SHANK DIAMETER DCON	inch		EDP NO.	
		LENGTH OF CUT APMX	OVERALL LENGTH LF	UNCOATED	TI-NAMITE®-A (AITIN)
0.044	1/8	0.066	1-1/2	<a href="#">00779</a>	<a href="#">02541</a>
0.045	1/8	0.068	1-1/2	<a href="#">00780</a>	<a href="#">02542</a>
0.046	1/8	0.069	1-1/2	<a href="#">00781</a>	<a href="#">02543</a>
0.047	1/8	0.071	1-1/2	<a href="#">00782</a>	<a href="#">02544</a>
0.048	1/8	0.072	1-1/2	<a href="#">00783</a>	<a href="#">02545</a>
0.049	1/8	0.074	1-1/2	<a href="#">00784</a>	<a href="#">02546</a>
0.050	1/8	0.075	1-1/2	<a href="#">00785</a>	<a href="#">02547</a>
0.051	1/8	0.077	1-1/2	<a href="#">00786</a>	<a href="#">02548</a>
0.052	1/8	0.078	1-1/2	<a href="#">00787</a>	<a href="#">02549</a>
0.053	1/8	0.080	1-1/2	<a href="#">00788</a>	<a href="#">02550</a>
0.054	1/8	0.081	1-1/2	<a href="#">00789</a>	<a href="#">02551</a>
0.055	1/8	0.083	1-1/2	<a href="#">00790</a>	<a href="#">02552</a>
0.056	1/8	0.084	1-1/2	<a href="#">00791</a>	<a href="#">02553</a>
0.057	1/8	0.086	1-1/2	<a href="#">00792</a>	<a href="#">02554</a>
0.058	1/8	0.087	1-1/2	<a href="#">00793</a>	<a href="#">02555</a>
0.059	1/8	0.089	1-1/2	<a href="#">00794</a>	<a href="#">02556</a>
0.060	1/8	0.090	1-1/2	<a href="#">00795</a>	<a href="#">02557</a>
0.062	1/8	0.093	1-1/2	<a href="#">00796</a>	<a href="#">02558</a>
0.065	1/8	0.098	1-1/2	<a href="#">00797</a>	<a href="#">02559</a>
0.070	1/8	0.105	1-1/2	<a href="#">00798</a>	<a href="#">02560</a>
0.075	1/8	0.112	1-1/2	<a href="#">04018</a>	<a href="#">04016</a>
0.078	1/8	0.117	1-1/2	<a href="#">00799</a>	<a href="#">02561</a>
0.080	1/8	0.120	1-1/2	<a href="#">00800</a>	<a href="#">02562</a>
0.085	1/8	0.128	1-1/2	<a href="#">00801</a>	<a href="#">02563</a>
0.090	1/8	0.135	1-1/2	<a href="#">00802</a>	<a href="#">02564</a>
0.093	1/8	0.140	1-1/2	<a href="#">00803</a>	<a href="#">02565</a>
0.095	1/8	0.143	1-1/2	<a href="#">00804</a>	<a href="#">02566</a>
0.100	1/8	0.150	1-1/2	<a href="#">00805</a>	<a href="#">02567</a>
0.105	1/8	0.158	1-1/2	<a href="#">00806</a>	<a href="#">02568</a>
0.110	1/8	0.165	1-1/2	<a href="#">00807</a>	<a href="#">02569</a>
0.115	1/8	0.173	1-1/2	<a href="#">00808</a>	<a href="#">02570</a>
0.120	1/8	0.180	1-1/2	<a href="#">00809</a>	<a href="#">02571</a>

RE = 1/2 Cutting Diameter (DC)

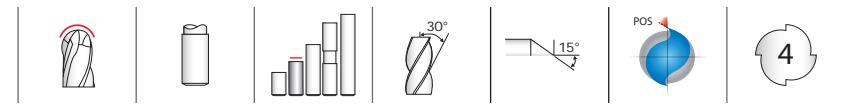
## TOLERANCES (inch)

.010-.120 DIAMETER

DC = +0.000/-0.001

DCON = h6

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

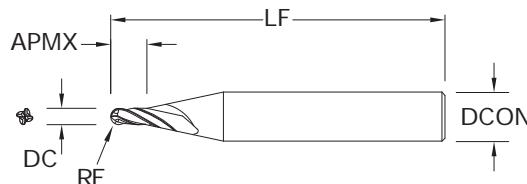
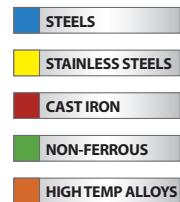


**TOLERANCES (inch)**

.010-.120 DIAMETER

DC = +0.000/-0.001

DCON = h<sub>6</sub>



**M4B • 3xD**  
FRACTIONAL SERIES

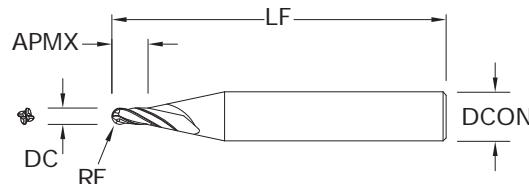
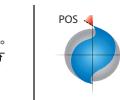
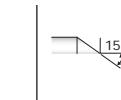
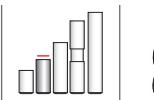
CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	EDP NO.
		inch		UNCOATED TI-NAMITE®-A (AITIN)
0.010	1/8	0.030	1-1/2	<a href="#">00887</a> <a href="#">03145</a>
0.011	1/8	0.033	1-1/2	<a href="#">00888</a> <a href="#">03146</a>
0.012	1/8	0.036	1-1/2	<a href="#">00889</a> <a href="#">03147</a>
0.013	1/8	0.039	1-1/2	<a href="#">00890</a> <a href="#">03148</a>
0.014	1/8	0.042	1-1/2	<a href="#">00891</a> <a href="#">03149</a>
0.015	1/8	0.045	1-1/2	<a href="#">00892</a> <a href="#">03150</a>
0.016	1/8	0.048	1-1/2	<a href="#">00893</a> <a href="#">03151</a>
0.017	1/8	0.051	1-1/2	<a href="#">00894</a> <a href="#">03152</a>
0.018	1/8	0.054	1-1/2	<a href="#">00895</a> <a href="#">03153</a>
0.019	1/8	0.057	1-1/2	<a href="#">00896</a> <a href="#">03154</a>
0.020	1/8	0.060	1-1/2	<a href="#">00897</a> <a href="#">03155</a>
0.021	1/8	0.063	1-1/2	<a href="#">00898</a> <a href="#">03156</a>
0.022	1/8	0.066	1-1/2	<a href="#">00899</a> <a href="#">03157</a>
0.023	1/8	0.069	1-1/2	<a href="#">00900</a> <a href="#">03158</a>
0.024	1/8	0.072	1-1/2	<a href="#">00901</a> <a href="#">03159</a>
0.025	1/8	0.075	1-1/2	<a href="#">00902</a> <a href="#">03160</a>
0.026	1/8	0.078	1-1/2	<a href="#">00903</a> <a href="#">03161</a>
0.027	1/8	0.081	1-1/2	<a href="#">00904</a> <a href="#">03162</a>
0.028	1/8	0.084	1-1/2	<a href="#">00905</a> <a href="#">03163</a>
0.029	1/8	0.087	1-1/2	<a href="#">00906</a> <a href="#">03164</a>
0.030	1/8	0.090	1-1/2	<a href="#">00907</a> <a href="#">03165</a>
0.031	1/8	0.093	1-1/2	<a href="#">00908</a> <a href="#">03166</a>
0.032	1/8	0.096	1-1/2	<a href="#">00909</a> <a href="#">03167</a>
0.033	1/8	0.099	1-1/2	<a href="#">00910</a> <a href="#">03168</a>
0.034	1/8	0.102	1-1/2	<a href="#">00911</a> <a href="#">03169</a>
0.035	1/8	0.105	1-1/2	<a href="#">00912</a> <a href="#">03170</a>
0.036	1/8	0.108	1-1/2	<a href="#">00913</a> <a href="#">03171</a>
0.037	1/8	0.111	1-1/2	<a href="#">00914</a> <a href="#">03172</a>
0.038	1/8	0.114	1-1/2	<a href="#">00915</a> <a href="#">03173</a>
0.039	1/8	0.117	1-1/2	<a href="#">00916</a> <a href="#">03174</a>
0.040	1/8	0.120	1-1/2	<a href="#">00917</a> <a href="#">03175</a>
0.041	1/8	0.123	1-1/2	<a href="#">00918</a> <a href="#">02606</a>
0.042	1/8	0.126	1-1/2	<a href="#">00919</a> <a href="#">02607</a>
0.043	1/8	0.129	1-1/2	<a href="#">00920</a> <a href="#">02608</a>

RE = 1/2 Cutting Diameter (DC)

continued on next page

- 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

**M4B • 3xD****M4B • 3xD**

FRACTIONAL SERIES

continued

CUTTING DIAMETER DC	SHANK DIAMETER DCON	inch		EDP NO.	
		LENGTH OF CUT APMX	OVERALL LENGTH LF	UNCOATED	TI-NAMITE®-A (AITIN)
0.044	1/8	0.132	1-1/2	<a href="#">00921</a>	<a href="#">02609</a>
0.045	1/8	0.135	1-1/2	<a href="#">00922</a>	<a href="#">02610</a>
0.046	1/8	0.138	1-1/2	<a href="#">00923</a>	<a href="#">02611</a>
0.047	1/8	0.141	1-1/2	<a href="#">00924</a>	<a href="#">02612</a>
0.048	1/8	0.144	1-1/2	<a href="#">00925</a>	<a href="#">02613</a>
0.049	1/8	0.147	1-1/2	<a href="#">00926</a>	<a href="#">02614</a>
0.050	1/8	0.150	1-1/2	<a href="#">00927</a>	<a href="#">02615</a>
0.051	1/8	0.153	1-1/2	<a href="#">00928</a>	<a href="#">02616</a>
0.052	1/8	0.156	1-1/2	<a href="#">00929</a>	<a href="#">02617</a>
0.053	1/8	0.159	1-1/2	<a href="#">00930</a>	<a href="#">02618</a>
0.054	1/8	0.162	1-1/2	<a href="#">00931</a>	<a href="#">02619</a>
0.055	1/8	0.165	1-1/2	<a href="#">00932</a>	<a href="#">02620</a>
0.056	1/8	0.168	1-1/2	<a href="#">00933</a>	<a href="#">02621</a>
0.057	1/8	0.171	1-1/2	<a href="#">00934</a>	<a href="#">02622</a>
0.058	1/8	0.174	1-1/2	<a href="#">00935</a>	<a href="#">02623</a>
0.059	1/8	0.177	1-1/2	<a href="#">00936</a>	<a href="#">02624</a>
0.060	1/8	0.180	1-1/2	<a href="#">00937</a>	<a href="#">02625</a>
0.062	1/8	0.186	1-1/2	<a href="#">00938</a>	<a href="#">02626</a>
0.065	1/8	0.195	1-1/2	<a href="#">00939</a>	<a href="#">02627</a>
0.070	1/8	0.210	1-1/2	<a href="#">00940</a>	<a href="#">02628</a>
0.075	1/8	0.225	1-1/2	<a href="#">04019</a>	<a href="#">04017</a>
0.078	1/8	0.234	1-1/2	<a href="#">00941</a>	<a href="#">02629</a>
0.080	1/8	0.240	1-1/2	<a href="#">00942</a>	<a href="#">02630</a>
0.085	1/8	0.255	1-1/2	<a href="#">00943</a>	<a href="#">02631</a>
0.090	1/8	0.270	1-1/2	<a href="#">00944</a>	<a href="#">02632</a>
0.093	1/8	0.279	1-1/2	<a href="#">00945</a>	<a href="#">02633</a>
0.095	1/8	0.285	1-1/2	<a href="#">00946</a>	<a href="#">02634</a>
0.100	1/8	0.300	1-1/2	<a href="#">00947</a>	<a href="#">02635</a>
0.105	1/8	0.315	1-1/2	<a href="#">00948</a>	<a href="#">02636</a>
0.110	1/8	0.330	1-1/2	<a href="#">00949</a>	<a href="#">02637</a>
0.115	1/8	0.345	1-1/2	<a href="#">00950</a>	<a href="#">02638</a>
0.120	1/8	0.360	1-1/2	<a href="#">00951</a>	<a href="#">02639</a>

RE = 1/2 Cutting Diameter (DC)

## TOLERANCES (inch)

.010-.120 DIAMETER

DC = +0.000/-0.001

DCON = h6

STEELS

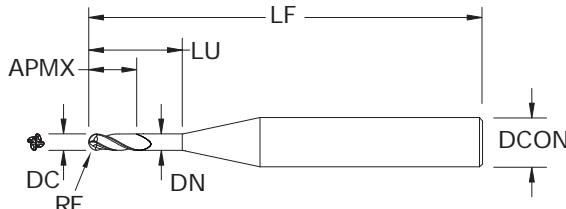
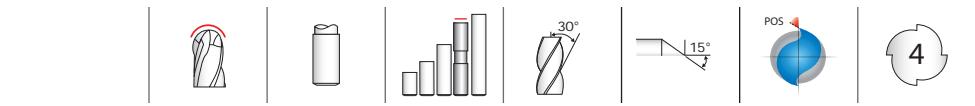
STAINLESS STEELS

CAST IRON

NON-FERROUS

HIGH TEMP ALLOYS

# M4B • 3xD • 8xD Overall Reach

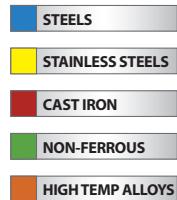


## M4B • 3xD 8xD

FRACTIONAL SERIES

**TOLERANCES (inch)****.010-.120 DIAMETER**

DC = +0.000/-0.001

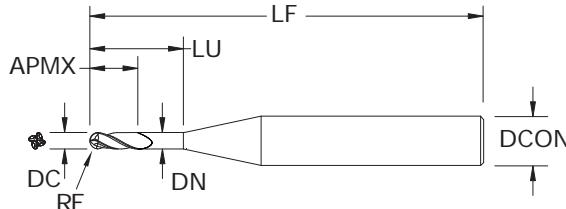
DCON = h<sub>6</sub>

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	inch			EDP NO.	
			REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	UNCOATED	TI-NAMITE® A (AlTiN)
0.010	1/8	0.030	0.080	0.009	1-1/2	<a href="#">09785</a>	<a href="#">03751</a>
0.015	1/8	0.045	0.120	0.014	1-1/2	<a href="#">09787</a>	<a href="#">03752</a>
0.020	1/8	0.060	0.160	0.018	1-1/2	<a href="#">09789</a>	<a href="#">03753</a>
0.025	1/8	0.075	0.200	0.023	1-1/2	<a href="#">09791</a>	<a href="#">03754</a>
0.030	1/8	0.090	0.240	0.028	1-1/2	<a href="#">09793</a>	<a href="#">03755</a>
0.031	1/8	0.093	0.248	0.029	1-1/2	<a href="#">09795</a>	<a href="#">03756</a>
0.035	1/8	0.105	0.280	0.032	1-1/2	<a href="#">09797</a>	<a href="#">03757</a>
0.040	1/8	0.120	0.320	0.037	1-1/2	<a href="#">09799</a>	<a href="#">03758</a>
0.045	1/8	0.135	0.360	0.042	2	<a href="#">09801</a>	<a href="#">03759</a>
0.047	1/8	0.141	0.376	0.044	2	<a href="#">09803</a>	<a href="#">03760</a>
0.050	1/8	0.150	0.400	0.047	2	<a href="#">09805</a>	<a href="#">03761</a>
0.055	1/8	0.165	0.440	0.051	2	<a href="#">09807</a>	<a href="#">03762</a>
0.060	1/8	0.180	0.480	0.056	2	<a href="#">09809</a>	<a href="#">03763</a>
0.062	1/8	0.186	0.496	0.058	2	<a href="#">09811</a>	<a href="#">03764</a>
0.065	1/8	0.195	0.520	0.061	2	<a href="#">09813</a>	<a href="#">03765</a>
0.070	1/8	0.210	0.560	0.065	2	<a href="#">09815</a>	<a href="#">03766</a>
0.075	1/8	0.225	0.600	0.070	2	<a href="#">09817</a>	<a href="#">03767</a>
0.078	1/8	0.234	0.624	0.073	2	<a href="#">09819</a>	<a href="#">03768</a>
0.080	1/8	0.240	0.640	0.075	2	<a href="#">09821</a>	<a href="#">03769</a>
0.085	1/8	0.255	0.680	0.079	2	<a href="#">09823</a>	<a href="#">03770</a>
0.090	1/8	0.270	0.720	0.084	2	<a href="#">09825</a>	<a href="#">03771</a>
0.093	1/8	0.279	0.744	0.087	2	<a href="#">09827</a>	<a href="#">03772</a>
0.095	1/8	0.285	0.760	0.089	2	<a href="#">09829</a>	<a href="#">03773</a>
0.100	1/8	0.300	0.800	0.094	2	<a href="#">09831</a>	<a href="#">03774</a>
0.110	1/8	0.330	0.880	0.103	2	<a href="#">09833</a>	<a href="#">03775</a>
0.115	1/8	0.345	0.920	0.108	2	<a href="#">09835</a>	<a href="#">03776</a>
0.120	1/8	0.360	0.960	0.112	2	<a href="#">09837</a>	<a href="#">03777</a>

RE = 1/2 Cutting Diameter (DC)

- 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

**M4B • 3xD • 12xD Overall Reach****M4B • 3xD  
12xD**

## FRACTIONAL SERIES

- Four flute design allows for higher feed rates and decreased deflection, improving productivity and surface finish
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- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality
- All tools in stock to meet customer order requirements
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CUTTING DIAMETER DC	SHANK DIAMETER DCON	inch				EDP NO.	
		LENGTH OF CUT APMX	REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	UNCOATED	TI-NAMITE® A (AITiN)
0.010	1/8	0.030	0.120	0.009	1-1/2	<a href="#">09784</a>	<a href="#">03778</a>
0.015	1/8	0.045	0.180	0.014	1-1/2	<a href="#">09786</a>	<a href="#">03779</a>
0.020	1/8	0.060	0.240	0.018	1-1/2	<a href="#">09788</a>	<a href="#">03780</a>
0.025	1/8	0.075	0.300	0.023	1-1/2	<a href="#">09790</a>	<a href="#">03781</a>
0.030	1/8	0.090	0.360	0.028	2	<a href="#">09792</a>	<a href="#">03782</a>
0.031	1/8	0.093	0.372	0.029	2	<a href="#">09794</a>	<a href="#">03783</a>
0.035	1/8	0.105	0.420	0.032	2	<a href="#">09796</a>	<a href="#">03784</a>
0.040	1/8	0.120	0.480	0.037	2	<a href="#">09798</a>	<a href="#">03785</a>
0.045	1/8	0.135	0.540	0.042	2	<a href="#">09800</a>	<a href="#">03786</a>
0.047	1/8	0.141	0.564	0.044	2	<a href="#">09802</a>	<a href="#">03787</a>
0.050	1/8	0.150	0.600	0.047	2	<a href="#">09804</a>	<a href="#">03788</a>
0.055	1/8	0.165	0.660	0.051	2	<a href="#">09806</a>	<a href="#">03789</a>
0.060	1/8	0.180	0.720	0.056	2	<a href="#">09808</a>	<a href="#">03790</a>
0.062	1/8	0.186	0.744	0.058	2	<a href="#">09810</a>	<a href="#">03791</a>
0.065	1/8	0.195	0.780	0.061	2	<a href="#">09812</a>	<a href="#">03792</a>
0.070	1/8	0.210	0.840	0.065	2	<a href="#">09814</a>	<a href="#">03793</a>
0.075	1/8	0.225	0.900	0.070	2	<a href="#">09816</a>	<a href="#">03794</a>
0.078	1/8	0.234	0.936	0.073	2-1/2	<a href="#">09818</a>	<a href="#">03795</a>
0.080	1/8	0.240	0.960	0.075	2-1/2	<a href="#">09820</a>	<a href="#">03796</a>
0.085	1/8	0.255	1.020	0.079	2-1/2	<a href="#">09822</a>	<a href="#">03797</a>
0.090	1/8	0.270	1.080	0.084	2-1/2	<a href="#">09824</a>	<a href="#">03798</a>
0.093	1/8	0.279	1.116	0.087	2-1/2	<a href="#">09826</a>	<a href="#">03799</a>
0.095	1/8	0.285	1.140	0.089	2-1/2	<a href="#">09828</a>	<a href="#">03800</a>
0.100	1/8	0.300	1.200	0.094	2-1/2	<a href="#">09830</a>	<a href="#">03801</a>
0.110	1/8	0.330	1.320	0.103	2-1/2	<a href="#">09832</a>	<a href="#">03802</a>
0.115	1/8	0.345	1.380	0.108	2-1/2	<a href="#">09834</a>	<a href="#">03803</a>
0.120	1/8	0.360	1.440	0.112	2-1/2	<a href="#">09836</a>	<a href="#">03804</a>

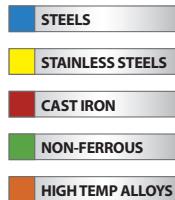
RE = 1/2 Cutting Diameter (DC)

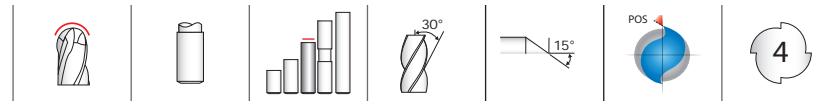
## TOLERANCES (inch)

## .010-.120 DIAMETER

DC = +0.000/-0.001

DCON = h6





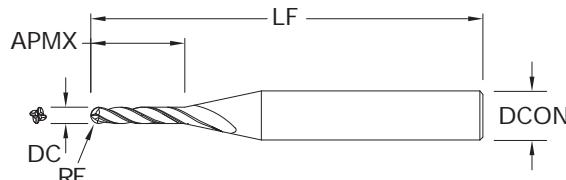
**TOLERANCES (inch)**

.010-.120 DIAMETER

DC = +0.000/-0.001

DCON = h<sub>6</sub>

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



**M4LB • 5xD**  
FRACTIONAL SERIES

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	EDP NO.
		inch		UNCOATED      TI-NAMITE®-A (AITIN)
0.010	1/8	0.050	2-1/2	<a href="#">00952</a> <a href="#">02720</a>
0.015	1/8	0.075	2-1/2	<a href="#">00953</a> <a href="#">02721</a>
0.020	1/8	0.100	2-1/2	<a href="#">00954</a> <a href="#">02722</a>
0.025	1/8	0.125	2-1/2	<a href="#">00955</a> <a href="#">02723</a>
0.030	1/8	0.150	2-1/2	<a href="#">00956</a> <a href="#">02724</a>
0.031	1/8	0.155	2-1/2	<a href="#">00957</a> <a href="#">02725</a>
0.035	1/8	0.175	2-1/2	<a href="#">00958</a> <a href="#">02726</a>
0.040	1/8	0.200	2-1/2	<a href="#">00959</a> <a href="#">02727</a>
0.045	1/8	0.225	2-1/2	<a href="#">00960</a> <a href="#">02728</a>
0.047	1/8	0.235	2-1/2	<a href="#">00961</a> <a href="#">02729</a>
0.050	1/8	0.250	2-1/2	<a href="#">00962</a> <a href="#">02730</a>
0.055	1/8	0.275	2-1/2	<a href="#">00963</a> <a href="#">02731</a>
0.060	1/8	0.300	2-1/2	<a href="#">00964</a> <a href="#">02732</a>
0.062	1/8	0.310	2-1/2	<a href="#">00965</a> <a href="#">02733</a>
0.065	1/8	0.325	2-1/2	<a href="#">00966</a> <a href="#">02734</a>
0.070	1/8	0.350	2-1/2	<a href="#">00967</a> <a href="#">02735</a>
0.075	1/8	0.375	2-1/2	<a href="#">00968</a> <a href="#">02736</a>
0.078	1/8	0.390	2-1/2	<a href="#">00969</a> <a href="#">02737</a>
0.080	1/8	0.400	2-1/2	<a href="#">00970</a> <a href="#">02738</a>
0.085	1/8	0.425	2-1/2	<a href="#">00971</a> <a href="#">02739</a>
0.090	1/8	0.450	2-1/2	<a href="#">00972</a> <a href="#">02740</a>
0.093	1/8	0.465	2-1/2	<a href="#">00973</a> <a href="#">02741</a>
0.095	1/8	0.475	2-1/2	<a href="#">00974</a> <a href="#">02742</a>
0.100	1/8	0.500	2-1/2	<a href="#">00975</a> <a href="#">02743</a>
0.110	1/8	0.550	2-1/2	<a href="#">00976</a> <a href="#">02744</a>
0.115	1/8	0.575	2-1/2	<a href="#">00977</a> <a href="#">02745</a>
0.120	1/8	0.600	2-1/2	<a href="#">00978</a> <a href="#">02746</a>

RE = 1/2 Cutting Diameter (DC)

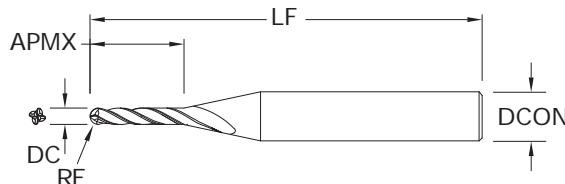
- Four flute design allows for higher feed rates and decreased deflection, improving productivity and surface finish
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds
- High performance carbide substrate designed specifically 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**

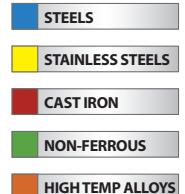
## FRACTIONAL SERIES

- 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

**TOLERANCES (inch)****.010-.120 DIAMETER**

DC = +0.000/-0.001

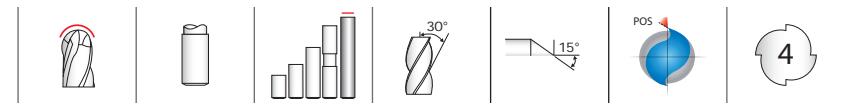
DCON = h6



inch				EDP NO.	
CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	UNCOATED	TI-NAMITE®-A (AITIN)
0.010	1/8	0.080	2-1/2	<a href="#">00979</a>	<a href="#">02747</a>
0.015	1/8	0.120	2-1/2	<a href="#">00980</a>	<a href="#">02748</a>
0.020	1/8	0.160	2-1/2	<a href="#">00981</a>	<a href="#">02749</a>
0.025	1/8	0.200	2-1/2	<a href="#">00982</a>	<a href="#">02750</a>
0.030	1/8	0.240	2-1/2	<a href="#">00983</a>	<a href="#">02751</a>
0.031	1/8	0.248	2-1/2	<a href="#">00984</a>	<a href="#">02752</a>
0.035	1/8	0.280	2-1/2	<a href="#">00985</a>	<a href="#">02753</a>
0.040	1/8	0.320	2-1/2	<a href="#">00986</a>	<a href="#">02754</a>
0.045	1/8	0.360	2-1/2	<a href="#">00987</a>	<a href="#">02755</a>
0.047	1/8	0.376	2-1/2	<a href="#">00988</a>	<a href="#">02756</a>
0.050	1/8	0.400	2-1/2	<a href="#">00989</a>	<a href="#">02757</a>
0.055	1/8	0.440	2-1/2	<a href="#">00990</a>	<a href="#">02758</a>
0.060	1/8	0.480	2-1/2	<a href="#">00991</a>	<a href="#">02759</a>
0.062	1/8	0.496	2-1/2	<a href="#">00992</a>	<a href="#">02760</a>
0.065	1/8	0.520	2-1/2	<a href="#">00993</a>	<a href="#">02761</a>
0.070	1/8	0.560	2-1/2	<a href="#">00994</a>	<a href="#">02762</a>
0.075	1/8	0.600	2-1/2	<a href="#">00995</a>	<a href="#">02763</a>
0.078	1/8	0.624	2-1/2	<a href="#">00996</a>	<a href="#">02764</a>
0.080	1/8	0.640	2-1/2	<a href="#">00997</a>	<a href="#">02765</a>
0.085	1/8	0.680	2-1/2	<a href="#">00998</a>	<a href="#">02766</a>
0.090	1/8	0.720	2-1/2	<a href="#">00999</a>	<a href="#">02767</a>
0.093	1/8	0.744	2-1/2	<a href="#">01000</a>	<a href="#">02768</a>
0.095	1/8	0.760	2-1/2	<a href="#">01001</a>	<a href="#">02769</a>
0.100	1/8	0.800	2-1/2	<a href="#">01002</a>	<a href="#">02770</a>
0.110	1/8	0.880	2-1/2	<a href="#">01003</a>	<a href="#">02771</a>
0.115	1/8	0.920	2-1/2	<a href="#">01004</a>	<a href="#">02772</a>
0.120	1/8	0.960	2-1/2	<a href="#">01005</a>	<a href="#">02773</a>

RE = 1/2 Cutting Diameter (DC)

FRACTIONAL  
**M4XB • 12xD**



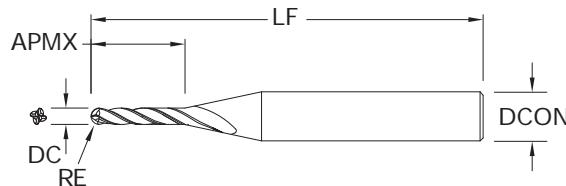
**TOLERANCES (inch)**

.015-.120 DIAMETER

DC = +0.000/-0.001

DCON = h<sub>6</sub>

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



**M4XB • 12xD**  
FRACTIONAL SERIES

CUTTING DIAMETER DC	SHANK DIAMETER DCON	inch		EDP NO.	
		LENGTH OF CUT APMX	OVERALL LENGTH LF	UNCOATED	TI-NAMITE®-A (AITIN)
0.015	1/8	0.180	2-1/2	<a href="#">01007</a>	<a href="#">02774</a>
0.020	1/8	0.240	2-1/2	<a href="#">01008</a>	<a href="#">02775</a>
0.025	1/8	0.300	2-1/2	<a href="#">01009</a>	<a href="#">02776</a>
0.030	1/8	0.360	2-1/2	<a href="#">01010</a>	<a href="#">02777</a>
0.031	1/8	0.372	2-1/2	<a href="#">01011</a>	<a href="#">02778</a>
0.035	1/8	0.420	2-1/2	<a href="#">01012</a>	<a href="#">02779</a>
0.040	1/8	0.480	2-1/2	<a href="#">01013</a>	<a href="#">02780</a>
0.045	1/8	0.540	2-1/2	<a href="#">01014</a>	<a href="#">02781</a>
0.047	1/8	0.564	2-1/2	<a href="#">01015</a>	<a href="#">02782</a>
0.050	1/8	0.600	2-1/2	<a href="#">01016</a>	<a href="#">02783</a>
0.055	1/8	0.660	2-1/2	<a href="#">01017</a>	<a href="#">02784</a>
0.060	1/8	0.720	2-1/2	<a href="#">01018</a>	<a href="#">02785</a>
0.062	1/8	0.744	2-1/2	<a href="#">01019</a>	<a href="#">02786</a>
0.065	1/8	0.780	2-1/2	<a href="#">01020</a>	<a href="#">02787</a>
0.070	1/8	0.840	2-1/2	<a href="#">01021</a>	<a href="#">02788</a>
0.075	1/8	0.900	2-1/2	<a href="#">01022</a>	<a href="#">02789</a>
0.078	1/8	0.936	2-1/2	<a href="#">01023</a>	<a href="#">02790</a>
0.080	1/8	0.960	2-1/2	<a href="#">01024</a>	<a href="#">02791</a>
0.085	1/8	1.020	2-1/2	<a href="#">01025</a>	<a href="#">02792</a>
0.090	1/8	1.080	2-1/2	<a href="#">01026</a>	<a href="#">02793</a>
0.093	1/8	1.116	2-1/2	<a href="#">01027</a>	<a href="#">02794</a>
0.095	1/8	1.140	2-1/2	<a href="#">01028</a>	<a href="#">02795</a>
0.100	1/8	1.200	2-1/2	<a href="#">01029</a>	<a href="#">02796</a>
0.110	1/8	1.320	2-1/2	<a href="#">01030</a>	<a href="#">02797</a>
0.115	1/8	1.380	2-1/2	<a href="#">01031</a>	<a href="#">02798</a>
0.120	1/8	1.440	2-1/2	<a href="#">01032</a>	<a href="#">02799</a>

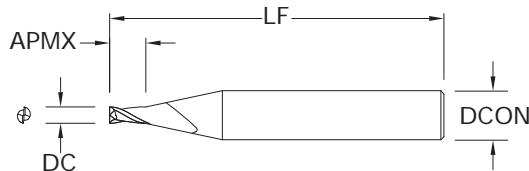
RE = 1/2 Cutting Diameter (DC)

- 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****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 DC	DECIMAL EQUIVALENT DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	EDP NO.	
					UNCOATED	TI-NAMITE®-A (AITIN)
0,1	0,0039	3,0	0,1	38,0	<a href="#">05002</a>	<a href="#">05000</a>
0,2	0,0079	3,0	0,3	38,0	<a href="#">01801</a>	<a href="#">02801</a>
0,3	0,0118	3,0	0,4	38,0	<a href="#">01802</a>	<a href="#">02802</a>
0,4	0,0157	3,0	0,6	38,0	<a href="#">01803</a>	<a href="#">02803</a>
0,5	0,0197	3,0	0,7	38,0	<a href="#">01804</a>	<a href="#">02804</a>
0,6	0,0236	3,0	0,9	38,0	<a href="#">01805</a>	<a href="#">02805</a>
0,7	0,0276	3,0	1,0	38,0	<a href="#">01806</a>	<a href="#">02806</a>
0,8	0,0315	3,0	1,2	38,0	<a href="#">01807</a>	<a href="#">02807</a>
0,9	0,0354	3,0	1,3	38,0	<a href="#">01808</a>	<a href="#">02808</a>
1,0	0,0394	3,0	1,5	38,0	<a href="#">01809</a>	<a href="#">02809</a>
1,0	0,0394	4,0	1,5	50,0	<a href="#">01861</a>	<a href="#">02819</a>
1,1	0,0433	3,0	1,6	38,0	<a href="#">01810</a>	<a href="#">02860</a>
1,1	0,0433	4,0	1,6	50,0	<a href="#">01862</a>	<a href="#">02892</a>
1,2	0,0472	3,0	1,8	38,0	<a href="#">01811</a>	<a href="#">02861</a>
1,2	0,0472	4,0	1,8	50,0	<a href="#">01863</a>	<a href="#">02893</a>
1,3	0,0512	3,0	1,9	38,0	<a href="#">01812</a>	<a href="#">02862</a>
1,3	0,0512	4,0	1,9	50,0	<a href="#">01864</a>	<a href="#">02894</a>
1,4	0,0551	3,0	2,1	38,0	<a href="#">01813</a>	<a href="#">02863</a>
1,4	0,0551	4,0	2,1	50,0	<a href="#">01865</a>	<a href="#">02895</a>
1,5	0,0591	3,0	2,2	38,0	<a href="#">01814</a>	<a href="#">02864</a>
1,5	0,0591	4,0	2,2	50,0	<a href="#">01866</a>	<a href="#">02896</a>
1,6	0,0630	3,0	2,4	38,0	<a href="#">01815</a>	<a href="#">02865</a>
1,6	0,0630	4,0	2,4	50,0	<a href="#">01867</a>	<a href="#">02897</a>
1,7	0,0669	3,0	2,5	38,0	<a href="#">01816</a>	<a href="#">02866</a>
1,7	0,0669	4,0	2,5	50,0	<a href="#">01868</a>	<a href="#">02898</a>
1,8	0,0709	3,0	2,7	38,0	<a href="#">01817</a>	<a href="#">02867</a>
1,8	0,0709	4,0	2,7	50,0	<a href="#">01869</a>	<a href="#">02899</a>
1,9	0,0748	3,0	2,8	38,0	<a href="#">01818</a>	<a href="#">02868</a>
1,9	0,0748	4,0	2,8	50,0	<a href="#">01870</a>	<a href="#">02900</a>
2,0	0,0787	3,0	3,0	38,0	<a href="#">01819</a>	<a href="#">02869</a>
2,0	0,0787	4,0	3,0	50,0	<a href="#">01871</a>	<a href="#">02901</a>
2,5	0,0984	3,0	3,7	38,0	<a href="#">01820</a>	<a href="#">02870</a>
2,5	0,0984	4,0	3,7	50,0	<a href="#">01872</a>	<a href="#">02902</a>
3,0	0,1181	3,0	4,5	38,0	<a href="#">01821</a>	<a href="#">02871</a>
3,0	0,1181	4,0	4,5	50,0	<a href="#">01873</a>	<a href="#">02903</a>

## TOLERANCES (mm)

0,1–3,0 DIAMETER

DC = +0,0000/-0,0254

DCON = h6

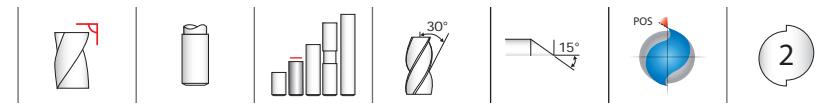
STEELS

STAINLESS STEELS

CAST IRON

NON-FERROUS

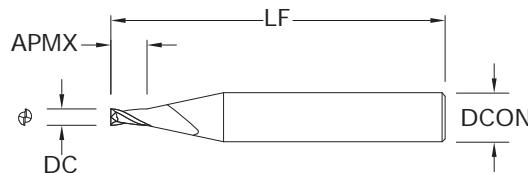
HIGH TEMP ALLOYS

**TOLERANCES (mm)****0,1-3,0 DIAMETER**

DC = +0,0000/-0,0254

DCON = h<sub>6</sub>

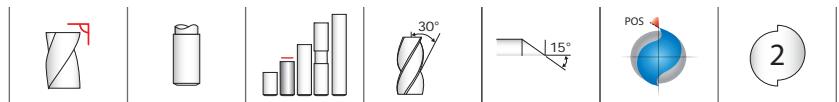
- STEELS
- STAINLESS STEELS
- CAST IRON
- NON-FERROUS
- HIGH TEMP ALLOYS

**M2M • 3xD**  
METRIC SERIES

CUTTING DIAMETER DC	DECIMAL EQUIVALENT	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	EDP NO.	
					UNCOATED	TI-NAMITE®-A (AlTiN)
0,1	0.0039	3,0	0,3	38,0	<a href="#">05003</a>	<a href="#">05001</a>
0,2	0.0079	3,0	0,6	38,0	<a href="#">01823</a>	<a href="#">02811</a>
0,2	0.0079	4,0	0,6	50,0	<a href="#">01875</a>	<a href="#">02349</a>
0,3	0.0118	3,0	0,9	38,0	<a href="#">01824</a>	<a href="#">02350</a>
0,3	0.0118	4,0	0,9	50,0	<a href="#">01876</a>	<a href="#">02360</a>
0,4	0.0157	3,0	1,2	38,0	<a href="#">01825</a>	<a href="#">02351</a>
0,4	0.0157	4,0	1,2	50,0	<a href="#">01877</a>	<a href="#">02361</a>
0,5	0.0197	3,0	1,5	38,0	<a href="#">01826</a>	<a href="#">02352</a>
0,5	0.0197	4,0	1,5	50,0	<a href="#">01878</a>	<a href="#">02362</a>
0,6	0.0236	3,0	1,8	38,0	<a href="#">01827</a>	<a href="#">02353</a>
0,6	0.0236	4,0	1,8	50,0	<a href="#">01879</a>	<a href="#">02363</a>
0,7	0.0276	3,0	2,1	38,0	<a href="#">01828</a>	<a href="#">02354</a>
0,7	0.0276	4,0	2,1	50,0	<a href="#">01880</a>	<a href="#">02364</a>
0,8	0.0315	3,0	2,4	38,0	<a href="#">01829</a>	<a href="#">02355</a>
0,8	0.0315	4,0	2,4	50,0	<a href="#">01881</a>	<a href="#">02365</a>
0,9	0.0354	3,0	2,7	38,0	<a href="#">01830</a>	<a href="#">02356</a>
0,9	0.0354	4,0	2,7	50,0	<a href="#">01882</a>	<a href="#">02366</a>
1,0	0.0394	3,0	3,0	38,0	<a href="#">01831</a>	<a href="#">02357</a>
1,0	0.0394	4,0	3,0	50,0	<a href="#">01883</a>	<a href="#">02367</a>
1,1	0.0433	3,0	3,3	38,0	<a href="#">01832</a>	<a href="#">02872</a>
1,1	0.0433	4,0	3,3	50,0	<a href="#">01884</a>	<a href="#">02904</a>
1,2	0.0472	3,0	3,6	38,0	<a href="#">01833</a>	<a href="#">02873</a>
1,2	0.0472	4,0	3,6	50,0	<a href="#">01885</a>	<a href="#">02905</a>
1,3	0.0512	3,0	3,9	38,0	<a href="#">01834</a>	<a href="#">02874</a>
1,3	0.0512	4,0	3,9	50,0	<a href="#">01886</a>	<a href="#">02906</a>
1,4	0.0551	3,0	4,2	38,0	<a href="#">01835</a>	<a href="#">02875</a>
1,4	0.0551	4,0	4,2	50,0	<a href="#">01887</a>	<a href="#">02907</a>
1,5	0.0591	3,0	4,5	38,0	<a href="#">01836</a>	<a href="#">02876</a>
1,5	0.0591	4,0	4,5	50,0	<a href="#">01888</a>	<a href="#">02908</a>
1,6	0.0630	3,0	4,8	38,0	<a href="#">01837</a>	<a href="#">02877</a>
1,6	0.0630	4,0	4,8	50,0	<a href="#">01889</a>	<a href="#">02909</a>
1,7	0.0669	3,0	5,1	38,0	<a href="#">01838</a>	<a href="#">02878</a>
1,7	0.0669	4,0	5,1	50,0	<a href="#">01890</a>	<a href="#">02910</a>
1,8	0.0709	3,0	5,4	38,0	<a href="#">01839</a>	<a href="#">02879</a>

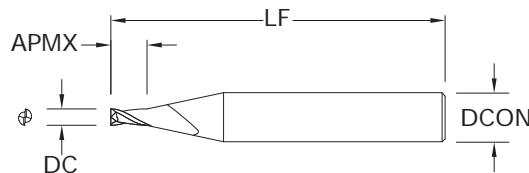
continued on next page

METRIC

**M2M • 3xD****M2M • 3xD**

METRIC SERIES

continued

**TOLERANCES (mm)****0,1–3,0 DIAMETER**

DC = +0,0000/-0,0254

DCON = h6

STEELS

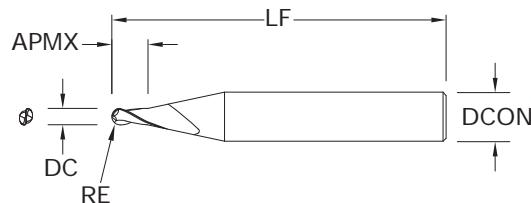
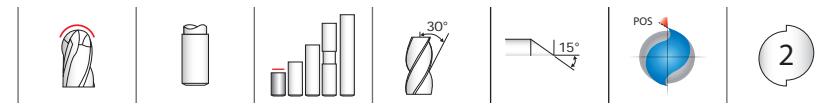
STAINLESS STEELS

CAST IRON

NON-FERROUS

HIGH TEMP ALLOYS

CUTTING DIAMETER DC	DECIMAL EQUIVALENT	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	EDP NO.	
					UNCOATED	TI-NAMITE®-A (AITIN)
1,8	0,0709	4,0	5,4	50,0	<a href="#">01891</a>	<a href="#">02911</a>
1,9	0,0748	3,0	5,7	38,0	<a href="#">01840</a>	<a href="#">02880</a>
1,9	0,0748	4,0	5,7	50,0	<a href="#">01892</a>	<a href="#">02912</a>
2,0	0,0787	3,0	6,0	38,0	<a href="#">01841</a>	<a href="#">02881</a>
2,0	0,0787	4,0	6,0	50,0	<a href="#">01893</a>	<a href="#">02913</a>
2,1	0,0827	3,0	6,3	38,0	<a href="#">01842</a>	<a href="#">02882</a>
2,2	0,0866	3,0	6,6	38,0	<a href="#">01843</a>	<a href="#">02883</a>
2,3	0,0906	3,0	6,9	38,0	<a href="#">01844</a>	<a href="#">02884</a>
2,4	0,0945	3,0	7,2	38,0	<a href="#">01845</a>	<a href="#">02885</a>
2,5	0,0984	3,0	7,5	38,0	<a href="#">01846</a>	<a href="#">02886</a>
2,5	0,0984	4,0	7,5	50,0	<a href="#">01894</a>	<a href="#">02914</a>
2,6	0,1024	3,0	7,8	38,0	<a href="#">01847</a>	<a href="#">02887</a>
2,7	0,1063	3,0	8,1	38,0	<a href="#">01848</a>	<a href="#">02888</a>
2,8	0,1102	3,0	8,4	38,0	<a href="#">01849</a>	<a href="#">02889</a>
2,9	0,1142	3,0	8,7	38,0	<a href="#">01850</a>	<a href="#">02890</a>
3,0	0,1181	3,0	9,0	38,0	<a href="#">01851</a>	<a href="#">02891</a>
3,0	0,1181	4,0	9,0	50,0	<a href="#">01895</a>	<a href="#">02915</a>



## TOLERANCES (mm)

0,1-3,0 DIAMETER

DC = +0,0000/-0,0254

DCON = h<sub>6</sub>

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

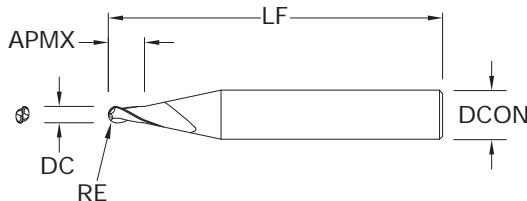
## M2MB • 1.5xD

METRIC SERIES

CUTTING DIAMETER DC	DECIMAL EQUIVALENT	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	EDP NO.	
					UNCOATED	TI-NAMITE®-A (AITIN)
0,1	0.0039	3,0	0,1	38,0	<a href="#">05017</a>	<a href="#">05004</a>
0,2	0.0079	3,0	0,3	38,0	<a href="#">05019</a>	<a href="#">05006</a>
0,3	0.0118	3,0	0,3	38,0	<a href="#">05021</a>	<a href="#">05008</a>
0,4	0.0157	3,0	0,6	38,0	<a href="#">05023</a>	<a href="#">05010</a>
0,5	0.0197	3,0	0,7	38,0	<a href="#">01900</a>	<a href="#">03180</a>
0,6	0.0236	3,0	0,9	38,0	<a href="#">01901</a>	<a href="#">03181</a>
0,7	0.0276	3,0	1,0	38,0	<a href="#">01902</a>	<a href="#">03182</a>
0,8	0.0315	3,0	1,2	38,0	<a href="#">01903</a>	<a href="#">03183</a>
0,9	0.0354	3,0	1,3	38,0	<a href="#">01904</a>	<a href="#">03184</a>
1,0	0.0394	3,0	1,5	38,0	<a href="#">01905</a>	<a href="#">03185</a>
1,0	0.0394	4,0	1,5	50,0	<a href="#">02009</a>	<a href="#">02849</a>
1,1	0.0433	3,0	1,6	38,0	<a href="#">01906</a>	<a href="#">02916</a>
1,1	0.0433	4,0	1,6	50,0	<a href="#">02010</a>	<a href="#">02980</a>
1,2	0.0472	3,0	1,8	38,0	<a href="#">01907</a>	<a href="#">02917</a>
1,2	0.0472	4,0	1,8	50,0	<a href="#">02011</a>	<a href="#">02981</a>
1,3	0.0512	3,0	1,9	38,0	<a href="#">01908</a>	<a href="#">02918</a>
1,3	0.0512	4,0	1,9	50,0	<a href="#">02012</a>	<a href="#">02982</a>
1,4	0.0551	3,0	2,1	38,0	<a href="#">01909</a>	<a href="#">02919</a>
1,4	0.0551	4,0	2,1	50,0	<a href="#">02013</a>	<a href="#">02983</a>
1,5	0.0591	3,0	2,2	38,0	<a href="#">01910</a>	<a href="#">02920</a>
1,5	0.0591	4,0	2,2	50,0	<a href="#">02014</a>	<a href="#">02984</a>
1,6	0.0630	3,0	2,4	38,0	<a href="#">01911</a>	<a href="#">02921</a>
1,6	0.0630	4,0	2,4	50,0	<a href="#">02015</a>	<a href="#">02985</a>
1,7	0.0669	3,0	2,5	38,0	<a href="#">01912</a>	<a href="#">02922</a>
1,7	0.0669	4,0	2,5	50,0	<a href="#">02016</a>	<a href="#">02986</a>
1,8	0.0709	3,0	2,7	38,0	<a href="#">01913</a>	<a href="#">02923</a>
1,8	0.0709	4,0	2,7	50,0	<a href="#">02017</a>	<a href="#">02987</a>
1,9	0.0748	3,0	2,8	38,0	<a href="#">01914</a>	<a href="#">02924</a>
1,9	0.0748	4,0	2,8	50,0	<a href="#">02018</a>	<a href="#">02988</a>
2,0	0.0787	3,0	3,0	38,0	<a href="#">01915</a>	<a href="#">02925</a>
2,0	0.0787	4,0	3,0	50,0	<a href="#">02019</a>	<a href="#">02989</a>
2,5	0.0984	3,0	3,7	38,0	<a href="#">01916</a>	<a href="#">02926</a>
2,5	0.0984	4,0	3,7	50,0	<a href="#">02020</a>	<a href="#">02990</a>
3,0	0.1181	3,0	4,5	38,0	<a href="#">01917</a>	<a href="#">02927</a>
3,0	0.1181	4,0	4,5	50,0	<a href="#">02021</a>	<a href="#">02991</a>

RE = 1/2 Cutting Diameter (DC)

- 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 • 3xD****M2MB • 3xD**

## 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 DC	DECIMAL EQUIVALENT	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	EDP NO.	
					UNCOATED	TI-NAMITE®-A (AITIN)
0,1	0,0039	3,0	0,3	38,0	<a href="#">05018</a>	<a href="#">05005</a>
0,2	0,0079	3,0	0,6	38,0	<a href="#">05020</a>	<a href="#">05007</a>
0,3	0,0118	3,0	0,9	38,0	<a href="#">05022</a>	<a href="#">05009</a>
0,4	0,0157	3,0	1,2	38,0	<a href="#">05024</a>	<a href="#">05011</a>
0,5	0,0197	3,0	1,5	38,0	<a href="#">05025</a>	<a href="#">05012</a>
0,5	0,0197	4,0	1,5	50,0	<a href="#">02048</a>	<a href="#">03200</a>
0,6	0,0236	3,0	1,8	38,0	<a href="#">05026</a>	<a href="#">05013</a>
0,6	0,0236	4,0	1,8	50,0	<a href="#">02049</a>	<a href="#">03201</a>
0,7	0,0276	3,0	2,1	38,0	<a href="#">05027</a>	<a href="#">05014</a>
0,7	0,0276	4,0	2,1	50,0	<a href="#">02050</a>	<a href="#">03202</a>
0,8	0,0315	3,0	2,4	38,0	<a href="#">05028</a>	<a href="#">05015</a>
0,8	0,0315	4,0	2,4	50,0	<a href="#">02051</a>	<a href="#">03203</a>
0,9	0,0354	3,0	2,7	38,0	<a href="#">05029</a>	<a href="#">05016</a>
0,9	0,0354	4,0	2,7	50,0	<a href="#">02052</a>	<a href="#">03204</a>
1,0	0,0394	3,0	3,0	38,0	<a href="#">01949</a>	<a href="#">02829</a>
1,0	0,0394	4,0	3,0	50,0	<a href="#">02053</a>	<a href="#">03205</a>
1,1	0,0433	3,0	3,3	38,0	<a href="#">01950</a>	<a href="#">02940</a>
1,1	0,0433	4,0	3,3	50,0	<a href="#">02054</a>	<a href="#">03004</a>
1,2	0,0472	3,0	3,6	38,0	<a href="#">01951</a>	<a href="#">02941</a>
1,2	0,0472	4,0	3,6	50,0	<a href="#">02055</a>	<a href="#">03005</a>
1,3	0,0512	3,0	3,9	38,0	<a href="#">01952</a>	<a href="#">02942</a>
1,3	0,0512	4,0	3,9	50,0	<a href="#">02056</a>	<a href="#">03006</a>
1,4	0,0551	3,0	4,2	38,0	<a href="#">01953</a>	<a href="#">02943</a>
1,4	0,0551	4,0	4,2	50,0	<a href="#">02057</a>	<a href="#">03007</a>
1,5	0,0591	3,0	4,5	38,0	<a href="#">01954</a>	<a href="#">02944</a>
1,5	0,0591	4,0	4,5	50,0	<a href="#">02058</a>	<a href="#">03008</a>
1,6	0,0630	3,0	4,8	38,0	<a href="#">01955</a>	<a href="#">02945</a>
1,6	0,0630	4,0	4,8	50,0	<a href="#">02059</a>	<a href="#">03009</a>
1,7	0,0669	3,0	5,1	38,0	<a href="#">01956</a>	<a href="#">02946</a>
1,7	0,0669	4,0	5,1	50,0	<a href="#">02060</a>	<a href="#">03010</a>
1,8	0,0709	3,0	5,4	38,0	<a href="#">01957</a>	<a href="#">02947</a>
1,8	0,0709	4,0	5,4	50,0	<a href="#">02061</a>	<a href="#">03011</a>
1,9	0,0748	3,0	5,7	38,0	<a href="#">01958</a>	<a href="#">02948</a>
1,9	0,0748	4,0	5,7	50,0	<a href="#">02062</a>	<a href="#">03012</a>

RE = 1/2 Cutting Diameter (DC)

## TOLERANCES (mm)

## 0,1–3,0 DIAMETER

DC = +0,0000/-0,0254

DCON = h6

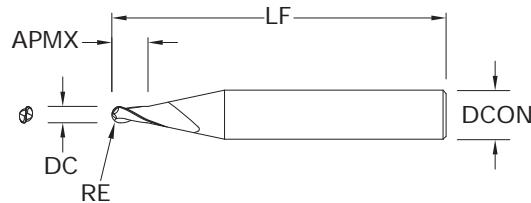
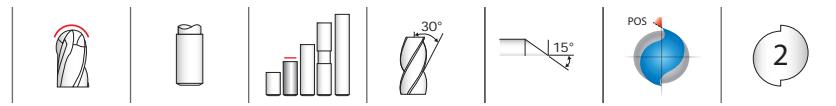
STEELS

STAINLESS STEELS

CAST IRON

NON-FERROUS

HIGH TEMP ALLOYS

**TOLERANCES (mm)****0,1-3,0 DIAMETER**

DC = +0,0000/-0,0254

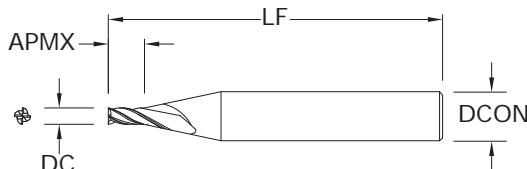
DCON = h<sub>6</sub>**STEELS****STAINLESS STEELS****CAST IRON****NON-FERROUS****HIGH TEMP ALLOYS****M2MB • 3xD**

METRIC SERIES

continued

CUTTING DIAMETER DC	DECIMAL EQUIVALENT	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	EDP NO.	
					UNCOATED	TI-NAMITE®-A (AITIN)
2,0	0,0787	3,0	6,0	38,0	<a href="#">01959</a>	<a href="#">02949</a>
2,0	0,0787	4,0	6,0	50,0	<a href="#">02063</a>	<a href="#">03013</a>
2,1	0,0827	3,0	6,3	38,0	<a href="#">01960</a>	<a href="#">02950</a>
2,2	0,0866	3,0	6,6	38,0	<a href="#">01961</a>	<a href="#">02951</a>
2,3	0,0906	3,0	6,9	38,0	<a href="#">01962</a>	<a href="#">02952</a>
2,4	0,0945	3,0	7,2	38,0	<a href="#">01963</a>	<a href="#">02953</a>
2,5	0,0984	3,0	7,5	38,0	<a href="#">01964</a>	<a href="#">02954</a>
2,5	0,0984	4,0	7,5	50,0	<a href="#">02064</a>	<a href="#">03014</a>
2,6	0,1024	3,0	7,8	38,0	<a href="#">01965</a>	<a href="#">02955</a>
2,7	0,1063	3,0	8,1	38,0	<a href="#">01966</a>	<a href="#">02956</a>
2,8	0,1102	3,0	8,4	38,0	<a href="#">01967</a>	<a href="#">02957</a>
2,9	0,1142	3,0	8,7	38,0	<a href="#">01968</a>	<a href="#">02958</a>
3,0	0,1181	3,0	9,0	38,0	<a href="#">01969</a>	<a href="#">02959</a>
3,0	0,1181	4,0	9,0	50,0	<a href="#">02065</a>	<a href="#">03015</a>

RE = 1/2 Cutting Diameter (DC)

**M4M • 1.5xD****M4M • 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 DC	DECIMAL EQUIVALENT	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	EDP NO.
mm					UNCOATED TI-NAMITE®-A (AITIN)
0,1	0,0039	3,0	0,15	38,0	<a href="#">05112</a> <a href="#">05076</a>
0,2	0,0079	3,0	0,30	38,0	<a href="#">05113</a> <a href="#">05077</a>
0,3	0,0118	3,0	0,45	38,0	<a href="#">05114</a> <a href="#">05078</a>
0,4	0,0157	3,0	0,60	38,0	<a href="#">05115</a> <a href="#">05079</a>
0,5	0,0197	3,0	0,75	38,0	<a href="#">05116</a> <a href="#">05080</a>
0,6	0,0236	3,0	0,90	38,0	<a href="#">05117</a> <a href="#">05081</a>
0,7	0,0276	3,0	1,05	38,0	<a href="#">05118</a> <a href="#">05082</a>
0,8	0,0315	3,0	1,20	38,0	<a href="#">05119</a> <a href="#">05083</a>
0,9	0,0354	3,0	1,35	38,0	<a href="#">05120</a> <a href="#">05084</a>
1,0	0,0394	3,0	1,50	38,0	<a href="#">05121</a> <a href="#">05085</a>
1,1	0,0433	3,0	1,65	38,0	<a href="#">09282</a> <a href="#">09290</a>
1,2	0,0472	3,0	1,80	38,0	<a href="#">09283</a> <a href="#">09291</a>
1,3	0,0512	3,0	1,95	38,0	<a href="#">09284</a> <a href="#">09292</a>
1,4	0,0551	3,0	2,10	38,0	<a href="#">09285</a> <a href="#">09293</a>
1,5	0,0591	3,0	2,25	38,0	<a href="#">05122</a> <a href="#">05086</a>
1,6	0,0630	3,0	2,40	38,0	<a href="#">09286</a> <a href="#">09294</a>
1,7	0,0669	3,0	2,55	38,0	<a href="#">09287</a> <a href="#">09295</a>
1,8	0,0709	3,0	2,70	38,0	<a href="#">09288</a> <a href="#">09296</a>
1,9	0,0748	3,0	2,85	38,0	<a href="#">09289</a> <a href="#">09297</a>
2,0	0,0787	3,0	3,00	38,0	<a href="#">05123</a> <a href="#">05087</a>
2,1	0,0827	3,0	3,15	38,0	<a href="#">09270</a> <a href="#">09278</a>
2,2	0,0866	3,0	3,30	38,0	<a href="#">09271</a> <a href="#">09279</a>
2,3	0,0906	3,0	3,45	38,0	<a href="#">09272</a> <a href="#">09280</a>
2,4	0,0945	3,0	3,60	38,0	<a href="#">09273</a> <a href="#">09281</a>
2,5	0,0984	3,0	3,75	38,0	<a href="#">05124</a> <a href="#">05088</a>
3,0	0,1181	3,0	4,50	38,0	<a href="#">05125</a> <a href="#">05089</a>

## TOLERANCES (mm)

0,1–3,0 DIAMETER

DC = +0,0000/-0,0254

DCON = h6

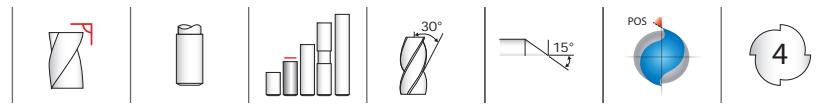
STEELS

STAINLESS STEELS

CAST IRON

NON-FERROUS

HIGH TEMP ALLOYS



## TOLERANCES (mm)

0,1-3,0 DIAMETER

DC = +0,0000/-0,0254

DCON = h<sub>6</sub>

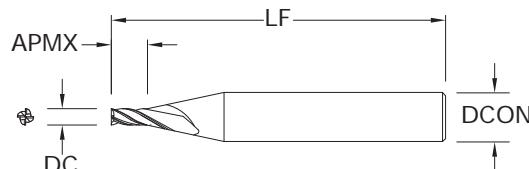
STEELS

STAINLESS STEELS

CAST IRON

NON-FERROUS

HIGH TEMP ALLOYS



## M4M • 3xD

METRIC SERIES

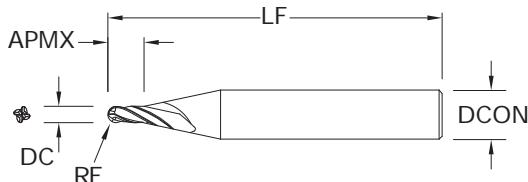
CUTTING DIAMETER DC	DECIMAL EQUIVALENT	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	EDP NO.	
					UNCOATED	TI-NAMITE®-A (AITIN)
0,1	0,0039	3,0	0,3	38,0	<a href="#">05090</a>	<a href="#">05054</a>
0,2	0,0079	3,0	0,6	38,0	<a href="#">05091</a>	<a href="#">05055</a>
0,3	0,0118	3,0	0,9	38,0	<a href="#">05092</a>	<a href="#">05056</a>
0,4	0,0157	3,0	1,2	38,0	<a href="#">05093</a>	<a href="#">05057</a>
0,5	0,0197	3,0	1,5	38,0	<a href="#">05094</a>	<a href="#">05058</a>
0,6	0,0236	3,0	1,8	38,0	<a href="#">05095</a>	<a href="#">05059</a>
0,7	0,0276	3,0	2,1	38,0	<a href="#">05096</a>	<a href="#">05060</a>
0,8	0,0315	3,0	2,4	38,0	<a href="#">05097</a>	<a href="#">05061</a>
0,9	0,0354	3,0	2,7	38,0	<a href="#">05098</a>	<a href="#">05062</a>
1,0	0,0394	3,0	3,0	38,0	<a href="#">05099</a>	<a href="#">05063</a>
1,1	0,0433	3,0	3,3	38,0	<a href="#">05100</a>	<a href="#">05064</a>
1,2	0,0472	3,0	3,6	38,0	<a href="#">05101</a>	<a href="#">05065</a>
1,3	0,0512	3,0	3,9	38,0	<a href="#">05102</a>	<a href="#">05066</a>
1,4	0,0551	3,0	4,2	38,0	<a href="#">05103</a>	<a href="#">05067</a>
1,5	0,0591	3,0	4,5	38,0	<a href="#">05104</a>	<a href="#">05068</a>
1,6	0,0630	3,0	4,8	38,0	<a href="#">05105</a>	<a href="#">05069</a>
1,7	0,0669	3,0	5,1	38,0	<a href="#">05106</a>	<a href="#">05070</a>
1,8	0,0709	3,0	5,4	38,0	<a href="#">05107</a>	<a href="#">05071</a>
1,9	0,0748	3,0	5,7	38,0	<a href="#">05108</a>	<a href="#">05072</a>
2,0	0,0787	3,0	6,0	38,0	<a href="#">05109</a>	<a href="#">05073</a>
2,1	0,0827	3,0	6,3	38,0	<a href="#">09266</a>	<a href="#">09274</a>
2,2	0,0866	3,0	6,6	38,0	<a href="#">09267</a>	<a href="#">09275</a>
2,3	0,0906	3,0	6,9	38,0	<a href="#">09268</a>	<a href="#">09276</a>
2,4	0,0945	3,0	7,2	38,0	<a href="#">09269</a>	<a href="#">09277</a>
2,5	0,0984	3,0	7,5	38,0	<a href="#">05110</a>	<a href="#">05074</a>
3,0	0,1181	3,0	9,0	38,0	<a href="#">05111</a>	<a href="#">05075</a>

- 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

**M4MB • 1.5xD****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
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- All tools in stock to meet customer order requirements
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures



## TOLERANCES (mm)

## 0,4–3,0 DIAMETER

DC = +0,0000/-0,0254

DCON = h6

STEELS

STAINLESS STEELS

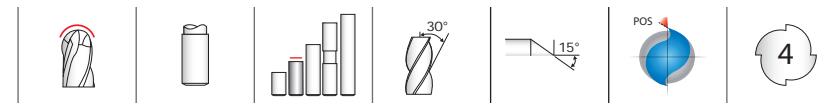
CAST IRON

NON-FERROUS

HIGH TEMP ALLOYS

CUTTING DIAMETER DC	DECIMAL EQUIVALENT	mm SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	EDP NO.
UNCOATED	TI-NAMITE®-A (AITIN)				
0,4	0.0157	3,0	0,6	38,0	<a href="#">05042</a> <a href="#">05030</a>
0,5	0.0197	3,0	0,7	38,0	<a href="#">05044</a> <a href="#">05032</a>
0,6	0.0236	3,0	0,9	38,0	<a href="#">05046</a> <a href="#">05034</a>
0,7	0.0276	3,0	1,0	38,0	<a href="#">05048</a> <a href="#">05036</a>
0,8	0.0315	3,0	1,2	38,0	<a href="#">05050</a> <a href="#">05038</a>
0,9	0.0354	3,0	1,3	38,0	<a href="#">05052</a> <a href="#">05040</a>
1,0	0.0394	3,0	1,5	38,0	<a href="#">01927</a> <a href="#">03195</a>
1,0	0.0394	4,0	1,5	50,0	<a href="#">02031</a> <a href="#">02859</a>
1,1	0.0433	3,0	1,6	38,0	<a href="#">01928</a> <a href="#">02928</a>
1,1	0.0433	4,0	1,6	50,0	<a href="#">02032</a> <a href="#">02992</a>
1,2	0.0472	3,0	1,8	38,0	<a href="#">01929</a> <a href="#">02929</a>
1,2	0.0472	4,0	1,8	50,0	<a href="#">02033</a> <a href="#">02993</a>
1,3	0.0512	3,0	1,9	38,0	<a href="#">01930</a> <a href="#">02930</a>
1,3	0.0512	4,0	1,9	50,0	<a href="#">02034</a> <a href="#">02994</a>
1,4	0.0551	3,0	2,1	38,0	<a href="#">01931</a> <a href="#">02931</a>
1,4	0.0551	4,0	2,1	50,0	<a href="#">02035</a> <a href="#">02995</a>
1,5	0.0591	3,0	2,2	38,0	<a href="#">01932</a> <a href="#">02932</a>
1,5	0.0591	4,0	2,2	50,0	<a href="#">02036</a> <a href="#">02996</a>
1,6	0.0630	3,0	2,4	38,0	<a href="#">01933</a> <a href="#">02933</a>
1,6	0.0630	4,0	2,4	50,0	<a href="#">02037</a> <a href="#">02997</a>
1,7	0.0669	3,0	2,5	38,0	<a href="#">01934</a> <a href="#">02934</a>
1,7	0.0669	4,0	2,5	50,0	<a href="#">02038</a> <a href="#">02998</a>
1,8	0.0709	3,0	2,7	38,0	<a href="#">01935</a> <a href="#">02935</a>
1,8	0.0709	4,0	2,7	50,0	<a href="#">02039</a> <a href="#">02999</a>
1,9	0.0748	3,0	2,8	38,0	<a href="#">01936</a> <a href="#">02936</a>
1,9	0.0748	4,0	2,8	50,0	<a href="#">02040</a> <a href="#">03000</a>
2,0	0.0787	3,0	3,0	38,0	<a href="#">01937</a> <a href="#">02937</a>
2,0	0.0787	4,0	3,0	50,0	<a href="#">02041</a> <a href="#">03001</a>
2,5	0.0984	3,0	3,7	38,0	<a href="#">01938</a> <a href="#">02938</a>
2,5	0.0984	4,0	3,7	50,0	<a href="#">02042</a> <a href="#">03002</a>
3,0	0.1181	3,0	4,5	38,0	<a href="#">01939</a> <a href="#">02939</a>
3,0	0.1181	4,0	4,5	50,0	<a href="#">02043</a> <a href="#">03003</a>

RE = 1/2 Cutting Diameter (DC)



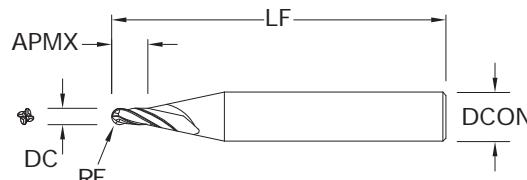
## TOLERANCES (mm)

0,4–3,0 DIAMETER

DC = +0,0000/-0,0254

DCON = h<sub>6</sub>

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

M4MB • 3xD  
METRIC SERIES

CUTTING DIAMETER DC	DECIMAL EQUIVALENT	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	EDP NO.	
					UNCOATED	TI-NAMITE®-A (AlTiN)
0,4	0.0157	3,0	1,2	38,0	<a href="#">05043</a>	<a href="#">05031</a>
0,5	0.0197	3,0	1,5	38,0	<a href="#">05045</a>	<a href="#">05033</a>
0,6	0.0236	3,0	1,8	38,0	<a href="#">05047</a>	<a href="#">05035</a>
0,7	0.0276	3,0	2,1	38,0	<a href="#">05049</a>	<a href="#">05037</a>
0,8	0.0315	3,0	2,4	38,0	<a href="#">05051</a>	<a href="#">05039</a>
0,9	0.0354	3,0	2,7	38,0	<a href="#">05053</a>	<a href="#">05041</a>
1,0	0.0394	3,0	3,0	38,0	<a href="#">01979</a>	<a href="#">02839</a>
1,0	0.0394	4,0	3,0	50,0	<a href="#">02075</a>	<a href="#">03215</a>
1,1	0.0433	3,0	3,3	38,0	<a href="#">01980</a>	<a href="#">02960</a>
1,1	0.0433	4,0	3,3	50,0	<a href="#">02076</a>	<a href="#">03016</a>
1,2	0.0472	3,0	3,6	38,0	<a href="#">01981</a>	<a href="#">02961</a>
1,2	0.0472	4,0	3,6	50,0	<a href="#">02077</a>	<a href="#">03017</a>
1,3	0.0512	3,0	3,9	38,0	<a href="#">01982</a>	<a href="#">02962</a>
1,3	0.0512	4,0	3,9	50,0	<a href="#">02078</a>	<a href="#">03018</a>
1,4	0.0551	3,0	4,2	38,0	<a href="#">01983</a>	<a href="#">02963</a>
1,4	0.0551	4,0	4,2	50,0	<a href="#">02079</a>	<a href="#">03019</a>
1,5	0.0591	3,0	4,5	38,0	<a href="#">01984</a>	<a href="#">02964</a>
1,5	0.0591	4,0	4,5	50,0	<a href="#">02080</a>	<a href="#">03020</a>
1,6	0.0630	3,0	4,8	38,0	<a href="#">01985</a>	<a href="#">02965</a>
1,6	0.0630	4,0	4,8	50,0	<a href="#">02081</a>	<a href="#">03021</a>
1,7	0.0669	3,0	5,1	38,0	<a href="#">01986</a>	<a href="#">02966</a>
1,7	0.0669	4,0	5,1	50,0	<a href="#">02082</a>	<a href="#">03022</a>
1,8	0.0709	3,0	5,4	38,0	<a href="#">01987</a>	<a href="#">02967</a>
1,8	0.0709	4,0	5,4	50,0	<a href="#">02083</a>	<a href="#">03023</a>
1,9	0.0748	3,0	5,7	38,0	<a href="#">01988</a>	<a href="#">02968</a>
1,9	0.0748	4,0	5,7	50,0	<a href="#">02084</a>	<a href="#">03024</a>
2,0	0.0787	3,0	6,0	38,0	<a href="#">01989</a>	<a href="#">02969</a>
2,0	0.0787	4,0	6,0	50,0	<a href="#">02085</a>	<a href="#">03025</a>
2,1	0.0827	3,0	6,3	38,0	<a href="#">01990</a>	<a href="#">02970</a>
2,2	0.0866	3,0	6,6	38,0	<a href="#">01991</a>	<a href="#">02971</a>
2,3	0.0906	3,0	6,9	38,0	<a href="#">01992</a>	<a href="#">02972</a>
2,4	0.0945	3,0	7,2	38,0	<a href="#">01993</a>	<a href="#">02973</a>
2,5	0.0984	3,0	7,5	38,0	<a href="#">01994</a>	<a href="#">02974</a>
2,5	0.0984	4,0	7,5	50,0	<a href="#">02086</a>	<a href="#">03026</a>
2,6	0.1024	3,0	7,8	38,0	<a href="#">01995</a>	<a href="#">02975</a>
2,7	0.1063	3,0	8,1	38,0	<a href="#">01996</a>	<a href="#">02976</a>
2,8	0.1102	3,0	8,4	38,0	<a href="#">01997</a>	<a href="#">02977</a>
2,9	0.1142	3,0	8,7	38,0	<a href="#">01998</a>	<a href="#">02978</a>
3,0	0.1181	3,0	9,0	38,0	<a href="#">01999</a>	<a href="#">02979</a>
3,0	0.1181	4,0	9,0	50,0	<a href="#">02087</a>	<a href="#">03027</a>

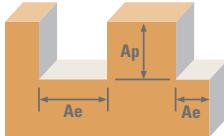
RE = 1/2 Cutting Diameter (DC)

## FRACTIONAL & METRIC

# 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® for detailed technical charts by series ([www.kyocera-sgstool.com](http://www.kyocera-sgstool.com))



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

INCH		Flute Length	1.5 x DC		3 x DC		5 x DC		8 x DC		12 x DC						
3-Flute, Square, Corner Radius & Ball Without Reach		Feed Multiplier	1.35		1.22		0.65		0.33		0.2						
		Width/Depth	Ae x DC	Ap x DC	Ae x DC	Ap x DC	Ae x DC	Ap x DC	Ae x DC	Ap x DC	Ae x DC	Ap x DC					
Diameter (DC)		≤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 M K N S	ALL	Profile	≤.30	≤.50	≤1	≤.10	≤.25	≤2	≤.10	≤.25	≤3	≤.05	≤.10	≤4	≤.03	≤.06	≤6
		Slot	1	≤.20	≤.50	1	≤.15	≤.35	1	≤.10	≤.20						

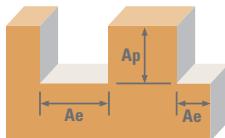
INCH		Flute Length	1.5 x DC		3 x DC		5 x DC		8 x DC		12 x DC						
4-Flute, Square, Corner Radius & Ball Without Reach		Feed Multiplier	1.57		1.41		0.59		0.59		0.36						
		Width/Depth	Ae x DC	Ap x DC	Ae x DC	Ap x DC	Ae x DC	Ap x DC	Ae x DC	Ap x DC	Ae x DC	Ap x DC					
Diameter (DC)		≤0.0312	>0.0312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

METRIC		Flute Length	1.5 x DC		3 x DC		Flute Length		1.5 x DC		3 x DC			
2-Flute Square & Ball Without Reach		Feed Multiplier	1		0.9		METRIC	Feed Multiplier	1.57		1.41			
		Width/Depth	Ae x DC	Ap x DC	Ae x DC	Ap x DC	4-Flute	Width/Depth	Ae x DC	Ap x DC	Ae x DC	Ap x DC		
Diameter (DC)		≤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 M K N S	ALL	Profile	≤.30	≤.50	≤1	≤.10	≤.25	≤2	≤.30	≤.50	≤1	≤.10	≤.25	≤2
		Slot	1	≤.20	≤.50	1	≤.15	≤.35	1	≤.20	≤.50	1	≤.15	≤.35

# FRACTIONAL 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® for detailed technical charts by series ([www.kyocera-sgstool.com](http://www.kyocera-sgstool.com))



		Flute Length	8 x DC		12 x DC			
INCH		Feed Multiplier	0.6		0.5			
2-Flute Square & Ball With Reach		Width/Depth	Ae x DC	Ap x DC	Ae x DC	Ap x DC		
		Diameter (DC)	$\leq 0.0312$		$>0.0312$		$\leq 0.0312$	
P		Profile	$\leq .25$	$\leq .50$	$\leq .30$	$\leq .22$	$\leq .45$	$\leq .25$
M								
K	ALL	Slot	1	$\leq .07$	$\leq .17$	1	$\leq .06$	$\leq .15$
N								
S								

		Flute Length	3 x DC		5 x DC		8 x DC		12 x DC		15 x DC		20 x DC		25 x DC		
INCH		Feed Multiplier	1.4		1.15		0.9		0.7		0.6		0.45		0.35		
3-Flute Square, Corner Radius & Ball With Reach		Width/Depth	Ae x DC	Ap x DC	Ap x DC	Ap x DC											
		Diameter (DC)	$\leq 0.0312$	$>0.0312$													
P		Profile	$\leq .30$	$\leq .60$	$\leq .5$	$\leq .30$	$\leq .60$	$\leq .35$	$\leq .25$	$\leq .50$	$\leq .30$	$\leq .22$	$\leq .45$	$\leq .25$	$\leq .15$	$\leq .30$	
M																	
K	ALL	Slot	1	$\leq .15$	$\leq .30$	1	$\leq .08$	$\leq .20$	1	$\leq .07$	$\leq .17$	1	$\leq .06$	$\leq .15$	1	$\leq .04$	$\leq .10$
N																	
S																	

		Flute Length	8 x DC		12 x DC			
INCH		Feed Multiplier	0.95		0.75			
4-Flute Square & Ball With Reach		Width/Depth	Ae x DC	Ap x DC	Ae x DC	Ap x DC		
		Diameter (DC)	$\leq 0.0312$		$>0.0312$		$\leq 0.0312$	
P		Profile	$\leq .25$	$\leq .50$	$\leq .30$	$\leq .22$	$\leq .45$	$\leq .25$
M								
K	ALL	Slot	1	$\leq .07$	$\leq .17$	1	$\leq .06$	$\leq .15$
N								
S								

## Note:

- Bh (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 DC maximum)
- refer to the KYOCERA SGS Tool Wizard® for detailed technical charts by series ([www.kyocera-sgstool.com](http://www.kyocera-sgstool.com))

# FRACTIONAL Baseline

**INCH Baseline**  
**Speed and Feed**  
**Square, Corner Radius**  
**& Ball End**  
**With and Without Reach**

				Vc (sfm)	DC • in						
					0.0050	0.0156	0.0312	0.0625	0.0938	0.1200	
P	<b>CARBON STEELS</b> 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	$\leq 275 \text{ Bhn}$ $\text{or} \leq 28 \text{ HRc}$	Profile	365 (292-438)	RPM Fz	278860 0.000022	89378 0.00007	44689 0.00013	22309 0.00027	14865 0.00041	11619 0.00052
			Slot	290 (232-348)	RPM Fz	221560 0.000022	71013 0.00007	35506 0.00013	17725 0.00027	11810 0.00041	9232 0.00052
			Profile	210 (168-252)	RPM Fz	160440 0.000019	51423 0.00006	25712 0.00012	12835 0.00024	8552 0.00036	6685 0.00046
			Slot	165 (132-198)	RPM Fz	126060 0.000019	40404 0.00006	20202 0.00012	10085 0.00024	6720 0.00036	5253 0.00046
M	<b>TOOL STEELS</b> A2, D2, H13, L2, M2, P20, S7, T15, W2	$\leq 375 \text{ Bhn}$ $\text{or} \leq 40 \text{ HRc}$	Profile	175 (140-210)	RPM Fz	133700 0.000016	42853 0.00005	21426 0.00010	10696 0.00020	7127 0.00030	5571 0.00038
			Slot	140 (112-168)	RPM Fz	106960 0.000016	34282 0.00005	17141 0.00010	8557 0.00020	5701 0.00030	4457 0.00038
			Profile	340 (272-408)	RPM Fz	259760 0.000022	83256 0.00007	41628 0.00013	20781 0.00027	13846 0.00041	10823 0.00052
			Slot	270 (216-324)	RPM Fz	206280 0.000022	66115 0.00007	33058 0.00013	16502 0.00027	10996 0.00041	8595 0.00052
K	<b>STAINLESS STEELS (FREE MACHINING)</b> 303, 416, 420F, 430F, 440F	$\leq 275 \text{ Bhn}$ $\text{or} \leq 28 \text{ HRc}$	Profile	235 (188-282)	RPM Fz	179540 0.000019	57545 0.00006	28772 0.00012	14363 0.00024	9570 0.00036	7481 0.00046
			Slot	185 (148-222)	RPM Fz	141340 0.000019	45301 0.00006	22651 0.00012	11307 0.00024	7534 0.00036	5889 0.00046
			Profile	215 (172-258)	RPM Fz	164260 0.000014	52647 0.00004	26324 0.00008	13141 0.00017	8756 0.00025	6844 0.00033
			Slot	170 (136-204)	RPM Fz	129880 0.000014	41628 0.00004	20814 0.00008	10390 0.00017	6923 0.00025	5412 0.00033
K	<b>STAINLESS STEELS (PH)</b> 13-8 PH, 15-5PH, 17-4 PH, CUSTOM 450	$\leq 325 \text{ Bhn}$ $\text{or} \leq 35 \text{ HRc}$	Profile	305 (244-366)	RPM Fz	233020 0.000022	74686 0.00007	37343 0.00014	18642 0.00027	12421 0.00041	9709 0.00052
			Slot	245 (196-294)	RPM Fz	187180 0.000022	59994 0.00007	29997 0.00014	14974 0.00027	9978 0.00041	7799 0.00052
			Profile	305 (244-366)	RPM Fz	233020 0.000022	74686 0.00007	37343 0.00014	18642 0.00027	12421 0.00041	9709 0.00052
			Slot	245 (196-294)	RPM Fz	187180 0.000022	59994 0.00007	29997 0.00014	14974 0.00027	9978 0.00041	7799 0.00052

continued on next page

INCH Baseline  
Speed and Feed  
Square, Corner Radius  
& Ball End  
With and Without Reach

			Vc (sfm)	0.0050	0.0156	0.0312	DC • in	0.0625	0.0938	0.1200	
		Hardness									
		≤ 150 Bhn or ≤ 7 HRc	Profile 	1000 (800-1200)	RPM Fz Feed (ipm)	764000 0.000064 97.50	244872 0.00020 97.50	122436 0.00040 97.50	61120 0.00080 97.50	40725 0.00120 97.50	31833 0.00153 97.50
	ALUMINUM ALLOYS 2017, 2024, 356, 6061, 7075		Slot 	800 (640-960)	RPM Fz Feed (ipm)	611200 0.000064 78.00	195897 0.00020 78.00	97949 0.00040 78.00	48896 0.00080 78.00	32580 0.00120 78.00	25467 0.00153 78.00
N	COPPER ALLOYS Alum Bronze, C110, Muntz Brass	≤ 140 Bhn or ≤ 3 HRc	Profile 	515 (412-618)	RPM Fz Feed (ipm)	393460 0.000048 37.68	126109 0.00015 37.68	63054 0.00030 37.68	31477 0.00060 37.68	20973 0.00090 37.68	16394 0.00115 37.68
			Slot 	410 (328-492)	RPM Fz Feed (ipm)	313240 0.000048 30.00	100397 0.00015 30.00	50199 0.00030 30.00	25059 0.00060 30.00	16697 0.00090 30.00	13052 0.00115 30.00
	PLASTICS Polycarbonate, PVC, Polypropylene		Profile 	1000 (800-1200)	RPM Fz Feed (ipm)	764000 0.000064 97.50	244872 0.00020 97.50	122436 0.00040 97.50	61120 0.00080 97.50	40725 0.00120 97.50	31833 0.00153 97.50
			Slot 	800 (640-960)	RPM Fz Feed (ipm)	611200 0.000064 78.00	195897 0.00020 78.00	97949 0.00040 78.00	48896 0.00080 78.00	32580 0.00120 78.00	25467 0.00153 78.00
	HIGH TEMP ALLOYS (NICKEL, COBALT, IRON BASE) Inconel 601, 617, 625, Incoloy, Monel 400	≤ 300 Bhn or ≤ 32 HRc	Profile 	60 (48-72)	RPM Fz Feed (ipm)	45840 0.000012 1.11	14692 0.00004 1.11	7346 0.00008 1.11	3667 0.00015 1.11	2443 0.00023 1.11	1910 0.00029 1.11
			Slot 	45 (36-54)	RPM Fz Feed (ipm)	34380 0.000012 0.83	11019 0.00004 0.83	5510 0.00008 0.83	2750 0.00015 0.83	1833 0.00023 0.83	1433 0.00029 0.83
S	HIGH TEMP ALLOYS (NICKEL, COBALT, IRON BASE) Inconel 718, X-750, Incoloy, Waspaloy, Hastelloy, Rene	≤ 400 Bhn or ≤ 43 HRc	Profile 	45 (36-54)	RPM Fz Feed (ipm)	34380 0.000008 0.55	11019 0.00003 0.55	5510 0.00005 0.55	2750 0.00010 0.55	1833 0.00015 0.55	1433 0.00019 0.55
			Slot 	35 (28-42)	RPM Fz Feed (ipm)	26740 0.000008 0.43	8571 0.00003 0.43	4285 0.00005 0.43	2139 0.00010 0.43	1425 0.00015 0.43	1114 0.00019 0.43
	TITANIUM ALLOYS Pure Titanium, Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si	≤ 350 Bhn or ≤ 38 HRc	Profile 	160 (128-192)	RPM Fz Feed (ipm)	122240 0.000014 3.32	39179 0.00004 3.32	19590 0.00008 3.32	9779 0.00017 3.32	6516 0.00025 3.32	5093 0.00033 3.32
			Slot 	130 (104-156)	RPM Fz Feed (ipm)	99320 0.000014 2.70	31833 0.00004 2.70	15917 0.00008 2.70	7946 0.00017 2.70	5294 0.00025 2.70	4138 0.00033 2.70
	TITANIUM ALLOYS (DIFFICULT) Ti10Al2Fe3Al, Ti5Al5V5Mo3Cr, Ti7Al4Mo, Ti3Al8V6Cr4Zr4Mo, Ti6Al6V6Sn, Ti15V3 Cr3Sn3Al	≤ 440 Bhn or ≤ 47 HRc	Profile 	60 (48-72)	RPM Fz Feed (ipm)	45840 0.000010 0.88	14692 0.00003 0.88	7346 0.00006 0.88	3667 0.00012 0.88	2443 0.00018 0.88	1910 0.00023 0.88
			Slot 	45 (36-54)	RPM Fz Feed (ipm)	34380 0.000010 0.66	11019 0.00003 0.66	5510 0.00006 0.66	2750 0.00012 0.66	1833 0.00018 0.66	1433 0.00023 0.66

Note:

- Bhn (Brinell)      HRc (Rockwell C)
- when recommended speed exceeds your capability, use maximum available and recalculate ipm
- rpm = Vc x 3.82 / DC
- 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 DC maximum)
- refer to the KYOCERA SGS Tool Wizard® for detailed technical charts by series ([www.kyocera-sgstool.com](http://www.kyocera-sgstool.com))

# Baseline

## METRIC Baseline

## Speed and Feed

## Square &amp; Ball End

## With and Without Reach Hardness

			Vc (m/min)	DC • (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	$\leq 275 \text{ Bhn}$ $\text{or}$ $\leq 28 \text{ HRc}$	Profile 	111 (89-134)	RPM Fz Feed (mm/min)	353837 0.00043 306	70767 0.00216 306	35384 0.00432 306	23589 0.00648 306	17692 0.00865 306	14153 0.01081 306
			Slot 	88 (71-106)	RPM Fz Feed (mm/min)	281131 0.00043 243	56226 0.00216 243	28113 0.00432 243	18742 0.00648 243	14057 0.00865 243	11245 0.01081 243
		$\leq 375 \text{ Bhn}$ $\text{or}$ $\leq 40 \text{ HRc}$	Profile 	64 (51-77)	RPM Fz Feed (mm/min)	203577 0.00038 156	40715 0.00192 156	20358 0.00384 156	13572 0.00576 156	10179 0.00769 156	8143 0.00961 156
			Slot 	50 (40-60)	RPM Fz Feed (mm/min)	159954 0.00038 123	31991 0.00192 123	15995 0.00384 123	10664 0.00576 123	7998 0.00769 123	6398 0.00961 123
M	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	$\leq 375 \text{ Bhn}$ $\text{or}$ $\leq 40 \text{ HRc}$	Profile 	53 (43-64)	RPM Fz Feed (mm/min)	169648 0.00032 109	33930 0.00160 109	16965 0.00320 109	11310 0.00480 109	8482 0.00640 109	6786 0.00800 109
			Slot 	43 (34-51)	RPM Fz Feed (mm/min)	135718 0.00032 87	27144 0.00160 87	13572 0.00320 87	9048 0.00480 87	6786 0.00640 87	5429 0.00800 87
		$\leq 275 \text{ Bhn}$ $\text{or}$ $\leq 28 \text{ HRc}$	Profile 	104 (83-124)	RPM Fz Feed (mm/min)	329602 0.00043 285	65920 0.00216 285	32960 0.00432 285	21973 0.00648 285	16480 0.00865 285	13184 0.01081 285
			Slot 	82 (66-99)	RPM Fz Feed (mm/min)	261742 0.00043 226	52348 0.00216 226	26174 0.00432 226	17449 0.00648 226	13087 0.00865 226	10470 0.01081 226
K	STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F	$\leq 275 \text{ Bhn}$ $\text{or}$ $\leq 28 \text{ HRc}$	Profile 	72 (57-86)	RPM Fz Feed (mm/min)	227813 0.00038 175	45563 0.00192 175	22781 0.00385 175	15188 0.00577 175	11391 0.00769 175	9113 0.00961 175
			Slot 	56 (45-68)	RPM Fz Feed (mm/min)	179342 0.00038 138	35868 0.00192 138	17934 0.00385 138	11956 0.00577 138	8967 0.00769 138	7174 0.00961 138
		$\leq 325 \text{ Bhn}$ $\text{or}$ $\leq 35 \text{ HRc}$	Profile 	66 (52-79)	RPM Fz Feed (mm/min)	208425 0.00027 113	41685 0.00136 113	20842 0.00272 113	13895 0.00408 113	10421 0.00544 113	8337 0.00680 113
			Slot 	52 (41-62)	RPM Fz Feed (mm/min)	164801 0.00027 90	32960 0.00136 90	16480 0.00272 90	10987 0.00408 90	8240 0.00544 90	6592 0.00680 90
K	CAST IRONS (LOW & MEDIUM ALLOY) Gray, Malleable, Ductile	$\leq 220 \text{ Bhn}$ $\text{or}$ $\leq 19 \text{ HRc}$	Profile 	93 (74-112)	RPM Fz Feed (mm/min)	295672 0.00043 256	59134 0.00217 256	29567 0.00433 256	19711 0.00650 256	14784 0.00866 256	11827 0.01083 256
			Slot 	75 (60-90)	RPM Fz Feed (mm/min)	237507 0.00043 206	47501 0.00217 206	23751 0.00433 206	15834 0.00650 206	11875 0.00866 206	9500 0.01083 206

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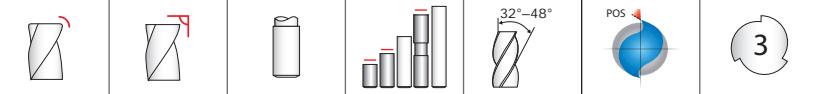
**METRIC Baseline**  
**Speed and Feed**  
**Square & Ball End**  
**With and Without Reach**

			Vc (m/min)	DC • (mm)								
				0.1	0.5	1	1.5	2	2.5	3		
N	ALUMINUM ALLOYS 2017, 2024, 356, 6061, 7075	$\leq 150$ Bhn or $\leq 7$ HRc	Profile	305 (244-366)	RPM	969416	193883	96942	<u>64628</u>	48471	<u>38777</u>	32314
			Slot	Fz (244-366)	0.00128	0.00639	0.01277	0.01916	0.02555	0.03193	0.03832	
		$\leq 140$ Bhn or $\leq 3$ HRc	Profile	244 (195-293)	RPM	775533	155107	77553	51702	<u>38777</u>	31021	25851
			Slot	Fz (195-293)	0.00128	0.00639	0.01277	0.01916	0.02555	0.03193	0.03832	
	COPPER ALLOYS Alum Bronze, C110, Muntz Brass	$\leq 140$ Bhn or $\leq 3$ HRc	Profile	157 (126-188)	RPM	499249	99850	49925	33283	24962	19970	16642
			Slot	Fz (126-188)	0.00096	0.00479	0.00959	0.01438	0.01917	0.02396	0.02876	
		$\leq 300$ Bhn or $\leq 32$ HRc	Profile	125 (100-150)	RPM	397461	79492	39746	26497	19873	15898	13249
			Slot	Fz (100-150)	0.00096	0.00479	0.00959	0.01438	0.01917	0.02396	0.02876	
S	PLASTICS Polycarbonate, PVC, Polypropylene	$\leq 300$ Bhn or $\leq 32$ HRc	Profile	305 (244-366)	RPM	969416	193883	96942	<u>64628</u>	48471	<u>38777</u>	32314
			Slot	Fz (244-366)	0.00128	0.00639	0.01277	0.01916	0.02555	0.03193	0.03832	
		$\leq 400$ Bhn or $\leq 43$ HRc	Profile	244 (195-293)	RPM	775533	155107	77553	51702	<u>38777</u>	31021	25851
			Slot	Fz (195-293)	0.00128	0.00639	0.01277	0.01916	0.02555	0.03193	0.03832	
	HIGH TEMP ALLOYS (NICKEL, COBALT, IRON BASE) Inconel 601, 617, 625, Incoloy, Monel 400	$\leq 300$ Bhn or $\leq 32$ HRc	Profile	18 (15-22)	RPM	58165	11633	5816	3878	2908	2327	1939
			Slot	Fz (15-22)	0.00024	0.00121	0.00242	0.00362	0.00483	0.00604	0.00722	
		$\leq 400$ Bhn or $\leq 43$ HRc	Profile	14 (11-16)	RPM	43624	8725	4362	2908	2181	1745	1454
			Slot	Fz (11-16)	0.00024	0.00121	0.00242	0.00362	0.00483	0.00604	0.00722	
	TITANIUM ALLOYS Pure Titanium, Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si	$\leq 350$ Bhn or $\leq 38$ HRc	Profile	14 (11-16)	RPM	43624	8725	4362	2908	2181	1745	1454
			Slot	Fz (11-16)	0.00016	0.00080	0.00161	0.00241	0.00322	0.00402	0.00486	
		$\leq 440$ Bhn or $\leq 47$ HRc	Profile	11 (9-13)	RPM	33930	6786	3393	2262	1696	1357	1131
			Slot	Fz (9-13)	0.00016	0.00080	0.00161	0.00241	0.00322	0.00402	0.00486	
	TITANIUM ALLOYS (DIFFICULT) Ti10Al2Fe3Al, Ti5Al5V5Mo3Cr, Ti7Al4Mo, Ti3Al8V6Cr4Zr4Mo, Ti6Al6V6Sn, Ti15V3 Cr3Sn3Al	$\leq 350$ Bhn or $\leq 38$ HRc	Profile	49 (39-59)	RPM	155107	31021	15511	10340	7755	6204	5170
			Slot	Fz (39-59)	0.00027	0.00136	0.00272	0.00408	0.00544	0.00680	0.00821	
		$\leq 440$ Bhn or $\leq 47$ HRc	Profile	40 (32-48)	RPM	126024	25205	12602	8402	6301	5041	4201
			Slot	Fz (32-48)	0.00027	0.00136	0.00272	0.00408	0.00544	0.00680	0.00821	

**Note:**

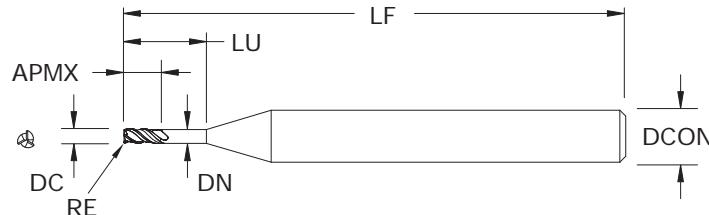
- Bhn (Brinell)      HRc (Rockwell C)
- when recommended speed exceeds your capability, use maximum available and recalculate mm/min
- rpm =  $(Vc \times 1000) / (DC \times 3.14)$
- mm/min = Fz x No. of flutes x rpm
- reduce speed and feed for materials harder than listed
- reduce feed and Ae when finish milling (.02 x DC maximum)
- refer to the KYOCERA SGS Tool Wizard® for detailed technical charts by series ([www.kyocera-sgstool.com](http://www.kyocera-sgstool.com))

# FRACTIONAL M032



## M032 FRACTIONAL SERIES

- Variable helix design improves stability, extends tool life, and improves part quality in challenging applications
- Reinforced shank maximizes rigidity, especially in applications requiring additional tool extension
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds
- Available from stock in a selection of popular diameters, flute lengths, and end configurations
- Application specific sub-micron grain carbide designed specifically for micro-tool applications
- Manufactured in accordance with KSPT ISO certified quality procedures



### TOLERANCES (inch)

#### .031-.109 DIAMETER

DC = +0.000/-0.001

DCON = h6

RE = +0.002/-0.002

STEELS

STAINLESS STEELS

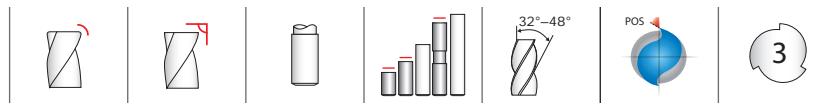
CAST IRON

NON-FERROUS

HIGH TEMP ALLOYS

HARDENED STEELS

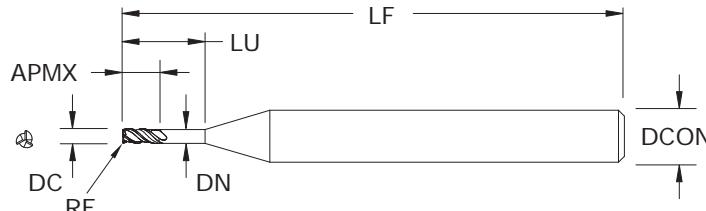
CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	inch				EDP NO.
			REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	CORNER RADIUS RE	
0.0312	1/4	0.063	—	—	2-1/2	—	<a href="#">05271</a>
0.0312	1/4	0.063	0.155	0.029	2-1/2	—	<a href="#">05272</a>
0.0312	1/4	0.063	—	—	2-1/2	0.006	<a href="#">05270</a>
0.0312	1/4	0.094	—	—	2-1/2	—	<a href="#">05274</a>
0.0312	1/4	0.094	—	—	2-1/2	0.006	<a href="#">05273</a>
0.0312	1/4	0.094	0.155	0.029	2-1/2	0.006	<a href="#">05275</a>
0.0469	1/4	0.094	—	—	2-1/2	—	<a href="#">05277</a>
0.0469	1/4	0.094	0.230	0.043	2-1/2	—	<a href="#">05278</a>
0.0469	1/4	0.094	—	—	2-1/2	0.010	<a href="#">05276</a>
0.0469	1/4	0.141	—	—	2-1/2	—	<a href="#">05280</a>
0.0469	1/4	0.141	—	—	2-1/2	0.010	<a href="#">05279</a>
0.0469	1/4	0.141	0.230	0.043	2-1/2	0.010	<a href="#">05281</a>
0.0625	1/4	0.140	—	—	2-1/2	—	<a href="#">05283</a>
0.0625	1/4	0.140	0.312	0.058	2-1/2	—	<a href="#">05284</a>
0.0625	1/4	0.140	—	—	2-1/2	0.010	<a href="#">05282</a>
0.0625	1/4	0.188	—	—	2-1/2	—	<a href="#">05286</a>
0.0625	1/4	0.188	—	—	2-1/2	0.010	<a href="#">05285</a>
0.0625	1/4	0.188	0.312	0.058	2-1/2	0.010	<a href="#">05287</a>
0.0781	1/4	0.140	—	—	2-1/2	—	<a href="#">05289</a>
0.0781	1/4	0.140	0.390	0.072	2-1/2	—	<a href="#">05290</a>
0.0781	1/4	0.140	—	—	2-1/2	0.010	<a href="#">05288</a>
0.0781	1/4	0.234	—	—	2-1/2	—	<a href="#">05292</a>
0.0781	1/4	0.234	—	—	2-1/2	0.010	<a href="#">05291</a>
0.0781	1/4	0.234	0.390	0.072	2-1/2	0.010	<a href="#">05293</a>
0.0938	1/4	0.188	—	—	2-1/2	—	<a href="#">05295</a>
0.0938	1/4	0.188	0.465	0.086	2-1/2	—	<a href="#">05296</a>
0.0938	1/4	0.188	—	—	2-1/2	0.010	<a href="#">05294</a>
0.0938	1/4	0.375	—	—	2-1/2	—	<a href="#">05298</a>
0.0938	1/4	0.375	—	—	2-1/2	0.010	<a href="#">05297</a>
0.0938	1/4	0.375	0.465	0.086	2-1/2	0.010	<a href="#">05299</a>
0.1094	1/4	0.188	—	—	2-1/2	—	<a href="#">05301</a>
0.1094	1/4	0.188	0.545	0.101	2-1/2	—	<a href="#">05302</a>
0.1094	1/4	0.188	—	—	2-1/2	0.010	<a href="#">05300</a>
0.1094	1/4	0.438	—	—	2-1/2	—	<a href="#">05304</a>
0.1094	1/4	0.438	—	—	2-1/2	0.010	<a href="#">05303</a>
0.1094	1/4	0.438	0.545	0.101	2-1/2	0.010	<a href="#">05305</a>



**TOLERANCES (mm)**

**1,0–3,0 DIAMETER**  
DC = +0,0000/-0,0254  
DCON = h<sub>6</sub>  
RE = +0,050/-0,050

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



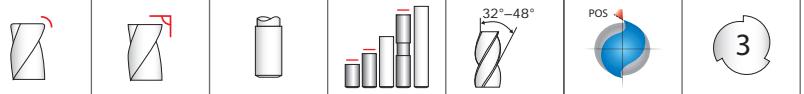
**M032**  
METRIC SERIES

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	CORNER RADIUS RE	EDP NO., TI-NAMITE®-A (AITIN)
1,0	6,0	1,5	—	—	63,5	—	<a href="#">05324</a>
1,0	6,0	1,5	—	—	63,5	0,1	<a href="#">05321</a>
1,0	6,0	1,5	—	—	63,5	0,2	<a href="#">05322</a>
1,0	6,0	1,5	—	—	63,5	0,3	<a href="#">05323</a>
1,0	6,0	3,0	—	—	63,5	—	<a href="#">05328</a>
1,0	6,0	3,0	—	—	63,5	0,1	<a href="#">05325</a>
1,0	6,0	3,0	—	—	63,5	0,2	<a href="#">05326</a>
1,0	6,0	3,0	—	—	63,5	0,3	<a href="#">05327</a>
1,0	6,0	3,0	10,0	0,92	75,0	—	<a href="#">05332</a>
1,0	6,0	3,0	10,0	0,92	75,0	0,1	<a href="#">05329</a>
1,0	6,0	3,0	10,0	0,92	75,0	0,2	<a href="#">05330</a>
1,0	6,0	3,0	10,0	0,92	75,0	0,3	<a href="#">05331</a>
1,5	6,0	2,5	—	—	63,5	—	<a href="#">05310</a>
1,5	6,0	2,5	—	—	63,5	0,1	<a href="#">05306</a>
1,5	6,0	2,5	—	—	63,5	0,2	<a href="#">05307</a>
1,5	6,0	2,5	—	—	63,5	0,3	<a href="#">05308</a>
1,5	6,0	2,5	—	—	63,5	0,5	<a href="#">05309</a>
1,5	6,0	4,5	—	—	63,5	—	<a href="#">05315</a>
1,5	6,0	4,5	—	—	63,5	0,1	<a href="#">05311</a>
1,5	6,0	4,5	—	—	63,5	0,2	<a href="#">05312</a>
1,5	6,0	4,5	—	—	63,5	0,3	<a href="#">05313</a>
1,5	6,0	4,5	—	—	63,5	0,5	<a href="#">05314</a>
1,5	6,0	4,5	15,0	1,38	75,0	—	<a href="#">05320</a>
1,5	6,0	4,5	15,0	1,38	75,0	0,1	<a href="#">05316</a>
1,5	6,0	4,5	15,0	1,38	75,0	0,2	<a href="#">05317</a>
1,5	6,0	4,5	15,0	1,38	75,0	0,3	<a href="#">05318</a>
1,5	6,0	4,5	15,0	1,38	75,0	0,5	<a href="#">05319</a>
2,0	6,0	3,0	—	—	63,5	—	<a href="#">05348</a>
2,0	6,0	3,0	—	—	63,5	0,2	<a href="#">05345</a>
2,0	6,0	3,0	—	—	63,5	0,3	<a href="#">05346</a>
2,0	6,0	3,0	—	—	63,5	0,5	<a href="#">05347</a>
2,0	6,0	6,0	—	—	63,5	—	<a href="#">05352</a>
2,0	6,0	6,0	—	—	63,5	0,2	<a href="#">05349</a>
2,0	6,0	6,0	—	—	63,5	0,3	<a href="#">05350</a>

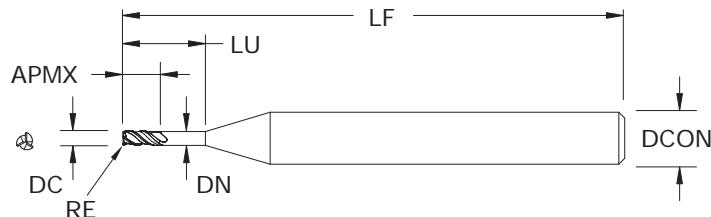
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- Variable helix design improves stability, extends tool life, and improves part quality in challenging applications
- Reinforced shank maximizes rigidity, especially in applications requiring additional tool extension
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds
- Available from stock in a selection of popular diameters, flute lengths, and end configurations
- Application specific sub-micron grain carbide designed specifically for micro-tool applications
- Manufactured in accordance with KSPT ISO certified quality procedures

METRIC

**M032****M032**  
METRIC SERIES

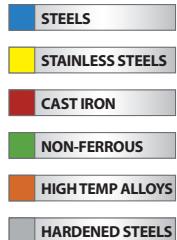
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**TOLERANCES (mm)****1,0–3,0 DIAMETER**

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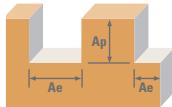
DCON = h<sub>6</sub>

RE = +0,050/-0,050



CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	CORNER RADIUS RE	EDP NO., TI-NAMITE®-A (AITIN)
2,0	6,0	6,0	—	—	63,5	0,5	<a href="#">05351</a>
2,0	6,0	6,0	20,0	1,84	75,0	—	<a href="#">05356</a>
2,0	6,0	6,0	20,0	1,84	75,0	0,2	<a href="#">05353</a>
2,0	6,0	6,0	20,0	1,84	75,0	0,3	<a href="#">05354</a>
2,0	6,0	6,0	20,0	1,84	75,0	0,5	<a href="#">05355</a>
2,5	6,0	4,0	—	—	63,5	—	<a href="#">05336</a>
2,5	6,0	4,0	—	—	63,5	0,2	<a href="#">05333</a>
2,5	6,0	4,0	—	—	63,5	0,3	<a href="#">05334</a>
2,5	6,0	4,0	—	—	63,5	0,5	<a href="#">05335</a>
2,5	6,0	7,5	—	—	63,5	—	<a href="#">05340</a>
2,5	6,0	7,5	—	—	63,5	0,2	<a href="#">05337</a>
2,5	6,0	7,5	—	—	63,5	0,3	<a href="#">05338</a>
2,5	6,0	7,5	—	—	63,5	0,5	<a href="#">05339</a>
2,5	6,0	7,5	25,0	2,3	75,0	—	<a href="#">05344</a>
2,5	6,0	7,5	25,0	2,3	75,0	0,2	<a href="#">05341</a>
2,5	6,0	7,5	25,0	2,3	75,0	0,3	<a href="#">05342</a>
2,5	6,0	7,5	25,0	2,3	75,0	0,5	<a href="#">05343</a>
3,0	6,0	5,0	—	—	63,5	—	<a href="#">05361</a>
3,0	6,0	5,0	—	—	63,5	0,2	<a href="#">05357</a>
3,0	6,0	5,0	—	—	63,5	0,3	<a href="#">05358</a>
3,0	6,0	5,0	—	—	63,5	0,5	<a href="#">05359</a>
3,0	6,0	5,0	—	—	63,5	1,0	<a href="#">05360</a>
3,0	6,0	9,0	—	—	63,5	—	<a href="#">05366</a>
3,0	6,0	9,0	—	—	63,5	0,2	<a href="#">05362</a>
3,0	6,0	9,0	—	—	63,5	0,3	<a href="#">05363</a>
3,0	6,0	9,0	—	—	63,5	0,5	<a href="#">05364</a>
3,0	6,0	9,0	—	—	63,5	1,0	<a href="#">05365</a>
3,0	6,0	9,0	30,0	2,76	75,0	—	<a href="#">05371</a>
3,0	6,0	9,0	30,0	2,76	75,0	0,2	<a href="#">05367</a>
3,0	6,0	9,0	30,0	2,76	75,0	0,3	<a href="#">05368</a>
3,0	6,0	9,0	30,0	2,76	75,0	0,5	<a href="#">05369</a>
3,0	6,0	9,0	30,0	2,76	75,0	1,0	<a href="#">05370</a>

FRACTIONAL  
Series M032

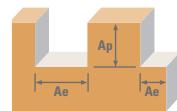


Series M032 Fractional	Hardness	Ae x DC	Ap x DC	Vc (sfm)	DC • in					
					1/32	5/64	7/64			
<b>P</b>	<b>CARBON STEELS</b> 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	$\leq 275 \text{ Bhn}$ or $\leq 28 \text{ HRc}$	Profile 	$\leq 0.25$	$\leq 1$	790 (632-948)	RPM Fz Feed (ipm)	96570 0.00009 26.0	<u>38628</u> 0.00022 26.0	27591 0.00031 26.0
			Slot 	1	$\leq .5$	630 (504-756)	RPM Fz Feed (ipm)	77011 0.00009 20.5	<u>30804</u> 0.00022 20.5	22003 0.00031 20.5
			Finish 	$\leq .02$	1	1565 (1252-1878)	RPM Fz Feed (ipm)	191306 0.00017 95.0	76522 0.00041 95.0	54659 0.00058 95.0
	<b>ALLOY STEELS</b> 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100	$\leq 375 \text{ Bhn}$ or $\leq 40 \text{ HRc}$	Profile 	$\leq 0.25$	$\leq 1$	450 (360-540)	RPM Fz Feed (ipm)	55008 0.00007 11.0	22003 0.00017 11.0	15717 0.00023 11.0
			Slot 	1	$\leq .5$	360 (288-432)	RPM Fz Feed (ipm)	44006 0.00007 8.9	17603 0.00017 8.9	12573 0.00024 8.9
			Finish 	$\leq .02$	1	895 (716-1074)	RPM Fz Feed (ipm)	109405 0.00012 40.0	43762 0.00030 40.0	31259 0.00043 40.0
<b>M</b>	<b>STAINLESS STEELS (DIFFICULT)</b> 304, 304L, 316, 316L	$\leq 275 \text{ Bhn}$ or $\leq 28 \text{ HRc}$	Profile 	$\leq 0.25$	$\leq 1$	335 (268-402)	RPM Fz Feed (ipm)	40950 0.00008 9.9	16380 0.00020 9.9	11700 0.00028 9.9
			Slot 	1	$\leq .5$	245 (196-294)	RPM Fz Feed (ipm)	29949 0.00007 6.0	11980 0.00017 6.0	8557 0.00023 6.0
			Finish 	$\leq .02$	1	605 (484-726)	RPM Fz Feed (ipm)	73955 0.00012 27.5	29582 0.00031 27.5	21130 0.00043 27.5
	<b>STAINLESS STEELS (PH)</b> 13-8 PH, 15-5 PH, 17-4 PH, Custom 450	$\leq 325 \text{ Bhn}$ or $\leq 35 \text{ HRc}$	Profile 	$\leq 0.25$	$\leq 1$	310 (248-372)	RPM Fz Feed (ipm)	37894 0.00008 9.0	15158 0.00020 9.0	10827 0.00028 9.0
			Slot 	1	$\leq .5$	225 (180-270)	RPM Fz Feed (ipm)	27504 0.00007 5.5	11002 0.00017 5.5	7858 0.00023 5.5
			Finish 	$\leq .02$	1	555 (444-666)	RPM Fz Feed (ipm)	67843 0.00013 25.5	27137 0.00031 25.5	19384 0.00044 25.5
<b>K</b>	<b>CAST IRONS (LOW &amp; MEDIUM ALLOY)</b> Gray, Malleable, Ductile	$\leq 220 \text{ Bhn}$ or $\leq 19 \text{ HRc}$	Profile 	$\leq 0.25$	$\leq 1$	620 (496-744)	RPM Fz Feed (ipm)	75789 0.00011 25.5	<u>30316</u> 0.00028 25.5	21654 0.00039 25.5
			Slot 	1	$\leq .5$	450 (360-540)	RPM Fz Feed (ipm)	55008 0.00010 16.0	22003 0.00024 16.0	15717 0.00034 16.0
			Finish 	$\leq .02$	1	1115 (892-1338)	RPM Fz Feed (ipm)	136298 0.00018 73.0	54519 0.00045 73.0	38942 0.00062 73.0

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## FRACTIONAL

## Series M032

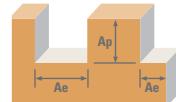


Series M032 Fractional	Hardness	Ae x DC	Ap x DC	Vc (sfm)	DC • in			
					1/32	5/64	7/64	
<b>HIGH TEMP ALLOYS (NICKEL, COBALT, IRON BASE) Inconel 718, X-750, Incoloy, Waspaloy, Hastelloy, Rene</b>	$\leq 400$ Bhn or $\leq 43$ HRc	Profile 	$\leq 0.5$	$\leq 1.5$	200 (160-240)	RPM Fz Feed (ipm)	24448 0.00007 5.1	9779 0.00017 5.1
		Slot 	1	$\leq 1$	145 (116-174)	RPM Fz Feed (ipm)	17725 0.00006 3.2	7090 0.00015 3.2
		Finish 	$\leq .02$	1	360 (288-432)	RPM Fz Feed (ipm)	44006 0.00011 14.5	17603 0.00027 14.5
	$\leq 350$ Bhn or $\leq 38$ HRc	Profile 	$\leq 0.5$	$\leq 1.5$	245 (196-294)	RPM Fz Feed (ipm)	29949 0.00007 6.3	11980 0.00018 6.3
		Slot 	1	$\leq 1$	180 (144-216)	RPM Fz Feed (ipm)	22003 0.00006 3.9	8801 0.00015 3.9
		Finish 	$\leq .02$	1	440 (352-528)	RPM Fz Feed (ipm)	53786 0.00011 18.0	21514 0.00028 18.0
<b>TITANIUM ALLOYS Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si</b>	$\leq 350$ Bhn or $\leq 38$ HRc	Profile 	$\leq 0.5$	$\leq 1.5$	93 (74-112)	RPM Fz Feed (ipm)	11368 0.00003 0.9	4547 0.00007 0.9
		Slot 	1	$\leq 1$	65 (52-78)	RPM Fz Feed (ipm)	7946 0.00003 0.6	3178 0.00006 0.6
		Finish 	$\leq .02$	1	167 (134-200)	RPM Fz Feed (ipm)	20414 0.00004 2.8	8166 0.00011 2.8
	$\leq 560$ Bhn or $\leq 55$ HRc	Profile 	$\leq 0.25$	$\leq 1$	69 (55-83)	RPM Fz Feed (ipm)	8435 0.00003 0.8	3374 0.00007 0.8
		Slot 	1	$\leq .5$	50 (40-60)	RPM Fz Feed (ipm)	6112 0.00002 0.5	2445 0.00006 0.5
		Finish 	$\leq .02$	1	124 (99-149)	RPM Fz Feed (ipm)	15158 0.00005 2.2	6063 0.00012 2.2
<b>ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 50100</b>	$\leq 560$ Bhn or $\leq 55$ HRc	Profile 	$\leq 0.25$	$\leq 1$	69 (55-83)	RPM Fz Feed (ipm)	8435 0.00003 0.8	3374 0.00007 0.8
		Slot 	1	$\leq .5$	50 (40-60)	RPM Fz Feed (ipm)	6112 0.00002 0.5	2445 0.00006 0.5
		Finish 	$\leq .02$	1	124 (99-149)	RPM Fz Feed (ipm)	15158 0.00005 2.2	6063 0.00012 2.2
	$\leq 654$ Bhn or $\leq 60$ HRc	Profile 	$\leq 0.25$	$\leq 1$	69 (55-83)	RPM Fz Feed (ipm)	8435 0.00003 0.8	3374 0.00007 0.8
		Slot 	1	$\leq .5$	50 (40-60)	RPM Fz Feed (ipm)	6112 0.00002 0.5	2445 0.00006 0.5
		Finish 	$\leq .02$	1	124 (99-149)	RPM Fz Feed (ipm)	15158 0.00005 2.2	6063 0.00012 2.2

## Note:

- Bhn (Brinell)      HRc (Rockwell C)
- rpm =  $V_c \times 3.82 / DC$
- ipm =  $F_z \times 3 \times rpm$  ( $F_z \times 3 \times$  max available rpm when recommendation exceeds machine limit)
- reduce speed and feed for materials harder than listed
- refer to the KYOCERA SGS Tool Wizard® for complete technical information ([www.kyocera-sgstool.com](http://www.kyocera-sgstool.com))

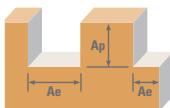
METRIC  
**Series M032**



Series M032 Metric	Hardness	Ae x DC	Ap x DC	Vc (m/min)	DC • mm		
					1	2	3
<b>P</b>	<b>CARBON STEELS</b> 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	$\leq 275 \text{ Bhn}$ or $\leq 28 \text{ HRc}$	Profile 	$\leq 0.25$	$\leq 1$	241 (193-289)	RPM Fz Feed (mm/min)
			Slot 	1	$\leq .5$	192 (154-230)	RPM Fz Feed (mm/min)
			Finish 	$\leq .02$	1	477 (382-572)	RPM Fz Feed (mm/min)
	<b>ALLOY STEELS</b> 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100	$\leq 375 \text{ Bhn}$ or $\leq 40 \text{ HRc}$	Profile 	$\leq 0.25$	$\leq 1$	137 (110-165)	RPM Fz Feed (mm/min)
			Slot 	1	$\leq .5$	110 (88-132)	RPM Fz Feed (mm/min)
			Finish 	$\leq .02$	1	273 (218-327)	RPM Fz Feed (ipm)
			Profile 	$\leq 0.25$	$\leq 1$	102 (82-123)	RPM Fz Feed (mm/min)
			Slot 	1	$\leq .5$	75 (60-90)	RPM Fz Feed (mm/min)
			Finish 	$\leq .02$	1	184 (148-221)	RPM Fz Feed (mm/min)
<b>M</b>	<b>STAINLESS STEELS</b> (DIFFICULT) 304, 304L, 316, 316L	$\leq 275 \text{ Bhn}$ or $\leq 28 \text{ HRc}$	Profile 	$\leq 0.25$	$\leq 1$	94 (76-113)	RPM Fz Feed (mm/min)
			Slot 	1	$\leq .5$	69 (55-82)	RPM Fz Feed (mm/min)
			Finish 	$\leq .02$	1	169 (135-203)	RPM Fz Feed (mm/min)
	<b>STAINLESS STEELS</b> (PH) 13-8 PH, 15-5 PH, 17-4 PH, Custom 450	$\leq 325 \text{ Bhn}$ or $\leq 35 \text{ HRc}$	Profile 	$\leq 0.25$	$\leq 1$	189 (151-227)	RPM Fz Feed (mm/min)
			Slot 	1	$\leq .5$	137 (110-165)	RPM Fz Feed (mm/min)
			Finish 	$\leq .02$	1	340 (272-408)	RPM Fz Feed (mm/min)
			Profile 	$\leq 0.25$	$\leq 1$	189 (151-227)	RPM Fz Feed (mm/min)
			Slot 	1	$\leq .5$	137 (110-165)	RPM Fz Feed (mm/min)
			Finish 	$\leq .02$	1	340 (272-408)	RPM Fz Feed (mm/min)
<b>K</b>	<b>CAST IRONS</b> (LOW & MEDIUM ALLOY) Gray, Malleable, Ductile	$\leq 220 \text{ Bhn}$ or $\leq 19 \text{ HRc}$	Profile 	$\leq 0.25$	$\leq 1$	189 (151-227)	RPM Fz Feed (mm/min)
			Slot 	1	$\leq .5$	137 (110-165)	RPM Fz Feed (mm/min)
			Finish 	$\leq .02$	1	340 (272-408)	RPM Fz Feed (mm/min)

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# Series M032

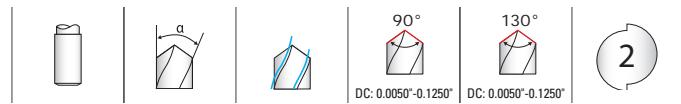


Series M032 Metric	Hardness	Ae x DC	Ap x DC	Vc (m/min)	DC • mm		
					1	2	3
<b>HIGH TEMP ALLOYS (NICKEL, COBALT, IRON BASE) Inconel 718, X-750, Incoloy, Waspaloy, Hastelloy, Rene</b>	$\leq 400$ Bhn or $\leq 43$ HRc	Profile 	$\leq 0.5$	$\leq 1.5$	61 (49-73)	RPM Fz Feed (mm/min)	19388 0.0022 130
		Slot 	1	$\leq 1$	44 (35-53)	RPM Fz Feed (mm/min)	14057 0.0019 81
		Finish 	$\leq .02$	1	110 (88-132)	RPM Fz Feed (mm/min)	34899 0.0035 368
	$\leq 350$ Bhn or $\leq 38$ HRc	Profile 	$\leq 0.5$	$\leq 1.5$	75 (60-90)	RPM Fz Feed (mm/min)	23751 0.0022 160
		Slot 	1	$\leq 1$	55 (44-66)	RPM Fz Feed (mm/min)	17449 0.0019 99
		Finish 	$\leq .02$	1	134 (107-161)	RPM Fz Feed (mm/min)	42654 0.0036 457
<b>TITANIUM ALLOYS Pure Titanium, Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si</b>	$\leq 350$ Bhn or $\leq 38$ HRc	Profile 	$\leq 0.5$	$\leq 1.5$	28 (23-34)	RPM Fz Feed (mm/min)	9016 0.0009 24
		Slot 	1	$\leq 1$	20 (16-24)	RPM Fz Feed (mm/min)	6301 0.0008 15
		Finish 	$\leq .02$	1	51 (41-61)	RPM Fz Feed (mm/min)	16189 0.0014 70
	$\leq 560$ Bhn or $\leq 55$ HRc	Profile 	$\leq 0.25$	$\leq 1$	21 (17-25)	RPM Fz Feed (mm/min)	6689 0.0009 19
		Slot 	1	$\leq .5$	15 (12-18)	RPM Fz Feed (mm/min)	4847 0.0008 11
		Finish 	$\leq .02$	1	38 (30-45)	RPM Fz Feed (mm/min)	12021 0.0015 56
<b>ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 50100</b>	$\leq 560$ Bhn or $\leq 55$ HRc	Profile 	$\leq 0.25$	$\leq 1$	28 (23-34)	RPM Fz Feed (mm/min)	4508 0.0018 24
		Slot 	1	$\leq .5$	20 (16-24)	RPM Fz Feed (mm/min)	3151 0.0016 15
		Finish 	$\leq .02$	1	51 (41-61)	RPM Fz Feed (mm/min)	21327 0.0029 70
	$\leq 654$ Bhn or $\leq 60$ HRc	Profile 	$\leq 0.25$	$\leq 1$	21 (17-25)	RPM Fz Feed (mm/min)	3005 0.0026 24
		Slot 	1	$\leq .5$	15 (12-18)	RPM Fz Feed (mm/min)	2100 0.0025 15
		Finish 	$\leq .02$	1	38 (30-45)	RPM Fz Feed (mm/min)	5396 0.0043 70
<b>TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2</b>	$\leq 654$ Bhn or $\leq 60$ HRc	Profile 	$\leq 0.25$	$\leq 1$	21 (17-25)	RPM Fz Feed (mm/min)	2230 0.0028 19
		Slot 	1	$\leq .5$	15 (12-18)	RPM Fz Feed (mm/min)	2424 0.0016 11
		Finish 	$\leq .02$	1	38 (30-45)	RPM Fz Feed (mm/min)	1616 0.0024 11
		Profile 	$\leq 0.25$	$\leq 1$	21 (17-25)	RPM Fz Feed (mm/min)	4007 0.0046 56
		Slot 	1	$\leq .5$	15 (12-18)	RPM Fz Feed (mm/min)	6010 0.0031 56
		Finish 	$\leq .02$	1	38 (30-45)	RPM Fz Feed (mm/min)	56 56 56

**Note:**

- Bhn (Brinell)      HRc (Rockwell C)
- rpm =  $(V_c \times 1000) / (DC \times 3.14)$
- mm/min =  $F_z \times 3 \times rpm$  ( $F_z \times 3 \times$  max available rpm when recommendation exceeds machine limit)
- reduce speed and feed for materials harder than listed
- refer to the KYOCERA SGS Tool Wizard® for complete technical information ([www.kyocera-sgstool.com](http://www.kyocera-sgstool.com))

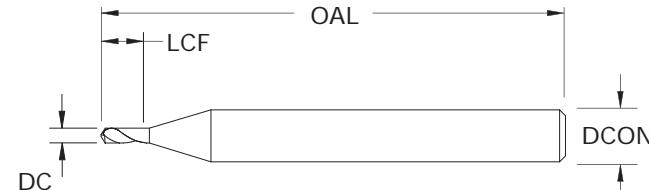
# 2 Flute Spotting External Coolant

**TOLERANCES (inch)****.005-.125 DIAMETER**

DC = +0.0000/-0.0003

DCON = h<sub>6</sub>

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



## M080

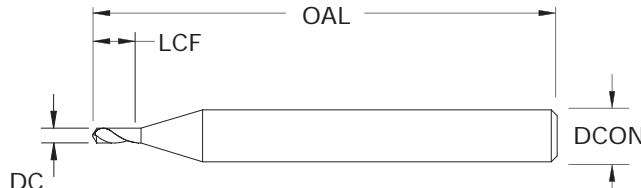
FRACTIONAL SERIES

CUTTING DIAMETER DC	SHANK DIAMETER DCON	FLUTE LENGTH LCF	OVERALL LENGTH OAL	POINT ANGLE	EDP NO.	
					UNCOATED	TI-NAMITE®-A (AITIN)
0.0050	1/8	0.025	1-1/2	90	<a href="#">07016</a>	<a href="#">07000</a>
0.0100	1/8	0.035	1-1/2	90	<a href="#">07017</a>	<a href="#">07001</a>
0.0150	1/8	0.045	1-1/2	90	<a href="#">07018</a>	<a href="#">07002</a>
0.0200	1/8	0.050	1-1/2	90	<a href="#">07019</a>	<a href="#">07003</a>
0.0312	1/8	0.090	1-1/2	90	<a href="#">07020</a>	<a href="#">07004</a>
0.0625	1/8	0.200	1-1/2	90	<a href="#">07021</a>	<a href="#">07005</a>
0.0938	1/8	0.200	1-1/2	90	<a href="#">07022</a>	<a href="#">07006</a>
0.1250	1/8	0.200	1-1/2	90	<a href="#">07023</a>	<a href="#">07007</a>
0.0050	1/8	0.025	1-1/2	130	<a href="#">07024</a>	<a href="#">07008</a>
0.0100	1/8	0.035	1-1/2	130	<a href="#">07025</a>	<a href="#">07009</a>
0.0150	1/8	0.045	1-1/2	130	<a href="#">07026</a>	<a href="#">07010</a>
0.0200	1/8	0.050	1-1/2	130	<a href="#">07027</a>	<a href="#">07011</a>
0.0312	1/8	0.090	1-1/2	130	<a href="#">07028</a>	<a href="#">07012</a>
0.0625	1/8	0.200	1-1/2	130	<a href="#">07029</a>	<a href="#">07013</a>
0.0938	1/8	0.200	1-1/2	130	<a href="#">07030</a>	<a href="#">07014</a>
0.1250	1/8	0.200	1-1/2	130	<a href="#">07031</a>	<a href="#">07015</a>

- 4-facet point design, stub length, and mirror finish provide the highest quality spot
- Ti-Namite® A coating and uncoated options for the ultimate performance and tool life in a variety of ferrous and non-ferrous workpiece materials
- Available from stock in all popular diameters and point configurations
- Application specific sub-micron grain carbide designed specifically for micro-tool applications
- Manufactured in accordance with KSPT ISO certified quality procedures

METRIC

# 2 Flute Spotting External Coolant



## M081

METRIC SERIES

- 4-facet point design, stub length, and mirror finish provide the highest quality spot
- Ti-Namite® A coating and uncoated options for the ultimate performance and tool life in a variety of ferrous and non-ferrous workpiece materials
- Available from stock in all popular diameters and point configurations
- Application specific sub-micron grain carbide designed specifically for micro-tool applications
- Manufactured in accordance with KSPT ISO certified quality procedures

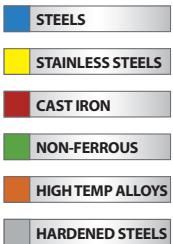
CUTTING DIAMETER DC	SHANK DIAMETER DCON	FLUTE LENGTH LCF	OVERALL LENGTH OAL	POINT ANGLE	EDP NO.	
					UNCOATED	TI-NAMITE®-A (AlTiN)
0,15	3,0	0,65	38,0	90	<a href="#">07048</a>	<a href="#">07032</a>
0,25	3,0	0,90	38,0	90	<a href="#">07049</a>	<a href="#">07033</a>
0,40	3,0	1,15	38,0	90	<a href="#">07050</a>	<a href="#">07034</a>
0,50	3,0	1,30	38,0	90	<a href="#">07051</a>	<a href="#">07035</a>
1,00	3,0	2,30	38,0	90	<a href="#">07052</a>	<a href="#">07036</a>
1,50	3,0	5,00	38,0	90	<a href="#">07053</a>	<a href="#">07037</a>
2,00	3,0	5,00	38,0	90	<a href="#">07054</a>	<a href="#">07038</a>
3,00	3,0	5,00	38,0	90	<a href="#">07055</a>	<a href="#">07039</a>
0,15	3,0	0,65	38,0	130	<a href="#">07056</a>	<a href="#">07040</a>
0,25	3,0	0,90	38,0	130	<a href="#">07057</a>	<a href="#">07041</a>
0,40	3,0	1,15	38,0	130	<a href="#">07058</a>	<a href="#">07042</a>
0,50	3,0	1,30	38,0	130	<a href="#">07059</a>	<a href="#">07043</a>
1,00	3,0	2,30	38,0	130	<a href="#">07060</a>	<a href="#">07044</a>
1,50	3,0	5,00	38,0	130	<a href="#">07061</a>	<a href="#">07045</a>
2,00	3,0	5,00	38,0	130	<a href="#">07062</a>	<a href="#">07046</a>
3,00	3,0	5,00	38,0	130	<a href="#">07063</a>	<a href="#">07047</a>

### TOLERANCES (mm)

0,15–3,0 DIAMETER

DC = +0,000/-0,008

DCON = h6



FRACTIONAL  
**Series M080**

			<b>Vc (sfm)</b>	<b>DC • in</b>						
<b>Series M080</b>		<b>Hardness</b>		<b>0.005</b>	<b>0.010</b>	<b>0.020</b>	<b>0.040</b>	<b>0.080</b>	<b>0.125</b>	
P	<b>CARBON STEELS</b> 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 175 Bhn or ≤ 7 HRc	280 (224-336)	RPM	213920	106960	53480	26740	13370	8557
				Fr	0.00010	0.00021	0.0004	0.0008	0.0016	0.0026
				Feed (ipm)	22.0	22.0	22.0	22.0	22.0	22.0
M	<b>ALLOY STEELS</b> 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100	≤ 275 Bhn or ≤ 28 HRc	180 (144-216)	RPM	137520	68760	34380	17190	8595	5501
				Fr	0.00010	0.00019	0.0004	0.0008	0.0015	0.0024
				Feed (ipm)	13.3	13.3	13.3	13.3	13.3	13.3
K	<b>STAINLESS STEELS (FREE MACHINING)</b> 303, 416, 420F, 430F, 440F	≤ 250 Bhn or ≤ 24 HRc	210 (168-252)	RPM	160440	80220	40110	20055	10028	6418
				Fr	0.00011	0.00021	0.0004	0.0008	0.0017	0.0026
				Feed (ipm)	17.0	17.0	17.0	17.0	17.0	17.0
N	<b>STAINLESS STEELS (DIFFICULT)</b> 304, 316, 321, 13-8 PH, 15-5PH, 17-4 PH, CUSTOM 450	≤ 275 Bhn or ≤ 28 HRc	180 (144-216)	RPM	137520	68760	34380	17190	8595	5501
				Fr	0.0001	0.0002	0.0004	0.0008	0.0015	0.0024
				Feed (ipm)	13.3	13.3	13.3	13.3	13.3	13.3
S	<b>CAST IRONS</b> Gray, Malleable, Ductile	≤ 220 Bhn or ≤ 19 HRc	280 (224-336)	RPM	213920	106960	53480	26740	13370	8557
				Fr	0.00007	0.00015	0.0003	0.0006	0.0012	0.0018
				Feed (ipm)	15.8	15.8	15.8	15.8	15.8	15.8
H	<b>ALUMINUM ALLOYS</b> 2017, 2024, 356, 6061, 7075	≤ 150 Bhn or ≤ 7 HRc	600 (480-720)	RPM	458400	229200	114600	57300	28650	18336
				Fr	0.00012	0.00024	0.0005	0.0009	0.0019	0.0029
				Feed (ipm)	54.0	54.0	54.0	54.0	54.0	54.0
N	<b>COPPER ALLOYS</b> Alum Bronze, C110, Muntz Brass	≤ 140 Bhn or ≤ 3 HRc	190 (152-228)	RPM	145160	72580	36290	18145	9073	5806
				Fr	0.00010	0.00019	0.0004	0.0008	0.0016	0.0024
				Feed (ipm)	14.1	14.1	14.1	14.1	14.1	14.1
S	<b>PLASTICS</b> Polycarbonate, PVC		500 (400-600)	RPM	382000	191000	95500	47750	23875	15280
				Fr	0.00012	0.00024	0.0005	0.0009	0.0019	0.0029
				Feed (ipm)	45.0	45.0	45.0	45.0	45.0	45.0
S	<b>HIGH TEMP ALLOYS</b> (NICKEL, COBALT, IRON BASE) Inconel 601, 617, 625, Incoloy 800, Monel 400, Rene, Waspaloy	≤ 320 Bhn or ≤ 34 HRc	70 (56-84)	RPM	53480	26740	13370	6685	3343	2139
				Fr	0.00006	0.00012	0.0002	0.0005	0.0010	0.0015
				Feed (ipm)	3.2	3.2	3.2	3.2	3.2	3.2
H	<b>TITANIUM ALLOYS</b> Pure Titanium, Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si	≤ 350 Bhn or ≤ 38 HRc	120 (96-144)	RPM	91680	45840	22920	11460	5730	3667
				Fr	0.00006	0.00012	0.0002	0.0005	0.0010	0.0015
				Feed (ipm)	5.6	5.6	5.6	5.6	5.6	5.6
H	<b>TOOL STEELS</b> A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 475 Bhn or ≤ 50 HRc	70 (56-84)	RPM	53480	26740	13370	6685	3343	2139
				Fr	0.00004	0.00008	0.0002	0.0003	0.0006	0.0010
				Feed (ipm)	2.1	2.1	2.1	2.1	2.1	2.1

**Note:**

- Bhn (Brinell)      HRc (Rockwell C)      HRb (Rockwell B)
- rpm = Vc x 3.82 / DC
- ipm = Fr x rpm
- reduce speed and feed 30% when using uncoated drills
- reduce speed and feed for materials harder than listed
- refer to the KYOCERA SGS Tool Wizard® for complete technical information ([www.kyocera-sgstool.com](http://www.kyocera-sgstool.com))

## METRIC

## Series M081

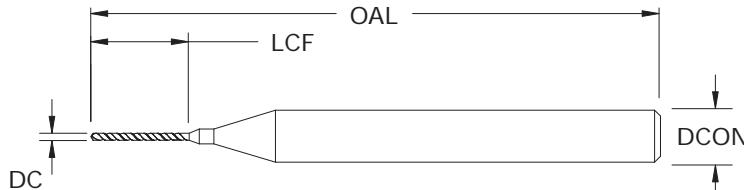
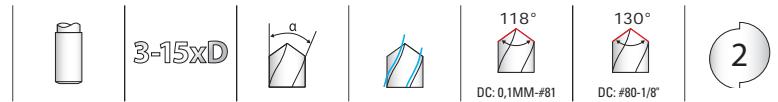
	Series M081	Hardness	Vc (m/min)	DC • mm						
				0.15	0.25	0.5	1	2	3	
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 175 Bhn or ≤ 7 HRc	85 (68-102)	RPM	180958	108575	54287	27144	13572	9048
				Fr	0.003	0.005	0.010	0.021	0.041	0.062
				Feed (mm/min)	559	559	559	559	559	559
M	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100	≤ 275 Bhn or ≤ 28 HRc	55 (44-66)	RPM	116330	69798	34899	17449	8725	5816
				Fr	0.003	0.005	0.010	0.019	0.039	0.058
				Feed (mm/min)	338	338	338	338	338	338
K	STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 250 Bhn or ≤ 24 HRc	64 (51-77)	RPM	135718	81431	40715	20358	10179	6786
				Fr	0.003	0.005	0.011	0.021	0.042	0.064
				Feed (mm/min)	432	432	432	432	432	432
N	STAINLESS STEELS (DIFFICULT) 304, 316, 321, 13-8 PH, 15-5PH, 17-4 PH, CUSTOM 450	≤ 275 Bhn or ≤ 28 HRc	55 (44-66)	RPM	116330	69798	34899	17449	8725	5816
				Fr	0.003	0.005	0.010	0.019	0.039	0.058
				Feed (mm/min)	338	338	338	338	338	338
S	CAST IRONS Gray, Malleable, Ductile	≤ 220 Bhn or ≤ 19 HRc	85 (68-102)	RPM	180958	108575	54287	27144	13572	9048
				Fr	0.002	0.004	0.007	0.015	0.030	0.044
				Feed (mm/min)	401	401	401	401	401	401
T	ALUMINUM ALLOYS 2017, 2024, 356, 6061, 7075	≤ 150 Bhn or ≤ 7 HRc	183 (146-219)	RPM	387767	232660	116330	58165	29082	19388
				Fr	0.004	0.006	0.012	0.024	0.047	0.071
				Feed (mm/min)	1372	1372	1372	1372	1372	1372
H	COPPER ALLOYS Alum Bronze, C110, Muntz Brass	≤ 140 Bhn or ≤ 3 HRc	58 (46-69)	RPM	122793	73676	36838	18419	9209	6140
				Fr	0.003	0.005	0.010	0.019	0.039	0.058
				Feed (mm/min)	358	358	358	358	358	358
P	PLASTICS Polycarbonate, PVC		152 (122-183)	RPM	323139	193883	96942	48471	24235	16157
				Fr	0.004	0.006	0.012	0.024	0.047	0.071
				Feed (mm/min)	1143	1143	1143	1143	1143	1143
S	HIGH TEMP ALLOYS (NICKEL, COBALT, IRON BASE) Inconel 601, 617, 625, Incoloy 800, Monel 400, Rene, Waspaloy	≤ 320 Bhn or ≤ 34 HRc	21 (17-26)	RPM	45239	27144	13572	6786	3393	2262
				Fr	0.002	0.003	0.006	0.012	0.024	0.036
				Feed (mm/min)	81	81	81	81	81	81
T	TITANIUM ALLOYS Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si	≤ 350 Bhn or ≤ 38 HRc	37 (29-44)	RPM	77553	46532	23266	11633	5816	3878
				Fr	0.002	0.003	0.006	0.012	0.024	0.037
				Feed (mm/min)	142	142	142	142	142	142
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 475 Bhn or ≤ 50 HRc	21 (17-26)	RPM	45239	27144	13572	6786	3393	2262
				Fr	0.001	0.002	0.004	0.008	0.016	0.024
				Feed (mm/min)	53	53	53	53	53	53

## Note:

- Bhn (Brinell)      HRc (Rockwell C)      HRb (Rockwell B)
- rpm =  $(V_c \times 1000) / (DC \times 3.14)$
- mm/min = Fr x rpm
- reduce speed and feed 30% when using uncoated drills
- reduce speed and feed for materials harder than listed
- refer to the KYOCERA SGS Tool Wizard® for complete technical information ([www.kyocera-sgstool.com](http://www.kyocera-sgstool.com))

# 2 Flute External Coolant •

## Standard & Extended Length

**M105**

FRACTIONAL &amp; METRIC SERIES

**TOLERANCES (inch)****≤.125 DIAMETER**

DC = +.0000/-0.0003

DCON = h<sub>6</sub>**TOLERANCES (mm)****0.1-3.0 DIAMETER**

DC = +0.000/-0.008

DCON = h<sub>6</sub>

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

DECIMAL DC	METRIC DC	FRACTIONAL/ LETTER/WIRE DIAMETER DC	SHANK DIAMETER DCON	OVERALL LENGTH OAL	FLUTE LENGTH LCF	USABLE LENGTH LU	POINT ANGLE	EDP NO.	
								UNCOATED	TI-NAMITE®-A (AITIN)
0.0040	0.102 mm	1/8	1-1/2	0.040	0.034	118	<a href="#">07088</a>	<a href="#">07098</a>	
0.0040	0.102 mm	1/8	1-1/2	0.070	0.064	118	<a href="#">07089</a>	<a href="#">07099</a>	
0.0050	0.127 mm	1/8	1-1/2	0.040	0.033	118	<a href="#">07064</a>	<a href="#">07066</a>	
0.0050	0.127 mm	1/8	1-1/2	0.070	0.063	118	<a href="#">07065</a>	<a href="#">07067</a>	
0.0059	0.150 mm	#97	1/8	1-1/2	0.080	0.071	118	<a href="#">07236</a>	<a href="#">07068</a>
0.0059	0.150 mm	#97	1/8	1-1/2	0.120	0.111	118	<a href="#">07237</a>	<a href="#">07069</a>
0.0063	0.160 mm	#96	1/8	1-1/2	0.080	0.071	118	<a href="#">07238</a>	<a href="#">07070</a>
0.0063	0.160 mm	#96	1/8	1-1/2	0.120	0.111	118	<a href="#">07239</a>	<a href="#">07071</a>
0.0067	0.170 mm	#95	1/8	1-1/2	0.080	0.070	118	<a href="#">07240</a>	<a href="#">07072</a>
0.0067	0.170 mm	#95	1/8	1-1/2	0.120	0.110	118	<a href="#">07241</a>	<a href="#">07073</a>
0.0071	0.180 mm	#94	1/8	1-1/2	0.100	0.089	118	<a href="#">07242</a>	<a href="#">07074</a>
0.0071	0.180 mm	#94	1/8	1-1/2	0.150	0.139	118	<a href="#">07243</a>	<a href="#">07075</a>
0.0075	0.191 mm	#93	1/8	1-1/2	0.100	0.089	118	<a href="#">07244</a>	<a href="#">07076</a>
0.0075	0.191 mm	#93	1/8	1-1/2	0.150	0.139	118	<a href="#">07245</a>	<a href="#">07077</a>
0.0079	0.200 mm	#92	1/8	1-1/2	0.100	0.088	118	<a href="#">07246</a>	<a href="#">07078</a>
0.0079	0.200 mm	#92	1/8	1-1/2	0.150	0.138	118	<a href="#">07247</a>	<a href="#">07079</a>
0.0083	0.211 mm	#91	1/8	1-1/2	0.100	0.088	118	<a href="#">07248</a>	<a href="#">07080</a>
0.0083	0.211 mm	#91	1/8	1-1/2	0.150	0.138	118	<a href="#">07249</a>	<a href="#">07081</a>
0.0087	0.220 mm	#90	1/8	1-1/2	0.100	0.087	118	<a href="#">07250</a>	<a href="#">07082</a>
0.0087	0.220 mm	#90	1/8	1-1/2	0.150	0.137	118	<a href="#">07251</a>	<a href="#">07083</a>
0.0091	0.231 mm	#89	1/8	1-1/2	0.150	0.136	118	<a href="#">07252</a>	<a href="#">07084</a>
0.0091	0.231 mm	#89	1/8	1-1/2	0.220	0.206	118	<a href="#">07253</a>	<a href="#">07085</a>
0.0095	0.241 mm	#88	1/8	1-1/2	0.150	0.136	118	<a href="#">07254</a>	<a href="#">07086</a>
0.0095	0.241 mm	#88	1/8	1-1/2	0.220	0.206	118	<a href="#">07255</a>	<a href="#">07087</a>
0.0098	0.250 mm		1/8	1-1/2	0.150	0.135	118	<a href="#">07108</a>	<a href="#">07114</a>
0.0098	0.250 mm		1/8	1-1/2	0.220	0.205	118	<a href="#">07109</a>	<a href="#">07115</a>
0.0100	0.254 mm	#87	1/8	1-1/2	0.150	0.135	118	<a href="#">07258</a>	<a href="#">07090</a>
0.0100	0.254 mm	#87	1/8	1-1/2	0.220	0.205	118	<a href="#">07259</a>	<a href="#">07091</a>
0.0105	0.267 mm	#86	1/8	1-1/2	0.150	0.134	118	<a href="#">07260</a>	<a href="#">07092</a>
0.0105	0.267 mm	#86	1/8	1-1/2	0.220	0.204	118	<a href="#">07261</a>	<a href="#">07093</a>
0.0110	0.280 mm	#85	1/8	1-1/2	0.150	0.134	118	<a href="#">07262</a>	<a href="#">07094</a>
0.0110	0.280 mm	#85	1/8	1-1/2	0.220	0.204	118	<a href="#">07263</a>	<a href="#">07095</a>
0.0115	0.292 mm	#84	1/8	1-1/2	0.150	0.133	118	<a href="#">07264</a>	<a href="#">07096</a>
0.0115	0.292 mm	#84	1/8	1-1/2	0.220	0.203	118	<a href="#">07265</a>	<a href="#">07097</a>
0.0118	0.300 mm		1/8	1-1/2	0.225	0.207	118	<a href="#">07127</a>	<a href="#">07132</a>
0.0118	0.300 mm		1/8	1-1/2	0.280	0.262	118	<a href="#">07129</a>	<a href="#">07134</a>

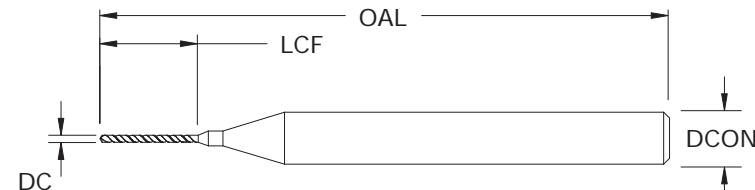
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# 2 Flute External Coolant •

## Standard & Extended Length



3-15xD

**M105**

FRACTIONAL &amp; METRIC SERIES

continued

DECIMAL DC	METRIC DC	FRACTIONAL/ LETTER/WIRE DC	SHANK DIAMETER DCON	OVERALL LENGTH OAL	FLUTE LENGTH LCF	USABLE LENGTH LU	POINT ANGLE	EDP NO.	
								UNCOATED	TI-NAMITE®-A (AlTiN)
0.0120	0,305 mm	#83	1/8	1-1/2	0.225	0.207	118	<a href="#">07268</a>	<a href="#">07100</a>
0.0120	0,305 mm	#83	1/8	1-1/2	0.280	0.262	118	<a href="#">07269</a>	<a href="#">07101</a>
0.0125	0,318 mm	#82	1/8	1-1/2	0.225	0.206	118	<a href="#">07270</a>	<a href="#">07102</a>
0.0125	0,318 mm	#82	1/8	1-1/2	0.280	0.261	118	<a href="#">07271</a>	<a href="#">07103</a>
0.0130	0,330 mm	#81	1/8	1-1/2	0.225	0.206	118	<a href="#">07272</a>	<a href="#">07104</a>
0.0130	0,330 mm	#81	1/8	1-1/2	0.280	0.261	118	<a href="#">07273</a>	<a href="#">07105</a>
0.0135	0,343 mm	#80	1/8	1-1/2	0.225	0.205	130	<a href="#">07274</a>	<a href="#">07106</a>
0.0135	0,343 mm	#80	1/8	1-1/2	0.280	0.260	130	<a href="#">07275</a>	<a href="#">07107</a>
0.0138	0,350 mm		1/8	1-1/2	0.225	0.204	130	<a href="#">07118</a>	<a href="#">07122</a>
0.0138	0,350 mm		1/8	1-1/2	0.280	0.259	130	<a href="#">07119</a>	<a href="#">07123</a>
0.0145	0,368 mm	#79	1/8	1-1/2	0.225	0.203	130	<a href="#">07278</a>	<a href="#">07110</a>
0.0145	0,368 mm	#79	1/8	1-1/2	0.280	0.258	130	<a href="#">07279</a>	<a href="#">07111</a>
0.0156	0,396 mm	1/16	1/8	1-1/2	0.250	0.227	130	<a href="#">07280</a>	<a href="#">07112</a>
0.0156	0,396 mm	1/16	1/8	1-1/2	0.295	0.272	130	<a href="#">07281</a>	<a href="#">07113</a>
0.0157	0,400 mm		1/8	1-1/2	0.250	0.226	130	<a href="#">07148</a>	<a href="#">07233</a>
0.0157	0,400 mm		1/8	1-1/2	0.295	0.271	130	<a href="#">07232</a>	<a href="#">07234</a>
0.0160	0,406 mm	#78	1/8	1-1/2	0.250	0.226	130	<a href="#">07284</a>	<a href="#">07116</a>
0.0160	0,406 mm	#78	1/8	1-1/2	0.295	0.271	130	<a href="#">07285</a>	<a href="#">07117</a>
0.0177	0,450 mm		1/8	1-1/2	0.250	0.223	130	<a href="#">07137</a>	<a href="#">07143</a>
0.0177	0,450 mm		1/8	1-1/2	0.295	0.268	130	<a href="#">07140</a>	<a href="#">07145</a>
0.0180	0,457 mm	#77	1/8	1-1/2	0.250	0.223	130	<a href="#">07288</a>	<a href="#">07120</a>
0.0180	0,457 mm	#77	1/8	1-1/2	0.295	0.268	130	<a href="#">07289</a>	<a href="#">07121</a>
0.0197	0,500 mm		1/8	1-1/2	0.260	0.230	130	<a href="#">07257</a>	<a href="#">07267</a>
0.0197	0,500 mm		1/8	1-1/2	0.310	0.280	130	<a href="#">07266</a>	<a href="#">07276</a>
0.0200	0,508 mm	#76	1/8	1-1/2	0.260	0.230	130	<a href="#">07292</a>	<a href="#">07124</a>
0.0200	0,508 mm	#76	1/8	1-1/2	0.310	0.280	130	<a href="#">07293</a>	<a href="#">07125</a>
0.0210	0,533 mm	#75	1/8	1-1/2	0.310	0.279	130	<a href="#">07294</a>	<a href="#">07126</a>
0.0217	0,550 mm		1/8	1-1/2	0.340	0.307	130	<a href="#">07235</a>	<a href="#">07256</a>
0.0225	0,572 mm	#74	1/8	1-1/2	0.340	0.306	130	<a href="#">07296</a>	<a href="#">07128</a>
0.0236	0,600 mm		1/8	1-1/2	0.340	0.305	130	<a href="#">07283</a>	<a href="#">07286</a>
0.0240	0,610 mm	#73	1/8	1-1/2	0.340	0.304	130	<a href="#">07298</a>	<a href="#">07130</a>
0.0250	0,635 mm	#72	1/8	1-1/2	0.340	0.303	130	<a href="#">07299</a>	<a href="#">07131</a>
0.0256	0,650 mm		1/8	1-1/2	0.340	0.302	130	<a href="#">07277</a>	<a href="#">07282</a>
0.0260	0,660 mm	#71	1/8	1-1/2	0.340	0.301	130	<a href="#">07301</a>	<a href="#">07133</a>
0.0276	0,700 mm		1/8	1-1/2	0.400	0.359	130	<a href="#">07291</a>	<a href="#">07295</a>
0.0280	0,711 mm	#70	1/8	1-1/2	0.400	0.358	130	<a href="#">07303</a>	<a href="#">07135</a>

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**TOLERANCES (inch)**

≤.125 DIAMETER

DC = +.0000/-0003

DCON = h6

**TOLERANCES (mm)**

0,1-3,0 DIAMETER

DC = +0,000/-0,008

DCON = h6

STEELS

STAINLESS STEELS

CAST IRON

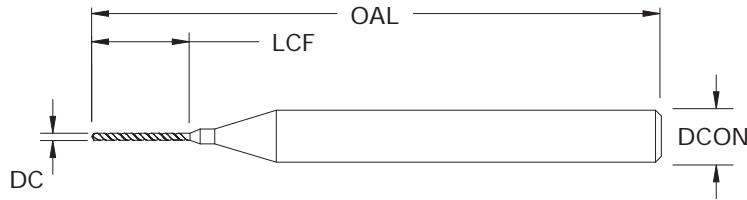
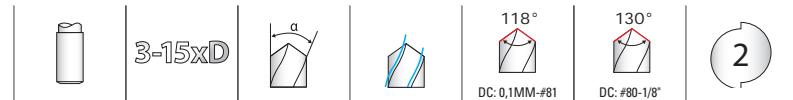
NON-FERROUS

HIGH TEMP ALLOYS

HARDENED STEELS

# 2 Flute External Coolant •

## Standard & Extended Length

**M105**

FRACTIONAL &amp; METRIC SERIES

**TOLERANCES (inch)****≤.125 DIAMETER**

DC = +.0000/-0.0003

DCON = h<sub>6</sub>**TOLERANCES (mm)****0.1-3.0 DIAMETER**

DC = +0.000/-0.008

DCON = h<sub>6</sub>**STEELS****STAINLESS STEELS****CAST IRON****NON-FERROUS****HIGH TEMP ALLOYS****HARDEDEN STEELS***continued*

DECIMAL DC	METRIC DC	FRACTIONAL/ LETTER/WIRE DC	SHANK DIAMETER DCON	OVERALL LENGTH OAL	FLUTE LENGTH LCF	USABLE LENGTH LU	POINT ANGLE	EDP NO.	
								UNCOATED	TI-NAMITE®-A (AITIN)
0.0292	0.742 mm	#69	1/8	1-1/2	0.400	0.356	130	<a href="#">07304</a>	<a href="#">07136</a>
0.0295	0.750 mm		1/8	1-1/2	0.400	0.356	130	<a href="#">07287</a>	<a href="#">07290</a>
0.0310	0.787 mm	#68	1/8	1-1/2	0.400	0.354	130	<a href="#">07306</a>	<a href="#">07138</a>
0.0312	0.792 mm	1/32	1/8	1-1/2	0.400	0.353	130	<a href="#">07307</a>	<a href="#">07139</a>
0.0315	0.800 mm		1/8	1-1/2	0.400	0.353	130	<a href="#">07302</a>	<a href="#">07305</a>
0.0320	0.813 mm	#67	1/8	1-1/2	0.400	0.352	130	<a href="#">07309</a>	<a href="#">07141</a>
0.0330	0.838 mm	#66	1/8	1-1/2	0.400	0.351	130	<a href="#">07310</a>	<a href="#">07142</a>
0.0335	0.850 mm		1/8	1-1/2	0.400	0.350	130	<a href="#">07297</a>	<a href="#">07300</a>
0.0350	0.889 mm	#65	1/8	1-1/2	0.400	0.348	130	<a href="#">07312</a>	<a href="#">07144</a>
0.0354	0.900 mm		1/8	1-1/2	0.400	0.347	130	<a href="#">07313</a>	<a href="#">07316</a>
0.0360	0.914 mm	#64	1/8	1-1/2	0.400	0.346	130	<a href="#">07314</a>	<a href="#">07146</a>
0.0370	0.940 mm	#63	1/8	1-1/2	0.400	0.345	130	<a href="#">07315</a>	<a href="#">07147</a>
0.0374	0.950 mm		1/8	1-1/2	0.400	0.344	130	<a href="#">07308</a>	<a href="#">07311</a>
0.0380	0.965 mm	#62	1/8	1-1/2	0.400	0.343	130	<a href="#">07317</a>	<a href="#">07149</a>
0.0390	0.991 mm	#61	1/8	1-1/2	0.400	0.342	130	<a href="#">07318</a>	<a href="#">07150</a>
0.0394	1.000 mm		1/8	1-1/2	0.400	0.341	130	<a href="#">07319</a>	<a href="#">07151</a>
0.0400	1.016 mm	#60	1/8	1-1/2	0.400	0.340	130	<a href="#">07320</a>	<a href="#">07152</a>
0.0410	1.041 mm	#59	1/8	1-1/2	0.400	0.339	130	<a href="#">07321</a>	<a href="#">07153</a>
0.0413	1.050 mm		1/8	1-1/2	0.400	0.338	130	<a href="#">07322</a>	<a href="#">07154</a>
0.0420	1.067 mm	#58	1/8	1-1/2	0.400	0.337	130	<a href="#">07323</a>	<a href="#">07155</a>
0.0430	1.092 mm	#57	1/8	1-1/2	0.400	0.336	130	<a href="#">07324</a>	<a href="#">07156</a>
0.0433	1.100 mm		1/8	1-1/2	0.400	0.335	130	<a href="#">07325</a>	<a href="#">07157</a>
0.0440	1.118 mm		1/8	1-1/2	0.400	0.334	130	<a href="#">07326</a>	<a href="#">07158</a>
0.0453	1.150 mm		1/8	1-1/2	0.400	0.332	130	<a href="#">07327</a>	<a href="#">07159</a>
0.0465	1.181 mm	#56	1/8	1-1/2	0.400	0.330	130	<a href="#">07328</a>	<a href="#">07160</a>
0.0469	1.191 mm	3/64	1/8	1-1/2	0.400	0.330	130	<a href="#">07329</a>	<a href="#">07161</a>
0.0472	1.200 mm		1/8	1-1/2	0.400	0.329	130	<a href="#">07330</a>	<a href="#">07162</a>
0.0492	1.250 mm		1/8	1-1/2	0.400	0.326	130	<a href="#">07331</a>	<a href="#">07163</a>
0.0512	1.300 mm		1/8	1-1/2	0.400	0.323	130	<a href="#">07332</a>	<a href="#">07164</a>
0.0520	1.321 mm	#55	1/8	1-1/2	0.400	0.322	130	<a href="#">07333</a>	<a href="#">07165</a>
0.0531	1.350 mm		1/8	1-1/2	0.400	0.320	130	<a href="#">07334</a>	<a href="#">07166</a>
0.0550	1.397 mm	#54	1/8	1-1/2	0.400	0.318	130	<a href="#">07335</a>	<a href="#">07167</a>
0.0551	1.400 mm		1/8	1-1/2	0.400	0.317	130	<a href="#">07336</a>	<a href="#">07168</a>
0.0571	1.450 mm		1/8	1-1/2	0.400	0.314	130	<a href="#">07337</a>	<a href="#">07169</a>
0.0591	1.500 mm		1/8	1-1/2	0.400	0.311	130	<a href="#">07338</a>	<a href="#">07170</a>
0.0595	1.511 mm	#53	1/8	1-1/2	0.400	0.311	130	<a href="#">07339</a>	<a href="#">07171</a>

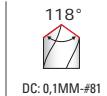
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# 2 Flute External Coolant •

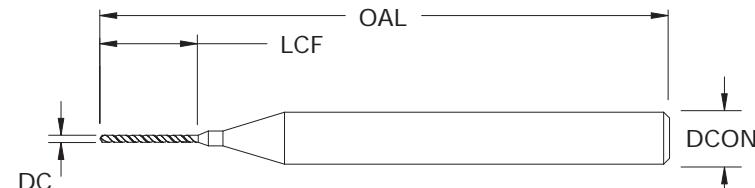
## Standard & Extended Length



3-15xD

**M105**

FRACTIONAL &amp; METRIC SERIES



continued

DECIMAL DC	METRIC DC	FRACTIONAL/ LETTER/WIRE DC	SHANK DIAMETER DCON	OVERALL LENGTH OAL	FLUTE LENGTH LCF	USABLE LENGTH LU	POINT ANGLE	EDP NO.	
								UNCOATED	TI-NAMITE®-A (AlTiN)
0.0610	1,550 mm		1/8	1-1/2	0.400	0.309	130	<a href="#">07340</a>	<a href="#">07172</a>
0.0625	1,588 mm	1/16	1/8	1-1/2	0.400	0.306	130	<a href="#">07341</a>	<a href="#">07173</a>
0.0630	1,600 mm		1/8	1-1/2	0.400	0.306	130	<a href="#">07342</a>	<a href="#">07174</a>
0.0635	1,613 mm	#52	1/8	1-1/2	0.400	0.305	130	<a href="#">07343</a>	<a href="#">07175</a>
0.0650	1,650 mm		1/8	1-1/2	0.400	0.303	130	<a href="#">07344</a>	<a href="#">07176</a>
0.0669	1,700 mm		1/8	1-1/2	0.400	0.300	130	<a href="#">07345</a>	<a href="#">07177</a>
0.0670	1,702 mm	#51	1/8	1-1/2	0.400	0.300	130	<a href="#">07346</a>	<a href="#">07178</a>
0.0689	1,750 mm		1/8	1-1/2	0.400	0.297	130	<a href="#">07347</a>	<a href="#">07179</a>
0.0700	1,778 mm	#50	1/8	1-1/2	0.400	0.295	130	<a href="#">07348</a>	<a href="#">07180</a>
0.0709	1,800 mm		1/8	1-1/2	0.400	0.294	130	<a href="#">07349</a>	<a href="#">07181</a>
0.0728	1,850 mm		1/8	1-1/2	0.400	0.291	130	<a href="#">07350</a>	<a href="#">07182</a>
0.0730	1,854 mm	#49	1/8	1-1/2	0.400	0.291	130	<a href="#">07351</a>	<a href="#">07183</a>
0.0748	1,900 mm		1/8	1-1/2	0.400	0.288	130	<a href="#">07352</a>	<a href="#">07184</a>
0.0760	1,930 mm	#48	1/8	1-1/2	0.400	0.286	130	<a href="#">07353</a>	<a href="#">07185</a>
0.0768	1,950 mm		1/8	1-1/2	0.400	0.285	130	<a href="#">07354</a>	<a href="#">07186</a>
0.0781	1,984 mm	5/64	1/8	1-1/2	0.400	0.283	130	<a href="#">07355</a>	<a href="#">07187</a>
0.0785	1,994 mm	#47	1/8	1-1/2	0.400	0.282	130	<a href="#">07356</a>	<a href="#">07188</a>
0.0787	2,000 mm		1/8	1-1/2	0.400	0.282	130	<a href="#">07357</a>	<a href="#">07189</a>
0.0807	2,050 mm		1/8	1-1/2	0.400	0.279	130	<a href="#">07358</a>	<a href="#">07190</a>
0.0810	2,057 mm	#46	1/8	1-1/2	0.400	0.279	130	<a href="#">07359</a>	<a href="#">07191</a>
0.0820	2,083 mm	#45	1/8	1-1/2	0.400	0.277	130	<a href="#">07360</a>	<a href="#">07192</a>
0.0827	2,100 mm		1/8	1-1/2	0.400	0.276	130	<a href="#">07361</a>	<a href="#">07193</a>
0.0846	2,150 mm		1/8	1-1/2	0.400	0.273	130	<a href="#">07362</a>	<a href="#">07194</a>
0.0860	2,184 mm	#44	1/8	1-1/2	0.400	0.271	130	<a href="#">07363</a>	<a href="#">07195</a>
0.0866	2,200 mm		1/8	1-1/2	0.400	0.270	130	<a href="#">07364</a>	<a href="#">07196</a>
0.0886	2,250 mm		1/8	1-1/2	0.400	0.267	130	<a href="#">07365</a>	<a href="#">07197</a>
0.0890	2,261 mm	#43	1/8	1-1/2	0.400	0.267	130	<a href="#">07366</a>	<a href="#">07198</a>
0.0906	2,300 mm		1/8	1-1/2	0.400	0.264	130	<a href="#">07367</a>	<a href="#">07199</a>
0.0925	2,350 mm		1/8	1-1/2	0.400	0.261	130	<a href="#">07368</a>	<a href="#">07200</a>
0.0935	2,375 mm	#42	1/8	1-1/2	0.400	0.260	130	<a href="#">07369</a>	<a href="#">07201</a>
0.0938	2,383 mm	3/32	1/8	1-1/2	0.400	0.259	130	<a href="#">07370</a>	<a href="#">07202</a>
0.0945	2,400 mm		1/8	1-1/2	0.400	0.258	130	<a href="#">07371</a>	<a href="#">07203</a>
0.0960	2,438 mm	#41	1/8	1-1/2	0.400	0.256	130	<a href="#">07372</a>	<a href="#">07204</a>
0.0965	2,450 mm		1/8	1-1/2	0.400	0.255	130	<a href="#">07373</a>	<a href="#">07205</a>
0.0980	2,489 mm	#40	1/8	1-1/2	0.400	0.253	130	<a href="#">07374</a>	<a href="#">07206</a>
0.0984	2,500 mm		1/8	1-1/2	0.400	0.252	130	<a href="#">07375</a>	<a href="#">07207</a>

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**TOLERANCES (inch)**

≤.125 DIAMETER

DC = +.0000/-0003

DCON = h6

**TOLERANCES (mm)**

0.1-3.0 DIAMETER

DC = +0.000/-0.008

DCON = h6

STEELS

STAINLESS STEELS

CAST IRON

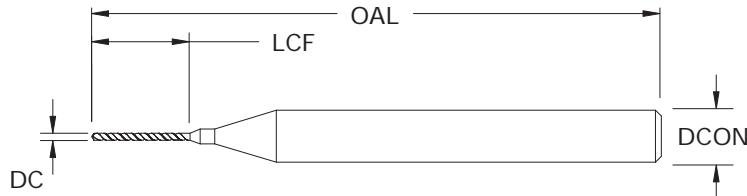
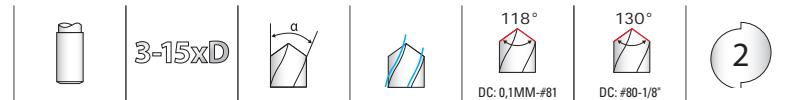
NON-FERROUS

HIGH TEMP ALLOYS

HARDENED STEELS

# 2 Flute External Coolant •

## Standard & Extended Length

**M105**

FRACTIONAL &amp; METRIC SERIES

continued

**TOLERANCES (inch)****≤.125 DIAMETER**

DC = +.0000/-0.0003

DCON = h<sub>6</sub>**TOLERANCES (mm)****0.1-3.0 DIAMETER**

DC = +0.000/-0.008

DCON = h<sub>6</sub>**STEELS****STAINLESS STEELS****CAST IRON****NON-FERROUS****HIGH TEMP ALLOYS****HARDEDEN STEELS**

DECIMAL DC	METRIC DC	FRACTIONAL/ LETTER/WIRE DIAMETER	SHANK DCON	OVERALL LENGTH OAL	FLUTE LENGTH LCF	USABLE LENGTH LU	POINT ANGLE	EDP NO.	
								UNCOATED	TI-NAMITE®-A (AITIN)
0.0995	2,527 mm	#39	1/8	1-1/2	0.400	0.251	130	<a href="#">07376</a>	<a href="#">07208</a>
0.1004	2,550 mm		1/8	1-1/2	0.400	0.249	130	<a href="#">07377</a>	<a href="#">07209</a>
0.1015	2,578 mm	#38	1/8	1-1/2	0.400	0.248	130	<a href="#">07378</a>	<a href="#">07210</a>
0.1024	2,600 mm		1/8	1-1/2	0.400	0.246	130	<a href="#">07379</a>	<a href="#">07211</a>
0.1040	2,642 mm	#37	1/8	1-1/2	0.400	0.244	130	<a href="#">07380</a>	<a href="#">07212</a>
0.1043	2,649 mm		1/8	1-1/2	0.400	0.244	130	<a href="#">07381</a>	<a href="#">07213</a>
0.1063	2,700 mm		1/8	1-1/2	0.400	0.241	130	<a href="#">07382</a>	<a href="#">07214</a>
0.1065	2,705 mm	#36	1/8	1-1/2	0.400	0.240	130	<a href="#">07383</a>	<a href="#">07215</a>
0.1083	2,751 mm		1/8	1-1/2	0.400	0.238	130	<a href="#">07384</a>	<a href="#">07216</a>
0.1094	2,779 mm	7/64	1/8	1-1/2	0.400	0.236	130	<a href="#">07385</a>	<a href="#">07217</a>
0.1100	2,794 mm	#35	1/8	1-1/2	0.400	0.235	130	<a href="#">07386</a>	<a href="#">07218</a>
0.1102	2,800 mm		1/8	1-1/2	0.400	0.235	130	<a href="#">07387</a>	<a href="#">07219</a>
0.1110	2,819 mm	#34	1/8	1-1/2	0.400	0.234	130	<a href="#">07388</a>	<a href="#">07220</a>
0.1122	2,850 mm		1/8	1-1/2	0.400	0.232	130	<a href="#">07389</a>	<a href="#">07221</a>
0.1130	2,870 mm	#33	1/8	1-1/2	0.400	0.231	130	<a href="#">07390</a>	<a href="#">07222</a>
0.1142	2,900 mm		1/8	1-1/2	0.400	0.229	130	<a href="#">07391</a>	<a href="#">07223</a>
0.1160	2,946 mm	#32	1/8	1-1/2	0.400	0.226	130	<a href="#">07392</a>	<a href="#">07224</a>
0.1161	2,949 mm		1/8	1-1/2	0.400	0.226	130	<a href="#">07393</a>	<a href="#">07225</a>
0.1181	3,000 mm		1/8	1-1/2	0.400	0.223	130	<a href="#">07394</a>	<a href="#">07226</a>
0.1200	3,048 mm	#31	1/8	1-1/2	0.400	0.220	130	<a href="#">07395</a>	<a href="#">07227</a>
0.1201	3,051 mm		1/8	1-1/2	0.400	0.220	130	<a href="#">07396</a>	<a href="#">07228</a>
0.1220	3,100 mm		1/8	1-1/2	0.400	0.217	130	<a href="#">07397</a>	<a href="#">07229</a>
0.1240	3,150 mm		1/8	1-1/2	0.400	0.214	130	<a href="#">07398</a>	<a href="#">07230</a>
0.1250	3,175 mm	1/8	1/8	1-1/2	0.400	0.213	130	<a href="#">07399</a>	<a href="#">07231</a>

## FRACTIONAL

## Series M105

Series M105		Hardness	Vc (sfm)	DC • in						
				0.004	0.010	0.020	0.040	0.080	0.125	
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 175 Bhn or ≤ 7 HRc	130 (104-156)	RPM	124150	49660	24830	12415	6208	3973
				Fr	0.00012	0.00029	0.00058	0.00115	0.00230	0.00360
				Feed (ipm)	14.3	14.3	14.3	14.3	14.3	14.3
M	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100	≤ 275 Bhn or ≤ 28 HRc	195 (156-234)	RPM	186225	74490	37245	18623	9311	5959
				Fr	0.00010	0.00026	0.00052	0.00104	0.00208	0.00326
				Feed (ipm)	19.4	19.4	19.4	19.4	19.4	19.4
K	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 Bhn or ≤ 28 HRc	65 (52-78)	RPM	62075	24830	12415	6208	3104	1986
				Fr	0.00009	0.00022	0.00043	0.00087	0.00174	0.00272
				Feed (ipm)	5.4	5.4	5.4	5.4	5.4	5.4
N	STAINLESS STEELS (PH) 13-8 PH, 15-PH, 17-4 PH, CUSTOM 450	≤ 325 Bhn or ≤ 35 HRc	40 (32-48)	RPM	38200	15280	7640	3820	1910	1222
				Fr	0.0001	0.0002	0.00035	0.00071	0.00141	0.00221
				Feed (ipm)	2.7	2.7	2.7	2.7	2.7	2.7
S	CAST IRONS Gray, Malleable, Ductile	≤ 220 Bhn or ≤ 19 HRc	280 (224-336)	RPM	267400	106960	53480	26740	13370	8557
				Fr	0.00007	0.00016	0.00033	0.00065	0.00131	0.00205
				Feed (ipm)	17.5	17.5	17.5	17.5	17.5	17.5
H	ALUMINUM ALLOYS 2017, 2024, 356, 6061, 7075	≤ 150 Bhn or ≤ 7 HRc	245 (196-294)	RPM	233975	93590	46795	23398	11699	7487
				Fr	0.00020	0.00049	0.00099	0.00197	0.00394	0.00616
				Feed (ipm)	46.1	46.1	46.1	46.1	46.1	46.1
T	COPPER ALLOYS Alum Bronze, C110, Muntz Brass	≤ 140 Bhn or ≤ 3 HRc	180 (144-216)	RPM	171900	68760	34380	17190	8595	5501
				Fr	0.00020	0.00049	0.00099	0.00197	0.00394	0.00616
				Feed (ipm)	33.9	33.9	33.9	33.9	33.9	33.9
P	PLASTICS Polycarbonate, PVC		245 (196-294)	RPM	233975	93590	46795	23398	11699	7487
				Fr	0.00020	0.00049	0.00099	0.00197	0.00394	0.00616
				Feed (ipm)	46.1	46.1	46.1	46.1	46.1	46.1
S	HIGH TEMP ALLOYS (NICKEL, COBALT, IRON BASE) Inconel 601, 617, 625, Incoloy 800, Monel 400, Rene, Waspaloy	≤ 320 Bhn or ≤ 34 HRc	50 (40-60)	RPM	47750	19100	9550	4775	2388	1528
				Fr	0.00004	0.00011	0.00022	0.00044	0.00088	0.00137
				Feed (ipm)	2.1	2.1	2.1	2.1	2.1	2.1
T	TITANIUM ALLOYS Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si	≤ 350 Bhn or ≤ 38 HRc	50 (40-60)	RPM	47750	19100	9550	4775	2388	1528
				Fr	0.00005	0.00013	0.00026	0.00052	0.00105	0.00164
				Feed (ipm)	2.5	2.5	2.5	2.5	2.5	2.5
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 475 Bhn or ≤ 50 HRc	80 (64-96)	RPM	76400	30560	15280	7640	3820	2445
				Fr	0.00005	0.00013	0.00026	0.00052	0.00105	0.00164
				Feed (ipm)	4.0	4.0	4.0	4.0	4.0	4.0

## Note:

- Bhn (Brinell)      HRc (Rockwell C)      HRb (Rockwell B)
- rpm = Vc x 3.82 / DC
- ipm = Fr x rpm (Fr x maximum available rpm when recommendation exceeds machine limit)
- reduce speed and feed 30% when using uncoated drills
- reduce speed and feed for materials harder than listed
- refer to the KYOCERA SGS Tool Wizard® for complete technical information ([www.kyocera-sgstool.com](http://www.kyocera-sgstool.com))

METRIC  
**Series M105**

	Series M105	Hardness	Vc (m/min)	DC • mm						
				0.04	0.25	0.5	1	2	3	
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 175 Bhn or ≤ 7 HRc	40 (32-48)	RPM Fr Feed (mm/min)	315060 0.0012 363	50410 0.0072 363	25205 0.0144 363	12602 0.0288 363	6301 0.0576 363	4201 0.0865
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100	≤ 275 Bhn or ≤ 28 HRc	59 (48-71)	RPM Fr Feed (mm/min)	472590 0.0010 493	75614 0.0065 493	37807 0.0130 493	18904 0.0261 493	9452 0.0521 493	6301
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 Bhn or ≤ 28 HRc	20 (16-24)	RPM Fr Feed (mm/min)	157530 0.0009 137	25205 0.0054 137	12602 0.0109 137	6301 0.0218 137	3151 0.0435 137	2100 0.0653
M	STAINLESS STEELS (PH) 13-8 PH, 15-5 PH, 17-4 PH, CUSTOM 450	≤ 325 Bhn or ≤ 35 HRc	12 (10-15)	RPM Fr Feed (mm/min)	96942 0.0007 69	15511 0.0044 69	7755 0.0088 69	3878 0.0177 69	1939 0.0354 69	1293 0.0531
	CAST IRONS Gray, Malleable, Ductile	≤ 220 Bhn or ≤ 19 HRc	85 (68-102)	RPM Fr Feed (mm/min)	678591 0.0007 445	108575 0.0041 445	54287 0.0082 445	27144 0.0164 445	13572 0.0328 445	9048 0.0491
	ALUMINUM ALLOYS 2017, 2024, 356, 6061, 7075	≤ 150 Bhn or ≤ 7 HRc	75 (60-90)	RPM Fr Feed (mm/min)	593768 0.0020 1171	95003 0.0123 1171	47501 0.0247 1171	23751 0.0493 1171	11875 0.0986 1171	7917 0.1479
N	COPPER ALLOYS Alum Bronze, C110, Muntz Brass	≤ 140 Bhn or ≤ 3 HRc	55 (44-66)	RPM Fr Feed (mm/min)	436237 0.0020 861	69798 0.0123 861	34899 0.0247 861	17449 0.0493 861	8725 0.0987 861	5816 0.1480
	PLASTICS Polycarbonate, PVC		75 (60-90)	RPM Fr Feed (mm/min)	593768 0.0020 1171	95003 0.0123 1171	47501 0.0247 1171	23751 0.0493 1171	11875 0.0986 1171	7917 0.1479
	HIGH TEMP ALLOYS (NICKEL, COBALT, IRON BASE) Inconel 601, 617, 625, Incoloy 800, Monel 400, René, Waspaloy	≤ 320 Bhn or ≤ 34 HRc	15 (12-18)	RPM Fr Feed (mm/min)	121177 0.0004 53	19388 0.0028 53	9694 0.0055 53	4847 0.0110 53	2424 0.0220 53	1616 0.0330
S	TITANIUM ALLOYS Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si	≤ 350 Bhn or ≤ 38 HRc	15 (12-18)	RPM Fr Feed (mm/min)	121177 0.0007 82	19388 0.0042 82	9694 0.0085 82	4847 0.0170 82	2424 0.0339 82	1616 0.0509
	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 475 Bhn or ≤ 50 HRc	24 (20-29)	RPM Fr Feed (mm/min)	193883 0.0005 102	31021 0.0033 102	15511 0.0066 102	7755 0.0131 102	3878 0.0262 102	2585 0.0393

**Note:**

- Bhn (Brinell)      HRc (Rockwell C)      HRb (Rockwell B)
- rpm =  $(V_c \times 1000) / (DC \times 3.14)$
- mm/min = Fr x rpm (Fr x maximum available rpm when recommendation exceeds machine limit)
- reduce speed and feed 30% when using uncoated drills
- reduce speed and feed for materials harder than listed
- refer to the KYOCERA SGS Tool Wizard® for complete technical information ([www.kyocera-sgstool.com](http://www.kyocera-sgstool.com))

# 2 Flute External Coolant



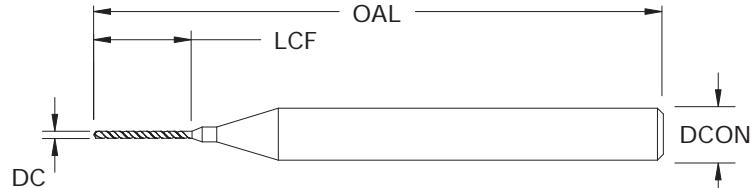
3-12xD



## M226

METRIC SERIES

- 4-facet point design stabilizes on entry for superior hole size control and tool life (>.08mm). 2-facet point on 0,08 and smaller
- Mirror surface finishes improve chip flow as hole depth increases
- Ti-Namite® A coating and uncoated options for the ultimate performance in a variety of ferrous and non-ferrous workpiece materials
- Available from stock in a selection of popular lengths and diameters
- Application specific sub-micron grain carbide designed specifically for micro-tool applications
- Manufactured in accordance with KSPT ISO certified quality procedures

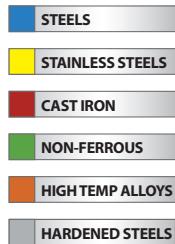


### TOLERANCES (mm)

0,04–3,0 DIAMETER

DC = +0,000/-0,008

DCON = h6



DECIMAL DC	METRIC DC	FRACTIONAL/ LETTER/WIRE DC	SHANK DIAMETER DCON	OVERALL LENGTH OAL	FLUTE LENGTH LCF	USABLE LENGTH LU	POINT ANGLE	EDP NO.	
								UNCOATED	TI-NAMITE®-A (AITIN)
0.0016	0,040 mm		3,0	38,0	0,5	0,4	118	<a href="#">07722</a>	—
0.0018	0,050 mm		3,0	38,0	0,6	0,5	118	<a href="#">07723</a>	—
0.0020	0,050 mm		3,0	38,0	0,8	0,7	118	<a href="#">07724</a>	—
0.0024	0,060 mm		3,0	38,0	0,8	0,7	118	<a href="#">07725</a>	—
0.0028	0,070 mm		3,0	38,0	1,3	1,2	118	<a href="#">07726</a>	—
0.0031	0,080 mm		3,0	38,0	1,3	1,2	118	<a href="#">07727</a>	—
0.0035	0,090 mm		3,0	38,0	1,3	1,2	118	<a href="#">07728</a>	—
0.0039	0,100 mm		3,0	38,0	1,0	0,9	118	<a href="#">07729</a>	—
0.0043	0,110 mm		3,0	38,0	1,0	0,8	118	<a href="#">07730</a>	—
0.0047	0,120 mm		3,0	38,0	1,0	0,8	118	<a href="#">07731</a>	—
0.0051	0,130 mm		3,0	38,0	1,0	0,8	118	<a href="#">07732</a>	—
0.0055	0,140 mm		3,0	38,0	1,0	0,8	118	<a href="#">07733</a>	—
0.0059	0,150 mm	#97	3,0	38,0	2,0	1,8	118	<a href="#">07734</a>	—
0.0063	0,160 mm	#96	3,0	38,0	2,0	1,8	118	<a href="#">07735</a>	—
0.0067	0,170 mm	#95	3,0	38,0	2,0	1,7	118	<a href="#">07736</a>	—
0.0071	0,180 mm	#94	3,0	38,0	2,5	2,2	118	<a href="#">07737</a>	—
0.0075	0,190 mm	#93	3,0	38,0	2,5	2,2	118	<a href="#">07738</a>	—
0.0079	0,200 mm	#92	3,0	38,0	2,5	2,2	118	<a href="#">07739</a>	—
0.0083	0,210 mm	#91	3,0	38,0	2,5	2,2	118	<a href="#">07740</a>	—
0.0087	0,220 mm	#90	3,0	38,0	2,5	2,2	118	<a href="#">07741</a>	—
0.0091	0,230 mm	#89	3,0	38,0	3,8	3,5	118	<a href="#">07742</a>	—
0.0094	0,240 mm		3,0	38,0	3,8	3,4	118	<a href="#">07743</a>	—
0.0098	0,250 mm		3,0	38,0	3,8	3,4	118	<a href="#">07744</a>	<a href="#">07400</a>
0.0102	0,260 mm		3,0	38,0	3,8	3,4	118	<a href="#">07745</a>	<a href="#">07401</a>
0.0106	0,270 mm		3,0	38,0	3,8	3,4	118	<a href="#">07746</a>	<a href="#">07402</a>
0.0110	0,280 mm	#85	3,0	38,0	3,8	3,4	118	<a href="#">07747</a>	<a href="#">07403</a>
0.0114	0,290 mm		3,0	38,0	3,8	3,4	118	<a href="#">07748</a>	<a href="#">07404</a>
0.0118	0,300 mm		3,0	38,0	5,7	5,3	118	<a href="#">07749</a>	<a href="#">07405</a>
0.0122	0,310 mm		3,0	38,0	5,7	5,2	118	<a href="#">07750</a>	<a href="#">07406</a>
0.0126	0,320 mm		3,0	38,0	5,7	5,2	118	<a href="#">07751</a>	<a href="#">07407</a>
0.0130	0,330 mm	#81	3,0	38,0	5,7	5,2	118	<a href="#">07752</a>	<a href="#">07408</a>
0.0134	0,340 mm		3,0	38,0	5,7	5,2	118	<a href="#">07753</a>	<a href="#">07409</a>
0.0138	0,350 mm		3,0	38,0	5,7	5,2	130	<a href="#">07754</a>	<a href="#">07410</a>
0.0142	0,360 mm		3,0	38,0	5,7	5,2	130	<a href="#">07755</a>	<a href="#">07411</a>
0.0146	0,370 mm		3,0	38,0	5,7	5,1	130	<a href="#">07756</a>	<a href="#">07412</a>
0.0150	0,380 mm		3,0	38,0	6,4	5,8	130	<a href="#">07757</a>	<a href="#">07413</a>

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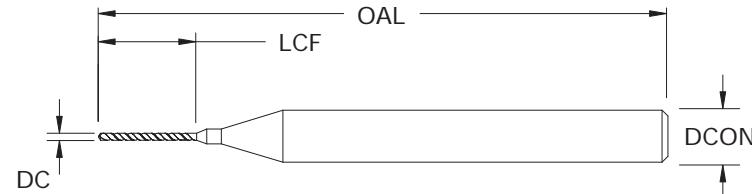
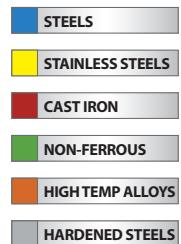
## 2 Flute External Coolant



## TOLERANCES (mm)

0,04–3,0 DIAMETER

DC = +0,000/-0,008

DCON = h<sub>6</sub>M226  
METRIC SERIES

continued

DECIMAL DC	METRIC DC	FRACTIONAL/ LETTER/WIRE DC	SHANK DIAMETER DCON	OVERALL LENGTH OAL	FLUTE LENGTH LCF	USABLE LENGTH LU	POINT ANGLE	EDP NO.	
								UNCOATED	TI-NAMITE®-A (AITIn)
0.0154	0,390 mm		3,0	38,0	6,4	5,8	130	<a href="#">07758</a>	<a href="#">07414</a>
0.0157	0,400 mm		3,0	38,0	6,4	5,8	130	<a href="#">07759</a>	<a href="#">07415</a>
0.0161	0,410 mm		3,0	38,0	6,4	5,8	130	<a href="#">07760</a>	<a href="#">07416</a>
0.0165	0,420 mm		3,0	38,0	6,4	5,8	130	<a href="#">07761</a>	<a href="#">07417</a>
0.0169	0,430 mm		3,0	38,0	6,4	5,8	130	<a href="#">07762</a>	<a href="#">07418</a>
0.0173	0,440 mm		3,0	38,0	6,4	5,7	130	<a href="#">07763</a>	<a href="#">07419</a>
0.0177	0,450 mm		3,0	38,0	6,4	5,7	130	<a href="#">07764</a>	<a href="#">07420</a>
0.0181	0,460 mm		3,0	38,0	6,4	5,7	130	<a href="#">07765</a>	<a href="#">07421</a>
0.0185	0,470 mm		3,0	38,0	6,4	5,7	130	<a href="#">07766</a>	<a href="#">07422</a>
0.0189	0,480 mm		3,0	38,0	6,6	5,9	130	<a href="#">07767</a>	<a href="#">07423</a>
0.0193	0,490 mm		3,0	38,0	6,6	5,9	130	<a href="#">07768</a>	<a href="#">07424</a>
0.0197	0,500 mm		3,0	38,0	6,6	5,9	130	<a href="#">07769</a>	<a href="#">07425</a>
0.0201	0,510 mm		3,0	38,0	6,6	5,8	130	<a href="#">07770</a>	<a href="#">07426</a>
0.0205	0,520 mm		3,0	38,0	6,6	5,8	130	<a href="#">07771</a>	<a href="#">07427</a>
0.0209	0,530 mm		3,0	38,0	6,6	5,8	130	<a href="#">07772</a>	<a href="#">07428</a>
0.0213	0,540 mm		3,0	38,0	6,6	5,8	130	<a href="#">07773</a>	<a href="#">07429</a>
0.0217	0,550 mm		3,0	38,0	8,6	7,8	130	<a href="#">07774</a>	<a href="#">07430</a>
0.0220	0,560 mm		3,0	38,0	8,6	7,8	130	<a href="#">07775</a>	<a href="#">07431</a>
0.0224	0,570 mm		3,0	38,0	8,6	7,7	130	<a href="#">07776</a>	<a href="#">07432</a>
0.0228	0,580 mm		3,0	38,0	8,6	7,7	130	<a href="#">07777</a>	<a href="#">07433</a>
0.0232	0,590 mm		3,0	38,0	8,6	7,7	130	<a href="#">07778</a>	<a href="#">07434</a>
0.0236	0,600 mm		3,0	38,0	8,6	7,7	130	<a href="#">07779</a>	<a href="#">07435</a>
0.0240	0,610 mm	#73	3,0	38,0	8,6	7,7	130	<a href="#">07780</a>	<a href="#">07436</a>
0.0244	0,620 mm		3,0	38,0	8,6	7,7	130	<a href="#">07781</a>	<a href="#">07437</a>
0.0248	0,630 mm		3,0	38,0	8,6	7,7	130	<a href="#">07782</a>	<a href="#">07438</a>
0.0252	0,640 mm		3,0	38,0	8,6	7,6	130	<a href="#">07783</a>	<a href="#">07439</a>
0.0256	0,650 mm		3,0	38,0	8,6	7,6	130	<a href="#">07784</a>	<a href="#">07440</a>
0.0260	0,660 mm	#71	3,0	38,0	8,6	7,6	130	<a href="#">07785</a>	<a href="#">07441</a>
0.0264	0,670 mm		3,0	38,0	8,6	7,6	130	<a href="#">07786</a>	<a href="#">07442</a>
0.0268	0,680 mm		3,0	38,0	8,6	7,6	130	<a href="#">07787</a>	<a href="#">07443</a>
0.0272	0,690 mm		3,0	38,0	8,6	7,6	130	<a href="#">07788</a>	<a href="#">07444</a>
0.0276	0,700 mm		3,0	38,0	10,2	9,2	130	<a href="#">07789</a>	<a href="#">07445</a>
0.0280	0,710 mm	#70	3,0	38,0	10,2	9,1	130	<a href="#">07790</a>	<a href="#">07446</a>
0.0283	0,720 mm		3,0	38,0	10,2	9,1	130	<a href="#">07791</a>	<a href="#">07447</a>
0.0287	0,730 mm		3,0	38,0	10,2	9,1	130	<a href="#">07792</a>	<a href="#">07448</a>
0.0291	0,740 mm		3,0	38,0	10,2	9,1	130	<a href="#">07793</a>	<a href="#">07449</a>

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METRIC

# 2 Flute External Coolant



3-12xD



DC: 0,04MM-0,34MM

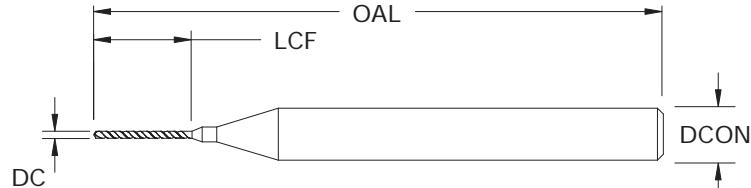


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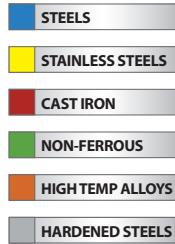
**M226**  
METRIC SERIES

continued

**TOLERANCES (mm)****0,04–3,0 DIAMETER**

DC = +0,000/-0,008

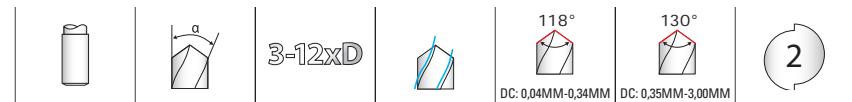
DCON = h6



DECIMAL DC	METRIC DC	FRACTIONAL/ LETTER/WIRE DC	SHANK DCON	OVERALL LENGTH OAL	FLUTE LENGTH LCF	USABLE LENGTH LU	POINT ANGLE	EDP NO.	
								UNCOATED	TI-NAMITE®-A (AITIN)
0,0295	0,750 mm		3,0	38,0	10,2	9,1	130	<a href="#">07794</a>	<a href="#">07450</a>
0,0295	0,750 mm		3,0	50,0	11,0	9,9	130	<a href="#">07795</a>	<a href="#">07451</a>
0,0299	0,760 mm		3,0	38,0	10,2	9,1	130	<a href="#">07796</a>	<a href="#">07452</a>
0,0303	0,770 mm		3,0	38,0	10,2	9,0	130	<a href="#">07797</a>	<a href="#">07453</a>
0,0307	0,780 mm		3,0	38,0	10,2	9,0	130	<a href="#">07798</a>	<a href="#">07454</a>
0,0311	0,790 mm		3,0	38,0	10,2	9,0	130	<a href="#">07799</a>	<a href="#">07455</a>
0,0315	0,800 mm		3,0	38,0	10,2	9,0	130	<a href="#">07800</a>	<a href="#">07456</a>
0,0315	0,800 mm		3,0	50,0	11,0	9,8	130	<a href="#">07801</a>	<a href="#">07457</a>
0,0319	0,810 mm		3,0	38,0	10,2	9,0	130	<a href="#">07802</a>	<a href="#">07458</a>
0,0323	0,820 mm		3,0	38,0	10,2	9,0	130	<a href="#">07803</a>	<a href="#">07459</a>
0,0327	0,830 mm		3,0	38,0	10,2	9,0	130	<a href="#">07804</a>	<a href="#">07460</a>
0,0331	0,840 mm		3,0	38,0	10,2	8,9	130	<a href="#">07805</a>	<a href="#">07461</a>
0,0335	0,850 mm		3,0	38,0	10,2	8,9	130	<a href="#">07806</a>	<a href="#">07462</a>
0,0335	0,850 mm		3,0	50,0	13,0	11,7	130	<a href="#">07807</a>	<a href="#">07463</a>
0,0339	0,860 mm		3,0	38,0	10,2	8,9	130	<a href="#">07808</a>	<a href="#">07464</a>
0,0343	0,870 mm		3,0	38,0	10,2	8,9	130	<a href="#">07809</a>	<a href="#">07465</a>
0,0346	0,880 mm		3,0	38,0	10,2	8,9	130	<a href="#">07810</a>	<a href="#">07466</a>
0,0350	0,890 mm	#65	3,0	38,0	10,2	8,9	130	<a href="#">07811</a>	<a href="#">07467</a>
0,0354	0,900 mm		3,0	38,0	10,2	8,9	130	<a href="#">07812</a>	<a href="#">07468</a>
0,0354	0,900 mm		3,0	50,0	13,0	11,7	130	<a href="#">07813</a>	<a href="#">07469</a>
0,0358	0,910 mm		3,0	38,0	10,2	8,8	130	<a href="#">07814</a>	<a href="#">07470</a>
0,0362	0,920 mm		3,0	38,0	10,2	8,8	130	<a href="#">07815</a>	<a href="#">07471</a>
0,0366	0,930 mm		3,0	38,0	10,2	8,8	130	<a href="#">07816</a>	<a href="#">07472</a>
0,0370	0,940 mm	#63	3,0	38,0	10,2	8,8	130	<a href="#">07817</a>	<a href="#">07473</a>
0,0374	0,950 mm		3,0	38,0	10,2	8,8	130	<a href="#">07818</a>	<a href="#">07474</a>
0,0374	0,950 mm		3,0	50,0	15,0	13,6	130	<a href="#">07819</a>	<a href="#">07475</a>
0,0378	0,960 mm		3,0	38,0	10,2	8,8	130	<a href="#">07820</a>	<a href="#">07476</a>
0,0382	0,970 mm		3,0	38,0	10,2	8,7	130	<a href="#">07821</a>	<a href="#">07477</a>
0,0386	0,980 mm		3,0	38,0	10,2	8,7	130	<a href="#">07822</a>	<a href="#">07478</a>
0,0390	0,990 mm	#61	3,0	38,0	10,2	8,7	130	<a href="#">07823</a>	<a href="#">07479</a>
0,0394	1,000 mm		3,0	38,0	10,2	8,7	130	<a href="#">07824</a>	<a href="#">07480</a>
0,0394	1,000 mm		3,0	50,0	15,0	13,5	130	<a href="#">07825</a>	<a href="#">07481</a>
0,0398	1,010 mm		3,0	38,0	10,2	8,7	130	<a href="#">07826</a>	<a href="#">07482</a>
0,0402	1,020 mm		3,0	38,0	10,2	8,7	130	<a href="#">07827</a>	<a href="#">07483</a>
0,0406	1,030 mm		3,0	38,0	10,2	8,7	130	<a href="#">07828</a>	<a href="#">07484</a>
0,0409	1,040 mm		3,0	38,0	10,2	8,6	130	<a href="#">07829</a>	<a href="#">07485</a>

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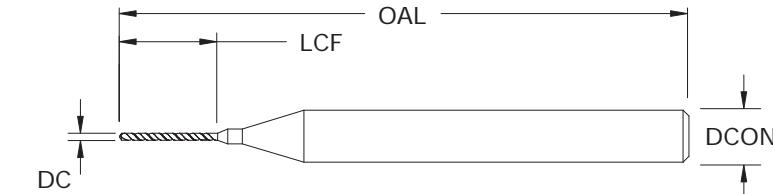
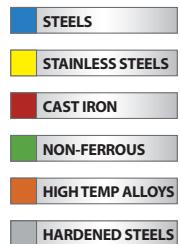
## 2 Flute External Coolant



## TOLERANCES (mm)

0,04–3,0 DIAMETER

DC = +0,000/-0,008

DCON = h<sub>6</sub>M226  
METRIC SERIES

continued

DECIMAL DC	METRIC DC	FRACTIONAL/ LETTER/WIRE DC	SHANK DIAMETER DCON	OVERALL LENGTH OAL	FLUTE LENGTH LCF	USABLE LENGTH LU	POINT ANGLE	EDP NO.	
								UNCOATED	TI-NAMITE®-A (AlTiN)
0.0413	1,050 mm		3,0	38,0	10,2	8,6	130	<a href="#">07830</a>	<a href="#">07486</a>
0.0413	1,050 mm		3,0	50,0	17,0	15,4	130	<a href="#">07831</a>	<a href="#">07487</a>
0.0417	1,060 mm		3,0	38,0	10,2	8,6	130	<a href="#">07832</a>	<a href="#">07488</a>
0.0421	1,070 mm		3,0	38,0	10,2	8,6	130	<a href="#">07833</a>	<a href="#">07489</a>
0.0425	1,080 mm		3,0	38,0	10,2	8,6	130	<a href="#">07834</a>	<a href="#">07490</a>
0.0429	1,090 mm		3,0	38,0	10,2	8,6	130	<a href="#">07835</a>	<a href="#">07491</a>
0.0433	1,100 mm		3,0	38,0	10,2	8,6	130	<a href="#">07836</a>	<a href="#">07492</a>
0.0433	1,100 mm		3,0	50,0	17,0	15,4	130	<a href="#">07837</a>	<a href="#">07493</a>
0.0437	1,110 mm		3,0	38,0	10,2	8,5	130	<a href="#">07838</a>	<a href="#">07494</a>
0.0441	1,120 mm		3,0	38,0	10,2	8,5	130	<a href="#">07839</a>	<a href="#">07495</a>
0.0445	1,130 mm		3,0	38,0	10,2	8,5	130	<a href="#">07840</a>	<a href="#">07496</a>
0.0449	1,140 mm		3,0	38,0	10,2	8,5	130	<a href="#">07841</a>	<a href="#">07497</a>
0.0453	1,150 mm		3,0	38,0	10,2	8,5	130	<a href="#">07842</a>	<a href="#">07498</a>
0.0453	1,150 mm		3,0	50,0	17,0	15,3	130	<a href="#">07843</a>	<a href="#">07499</a>
0.0457	1,160 mm		3,0	38,0	10,2	8,5	130	<a href="#">07844</a>	<a href="#">07500</a>
0.0461	1,170 mm		3,0	38,0	10,2	8,4	130	<a href="#">07845</a>	<a href="#">07501</a>
0.0465	1,180 mm	#56	3,0	38,0	10,2	8,4	130	<a href="#">07846</a>	<a href="#">07502</a>
0.0469	1,190 mm	3/64	3,0	38,0	10,2	8,4	130	<a href="#">07847</a>	<a href="#">07503</a>
0.0472	1,200 mm		3,0	38,0	10,2	8,4	130	<a href="#">07848</a>	<a href="#">07504</a>
0.0472	1,200 mm		3,0	50,0	17,0	15,2	130	<a href="#">07849</a>	<a href="#">07505</a>
0.0476	1,210 mm		3,0	38,0	10,2	8,4	130	<a href="#">07850</a>	<a href="#">07506</a>
0.0480	1,220 mm		3,0	38,0	10,2	8,4	130	<a href="#">07851</a>	<a href="#">07507</a>
0.0484	1,230 mm		3,0	38,0	10,2	8,4	130	<a href="#">07852</a>	<a href="#">07508</a>
0.0488	1,240 mm		3,0	38,0	10,2	8,3	130	<a href="#">07853</a>	<a href="#">07509</a>
0.0492	1,250 mm		3,0	38,0	10,2	8,3	130	<a href="#">07854</a>	<a href="#">07510</a>
0.0492	1,250 mm		3,0	50,0	19,0	17,1	130	<a href="#">07855</a>	<a href="#">07511</a>
0.0496	1,260 mm		3,0	38,0	10,2	8,3	130	<a href="#">07856</a>	<a href="#">07512</a>
0.0500	1,270 mm		3,0	38,0	10,2	8,3	130	<a href="#">07857</a>	<a href="#">07513</a>
0.0504	1,280 mm		3,0	38,0	10,2	8,3	130	<a href="#">07858</a>	<a href="#">07514</a>
0.0508	1,290 mm		3,0	38,0	10,2	8,3	130	<a href="#">07859</a>	<a href="#">07515</a>
0.0512	1,300 mm		3,0	38,0	10,2	8,3	130	<a href="#">07860</a>	<a href="#">07516</a>
0.0512	1,300 mm		3,0	50,0	19,0	17,1	130	<a href="#">07861</a>	<a href="#">07517</a>
0.0516	1,310 mm		3,0	38,0	10,2	8,2	130	<a href="#">07862</a>	<a href="#">07518</a>
0.0520	1,320 mm		3,0	38,0	10,2	8,2	130	<a href="#">07863</a>	<a href="#">07519</a>
0.0524	1,330 mm		3,0	38,0	10,2	8,2	130	<a href="#">07864</a>	<a href="#">07520</a>
0.0528	1,340 mm		3,0	38,0	10,2	8,2	130	<a href="#">07865</a>	<a href="#">07521</a>

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METRIC

# 2 Flute External Coolant



3-12xD



DC: 0,04MM-0,34MM

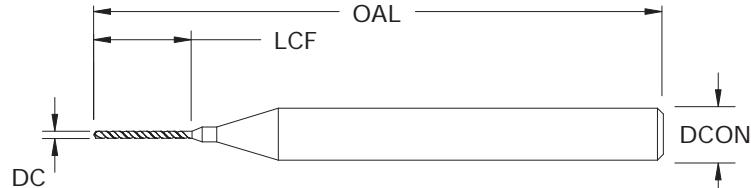


DC: 0,35MM-3,00MM



**M226**  
METRIC SERIES

continued

**TOLERANCES (mm)****0,04-3,0 DIAMETER**

DC = +0,000/-0,008

DCON = h6

STEELS

STAINLESS STEELS

CAST IRON

NON-FERROUS

HIGH TEMP ALLOYS

HARDENED STEELS

DECIMAL DC	METRIC DC	FRACTIONAL/ LETTER/WIRE DC	SHANK DCON	OVERALL LENGTH OAL	FLUTE LENGTH LCF	USABLE LENGTH LU	POINT ANGLE	EDP NO.	
								UNCOATED	TI-NAMITE®-A (AITIN)
0.0531	1,350 mm		3,0	38,0	10,2	8,2	130	<a href="#">07866</a>	<a href="#">07522</a>
0.0531	1,350 mm		3,0	50,0	19,0	17,0	130	<a href="#">07867</a>	<a href="#">07523</a>
0.0535	1,360 mm		3,0	38,0	10,2	8,2	130	<a href="#">07868</a>	<a href="#">07524</a>
0.0539	1,370 mm		3,0	38,0	10,2	8,1	130	<a href="#">07869</a>	<a href="#">07525</a>
0.0543	1,380 mm		3,0	38,0	10,2	8,1	130	<a href="#">07870</a>	<a href="#">07526</a>
0.0547	1,390 mm		3,0	38,0	10,2	8,1	130	<a href="#">07871</a>	<a href="#">07527</a>
0.0551	1,400 mm		3,0	38,0	10,2	8,1	130	<a href="#">07872</a>	<a href="#">07528</a>
0.0551	1,400 mm		3,0	50,0	19,0	16,9	130	<a href="#">07873</a>	<a href="#">07529</a>
0.0555	1,410 mm		3,0	38,0	10,2	8,1	130	<a href="#">07874</a>	<a href="#">07530</a>
0.0559	1,420 mm		3,0	38,0	10,2	8,1	130	<a href="#">07875</a>	<a href="#">07531</a>
0.0563	1,430 mm		3,0	38,0	10,2	8,1	130	<a href="#">07876</a>	<a href="#">07532</a>
0.0567	1,440 mm		3,0	38,0	10,2	8,0	130	<a href="#">07877</a>	<a href="#">07533</a>
0.0571	1,450 mm		3,0	38,0	10,2	8,0	130	<a href="#">07878</a>	<a href="#">07534</a>
0.0571	1,450 mm		3,0	50,0	20,0	17,8	130	<a href="#">07879</a>	<a href="#">07535</a>
0.0575	1,460 mm		3,0	38,0	10,2	8,0	130	<a href="#">07880</a>	<a href="#">07536</a>
0.0579	1,470 mm		3,0	38,0	10,2	8,0	130	<a href="#">07881</a>	<a href="#">07537</a>
0.0583	1,480 mm		3,0	38,0	10,2	8,0	130	<a href="#">07882</a>	<a href="#">07538</a>
0.0587	1,490 mm		3,0	38,0	10,2	8,0	130	<a href="#">07883</a>	<a href="#">07539</a>
0.0591	1,500 mm		3,0	38,0	10,2	8,0	130	<a href="#">07884</a>	<a href="#">07540</a>
0.0591	1,500 mm		3,0	50,0	20,0	17,8	130	<a href="#">07885</a>	<a href="#">07541</a>
0.0594	1,510 mm		3,0	38,0	10,2	7,9	130	<a href="#">07886</a>	<a href="#">07542</a>
0.0598	1,520 mm		3,0	38,0	10,2	7,9	130	<a href="#">07887</a>	<a href="#">07543</a>
0.0602	1,530 mm		3,0	38,0	10,2	7,9	130	<a href="#">07888</a>	<a href="#">07544</a>
0.0606	1,540 mm		3,0	38,0	10,2	7,9	130	<a href="#">07889</a>	<a href="#">07545</a>
0.0610	1,550 mm		3,0	38,0	10,2	7,9	130	<a href="#">07890</a>	<a href="#">07546</a>
0.0610	1,550 mm		3,0	50,0	20,0	17,7	130	<a href="#">07891</a>	<a href="#">07547</a>
0.0614	1,560 mm		3,0	38,0	10,2	7,9	130	<a href="#">07892</a>	<a href="#">07548</a>
0.0618	1,570 mm		3,0	38,0	10,2	7,8	130	<a href="#">07893</a>	<a href="#">07549</a>
0.0622	1,580 mm		3,0	38,0	10,2	7,8	130	<a href="#">07894</a>	<a href="#">07550</a>
0.0626	1,590 mm		3,0	38,0	10,2	7,8	130	<a href="#">07895</a>	<a href="#">07551</a>
0.0630	1,600 mm		3,0	38,0	10,2	7,8	130	<a href="#">07896</a>	<a href="#">07552</a>
0.0630	1,600 mm		3,0	50,0	20,0	17,6	130	<a href="#">07897</a>	<a href="#">07553</a>
0.0634	1,610 mm		3,0	38,0	10,2	7,8	130	<a href="#">07898</a>	<a href="#">07554</a>
0.0638	1,620 mm		3,0	38,0	10,2	7,8	130	<a href="#">07899</a>	<a href="#">07555</a>
0.0642	1,630 mm		3,0	38,0	10,2	7,8	130	<a href="#">07900</a>	<a href="#">07556</a>
0.0646	1,640 mm		3,0	38,0	10,2	7,7	130	<a href="#">07901</a>	<a href="#">07557</a>

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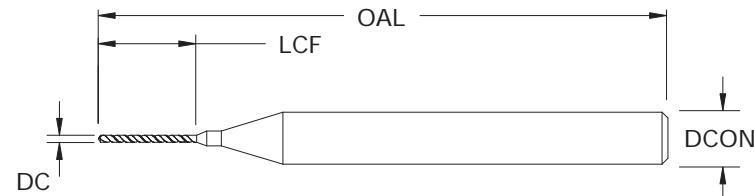
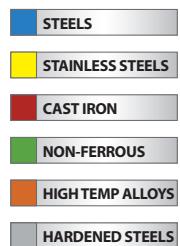
## 2 Flute External Coolant



## TOLERANCES (mm)

0.04–3.0 DIAMETER

DC = +0.000/-0.008

DCON = h<sub>6</sub>M226  
METRIC SERIES

continued

DECIMAL DC	METRIC DC	FRACTIONAL/ LETTER/WIRE DC	SHANK DIAMETER DCON	OVERALL LENGTH OAL	FLUTE LENGTH LCF	USABLE LENGTH LU	POINT ANGLE	EDP NO.	
								UNCOATED	TI-NAMITE®-A (AITIN)
0.0650	1,650 mm		3,0	38,0	10,2	7,7	130	<a href="#">07902</a>	<a href="#">07558</a>
0.0650	1,650 mm		3,0	50,0	20,0	17,5	130	<a href="#">07903</a>	<a href="#">07559</a>
0.0654	1,660 mm		3,0	38,0	10,2	7,7	130	<a href="#">07904</a>	<a href="#">07560</a>
0.0657	1,670 mm		3,0	38,0	10,2	7,7	130	<a href="#">07905</a>	<a href="#">07561</a>
0.0661	1,680 mm		3,0	38,0	10,2	7,7	130	<a href="#">07906</a>	<a href="#">07562</a>
0.0665	1,690 mm		3,0	38,0	10,2	7,7	130	<a href="#">07907</a>	<a href="#">07563</a>
0.0669	1,700 mm		3,0	38,0	10,2	7,7	130	<a href="#">07908</a>	<a href="#">07564</a>
0.0669	1,700 mm		3,0	50,0	20,0	17,5	130	<a href="#">07909</a>	<a href="#">07565</a>
0.0673	1,710 mm		3,0	38,0	10,2	7,6	130	<a href="#">07910</a>	<a href="#">07566</a>
0.0677	1,720 mm		3,0	38,0	10,2	7,6	130	<a href="#">07911</a>	<a href="#">07567</a>
0.0681	1,730 mm		3,0	38,0	10,2	7,6	130	<a href="#">07912</a>	<a href="#">07568</a>
0.0685	1,740 mm		3,0	38,0	10,2	7,6	130	<a href="#">07913</a>	<a href="#">07569</a>
0.0689	1,750 mm		3,0	38,0	10,2	7,6	130	<a href="#">07914</a>	<a href="#">07570</a>
0.0689	1,750 mm		3,0	50,0	20,0	17,4	130	<a href="#">07915</a>	<a href="#">07571</a>
0.0693	1,760 mm		3,0	38,0	10,2	7,6	130	<a href="#">07916</a>	<a href="#">07572</a>
0.0697	1,770 mm		3,0	38,0	10,2	7,5	130	<a href="#">07917</a>	<a href="#">07573</a>
0.0701	1,780 mm		3,0	38,0	10,2	7,5	130	<a href="#">07918</a>	<a href="#">07574</a>
0.0705	1,790 mm		3,0	38,0	10,2	7,5	130	<a href="#">07919</a>	<a href="#">07575</a>
0.0709	1,800 mm		3,0	38,0	10,2	7,5	130	<a href="#">07920</a>	<a href="#">07576</a>
0.0709	1,800 mm		3,0	50,0	20,0	17,3	130	<a href="#">07921</a>	<a href="#">07577</a>
0.0713	1,810 mm		3,0	38,0	10,2	7,5	130	<a href="#">07922</a>	<a href="#">07578</a>
0.0717	1,820 mm		3,0	38,0	10,2	7,5	130	<a href="#">07923</a>	<a href="#">07579</a>
0.0720	1,830 mm		3,0	38,0	10,2	7,5	130	<a href="#">07924</a>	<a href="#">07580</a>
0.0724	1,840 mm		3,0	38,0	10,2	7,4	130	<a href="#">07925</a>	<a href="#">07581</a>
0.0728	1,850 mm		3,0	38,0	10,2	7,4	130	<a href="#">07926</a>	<a href="#">07582</a>
0.0728	1,850 mm		3,0	60,0	22,8	20,0	130	<a href="#">07927</a>	<a href="#">07583</a>
0.0732	1,860 mm		3,0	38,0	10,2	7,4	130	<a href="#">07928</a>	<a href="#">07584</a>
0.0736	1,870 mm		3,0	38,0	10,2	7,4	130	<a href="#">07929</a>	<a href="#">07585</a>
0.0740	1,880 mm		3,0	38,0	10,2	7,4	130	<a href="#">07930</a>	<a href="#">07586</a>
0.0744	1,890 mm		3,0	38,0	10,2	7,4	130	<a href="#">07931</a>	<a href="#">07587</a>
0.0748	1,900 mm		3,0	38,0	10,2	7,4	130	<a href="#">07932</a>	<a href="#">07588</a>
0.0748	1,900 mm		3,0	60,0	22,8	20,0	130	<a href="#">07933</a>	<a href="#">07589</a>
0.0752	1,910 mm		3,0	38,0	10,2	7,3	130	<a href="#">07934</a>	<a href="#">07590</a>
0.0756	1,920 mm		3,0	38,0	10,2	7,3	130	<a href="#">07935</a>	<a href="#">07591</a>
0.0760	1,930 mm	#48	3,0	38,0	10,2	7,3	130	<a href="#">07936</a>	<a href="#">07592</a>
0.0764	1,940 mm		3,0	38,0	10,2	7,3	130	<a href="#">07937</a>	<a href="#">07593</a>

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## 2 Flute External Coolant



3-12xD



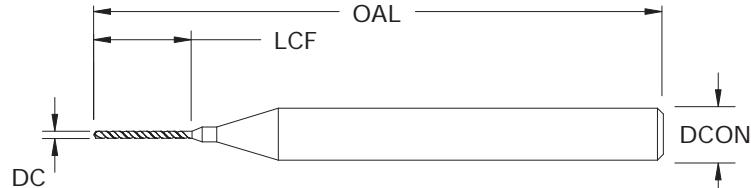
DC: 0,04MM-0,34MM



DC: 0,35MM-3,00MM


**M226**  
 METRIC SERIES

continued



## TOLERANCES (mm)

0,04-3,0 DIAMETER

DC = +0,000/-0,008

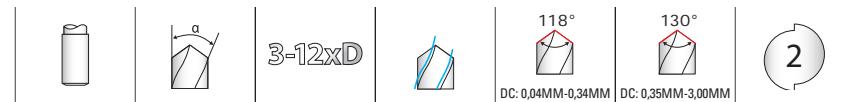
DCON = h6



DECIMAL DC	METRIC DC	FRACTIONAL/ LETTER/WIRE DC	SHANK DIAMETER DCON	OVERALL LENGTH OAL	FLUTE LENGTH LCF	USABLE LENGTH LU	POINT ANGLE	EDP NO.	
								UNCOATED	TI-NAMITE®-A (AITIN)
0.0768	1,950 mm		3,0	38,0	10,2	7,3	130	<a href="#">07938</a>	<a href="#">07594</a>
0.0768	1,950 mm		3,0	60,0	24,0	21,1	130	<a href="#">07939</a>	<a href="#">07595</a>
0.0772	1,960 mm		3,0	38,0	10,2	7,3	130	<a href="#">07940</a>	<a href="#">07596</a>
0.0776	1,970 mm		3,0	38,0	10,2	7,2	130	<a href="#">07941</a>	<a href="#">07597</a>
0.0780	1,980 mm		3,0	38,0	10,2	7,2	130	<a href="#">07942</a>	<a href="#">07598</a>
0.0783	1,990 mm		3,0	38,0	10,2	7,2	130	<a href="#">07943</a>	<a href="#">07599</a>
0.0787	2,000 mm		3,0	38,0	10,2	7,2	130	<a href="#">07944</a>	<a href="#">07600</a>
0.0787	2,000 mm		3,0	60,0	24,0	21,0	130	<a href="#">07945</a>	<a href="#">07601</a>
0.0791	2,010 mm		3,0	38,0	10,2	7,2	130	<a href="#">07946</a>	<a href="#">07602</a>
0.0795	2,020 mm		3,0	38,0	10,2	7,2	130	<a href="#">07947</a>	<a href="#">07603</a>
0.0799	2,030 mm		3,0	38,0	10,2	7,2	130	<a href="#">07948</a>	<a href="#">07604</a>
0.0803	2,040 mm		3,0	38,0	10,2	7,1	130	<a href="#">07949</a>	<a href="#">07605</a>
0.0807	2,050 mm		3,0	38,0	10,2	7,1	130	<a href="#">07950</a>	<a href="#">07606</a>
0.0807	2,050 mm		3,0	60,0	25,2	22,1	130	<a href="#">07951</a>	<a href="#">07607</a>
0.0811	2,060 mm		3,0	38,0	10,2	7,1	130	<a href="#">07952</a>	<a href="#">07608</a>
0.0815	2,070 mm		3,0	38,0	10,2	7,1	130	<a href="#">07953</a>	<a href="#">07609</a>
0.0819	2,080 mm		3,0	38,0	10,2	7,1	130	<a href="#">07954</a>	<a href="#">07610</a>
0.0823	2,090 mm		3,0	38,0	10,2	7,1	130	<a href="#">07955</a>	<a href="#">07611</a>
0.0827	2,100 mm		3,0	38,0	10,2	7,1	130	<a href="#">07956</a>	<a href="#">07612</a>
0.0827	2,100 mm		3,0	60,0	25,2	22,1	130	<a href="#">07957</a>	<a href="#">07613</a>
0.0831	2,110 mm		3,0	38,0	10,2	7,0	130	<a href="#">07958</a>	<a href="#">07614</a>
0.0835	2,120 mm		3,0	38,0	10,2	7,0	130	<a href="#">07959</a>	<a href="#">07615</a>
0.0839	2,130 mm		3,0	38,0	10,2	7,0	130	<a href="#">07960</a>	<a href="#">07616</a>
0.0843	2,140 mm		3,0	38,0	10,2	7,0	130	<a href="#">07961</a>	<a href="#">07617</a>
0.0846	2,150 mm		3,0	38,0	10,2	7,0	130	<a href="#">07962</a>	<a href="#">07618</a>
0.0846	2,150 mm		3,0	60,0	26,4	23,2	130	<a href="#">07963</a>	<a href="#">07619</a>
0.0850	2,160 mm		3,0	38,0	10,2	7,0	130	<a href="#">07964</a>	<a href="#">07620</a>
0.0854	2,170 mm		3,0	38,0	10,2	6,9	130	<a href="#">07965</a>	<a href="#">07621</a>
0.0858	2,180 mm		3,0	38,0	10,2	6,9	130	<a href="#">07966</a>	<a href="#">07622</a>
0.0862	2,190 mm		3,0	38,0	10,2	6,9	130	<a href="#">07967</a>	<a href="#">07623</a>
0.0866	2,200 mm		3,0	38,0	10,2	6,9	130	<a href="#">07968</a>	<a href="#">07624</a>
0.0866	2,200 mm		3,0	60,0	26,4	23,1	130	<a href="#">07969</a>	<a href="#">07625</a>
0.0870	2,210 mm		3,0	38,0	10,2	6,9	130	<a href="#">07970</a>	<a href="#">07626</a>
0.0874	2,220 mm		3,0	38,0	10,2	6,9	130	<a href="#">07971</a>	<a href="#">07627</a>
0.0878	2,230 mm		3,0	38,0	10,2	6,9	130	<a href="#">07972</a>	<a href="#">07628</a>
0.0882	2,240 mm		3,0	38,0	10,2	6,8	130	<a href="#">07973</a>	<a href="#">07629</a>

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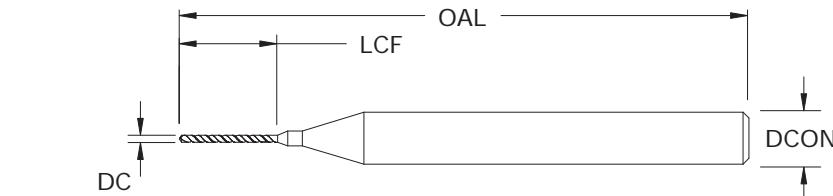
## 2 Flute External Coolant



## TOLERANCES (mm)

0,04–3,0 DIAMETER

DC = +0,000/-0,008

DCON = h<sub>6</sub>M226  
METRIC SERIES

continued

DECIMAL DC	METRIC DC	FRACTIONAL/ LETTER/WIRE DC	SHANK DIAMETER DCON	OVERALL LENGTH OAL	FLUTE LENGTH LCF	USABLE LENGTH LU	POINT ANGLE	EDP NO.	
								UNCOATED	TI-NAMITE®-A (AlTiN)
0.0886	2,250 mm		3,0	38,0	10,2	6,8	130	<a href="#">07974</a>	<a href="#">07630</a>
0.0886	2,250 mm		3,0	60,0	27,6	24,2	130	<a href="#">07975</a>	<a href="#">07631</a>
0.0890	2,260 mm	#43	3,0	38,0	10,2	6,8	130	<a href="#">07976</a>	<a href="#">07632</a>
0.0894	2,270 mm		3,0	38,0	10,2	6,8	130	<a href="#">07977</a>	<a href="#">07633</a>
0.0898	2,280 mm		3,0	38,0	10,2	6,8	130	<a href="#">07978</a>	<a href="#">07634</a>
0.0902	2,290 mm		3,0	38,0	10,2	6,8	130	<a href="#">07979</a>	<a href="#">07635</a>
0.0906	2,300 mm		3,0	38,0	10,2	6,8	130	<a href="#">07980</a>	<a href="#">07636</a>
0.0906	2,300 mm		3,0	60,0	27,6	24,2	130	<a href="#">07981</a>	<a href="#">07637</a>
0.0909	2,310 mm		3,0	38,0	10,2	6,7	130	<a href="#">07982</a>	<a href="#">07638</a>
0.0913	2,320 mm		3,0	38,0	10,2	6,7	130	<a href="#">07983</a>	<a href="#">07639</a>
0.0917	2,330 mm		3,0	38,0	10,2	6,7	130	<a href="#">07984</a>	<a href="#">07640</a>
0.0921	2,340 mm		3,0	38,0	10,2	6,7	130	<a href="#">07985</a>	<a href="#">07641</a>
0.0925	2,350 mm		3,0	38,0	10,2	6,7	130	<a href="#">07986</a>	<a href="#">07642</a>
0.0925	2,350 mm		3,0	60,0	28,8	25,3	130	<a href="#">07987</a>	<a href="#">07643</a>
0.0929	2,360 mm		3,0	38,0	10,2	6,7	130	<a href="#">07988</a>	<a href="#">07644</a>
0.0933	2,370 mm		3,0	38,0	10,2	6,6	130	<a href="#">07989</a>	<a href="#">07645</a>
0.0937	2,380 mm		3,0	38,0	10,2	6,6	130	<a href="#">07990</a>	<a href="#">07646</a>
0.0941	2,390 mm		3,0	38,0	10,2	6,6	130	<a href="#">07991</a>	<a href="#">07647</a>
0.0945	2,400 mm		3,0	38,0	10,2	6,6	130	<a href="#">07992</a>	<a href="#">07648</a>
0.0945	2,400 mm		3,0	60,0	28,8	25,2	130	<a href="#">07993</a>	<a href="#">07649</a>
0.0949	2,410 mm		3,0	38,0	10,2	6,6	130	<a href="#">07994</a>	<a href="#">07650</a>
0.0953	2,420 mm		3,0	38,0	10,2	6,6	130	<a href="#">07995</a>	<a href="#">07651</a>
0.0957	2,430 mm		3,0	38,0	10,2	6,6	130	<a href="#">07996</a>	<a href="#">07652</a>
0.0961	2,440 mm		3,0	38,0	10,2	6,5	130	<a href="#">07997</a>	<a href="#">07653</a>
0.0965	2,450 mm		3,0	38,0	10,2	6,5	130	<a href="#">07998</a>	<a href="#">07654</a>
0.0965	2,450 mm		3,0	60,0	30,0	26,3	130	<a href="#">07999</a>	<a href="#">07655</a>
0.0969	2,460 mm		3,0	38,0	10,2	6,5	130	<a href="#">08000</a>	<a href="#">07656</a>
0.0972	2,470 mm		3,0	38,0	10,2	6,5	130	<a href="#">08001</a>	<a href="#">07657</a>
0.0976	2,480 mm		3,0	38,0	10,2	6,5	130	<a href="#">08002</a>	<a href="#">07658</a>
0.0980	2,490 mm	#40	3,0	38,0	10,2	6,5	130	<a href="#">08003</a>	<a href="#">07659</a>
0.0984	2,500 mm		3,0	38,0	10,2	6,5	130	<a href="#">08004</a>	<a href="#">07660</a>
0.0984	2,500 mm		3,0	60,0	30,0	26,3	130	<a href="#">08005</a>	<a href="#">07661</a>
0.0988	2,510 mm		3,0	38,0	10,2	6,4	130	<a href="#">08006</a>	<a href="#">07662</a>
0.0992	2,520 mm		3,0	38,0	10,2	6,4	130	<a href="#">08007</a>	<a href="#">07663</a>
0.0996	2,530 mm		3,0	38,0	10,2	6,4	130	<a href="#">08008</a>	<a href="#">07664</a>
0.1000	2,540 mm		3,0	38,0	10,2	6,4	130	<a href="#">08009</a>	<a href="#">07665</a>
0.1004	2,550 mm		3,0	38,0	10,2	6,4	130	<a href="#">08010</a>	<a href="#">07666</a>

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METRIC

# 2 Flute External Coolant



3-12xD



DC: 0,04MM-0,34MM

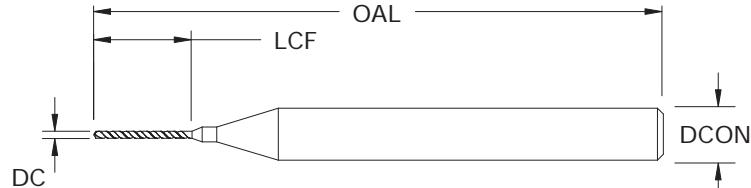


DC: 0,35MM-3,00MM



**M226**  
METRIC SERIES

continued

**TOLERANCES (mm)****0,04–3,0 DIAMETER**

DC = +0,000/-0,008

DCON = h6

STEELS

STAINLESS STEELS

CAST IRON

NON-FERROUS

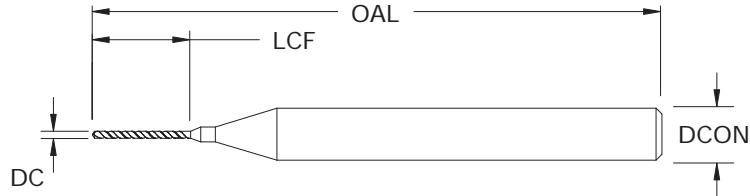
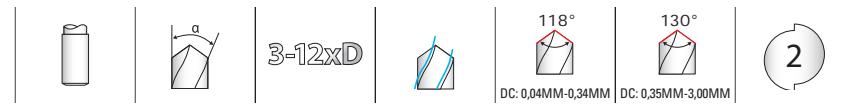
HIGH TEMP ALLOYS

HARDENED STEELS

DECIMAL DC	METRIC DC	FRACTIONAL/ LETTER/WIRE DC	SHANK DCON	OVERALL LENGTH OAL	FLUTE LENGTH LCF	USABLE LENGTH LU	POINT ANGLE	EDP NO.	
								UNCOATED	TI-NAMITE®-A (AITIN)
0.1004	2,550 mm		3,0	60,0	31,2	27,4	130	<a href="#">08011</a>	<a href="#">07667</a>
0.1008	2,560 mm		3,0	38,0	10,2	6,4	130	<a href="#">08012</a>	<a href="#">07668</a>
0.1012	2,570 mm		3,0	38,0	10,2	6,3	130	<a href="#">08013</a>	<a href="#">07669</a>
0.1016	2,580 mm		3,0	38,0	10,2	6,3	130	<a href="#">08014</a>	<a href="#">07670</a>
0.1020	2,590 mm		3,0	38,0	10,2	6,3	130	<a href="#">08015</a>	<a href="#">07671</a>
0.1024	2,600 mm		3,0	38,0	10,2	6,3	130	<a href="#">08016</a>	<a href="#">07672</a>
0.1024	2,600 mm		3,0	60,0	31,2	27,3	130	<a href="#">08017</a>	<a href="#">07673</a>
0.1028	2,610 mm		3,0	38,0	10,2	6,3	130	<a href="#">08018</a>	<a href="#">07674</a>
0.1031	2,620 mm		3,0	38,0	10,2	6,3	130	<a href="#">08019</a>	<a href="#">07675</a>
0.1035	2,630 mm		3,0	38,0	10,2	6,3	130	<a href="#">08020</a>	<a href="#">07676</a>
0.1039	2,640 mm		3,0	38,0	10,2	6,2	130	<a href="#">08021</a>	<a href="#">07677</a>
0.1043	2,650 mm		3,0	38,0	10,2	6,2	130	<a href="#">08022</a>	<a href="#">07678</a>
0.1043	2,650 mm		3,0	60,0	32,4	28,4	130	<a href="#">08023</a>	<a href="#">07679</a>
0.1047	2,660 mm		3,0	38,0	10,2	6,2	130	<a href="#">08024</a>	<a href="#">07680</a>
0.1051	2,670 mm		3,0	38,0	10,2	6,2	130	<a href="#">08025</a>	<a href="#">07681</a>
0.1055	2,680 mm		3,0	38,0	10,2	6,2	130	<a href="#">08026</a>	<a href="#">07682</a>
0.1059	2,690 mm		3,0	38,0	10,2	6,2	130	<a href="#">08027</a>	<a href="#">07683</a>
0.1063	2,700 mm		3,0	38,0	10,2	6,2	130	<a href="#">08028</a>	<a href="#">07684</a>
0.1063	2,700 mm		3,0	60,0	32,4	28,4	130	<a href="#">08029</a>	<a href="#">07685</a>
0.1067	2,710 mm		3,0	38,0	10,2	6,1	130	<a href="#">08030</a>	<a href="#">07686</a>
0.1071	2,720 mm		3,0	38,0	10,2	6,1	130	<a href="#">08031</a>	<a href="#">07687</a>
0.1075	2,730 mm		3,0	38,0	10,2	6,1	130	<a href="#">08032</a>	<a href="#">07688</a>
0.1079	2,740 mm		3,0	38,0	10,2	6,1	130	<a href="#">08033</a>	<a href="#">07689</a>
0.1083	2,750 mm		3,0	38,0	10,2	6,1	130	<a href="#">08034</a>	<a href="#">07690</a>
0.1083	2,750 mm		3,0	60,0	33,6	29,5	130	<a href="#">08035</a>	<a href="#">07691</a>
0.1087	2,760 mm		3,0	38,0	10,2	6,1	130	<a href="#">08036</a>	<a href="#">07692</a>
0.1091	2,770 mm		3,0	38,0	10,2	6,0	130	<a href="#">08037</a>	<a href="#">07693</a>
0.1094	2,780 mm	7/64	3,0	38,0	10,2	6,0	130	<a href="#">08038</a>	<a href="#">07694</a>
0.1098	2,790 mm		3,0	38,0	10,2	6,0	130	<a href="#">08039</a>	<a href="#">07695</a>
0.1102	2,800 mm		3,0	38,0	10,2	6,0	130	<a href="#">08040</a>	<a href="#">07696</a>
0.1102	2,800 mm		3,0	60,0	33,6	29,4	130	<a href="#">08041</a>	<a href="#">07697</a>
0.1106	2,810 mm		3,0	38,0	10,2	6,0	130	<a href="#">08042</a>	<a href="#">07698</a>
0.1110	2,820 mm	#34	3,0	38,0	10,2	6,0	130	<a href="#">08043</a>	<a href="#">07699</a>
0.1114	2,830 mm		3,0	38,0	10,2	6,0	130	<a href="#">08044</a>	<a href="#">07700</a>
0.1118	2,840 mm		3,0	38,0	10,2	5,9	130	<a href="#">08045</a>	<a href="#">07701</a>
0.1122	2,850 mm		3,0	38,0	10,2	5,9	130	<a href="#">08046</a>	<a href="#">07702</a>

continued on next page

## 2 Flute External Coolant



## TOLERANCES (mm)

0,04–3,0 DIAMETER

DC = +0,000/-0,008

DCON = h<sub>6</sub>

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

**M226**  
 METRIC SERIES
*continued*

DECIMAL DC	METRIC DC	FRACTIONAL/ LETTER/WIRE DC	SHANK DIAMETER DCON	OVERALL LENGTH OAL	FLUTE LENGTH LCF	USABLE LENGTH LU	POINT ANGLE	EDP NO.	
								UNCOATED	TI-NAMITE®-A (AlTiN)
0.1122	2,850 mm		3,0	60,0	34,8	30,5	130	<a href="#">08047</a>	<a href="#">07703</a>
0.1126	2,860 mm		3,0	38,0	10,2	5,9	130	<a href="#">08048</a>	<a href="#">07704</a>
0.1130	2,870 mm		3,0	38,0	10,2	5,9	130	<a href="#">08049</a>	<a href="#">07705</a>
0.1134	2,880 mm		3,0	38,0	10,2	5,9	130	<a href="#">08050</a>	<a href="#">07706</a>
0.1138	2,890 mm		3,0	38,0	10,2	5,9	130	<a href="#">08051</a>	<a href="#">07707</a>
0.1142	2,900 mm		3,0	38,0	10,2	5,9	130	<a href="#">08052</a>	<a href="#">07708</a>
0.1142	2,900 mm		3,0	60,0	34,8	30,5	130	<a href="#">08053</a>	<a href="#">07709</a>
0.1146	2,910 mm		3,0	38,0	10,2	5,8	130	<a href="#">08054</a>	<a href="#">07710</a>
0.1150	2,920 mm		3,0	38,0	10,2	5,8	130	<a href="#">08055</a>	<a href="#">07711</a>
0.1154	2,930 mm		3,0	38,0	10,2	5,8	130	<a href="#">08056</a>	<a href="#">07712</a>
0.1157	2,940 mm		3,0	38,0	10,2	5,8	130	<a href="#">08057</a>	<a href="#">07713</a>
0.1161	2,950 mm		3,0	38,0	10,2	5,8	130	<a href="#">08058</a>	<a href="#">07714</a>
0.1161	2,950 mm		3,0	60,0	36,0	31,6	130	<a href="#">08059</a>	<a href="#">07715</a>
0.1165	2,960 mm		3,0	38,0	10,2	5,8	130	<a href="#">08060</a>	<a href="#">07716</a>
0.1169	2,970 mm		3,0	38,0	10,2	5,7	130	<a href="#">08061</a>	<a href="#">07717</a>
0.1173	2,980 mm		3,0	38,0	10,2	5,7	130	<a href="#">08062</a>	<a href="#">07718</a>
0.1177	2,990 mm		3,0	38,0	10,2	5,7	130	<a href="#">08063</a>	<a href="#">07719</a>
0.1181	3,000 mm		3,0	38,0	10,2	5,7	130	<a href="#">08064</a>	<a href="#">07720</a>
0.1181	3,000 mm		3,0	60,0	36,0	31,5	130	<a href="#">08065</a>	<a href="#">07721</a>

# 2 Flute Left Hand Cut External Coolant



3-12xD



118°

DC: 0,04MM-0,34MM

130°

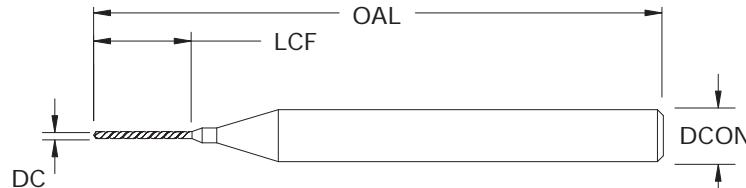
DC: 0,35MM-3,00MM

2

**L226**

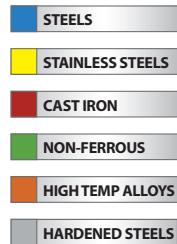
METRIC SERIES

- 4-facet point design stabilizes on entry for superior hole size control and tool life (>.08mm). 2-facet point on 0,08 and smaller
- Mirror surface finishes improve chip flow as hole depth increases
- Ti-Namite® A coating and uncoated options for the ultimate performance in a variety of ferrous and non-ferrous workpiece materials
- Available from stock in a selection of popular lengths and diameters
- Application specific sub-micron grain carbide designed specifically for micro-tool applications
- Manufactured in accordance with KSPT ISO certified quality procedures

**TOLERANCES (mm)****0,04-3,0 DIAMETER**

DC = +0,000/-0,008

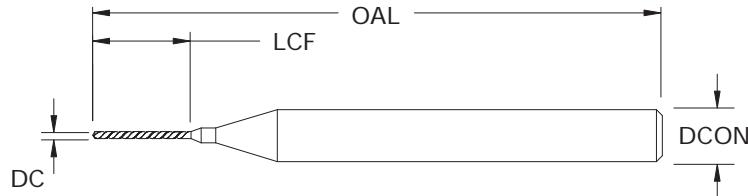
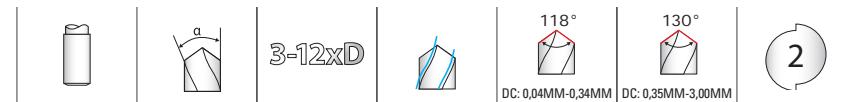
DCON = h6



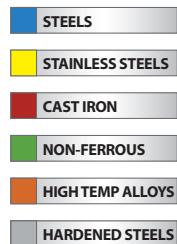
DECIMAL DC	METRIC DC	FRACTIONAL/ LETTER/WIRE DC	SHANK DCON	OVERALL LENGTH OAL	FLUTE LENGTH LCF	USABLE LENGTH LU	POINT ANGLE	EDP NO.	
								UNCOATED	TI-NAMITE®-A (AlTiN)
0.0016	0,040 mm		3,0	38,0	0,5	0,4	118	<a href="#">08228</a>	—
0.0020	0,050 mm		3,0	38,0	0,8	0,7	118	<a href="#">08229</a>	—
0.0024	0,060 mm		3,0	38,0	0,8	0,7	118	<a href="#">08230</a>	—
0.0028	0,070 mm		3,0	38,0	1,3	1,2	118	<a href="#">08231</a>	—
0.0031	0,080 mm		3,0	38,0	1,3	1,2	118	<a href="#">08232</a>	—
0.0035	0,090 mm		3,0	38,0	1,3	1,2	118	<a href="#">08233</a>	—
0.0039	0,100 mm		3,0	38,0	1,0	0,9	118	<a href="#">08234</a>	—
0.0043	0,110 mm		3,0	38,0	1,0	0,8	118	<a href="#">08235</a>	—
0.0047	0,120 mm		3,0	38,0	1,0	0,8	118	<a href="#">08236</a>	—
0.0051	0,130 mm		3,0	38,0	1,0	0,8	118	<a href="#">08237</a>	—
0.0055	0,140 mm		3,0	38,0	1,0	0,8	118	<a href="#">08238</a>	—
0.0059	0,150 mm	#97	3,0	38,0	2,0	1,8	118	<a href="#">08239</a>	—
0.0063	0,160 mm	#96	3,0	38,0	2,0	1,8	118	<a href="#">08240</a>	—
0.0067	0,170 mm	#95	3,0	38,0	2,0	1,7	118	<a href="#">08241</a>	—
0.0071	0,180 mm	#94	3,0	38,0	2,5	2,2	118	<a href="#">08242</a>	—
0.0075	0,190 mm	#93	3,0	38,0	2,5	2,2	118	<a href="#">08243</a>	—
0.0079	0,200 mm	#92	3,0	38,0	2,5	2,2	118	<a href="#">08244</a>	—
0.0083	0,210 mm	#91	3,0	38,0	2,5	2,2	118	<a href="#">08245</a>	—
0.0087	0,220 mm	#90	3,0	38,0	2,5	2,2	118	<a href="#">08246</a>	—
0.0091	0,230 mm	#89	3,0	38,0	3,8	3,5	118	<a href="#">08247</a>	—
0.0094	0,240 mm		3,0	38,0	3,8	3,4	118	<a href="#">08248</a>	—
0.0098	0,250 mm		3,0	38,0	3,8	3,4	118	<a href="#">08249</a>	<a href="#">08066</a>
0.0102	0,260 mm		3,0	38,0	3,8	3,4	118	<a href="#">08250</a>	<a href="#">08067</a>
0.0106	0,270 mm		3,0	38,0	3,8	3,4	118	<a href="#">08251</a>	<a href="#">08068</a>
0.0110	0,280 mm	#85	3,0	38,0	3,8	3,4	118	<a href="#">08252</a>	<a href="#">08069</a>
0.0114	0,290 mm		3,0	38,0	3,8	3,4	118	<a href="#">08253</a>	<a href="#">08070</a>
0.0118	0,300 mm		3,0	38,0	5,7	5,3	118	<a href="#">08254</a>	<a href="#">08071</a>
0.0122	0,310 mm		3,0	38,0	5,7	5,2	118	<a href="#">08255</a>	<a href="#">08072</a>
0.0126	0,320 mm		3,0	38,0	5,7	5,2	118	<a href="#">08256</a>	<a href="#">08073</a>
0.0130	0,330 mm	#81	3,0	38,0	5,7	5,2	118	<a href="#">08257</a>	<a href="#">08074</a>
0.0134	0,340 mm		3,0	38,0	5,7	5,2	118	<a href="#">08258</a>	<a href="#">08075</a>
0.0138	0,350 mm		3,0	38,0	5,7	5,2	130	<a href="#">08259</a>	<a href="#">08076</a>
0.0142	0,360 mm		3,0	38,0	5,7	5,2	130	<a href="#">08260</a>	<a href="#">08077</a>
0.0146	0,370 mm		3,0	38,0	5,7	5,1	130	<a href="#">08261</a>	<a href="#">08078</a>

continued on next page

# 2 Flute Left Hand Cut External Coolant

**TOLERANCES (mm)****0,04–3,0 DIAMETER**

DC = +0,000/-0,008

DCON = h<sub>6</sub>
**L226**  
**METRIC SERIES**

continued

DECIMAL DC	METRIC DC	FRACTIONAL/ LETTER/WIRE DC	SHANK DIAMETER DCON	OVERALL LENGTH OAL	FLUTE LENGTH LCF	USABLE LENGTH LU	POINT ANGLE	EDP NO.	
								UNCOATED	TI-NAMITE®-A (AITIN)
0.0150	0,380 mm		3,0	38,0	6,4	5,8	130	<a href="#">08262</a>	<a href="#">08079</a>
0.0154	0,390 mm		3,0	38,0	6,4	5,8	130	<a href="#">08263</a>	<a href="#">08080</a>
0.0157	0,400 mm		3,0	38,0	6,4	5,8	130	<a href="#">08264</a>	<a href="#">08081</a>
0.0161	0,410 mm		3,0	38,0	6,4	5,8	130	<a href="#">08265</a>	<a href="#">08082</a>
0.0165	0,420 mm		3,0	38,0	6,4	5,8	130	<a href="#">08266</a>	<a href="#">08083</a>
0.0169	0,430 mm		3,0	38,0	6,4	5,8	130	<a href="#">08267</a>	<a href="#">08084</a>
0.0173	0,440 mm		3,0	38,0	6,4	5,7	130	<a href="#">08268</a>	<a href="#">08085</a>
0.0177	0,450 mm		3,0	38,0	6,4	5,7	130	<a href="#">08269</a>	<a href="#">08086</a>
0.0181	0,460 mm		3,0	38,0	6,4	5,7	130	<a href="#">08270</a>	<a href="#">08087</a>
0.0185	0,470 mm		3,0	38,0	6,4	5,7	130	<a href="#">08271</a>	<a href="#">08088</a>
0.0189	0,480 mm		3,0	38,0	6,6	5,9	130	<a href="#">08272</a>	<a href="#">08089</a>
0.0193	0,490 mm		3,0	38,0	6,6	5,9	130	<a href="#">08273</a>	<a href="#">08090</a>
0.0197	0,500 mm		3,0	38,0	6,6	5,9	130	<a href="#">08274</a>	<a href="#">08091</a>
0.0201	0,510 mm		3,0	38,0	6,6	5,8	130	<a href="#">08275</a>	<a href="#">08092</a>
0.0205	0,520 mm		3,0	38,0	6,6	5,8	130	<a href="#">08276</a>	<a href="#">08093</a>
0.0209	0,530 mm		3,0	38,0	6,6	5,8	130	<a href="#">08277</a>	<a href="#">08094</a>
0.0213	0,540 mm		3,0	38,0	6,6	5,8	130	<a href="#">08278</a>	<a href="#">08095</a>
0.0217	0,550 mm		3,0	38,0	8,6	7,8	130	<a href="#">08279</a>	<a href="#">08096</a>
0.0220	0,560 mm		3,0	38,0	8,6	7,8	130	<a href="#">08280</a>	<a href="#">08097</a>
0.0224	0,570 mm		3,0	38,0	8,6	7,7	130	<a href="#">08281</a>	<a href="#">08098</a>
0.0228	0,580 mm		3,0	38,0	8,6	7,7	130	<a href="#">08282</a>	<a href="#">08099</a>
0.0232	0,590 mm		3,0	38,0	8,6	7,7	130	<a href="#">08283</a>	<a href="#">08100</a>
0.0236	0,600 mm		3,0	38,0	8,6	7,7	130	<a href="#">08284</a>	<a href="#">08101</a>
0.0240	0,610 mm	#73	3,0	38,0	8,6	7,7	130	<a href="#">08285</a>	<a href="#">08102</a>
0.0244	0,620 mm		3,0	38,0	8,6	7,7	130	<a href="#">08286</a>	<a href="#">08103</a>
0.0248	0,630 mm		3,0	38,0	8,6	7,7	130	<a href="#">08287</a>	<a href="#">08104</a>
0.0252	0,640 mm		3,0	38,0	8,6	7,6	130	<a href="#">08288</a>	<a href="#">08105</a>
0.0256	0,650 mm		3,0	38,0	8,6	7,6	130	<a href="#">08289</a>	<a href="#">08106</a>
0.0260	0,660 mm	#71	3,0	38,0	8,6	7,6	130	<a href="#">08290</a>	<a href="#">08107</a>
0.0264	0,670 mm		3,0	38,0	8,6	7,6	130	<a href="#">08291</a>	<a href="#">08108</a>
0.0268	0,680 mm		3,0	38,0	8,6	7,6	130	<a href="#">08292</a>	<a href="#">08109</a>
0.0272	0,690 mm		3,0	38,0	8,6	7,6	130	<a href="#">08293</a>	<a href="#">08110</a>
0.0276	0,700 mm		3,0	38,0	10,2	9,2	130	<a href="#">08294</a>	<a href="#">08111</a>
0.0280	0,710 mm	#70	3,0	38,0	10,2	9,1	130	<a href="#">08295</a>	<a href="#">08112</a>

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METRIC

# 2 Flute Left Hand Cut External Coolant



3-12xD



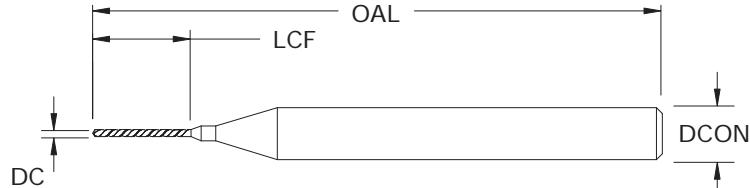
118°

DC: 0,04MM-0,34MM

130°

DC: 0,35MM-3,00MM

2

**L226**

METRIC SERIES

continued

DECIMAL DC	METRIC DC	FRACTIONAL LETTER/WIRE DC	SHANK DIAMETER DCON	OVERALL LENGTH OAL	FLUTE LENGTH LCF	USABLE LENGTH LU	POINT ANGLE	EDP NO.	
								UNCOATED	TI-NAMITE®-A (AITiN)
0,0283	0,720 mm		3,0	38,0	10,2	9,1	130	<a href="#">08296</a>	<a href="#">08113</a>
0,0287	0,730 mm		3,0	38,0	10,2	9,1	130	<a href="#">08297</a>	<a href="#">08114</a>
0,0291	0,740 mm		3,0	38,0	10,2	9,1	130	<a href="#">08298</a>	<a href="#">08115</a>
0,0295	0,750 mm		3,0	38,0	10,2	9,1	130	<a href="#">08299</a>	<a href="#">08116</a>
0,0295	0,750 mm		3,0	50,0	11,0	9,9	130	<a href="#">08300</a>	<a href="#">08117</a>
0,0299	0,760 mm		3,0	38,0	10,2	9,1	130	<a href="#">08301</a>	<a href="#">08118</a>
0,0303	0,770 mm		3,0	38,0	10,2	9,0	130	<a href="#">08302</a>	<a href="#">08119</a>
0,0307	0,780 mm		3,0	38,0	10,2	9,0	130	<a href="#">08303</a>	<a href="#">08120</a>
0,0311	0,790 mm		3,0	38,0	10,2	9,0	130	<a href="#">08304</a>	<a href="#">08121</a>
0,0315	0,800 mm		3,0	38,0	10,2	9,0	130	<a href="#">08305</a>	<a href="#">08122</a>
0,0315	0,800 mm		3,0	50,0	11,0	9,8	130	<a href="#">08306</a>	<a href="#">08123</a>
0,0319	0,810 mm		3,0	38,0	10,2	9,0	130	<a href="#">08307</a>	<a href="#">08124</a>
0,0323	0,820 mm		3,0	38,0	10,2	9,0	130	<a href="#">08308</a>	<a href="#">08125</a>
0,0327	0,830 mm		3,0	38,0	10,2	9,0	130	<a href="#">08309</a>	<a href="#">08126</a>
0,0331	0,840 mm		3,0	38,0	10,2	8,9	130	<a href="#">08310</a>	<a href="#">08127</a>
0,0335	0,850 mm		3,0	38,0	10,2	8,9	130	<a href="#">08311</a>	<a href="#">08128</a>
0,0335	0,850 mm		3,0	50,0	13,0	11,7	130	<a href="#">08312</a>	<a href="#">08129</a>
0,0339	0,860 mm		3,0	38,0	10,2	8,9	130	<a href="#">08313</a>	<a href="#">08130</a>
0,0343	0,870 mm		3,0	38,0	10,2	8,9	130	<a href="#">08314</a>	<a href="#">08131</a>
0,0346	0,880 mm		3,0	38,0	10,2	8,9	130	<a href="#">08315</a>	<a href="#">08132</a>
0,0350	0,890 mm	#65	3,0	38,0	10,2	8,9	130	<a href="#">08316</a>	<a href="#">08133</a>
0,0354	0,900 mm		3,0	38,0	10,2	8,9	130	<a href="#">08317</a>	<a href="#">08134</a>
0,0354	0,900 mm		3,0	50,0	13,0	11,7	130	<a href="#">08318</a>	<a href="#">08135</a>
0,0358	0,910 mm		3,0	38,0	10,2	8,8	130	<a href="#">08319</a>	<a href="#">08136</a>
0,0362	0,920 mm		3,0	38,0	10,2	8,8	130	<a href="#">08320</a>	<a href="#">08137</a>
0,0366	0,930 mm		3,0	38,0	10,2	8,8	130	<a href="#">08321</a>	<a href="#">08138</a>
0,0370	0,940 mm	#63	3,0	38,0	10,2	8,8	130	<a href="#">08322</a>	<a href="#">08139</a>
0,0374	0,950 mm		3,0	38,0	10,2	8,8	130	<a href="#">08323</a>	<a href="#">08140</a>
0,0374	0,950 mm		3,0	50,0	15,0	13,6	130	<a href="#">08324</a>	<a href="#">08141</a>
0,0378	0,960 mm		3,0	38,0	10,2	8,8	130	<a href="#">08325</a>	<a href="#">08142</a>
0,0382	0,970 mm		3,0	38,0	10,2	8,7	130	<a href="#">08326</a>	<a href="#">08143</a>
0,0386	0,980 mm		3,0	38,0	10,2	8,7	130	<a href="#">08327</a>	<a href="#">08144</a>
0,0390	0,990 mm	#61	3,0	38,0	10,2	8,7	130	<a href="#">08328</a>	<a href="#">08145</a>
0,0394	1,000 mm		3,0	38,0	10,2	8,7	130	<a href="#">08329</a>	<a href="#">08146</a>

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## TOLERANCES (mm)

0,04–3,0 DIAMETER

DC = +0,000/-0,008

DCON = h6

STEELS

STAINLESS STEELS

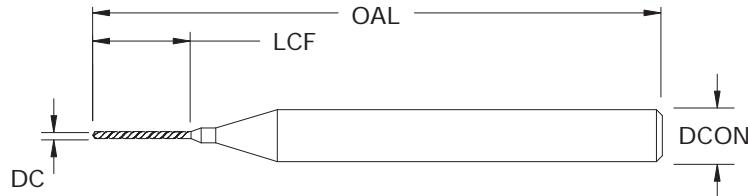
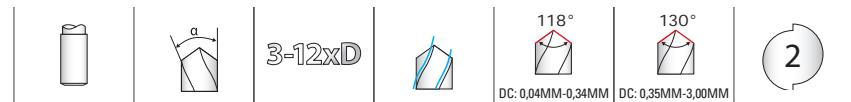
CAST IRON

NON-FERROUS

HIGH TEMP ALLOYS

HARDENED STEELS

# 2 Flute Left Hand Cut External Coolant

**TOLERANCES (mm)****0.04–3.0 DIAMETER**

DC = +0.000/-0.008

DCON = h<sub>6</sub>

<b>STEELS</b>
<b>STAINLESS STEELS</b>
<b>CAST IRON</b>
<b>NON-FERROUS</b>
<b>HIGH TEMP ALLOYS</b>
<b>HARDENED STEELS</b>

**L226**

METRIC SERIES

continued

DECIMAL DC	METRIC DC	FRACTIONAL/ LETTER/WIRE DC	SHANK DIAMETER DCON	OVERALL LENGTH OAL	FLUTE LENGTH LCF	USABLE LENGTH LU	POINT ANGLE	EDP NO.	
								UNCOATED	TI-NAMITE®-A (AITIN)
0.0394	1,000 mm		3,0	50,0	15,0	13,5	130	<a href="#">08330</a>	<a href="#">08147</a>
0.0413	1,050 mm		3,0	38,0	10,2	8,6	130	<a href="#">08331</a>	<a href="#">08148</a>
0.0413	1,050 mm		3,0	50,0	17,0	15,4	130	<a href="#">08332</a>	<a href="#">08149</a>
0.0433	1,100 mm		3,0	38,0	10,2	8,6	130	<a href="#">08333</a>	<a href="#">08150</a>
0.0433	1,100 mm		3,0	50,0	17,0	15,4	130	<a href="#">08334</a>	<a href="#">08151</a>
0.0453	1,150 mm		3,0	38,0	10,2	8,5	130	<a href="#">08335</a>	<a href="#">08152</a>
0.0453	1,150 mm		3,0	50,0	17,0	15,3	130	<a href="#">08336</a>	<a href="#">08153</a>
0.0472	1,200 mm		3,0	38,0	10,2	8,4	130	<a href="#">08337</a>	<a href="#">08154</a>
0.0472	1,200 mm		3,0	50,0	17,0	15,2	130	<a href="#">08338</a>	<a href="#">08155</a>
0.0492	1,250 mm		3,0	38,0	10,2	8,3	130	<a href="#">08339</a>	<a href="#">08156</a>
0.0492	1,250 mm		3,0	50,0	19,0	17,1	130	<a href="#">08340</a>	<a href="#">08157</a>
0.0512	1,300 mm		3,0	38,0	10,2	8,3	130	<a href="#">08341</a>	<a href="#">08158</a>
0.0512	1,300 mm		3,0	50,0	19,0	17,1	130	<a href="#">08342</a>	<a href="#">08159</a>
0.0531	1,350 mm		3,0	38,0	10,2	8,2	130	<a href="#">08343</a>	<a href="#">08160</a>
0.0531	1,350 mm		3,0	50,0	19,0	17,0	130	<a href="#">08344</a>	<a href="#">08161</a>
0.0551	1,400 mm		3,0	38,0	10,2	8,1	130	<a href="#">08345</a>	<a href="#">08162</a>
0.0551	1,400 mm		3,0	50,0	19,0	16,9	130	<a href="#">08346</a>	<a href="#">08163</a>
0.0571	1,450 mm		3,0	38,0	10,2	8,0	130	<a href="#">08347</a>	<a href="#">08164</a>
0.0571	1,450 mm		3,0	50,0	20,0	17,8	130	<a href="#">08348</a>	<a href="#">08165</a>
0.0591	1,500 mm		3,0	38,0	10,2	8,0	130	<a href="#">08349</a>	<a href="#">08166</a>
0.0591	1,500 mm		3,0	50,0	20,0	17,8	130	<a href="#">08350</a>	<a href="#">08167</a>
0.0610	1,550 mm		3,0	38,0	10,2	7,9	130	<a href="#">08351</a>	<a href="#">08168</a>
0.0610	1,550 mm		3,0	50,0	20,0	17,7	130	<a href="#">08352</a>	<a href="#">08169</a>
0.0630	1,600 mm		3,0	38,0	10,2	7,8	130	<a href="#">08353</a>	<a href="#">08170</a>
0.0630	1,600 mm		3,0	50,0	20,0	17,6	130	<a href="#">08354</a>	<a href="#">08171</a>
0.0650	1,650 mm		3,0	38,0	10,2	7,7	130	<a href="#">08355</a>	<a href="#">08172</a>
0.0650	1,650 mm		3,0	50,0	20,0	17,5	130	<a href="#">08356</a>	<a href="#">08173</a>
0.0669	1,700 mm		3,0	38,0	10,2	7,7	130	<a href="#">08357</a>	<a href="#">08174</a>
0.0669	1,700 mm		3,0	50,0	20,0	17,5	130	<a href="#">08358</a>	<a href="#">08175</a>
0.0689	1,750 mm		3,0	38,0	10,2	7,6	130	<a href="#">08359</a>	<a href="#">08176</a>
0.0689	1,750 mm		3,0	50,0	20,0	17,4	130	<a href="#">08360</a>	<a href="#">08177</a>
0.0709	1,800 mm		3,0	38,0	10,2	7,5	130	<a href="#">08361</a>	<a href="#">08178</a>
0.0709	1,800 mm		3,0	50,0	20,0	17,3	130	<a href="#">08362</a>	<a href="#">08179</a>
0.0728	1,850 mm		3,0	38,0	10,2	7,4	130	<a href="#">08363</a>	<a href="#">08180</a>

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METRIC

# 2 Flute Left Hand Cut External Coolant



3-12xD

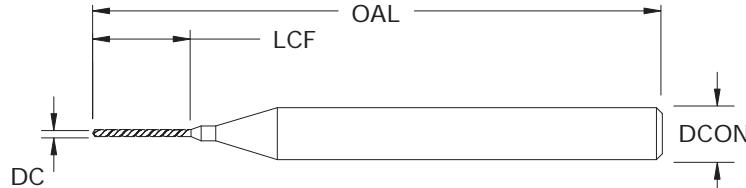


DC: 0,04MM-0,34MM



DC: 0,35MM-3,00MM

2

**L226**

METRIC SERIES

continued

DECIMAL DC	METRIC DC	FRACTIONAL/ LETTER/WIRE DC	SHANK DCON	OVERALL LENGTH OAL	FLUTE LENGTH LCF	USABLE LENGTH LU	POINT ANGLE	EDP NO.	
								UNCOATED	TI-NAMITE®-A (AITiN)
0.0728	1,850 mm	3,0	60,0	22,8	20,0	130	<a href="#">08364</a>	<a href="#">08181</a>	
0.0748	1,900 mm	3,0	38,0	10,2	7,4	130	<a href="#">08365</a>	<a href="#">08182</a>	
0.0748	1,900 mm	3,0	60,0	22,8	20,0	130	<a href="#">08366</a>	<a href="#">08183</a>	
0.0768	1,950 mm	3,0	38,0	10,2	7,3	130	<a href="#">08367</a>	<a href="#">08184</a>	
0.0768	1,950 mm	3,0	60,0	24,0	21,1	130	<a href="#">08368</a>	<a href="#">08185</a>	
0.0787	2,000 mm	3,0	38,0	10,2	7,2	130	<a href="#">08369</a>	<a href="#">08186</a>	
0.0787	2,000 mm	3,0	60,0	24,0	21,0	130	<a href="#">08370</a>	<a href="#">08187</a>	
0.0807	2,050 mm	3,0	38,0	10,2	7,1	130	<a href="#">08371</a>	<a href="#">08188</a>	
0.0807	2,050 mm	3,0	60,0	25,2	22,1	130	<a href="#">08372</a>	<a href="#">08189</a>	
0.0827	2,100 mm	3,0	38,0	10,2	7,1	130	<a href="#">08373</a>	<a href="#">08190</a>	
0.0827	2,100 mm	3,0	60,0	25,2	22,1	130	<a href="#">08374</a>	<a href="#">08191</a>	
0.0846	2,150 mm	3,0	38,0	10,2	7,0	130	<a href="#">08375</a>	<a href="#">08192</a>	
0.0846	2,150 mm	3,0	60,0	26,4	23,2	130	<a href="#">08376</a>	<a href="#">08193</a>	
0.0866	2,200 mm	3,0	38,0	10,2	6,9	130	<a href="#">08377</a>	<a href="#">08194</a>	
0.0866	2,200 mm	3,0	60,0	26,4	23,1	130	<a href="#">08378</a>	<a href="#">08195</a>	
0.0886	2,250 mm	3,0	38,0	10,2	6,8	130	<a href="#">08379</a>	<a href="#">08196</a>	
0.0886	2,250 mm	3,0	60,0	27,6	24,2	130	<a href="#">08380</a>	<a href="#">08197</a>	
0.0906	2,300 mm	3,0	38,0	10,2	6,8	130	<a href="#">08381</a>	<a href="#">08198</a>	
0.0906	2,300 mm	3,0	60,0	27,6	24,2	130	<a href="#">08382</a>	<a href="#">08199</a>	
0.0925	2,350 mm	3,0	38,0	10,2	6,7	130	<a href="#">08383</a>	<a href="#">08200</a>	
0.0925	2,350 mm	3,0	60,0	28,8	25,3	130	<a href="#">08384</a>	<a href="#">08201</a>	
0.0945	2,400 mm	3,0	38,0	10,2	6,6	130	<a href="#">08385</a>	<a href="#">08202</a>	
0.0945	2,400 mm	3,0	60,0	28,8	25,2	130	<a href="#">08386</a>	<a href="#">08203</a>	
0.0965	2,450 mm	3,0	38,0	10,2	6,5	130	<a href="#">08387</a>	<a href="#">08204</a>	
0.0965	2,450 mm	3,0	60,0	30,0	26,3	130	<a href="#">08388</a>	<a href="#">08205</a>	
0.0984	2,500 mm	3,0	38,0	10,2	6,5	130	<a href="#">08389</a>	<a href="#">08206</a>	
0.0984	2,500 mm	3,0	60,0	30,0	26,3	130	<a href="#">08390</a>	<a href="#">08207</a>	
0.1004	2,550 mm	3,0	38,0	10,2	6,4	130	<a href="#">08391</a>	<a href="#">08208</a>	
0.1004	2,550 mm	3,0	60,0	31,2	27,4	130	<a href="#">08392</a>	<a href="#">08209</a>	
0.1024	2,600 mm	3,0	38,0	10,2	6,3	130	<a href="#">08393</a>	<a href="#">08210</a>	
0.1024	2,600 mm	3,0	60,0	31,2	27,3	130	<a href="#">08394</a>	<a href="#">08211</a>	
0.1043	2,650 mm	3,0	38,0	10,2	6,2	130	<a href="#">08395</a>	<a href="#">08212</a>	
0.1043	2,650 mm	3,0	60,0	32,4	28,4	130	<a href="#">08396</a>	<a href="#">08213</a>	
0.1063	2,700 mm	3,0	38,0	10,2	6,2	130	<a href="#">08397</a>	<a href="#">08214</a>	
0.1063	2,700 mm	3,0	60,0	32,4	28,4	130	<a href="#">08398</a>	<a href="#">08215</a>	
0.1083	2,750 mm	3,0	38,0	10,2	6,1	130	<a href="#">08399</a>	<a href="#">08216</a>	

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## TOLERANCES (mm)

0,04–3,0 DIAMETER

DC = +0,000/-0,008

DCON = h6

STEELS

STAINLESS STEELS

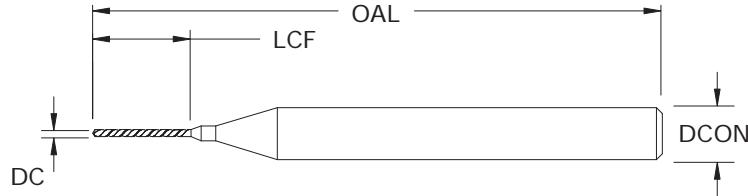
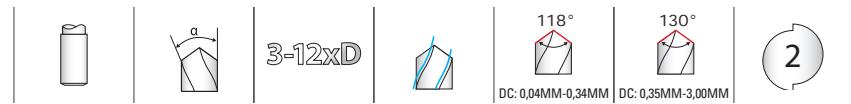
CAST IRON

NON-FERROUS

HIGH TEMP ALLOYS

HARDENED STEELS

# 2 Flute Left Hand Cut External Coolant

**TOLERANCES (mm)****0,04–3,0 DIAMETER**

DC = +0,000/-0,008

DCON = h<sub>6</sub>

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

**L226**  
**METRIC SERIES**
*continued*

DECIMAL DC	METRIC DC	FRACTIONAL/ LETTER/WIRE DC	SHANK DIAMETER DCON	OVERALL LENGTH OAL	FLUTE LENGTH LCF	USABLE LENGTH LU	POINT ANGLE	EDP NO.	
								UNCOATED	TI-NAMITE®-A (AlTiN)
0.1083	2,750 mm		3,0	60,0	33,6	29,5	130	<a href="#">08400</a>	<a href="#">08217</a>
0.1102	2,800 mm		3,0	38,0	10,2	6,0	130	<a href="#">08401</a>	<a href="#">08218</a>
0.1102	2,800 mm		3,0	60,0	33,6	29,4	130	<a href="#">08402</a>	<a href="#">08219</a>
0.1122	2,850 mm		3,0	38,0	10,2	5,9	130	<a href="#">08403</a>	<a href="#">08220</a>
0.1122	2,850 mm		3,0	60,0	34,8	30,5	130	<a href="#">08404</a>	<a href="#">08221</a>
0.1142	2,900 mm		3,0	38,0	10,2	5,9	130	<a href="#">08405</a>	<a href="#">08222</a>
0.1142	2,900 mm		3,0	60,0	34,8	30,5	130	<a href="#">08406</a>	<a href="#">08223</a>
0.1161	2,950 mm		3,0	38,0	10,2	5,8	130	<a href="#">08407</a>	<a href="#">08224</a>
0.1161	2,950 mm		3,0	60,0	36,0	31,6	130	<a href="#">08408</a>	<a href="#">08225</a>
0.1181	3,000 mm		3,0	38,0	10,2	5,7	130	<a href="#">08409</a>	<a href="#">08226</a>
0.1181	3,000 mm		3,0	60,0	36,0	31,5	130	<a href="#">08410</a>	<a href="#">08227</a>

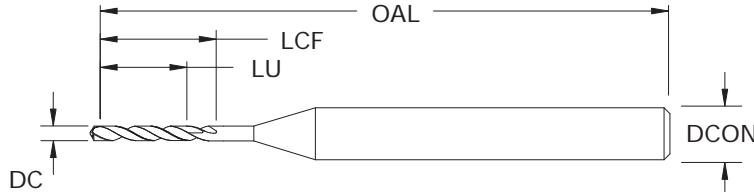
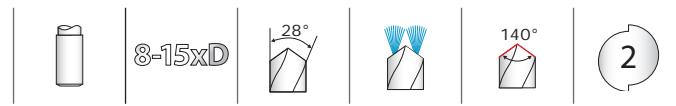
# Series M226 • L226

			Vc (m/min)	DC • mm						
Series M226 • L226		Hardness		0.04	0.25	0.5	1	2	3	
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 175 Bhn or ≤ 7 HRc	40 (32-48)	RPM	315060	50410	25205	12602	6301	4201
				Fr	0.0012	0.0072	0.0144	0.0288	0.0576	0.0865
				Feed (mm/min)	363	363	363	363	363	363
M	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100	≤ 275 Bhn or ≤ 28 HRc	59 (48-71)	RPM	472590	75614	37807	18904	9452	6301
				Fr	0.0010	0.0065	0.0130	0.0261	0.0521	0.0782
				Feed (mm/min)	493	493	493	493	493	493
K	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 Bhn or ≤ 28 HRc	20 (16-24)	RPM	157530	25205	12602	6301	3151	2100
				Fr	0.0009	0.0054	0.0109	0.0218	0.0435	0.0653
				Feed (mm/min)	137	137	137	137	137	137
N	STAINLESS STEELS (PH) 13-8 PH, 15-5 PH, 17-4 PH, CUSTOM 450	≤ 325 Bhn or ≤ 35 HRc	12 (10-15)	RPM	96942	15511	7755	3878	1939	1293
				Fr	0.0007	0.0044	0.0088	0.0177	0.0354	0.0531
				Feed (mm/min)	69	69	69	69	69	69
S	CAST IRONS Gray, Malleable, Ductile	≤ 220 Bhn or ≤ 19 HRc	85 (68-102)	RPM	678591	108575	54287	27144	13572	9048
				Fr	0.0007	0.0041	0.0082	0.0164	0.0328	0.0491
				Feed (mm/min)	445	445	445	445	445	445
T	ALUMINUM ALLOYS 2017, 2024, 356, 6061, 7075	≤ 150 Bhn or ≤ 7 HRc	75 (60-90)	RPM	593768	95003	47501	23751	11875	7917
				Fr	0.0020	0.0123	0.0247	0.0493	0.0986	0.1479
				Feed (mm/min)	1171	1171	1171	1171	1171	1171
H	COPPER ALLOYS Alum Bronze, C110, Muntz Brass	≤ 140 Bhn or ≤ 3 HRc	55 (44-66)	RPM	436237	69798	34899	17449	8725	5816
				Fr	0.0020	0.0123	0.0247	0.0493	0.0987	0.1480
				Feed (mm/min)	861	861	861	861	861	861
I	PLASTICS Polycarbonate, PVC		75 (60-90)	RPM	593768	95003	47501	23751	11875	7917
				Fr	0.0020	0.0123	0.0247	0.0493	0.0986	0.1479
				Feed (mm/min)	1171	1171	1171	1171	1171	1171
S	HIGH TEMP ALLOYS (NICKEL, COBALT, IRON BASE) Inconel 601, 617, 625, Incoloy 800, Monel 400, Rene, Waspaloy	≤ 320 Bhn or ≤ 34 HRc	15 (12-18)	RPM	121177	19388	9694	4847	2424	1616
				Fr	0.0004	0.0028	0.0055	0.0110	0.0220	0.0330
				Feed (mm/min)	53	53	53	53	53	53
T	TITANIUM ALLOYS Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si	≤ 350 Bhn or ≤ 38 HRc	15 (12-18)	RPM	121177	19388	9694	4847	2424	1616
				Fr	0.0007	0.0042	0.0085	0.0170	0.0339	0.0509
				Feed (mm/min)	82	82	82	82	82	82
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 475 Bhn or ≤ 50 HRc	24 (20-29)	RPM	193883	31021	15511	7755	3878	2585
				Fr	0.0005	0.0033	0.0066	0.0131	0.0262	0.0393
				Feed (mm/min)	102	102	102	102	102	102

## Note:

- Bhn (Brinell)      HRc (Rockwell C)      HRb (Rockwell B)
- rpm =  $(V_c \times 1000) / (DC \times 3.14)$
- mm/min = Fr x rpm (Fr x maximum available rpm when recommendation exceeds machine limit)
- reduce speed and feed 30% when using uncoated drills
- reduce speed and feed for materials harder than listed
- refer to the KYOCERA SGS Tool Wizard® for complete technical information ([www.kyocera-sgstool.com](http://www.kyocera-sgstool.com))

## 2 Flute Internal Coolant



## TOLERANCES (mm)

## 1,0–3,0 DIAMETER

DC = +0,000/-0,006 (k6)

DCON = h6

## &gt;3,0–4,0 DIAMETER

DC = +0,000/-0,009 (k6)

DCON = h6

STEELS

STAINLESS STEELS

CAST IRON

NON-FERROUS

HIGHTEMP ALLOYS

HARDENED STEELS

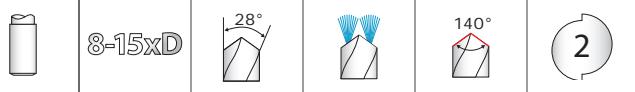
M814  
METRIC SERIES

DECIMAL DC	METRIC DC	SHANK DIAMETER DCON	OVERALL LENGTH OAL	FLUTE LENGTH LCF	CLEARED LENGTH LU	EDP NO.
mm						TI-NAMITE®-CR (AlCrN)
0.0394	1,000 mm	4,0	53,0	13,3	11,8	<a href="#">06000</a>
0.0394	1,000 mm	4,0	53,0	20,3	18,8	<a href="#">06031</a>
0.0433	1,100 mm	4,0	53,0	14,1	12,5	<a href="#">06001</a>
0.0433	1,100 mm	4,0	53,0	21,8	20,2	<a href="#">06032</a>
0.0472	1,200 mm	4,0	53,0	14,9	13,1	<a href="#">06002</a>
0.0472	1,200 mm	4,0	53,0	23,3	21,5	<a href="#">06033</a>
0.0512	1,300 mm	4,0	64,0	15,7	13,8	<a href="#">06003</a>
0.0512	1,300 mm	4,0	64,0	24,8	22,9	<a href="#">06034</a>
0.0551	1,400 mm	4,0	64,0	16,5	14,4	<a href="#">06004</a>
0.0551	1,400 mm	4,0	64,0	26,3	24,2	<a href="#">06035</a>
0.0591	1,500 mm	4,0	64,0	17,3	15,1	<a href="#">06005</a>
0.0591	1,500 mm	4,0	64,0	27,8	25,6	<a href="#">06036</a>
0.0630	1,600 mm	4,0	64,0	18,1	15,7	<a href="#">06006</a>
0.0630	1,600 mm	4,0	64,0	29,3	26,9	<a href="#">06037</a>
0.0669	1,700 mm	4,0	64,0	18,9	16,4	<a href="#">06007</a>
0.0669	1,700 mm	4,0	64,0	30,8	28,3	<a href="#">06038</a>
0.0709	1,800 mm	4,0	76,0	20,4	17,7	<a href="#">06008</a>
0.0709	1,800 mm	4,0	76,0	33,0	30,3	<a href="#">06039</a>
0.0748	1,900 mm	4,0	76,0	21,2	18,4	<a href="#">06009</a>
0.0748	1,900 mm	4,0	76,0	34,5	31,7	<a href="#">06040</a>
0.0787	2,000 mm	4,0	76,0	22,0	19,0	<a href="#">06010</a>
0.0787	2,000 mm	4,0	76,0	36,0	33,0	<a href="#">06041</a>
0.0827	2,100 mm	4,0	76,0	22,8	19,7	<a href="#">06011</a>
0.0827	2,100 mm	4,0	76,0	37,5	34,4	<a href="#">06042</a>
0.0866	2,200 mm	4,0	76,0	25,7	22,4	<a href="#">06012</a>
0.0866	2,200 mm	4,0	76,0	41,1	37,8	<a href="#">06043</a>
0.0906	2,300 mm	4,0	76,0	26,5	23,1	<a href="#">06013</a>
0.0906	2,300 mm	4,0	76,0	42,6	39,2	<a href="#">06044</a>
0.0945	2,400 mm	4,0	76,0	27,3	23,7	<a href="#">06014</a>
0.0945	2,400 mm	4,0	76,0	44,1	40,5	<a href="#">06045</a>
0.0984	2,500 mm	4,0	76,0	28,1	24,4	<a href="#">06015</a>
0.0984	2,500 mm	4,0	64,0	45,6	41,9	<a href="#">06046</a>

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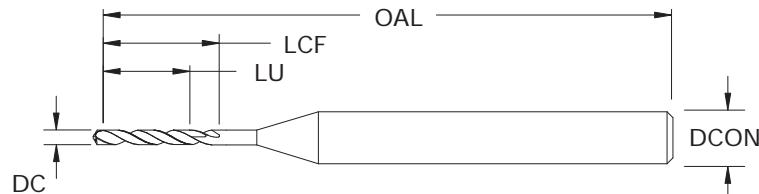
- Split point and double margin design provide superior hole finish and size control
- Coolant hole feature allows straight through drilling without a peck cycle
- Proprietary high-performance coating and mirror polished fluting increase tool life and productivity in moderate-to-difficult workpiece materials
- Available from stock in a selection of popular lengths and diameters
- Application specific sub-micron grain carbide designed specifically for micro-tool applications
- Manufactured in accordance with KSPT ISO certified quality procedures

# 2 Flute Internal Coolant



**M814**  
METRIC SERIES

continued



## TOLERANCES (mm)

### 1,0–3,0 DIAMETER

DC = +0,000/-0,006 (k6)

DCON = h6

### >3,0–4,0 DIAMETER

DC = +0,000/-0,009 (k6)

DCON = h6

STEELS

STAINLESS STEELS

CAST IRON

NON-FERROUS

HIGH TEMP ALLOYS

HARDENED STEELS

DECIMAL DC	METRIC DC	SHANK DIAMETER DCON	OVERALL LENGTH OAL	FLUTE LENGTH LCF	CLEARED LENGTH LU	EDP NO.
0.1024	2,600 mm	4,0	64,0	28,9	25,0	<a href="#">06016</a>
0.1024	2,600 mm	4,0	64,0	47,1	43,2	<a href="#">06047</a>
0.1063	2,700 mm	4,0	64,0	29,7	25,7	<a href="#">06017</a>
0.1063	2,700 mm	4,0	64,0	48,6	44,6	<a href="#">06048</a>
0.1102	2,800 mm	4,0	64,0	30,5	26,3	<a href="#">06018</a>
0.1102	2,800 mm	4,0	81,0	50,1	45,9	<a href="#">06049</a>
0.1142	2,900 mm	4,0	81,0	32,2	27,9	<a href="#">06019</a>
0.1142	2,900 mm	4,0	81,0	52,5	48,2	<a href="#">06050</a>
0.1181	3,000 mm	4,0	81,0	33,0	28,5	<a href="#">06020</a>
0.1181	3,000 mm	4,0	81,0	54,0	49,5	<a href="#">06051</a>
0.1220	3,100 mm	4,0	81,0	33,8	29,2	<a href="#">06021</a>
0.1220	3,100 mm	4,0	81,0	55,5	50,9	<a href="#">06052</a>
0.1260	3,200 mm	4,0	81,0	34,6	29,8	<a href="#">06022</a>
0.1260	3,200 mm	4,0	81,0	57,0	52,2	<a href="#">06053</a>
0.1299	3,300 mm	4,0	90,0	35,4	30,5	<a href="#">06023</a>
0.1299	3,300 mm	4,0	90,0	58,5	53,6	<a href="#">06054</a>
0.1339	3,400 mm	4,0	90,0	38,1	33,0	<a href="#">06024</a>
0.1339	3,400 mm	4,0	90,0	61,9	56,8	<a href="#">06055</a>
0.1378	3,500 mm	4,0	90,0	38,9	33,7	<a href="#">06025</a>
0.1378	3,500 mm	4,0	90,0	63,4	58,2	<a href="#">06056</a>
0.1417	3,600 mm	4,0	106,0	39,7	34,3	<a href="#">06026</a>
0.1417	3,600 mm	4,0	106,0	64,9	59,5	<a href="#">06057</a>
0.1457	3,700 mm	4,0	106,0	40,5	35,0	<a href="#">06027</a>
0.1457	3,700 mm	4,0	106,0	66,4	60,9	<a href="#">06058</a>
0.1496	3,800 mm	4,0	106,0	41,3	35,6	<a href="#">06028</a>
0.1496	3,800 mm	4,0	106,0	67,9	62,2	<a href="#">06059</a>
0.1535	3,900 mm	4,0	106,0	42,1	36,3	<a href="#">06029</a>
0.1535	3,900 mm	4,0	106,0	69,4	63,6	<a href="#">06060</a>
0.1575	4,000 mm	4,0	106,0	42,9	36,9	<a href="#">06030</a>
0.1575	4,000 mm	4,0	106,0	70,9	64,9	<a href="#">06061</a>

METRIC  
**Series M814 8xD**

Series M814 8xD		Hardness	Vc (m/min)	DC • mm				
				1	2	3	4	
P	<b>CARBON STEELS</b> 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 175 Bhn or ≤ 7 HRc	125 (100-150)	RPM	39746	19873	13249	9937
				Fr	0.023	0.046	0.069	0.092
				Feed (mm/min)	909	909	909	909
ALLOY STEELS	4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100	≤ 275 Bhn or ≤ 28 HRc	94 (76-113)	RPM	30052	15026	10017	7513
				Fr	0.022	0.043	0.065	0.086
				Feed (mm/min)	648	648	648	648
M	<b>STAINLESS STEELS (FREE MACHINING)</b> 303, 416, 420F, 430F, 440F	≤ 250 Bhn or ≤ 24 HRc	64 (51-77)	RPM	20358	10179	6786	5089
				Fr	0.018	0.036	0.054	0.071
				Feed (mm/min)	363	363	363	363
M	<b>STAINLESS STEELS (DIFFICULT)</b> 304, 316, 321, 13-8 PH, 15-5PH, 17-4 PH, CUSTOM 450	≤ 275 Bhn or ≤ 28 HRc	38 (30-46)	RPM	12118	6059	4039	3029
				Fr	0.014	0.028	0.042	0.056
				Feed (mm/min)	170	170	170	170
K	<b>CAST IRONS</b> Gray, Malleable, Ductile	≤ 220 Bhn or ≤ 19 HRc	130 (104-155)	RPM	41200	20600	13733	10300
				Fr	0.032	0.063	0.095	0.127
				Feed (mm/min)	1308	1308	1308	1308
N	<b>ALUMINUM ALLOYS</b> 2017, 2024, 356, 6061, 7075	≤ 150 Bhn or ≤ 7 HRc	130 (104-155)	RPM	41200	20600	13733	10300
				Fr	0.039	0.079	0.118	0.158
				Feed (mm/min)	1626	1626	1626	1626
N	<b>COPPER ALLOYS</b> Alum Bronze, C110, Muntz Brass	≤ 140 Bhn or ≤ 3 HRc	99 (79-119)	RPM	31506	15753	10502	7877
				Fr	0.011	0.023	0.034	0.045
				Feed (mm/min)	356	356	356	356
H	<b>PLASTICS</b> Polycarbonate, PVC		152 (122-183)	RPM	48471	24235	16157	12118
				Fr	0.024	0.047	0.071	0.094
				Feed (mm/min)	1143	1143	1143	1143
S	<b>HIGH TEMP ALLOYS</b> (NICKEL, COBALT, IRON BASE) Inconel 601, 617, 625, Incoloy 800, Monel 400, Rene, Waspaloy	≤ 320 Bhn or ≤ 34 HRc	27 (22-33)	RPM	8725	4362	2908	2181
				Fr	0.010	0.019	0.029	0.038
				Feed (mm/min)	84	84	84	84
S	<b>TITANIUM ALLOYS</b> Pure Titanium, Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si	≤ 350 Bhn or ≤ 38 HRc	46 (37-55)	RPM	14541	7271	4847	3635
				Fr	0.010	0.020	0.030	0.041
				Feed (mm/min)	147	147	147	147
H	<b>TOOL STEELS</b> A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 475 Bhn or ≤ 50 HRc	46 (37-55)	RPM	14541	7271	4847	3635
				Fr	0.010	0.020	0.030	0.041
				Feed (mm/min)	147	147	147	147

**Note:**

- Bhn (Brinell)      HRc (Rockwell C)      HRb (Rockwell B)
- rpm =  $(V_c \times 1000) / (DC \times 3.14)$
- mm/min = Fr x rpm (Fr x maximum available rpm when recommendation exceeds machine limit)
- reduce speed and feed 30% when using uncoated drills
- reduce speed and feed for materials harder than listed
- refer to the KYOCERA SGS Tool Wizard® for complete technical information ([www.kyocera-sgstool.com](http://www.kyocera-sgstool.com))

# Series M814 15xD

		Vc (m/min)	DC • mm			
	Hardness		1	2	3	4
P	<b>CARBON STEELS</b> 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 175 Bhn or ≤ 7 HRc	125 (100-150)	RPM <u>39746</u> Fr 0.016 Feed (mm/min) 635	19873 0.032 635 635	13249 0.048 635 635
	<b>ALLOY STEELS</b> 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100	≤ 275 Bhn or ≤ 28 HRc	94 (76-113)	RPM <u>30052</u> Fr 0.014 Feed (mm/min) 419	15026 0.028 419 419	10017 0.042 419 419
	<b>STAINLESS STEELS (FREE MACHINING)</b> 303, 416, 420F, 430F, 440F	≤ 275 Bhn or ≤ 28 HRc	65 (51-77)	RPM 20358 Fr 0.012 Feed (mm/min) 241	10179 0.024 241 241	6786 0.036 241 241
M	<b>STAINLESS STEELS (DIFFICULT)</b> 304, 316, 321, 13-8 PH, 15-5PH, 17-4 PH, CUSTOM 450	≤ 325 Bhn or ≤ 35 HRc	38 (30-46)	RPM 12118 Fr 0.009 Feed (mm/min) 114	6059 0.019 114 114	4039 0.028 114 114
	<b>CAST IRONS</b> Gray, Malleable, Ductile	≤ 220 Bhn or ≤ 19 HRc	130 (104-155)	RPM 41200 Fr 0.022 Feed (mm/min) 889	20600 0.043 889 889	13733 0.065 889 889
	<b>ALUMINUM ALLOYS</b> 2017, 2024, 356, 6061, 7075	≤ 150 Bhn or ≤ 7 HRc	130 (104-155)	RPM 41200 Fr 0.029 Feed (mm/min) 1181	20600 0.057 1181 1181	13733 0.086 1181 1181
N	<b>COPPER ALLOYS</b> Alum Bronze, C110, Muntz Brass	≤ 140 Bhn or ≤ 3 HRc	99 (79-119)	RPM 31506 Fr 0.029 Feed (mm/min) 902	15753 0.057 902 902	10502 0.086 902 902
	<b>PLASTICS</b> Polycarbonate, PVC		152 (122-183)	RPM 48471 Fr 0.017 Feed (mm/min) 800	24235 0.033 800 800	16157 0.050 800 800
	<b>HIGH TEMP ALLOYS (NICKEL, COBALT, IRON BASE)</b> Inconel 601, 617, 625, Incoloy 800, Monel 400, Rene, Waspaloy	≤ 320 Bhn or ≤ 34 HRc	27 (22-33)	RPM 8725 Fr 0.006 Feed (mm/min) 51	4362 0.012 51 51	2908 0.017 51 51
S	<b>TITANIUM ALLOYS</b> Pure Titanium, Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si	≤ 350 Bhn or ≤ 38 HRc	46 (37-55)	RPM 14541 Fr 0.007 Feed (mm/min) 102	7271 0.014 102 102	4847 0.021 102 102
	<b>TOOL STEELS</b> A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 475 Bhn or ≤ 50 HRc	46 (37-55)	RPM 14541 Fr 0.007 Feed (mm/min) 102	7271 0.014 102 102	4847 0.021 102 102

**Note:**

- Bhn (Brinell)    HRc (Rockwell C)    HRb (Rockwell B)
- rpm =  $(V_c \times 1000) / (DC \times 3.14)$
- mm/min = Fr x rpm (Fr x maximum available rpm when recommendation exceeds machine limit)
- reduce speed and feed 30% when using uncoated drills
- reduce speed and feed for materials harder than listed
- refer to the KYOCERA SGS Tool Wizard® for complete technical information ([www.kyocera-sgstool.com](http://www.kyocera-sgstool.com))

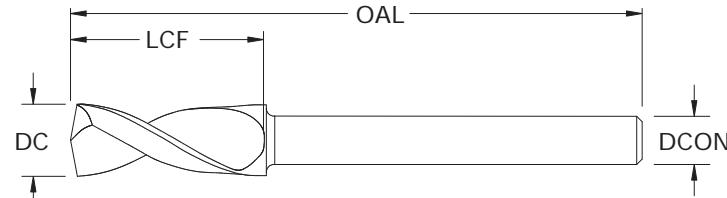
# 2 Flute Inverse Shank Drill External Coolant



**TOLERANCES (inch)**  
**0.1260–0.2638 DIAMETER**  
**DC = +.0000/-0.0004**  
**DCON = +0.00016/-0.00016**

**TOLERANCES (mm)**  
**3.2–6.7 DIAMETER**  
**DC = +0.000/-0.010**  
**DCON = +0.004/-0.004**

NON-FERROUS  
HIGH TEMP ALLOYS



## M155

FRACTIONAL & METRIC SERIES

DECIMAL DC	METRIC DC	FRACTIONAL/ LETTER/WIRE DC	SHANK DIAMETER DCON	inch & mm			EDP NO.
				OVERALL LENGTH OAL	FLUTE LENGTH LCF	USABLE LENGTH LU	
0.1260	3,200 mm		1/8	1-1/2	0.500	0.500	<a href="#">06069</a>
0.1280	3,250 mm		1/8	1-1/2	0.500	0.500	<a href="#">06070</a>
0.1285	3,264 mm	#30	1/8	1-1/2	0.500	0.500	<a href="#">06071</a>
0.1299	3,300 mm		1/8	1-1/2	0.500	0.500	<a href="#">06072</a>
0.1319	3,350 mm		1/8	1-1/2	0.500	0.500	<a href="#">06073</a>
0.1339	3,400 mm		1/8	1-1/2	0.500	0.500	<a href="#">06074</a>
0.1358	3,450 mm		1/8	1-1/2	0.500	0.500	<a href="#">06075</a>
0.1360	3,454 mm	#29	1/8	1-1/2	0.500	0.500	<a href="#">06076</a>
0.1378	3,500 mm		1/8	1-1/2	0.500	0.500	<a href="#">06077</a>
0.1398	3,550 mm		1/8	1-1/2	0.500	0.500	<a href="#">06078</a>
0.1405	3,569 mm	#28	1/8	1-1/2	0.500	0.500	<a href="#">06079</a>
0.1406	3,571 mm	9/64	1/8	1-1/2	0.500	0.500	<a href="#">06080</a>
0.1417	3,600 mm		1/8	1-1/2	0.500	0.500	<a href="#">06081</a>
0.1437	3,650 mm		1/8	1-1/2	0.500	0.500	<a href="#">06082</a>
0.1440	3,658 mm	#27	1/8	1-1/2	0.500	0.500	<a href="#">06083</a>
0.1457	3,700 mm		1/8	1-1/2	0.500	0.500	<a href="#">06084</a>
0.1470	3,734 mm	#26	1/8	1-1/2	0.500	0.500	<a href="#">06085</a>
0.1476	3,750 mm		1/8	1-1/2	0.500	0.500	<a href="#">06086</a>
0.1495	3,797 mm	#25	1/8	1-1/2	0.500	0.500	<a href="#">06087</a>
0.1496	3,800 mm		1/8	1-1/2	0.500	0.500	<a href="#">06088</a>
0.1516	3,850 mm		1/8	1-1/2	0.500	0.500	<a href="#">06089</a>
0.1520	3,861 mm	#24	1/8	1-1/2	0.500	0.500	<a href="#">06090</a>
0.1535	3,900 mm		1/8	1-1/2	0.500	0.500	<a href="#">06091</a>
0.1540	3,912 mm	#23	1/8	1-1/2	0.500	0.500	<a href="#">06092</a>
0.1555	3,950 mm		1/8	1-1/2	0.500	0.500	<a href="#">06093</a>
0.1562	3,967 mm	5/32	1/8	1-1/2	0.500	0.500	<a href="#">06094</a>
0.1570	3,988 mm	#22	1/8	1-1/2	0.500	0.500	<a href="#">06095</a>
0.1575	4,000 mm		1/8	1-1/2	0.500	0.500	<a href="#">06096</a>
0.1590	4,039 mm	#21	1/8	1-1/2	0.500	0.500	<a href="#">06097</a>
0.1594	4,050 mm		1/8	1-1/2	0.500	0.500	<a href="#">06098</a>
0.1610	4,089 mm	#20	1/8	1-1/2	0.500	0.500	<a href="#">06099</a>
0.1614	4,100 mm		1/8	1-1/2	0.500	0.500	<a href="#">06100</a>
0.1634	4,150 mm		1/8	1-1/2	0.500	0.500	<a href="#">06101</a>
0.1654	4,200 mm		1/8	1-1/2	0.500	0.500	<a href="#">06102</a>
0.1660	4,216 mm	#19	1/8	1-1/2	0.500	0.500	<a href="#">06103</a>
0.1673	4,250 mm		1/8	1-1/2	0.500	0.500	<a href="#">06104</a>
0.1693	4,300 mm		1/8	1-1/2	0.500	0.500	<a href="#">06105</a>
0.1695	4,305 mm	#18	1/8	1-1/2	0.500	0.500	<a href="#">06106</a>
0.1713	4,350 mm		1/8	1-1/2	0.500	0.500	<a href="#">06107</a>
0.1719	4,366 mm	11/64	1/8	1-1/2	0.500	0.500	<a href="#">06108</a>

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- Optimal end geometry ideal for a variety of materials
- 4-faceted point geometry provides centering assistance upon entry
- Mirror surface finish is applied to allow for smooth chip flow
- Wide diameters offer ability to drill larger than average holes than is commonly possible in micro spindles
- Application specific sub-micron grain carbide designed specifically for micro-tool applications
- Manufactured in accordance with KSPT ISO certified quality procedures

# 2 Flute Inverse Shank Drill External Coolant



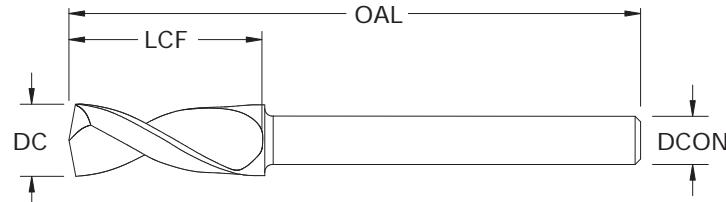
1.5-3xD



## M155

FRACTIONAL &amp; METRIC SERIES

continued

**TOLERANCES (inch)****0.1260–0.2638 DIAMETER**

DC = +.0000/-0.0004

DCON = +0.00016/-0.00016

**TOLERANCES (mm)****3.2–6.7 DIAMETER**

DC = +0.000/-0.010

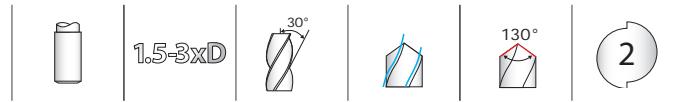
DCON = +0.004/-0.004

**NON-FERROUS****HIGH TEMP ALLOYS**

DECIMAL DC	METRIC DC	FRACTIONAL/LETTER/WIRE DC	SHANK DIAMETER DCON	OVERALL LENGTH OAL	FLUTE LENGTH LCF	USABLE LENGTH LU	EDP NO.	
							UNCOATED	COATED
0.1730	4,394 mm	#17	1/8	1-1/2	0.500	0.500	<a href="#">06109</a>	<a href="#">06109</a>
0.1732	4,400 mm		1/8	1-1/2	0.500	0.500	<a href="#">06110</a>	<a href="#">06110</a>
0.1752	4,450 mm		1/8	1-1/2	0.500	0.500	<a href="#">06111</a>	<a href="#">06111</a>
0.1770	4,496 mm	#16	1/8	1-1/2	0.500	0.500	<a href="#">06112</a>	<a href="#">06112</a>
0.1772	4,500 mm		1/8	1-1/2	0.500	0.500	<a href="#">06113</a>	<a href="#">06113</a>
0.1791	4,550 mm		1/8	1-1/2	0.500	0.500	<a href="#">06114</a>	<a href="#">06114</a>
0.1800	4,572 mm	#15	1/8	1-1/2	0.500	0.500	<a href="#">06115</a>	<a href="#">06115</a>
0.1811	4,600 mm		1/8	1-1/2	0.500	0.500	<a href="#">06116</a>	<a href="#">06116</a>
0.1820	4,623 mm	#14	1/8	1-1/2	0.500	0.500	<a href="#">06117</a>	<a href="#">06117</a>
0.1831	4,650 mm		1/8	1-1/2	0.500	0.500	<a href="#">06118</a>	<a href="#">06118</a>
0.1850	4,700 mm	#13	1/8	1-1/2	0.500	0.500	<a href="#">06120</a>	<a href="#">06120</a>
0.1870	4,750 mm		1/8	1-1/2	0.500	0.500	<a href="#">06121</a>	<a href="#">06121</a>
0.1875	4,763 mm	3/16	1/8	1-1/2	0.500	0.500	<a href="#">06122</a>	<a href="#">06122</a>
0.1890	4,800 mm	#12	1/8	1-1/2	0.500	0.500	<a href="#">06124</a>	<a href="#">06124</a>
0.1909	4,850 mm		1/8	1-1/2	0.500	0.500	<a href="#">06125</a>	<a href="#">06125</a>
0.1910	4,851 mm	#11	1/8	1-1/2	0.500	0.500	<a href="#">06126</a>	<a href="#">06126</a>
0.1929	4,900 mm		1/8	1-1/2	0.500	0.500	<a href="#">06127</a>	<a href="#">06127</a>
0.1935	4,915 mm	#10	1/8	1-1/2	0.500	0.500	<a href="#">06128</a>	<a href="#">06128</a>
0.1949	4,950 mm		1/8	1-1/2	0.500	0.500	<a href="#">06129</a>	<a href="#">06129</a>
0.1960	4,978 mm	#9	1/8	1-1/2	0.500	0.500	<a href="#">06130</a>	<a href="#">06130</a>
0.1968	5,000 mm		1/8	1-1/2	0.500	0.500	<a href="#">06131</a>	<a href="#">06131</a>
0.1988	5,050 mm		1/8	1-1/2	0.500	0.500	<a href="#">06132</a>	<a href="#">06132</a>
0.1990	5,055 mm	#8	1/8	1-1/2	0.500	0.500	<a href="#">06133</a>	<a href="#">06133</a>
0.2008	5,100 mm		1/8	1-1/2	0.500	0.500	<a href="#">06134</a>	<a href="#">06134</a>
0.2010	5,105 mm	#7	1/8	1-1/2	0.500	0.500	<a href="#">06135</a>	<a href="#">06135</a>
0.2028	5,150 mm		1/8	1-1/2	0.500	0.500	<a href="#">06136</a>	<a href="#">06136</a>
0.2031	5,159 mm	13/64	1/8	1-1/2	0.500	0.500	<a href="#">06137</a>	<a href="#">06137</a>
0.2040	5,182 mm	#6	1/8	1-1/2	0.500	0.500	<a href="#">06138</a>	<a href="#">06138</a>
0.2047	5,200 mm		1/8	1-1/2	0.500	0.500	<a href="#">06139</a>	<a href="#">06139</a>
0.2055	5,220 mm	#5	1/8	1-1/2	0.500	0.500	<a href="#">06140</a>	<a href="#">06140</a>
0.2067	5,250 mm		1/8	1-1/2	0.500	0.500	<a href="#">06141</a>	<a href="#">06141</a>
0.2087	5,300 mm		1/8	1-1/2	0.500	0.500	<a href="#">06142</a>	<a href="#">06142</a>
0.2090	5,309 mm	#4	1/8	1-1/2	0.500	0.500	<a href="#">06143</a>	<a href="#">06143</a>
0.2106	5,350 mm		1/8	1-1/2	0.500	0.500	<a href="#">06144</a>	<a href="#">06144</a>
0.2126	5,400 mm		1/8	1-1/2	0.500	0.500	<a href="#">06145</a>	<a href="#">06145</a>
0.2130	5,410 mm	#3	1/8	1-1/2	0.500	0.500	<a href="#">06146</a>	<a href="#">06146</a>
0.2146	5,450 mm		1/8	1-1/2	0.500	0.500	<a href="#">06147</a>	<a href="#">06147</a>
0.2165	5,500 mm		1/8	1-1/2	0.500	0.500	<a href="#">06148</a>	<a href="#">06148</a>
0.2185	5,550 mm		1/8	1-1/2	0.500	0.500	<a href="#">06149</a>	<a href="#">06149</a>
0.2188	5,558 mm	7/32	1/8	1-1/2	0.500	0.500	<a href="#">06150</a>	<a href="#">06150</a>

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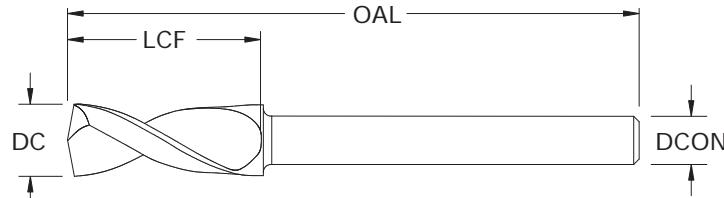
# 2 Flute Inverse Shank Drill External Coolant



**TOLERANCES (inch)**  
0.1260–0.2638 DIAMETER  
DC = +.0000/-0.0004  
DCON = +0.00016/-0.00016

**TOLERANCES (mm)**  
3.2–6.7 DIAMETER  
DC = +0.000/-0.010  
DCON = +0.004/-0.004

NON-FERROUS  
HIGH TEMP ALLOYS



## M155

FRACTIONAL & METRIC SERIES

*continued*

DECIMAL DC	METRIC DC	FRACTIONAL/LETTER/WIRE DC	SHANK DIAMETER DCON	inch & mm			EDP NO.
				OVERALL LENGTH OAL	FLUTE LENGTH LCF	USABLE LENGTH LU	
0.2205	5,600 mm		1/8	1-1/2	0.500	0.500	<a href="#">06151</a>
0.2210	5,613 mm	#2	1/8	1-1/2	0.500	0.500	<a href="#">06152</a>
0.2224	5,650 mm		1/8	1-1/2	0.500	0.500	<a href="#">06153</a>
0.2244	5,700 mm		1/8	1-1/2	0.500	0.500	<a href="#">06154</a>
0.2264	5,750 mm		1/8	1-1/2	0.500	0.500	<a href="#">06155</a>
0.2280	5,791 mm	#1	1/8	1-1/2	0.500	0.500	<a href="#">06156</a>
0.2283	5,800 mm		1/8	1-1/2	0.500	0.500	<a href="#">06157</a>
0.2302	5,850 mm		1/8	1-1/2	0.500	0.500	<a href="#">06158</a>
0.2323	5,900 mm		1/8	1-1/2	0.500	0.500	<a href="#">06159</a>
0.2340	5,944 mm	A	1/8	1-1/2	0.500	0.500	<a href="#">06160</a>
0.2343	5,950 mm		1/8	1-1/2	0.500	0.500	<a href="#">06161</a>
0.2344	5,954 mm	15/64	1/8	1-1/2	0.500	0.500	<a href="#">06162</a>
0.2362	6,000 mm		1/8	1-1/2	0.500	0.500	<a href="#">06163</a>
0.2380	6,045 mm	B	1/8	1-1/2	0.500	0.500	<a href="#">06164</a>
0.2382	6,050 mm		1/8	1-1/2	0.500	0.500	<a href="#">06165</a>
0.2402	6,100 mm		1/8	1-1/2	0.500	0.500	<a href="#">06166</a>
0.2420	6,147 mm	C	1/8	1-1/2	0.500	0.500	<a href="#">06167</a>
0.2421	6,150 mm		1/8	1-1/2	0.500	0.500	<a href="#">06168</a>
0.2441	6,200 mm		1/8	1-1/2	0.500	0.500	<a href="#">06169</a>
0.2460	6,248 mm	D	1/8	1-1/2	0.500	0.500	<a href="#">06170</a>
0.2461	6,250 mm		1/8	1-1/2	0.500	0.500	<a href="#">06171</a>
0.2480	6,300 mm		1/8	1-1/2	0.500	0.500	<a href="#">06172</a>
0.2500	6,350 mm	1/4 E	1/8	1-1/2	0.500	0.500	<a href="#">06173</a>
0.2520	6,400 mm		1/8	1-1/2	0.500	0.500	<a href="#">06176</a>
0.2559	6,500 mm		1/8	1-1/2	0.500	0.500	<a href="#">06177</a>
0.2570	6,528 mm	F	1/8	1-1/2	0.500	0.500	<a href="#">06178</a>
0.2598	6,600 mm		1/8	1-1/2	0.500	0.500	<a href="#">06179</a>
0.2610	6,629 mm	G	1/8	1-1/2	0.500	0.500	<a href="#">06180</a>
0.2638	6,700 mm		1/8	1-1/2	0.500	0.500	<a href="#">06181</a>

## FRACTIONAL

# Series M155

Series M155		Hardness	Vc (sfm)	DC • in					
				0.126	0.158	0.197	0.236	0.264	
<b>N</b>	<b>ALUMINUM ALLOYS</b> 2017, 2024, 356, 6061, 7075	≤ 150 Bhn or ≤ 7 HRc	450 (360-540)	RPM	13643	10914	8730	7278	6516
				Fr	0.00550	0.00687	0.0086	0.0103	0.0115
				Feed (ipm)	75.0	75.0	75.0	75.0	75.0
<b>N</b>	<b>COPPER ALLOYS</b> Alum Bronze, C110, Muntz Brass	≤ 140 Bhn or ≤ 3 HRc	350 (280-420)	RPM	10611	8489	6790	5660	5068
				Fr	0.00547	0.00683	0.0085	0.0102	0.0114
				Feed (ipm)	58.0	58.0	58.0	58.0	58.0
<b>P</b>	<b>PLASTICS</b> Polycarbonate, PVC		575 (460-690)	RPM	17433	13946	11155	9299	8326
				Fr	0.00631	0.00789	0.0099	0.0118	0.0132
				Feed (ipm)	110.0	110.0	110.0	110.0	110.0
<b>S</b>	<b>TITANIUM ALLOYS</b> Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si	≤ 350 Bhn or ≤ 38 HRc	100 (80-120)	RPM	3032	2425	1940	1617	1448
				Fr	0.00185	0.00231	0.0029	0.0035	0.0039
				Feed (ipm)	5.6	5.6	5.6	5.6	5.6

**Note:**

- Bhn (Brinell)      HRc (Rockwell C)      HRb (Rockwell B)
- rpm = Vc x 3.82 / DC
- ipm = Fr x rpm (Fr x maximum available rpm when recommendation exceeds machine limit)
- reduce speed and feed for materials harder than listed
- refer to the KYOCERA SGS Tool Wizard® for complete technical information ([www.kyocera-sgstool.com](http://www.kyocera-sgstool.com))

## METRIC

# Series M155

Series M155		Hardness	Vc (m/min)	DC • mm					
				3	4	5	6	7	
<b>N</b>	<b>ALUMINUM ALLOYS</b> 2017, 2024, 356, 6061, 7075	≤ 150 Bhn or ≤ 7 HRc	137 (110-165)	RPM	14541	10906	8725	7271	6232
				Fr	0.1310	0.1747	0.2183	0.2620	0.3057
				Feed (mm/min)	1905	1905	1905	1905	1905
<b>N</b>	<b>COPPER ALLOYS</b> Alum Bronze, C110, Muntz Brass	≤ 140 Bhn or ≤ 3 HRc	107 (85-128)	RPM	11310	8482	6786	5655	4847
				Fr	0.1303	0.1737	0.2171	0.2605	0.3039
				Feed (mm/min)	1473	1473	1473	1473	1473
<b>P</b>	<b>PLASTICS</b> Polycarbonate, PVC		175 (140-210)	RPM	18580	13935	11148	9290	7963
				Fr	0.1504	0.2005	0.2506	0.3007	0.3509
				Feed (mm/min)	2794	2794	2794	2794	2794
<b>S</b>	<b>TITANIUM ALLOYS</b> Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si	≤ 350 Bhn or ≤ 38 HRc	30 (24-37)	RPM	3231	2424	1939	1616	1385
				Fr	0.0440	0.0587	0.0734	0.0880	0.1027
				Feed (mm/min)	142	142	142	142	142

**Note:**

- Bhn (Brinell)      HRc (Rockwell C)      HRb (Rockwell B)
- rpm = (Vc x 1000) / (DC x 3.14)
- mm/min = Fr x rpm (Fr x maximum available rpm when recommendation exceeds machine limit)
- reduce speed and feed for materials harder than listed
- refer to the KYOCERA SGS Tool Wizard® for complete technical information ([www.kyocera-sgstool.com](http://www.kyocera-sgstool.com))

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08833	29	08923	29	09013	67	09103	69	09193	68	09283	90
08834	31	08924	31	09014	62	09104	64	09194	63	09284	90
08835	33	08925	33	09015	67	09105	69	09195	68	09285	90
08836	30	08926	29	09016	62	09106	64	09196	63	09286	90
08837	31	08927	31	09017	67	09107	69	09197	68	09287	90
08838	33	08928	33	09018	63	09108	64	09198	63	09288	90
08839	30	08929	29	09019	68	09109	69	09199	68	09289	90
08840	32	08930	31	09020	63	09110	64	09200	63	09290	90
08841	34	08931	33	09021	68	09111	69	09201	68	09291	90
08842	30	08932	29	09022	63	09112	64	09202	64	09292	90
08843	32	08933	31	09023	68	09113	69	09203	68	09293	90
08844	34	08934	33	09024	63	09114	64	09204	64	09294	90
08845	30	08935	29	09025	68	09115	69	09205	68	09295	90
08846	32	08936	31	09026	63	09116	65	09206	64	09296	90
08847	34	08937	33	09027	68	09117	69	09207	68	09297	90
08848	30	08938	30	09028	63	09118	65	09208	64	09298	25
08849	32	08939	31	09029	68	09119	69	09209	69	09299	24
08850	34	08940	33	09030	63	09120	65	09210	64	09300	25
08851	30	08941	30	09031	68	09121	69	09211	69	09301	24
08852	32	08942	32	09032	63	09122	65	09212	64	09302	25
08853	34	08943	34	09033	68	09123	69	09213	69	09303	24
08854	30	08944	30	09034	63	09124	65	09214	64	09304	25
08855	32	08945	32	09035	68	09125	69	09215	69	09305	24
08856	34	08946	34	09036	63	09126	61	09216	64	09306	25
08857	30	08947	30	09037	68	09127	66	09217	69	09307	24
08858	32	08948	32	09038	63	09128	61	09218	64	09308	25
08859	34	08949	34	09039	68	09129	66	09219	69	09309	24
08860	30	08950	30	09040	63	09130	61	09220	64	09310	25
08861	32	08951	32	09041	68	09131	66	09221	69	09311	24
08862	34	08952	34	09042	63	09132	61	09222	64	09312	25
08863	30	08953	30	09043	68	09133	66	09223	69	09313	24
08864	32	08954	32	09044	63	09134	62	09224	64	09314	25
08865	34	08955	34	09045	68	09135	67	09225	69	09315	24
08866	30	08956	30	09046	63	09136	62	09226	64	09316	25
08867	32	08957	32	09047	68	09137	67	09227	69	09317	24

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09411	48	09481	48	09551	48	09621	29	09691	29	09830	80
09412	49	09482	49	09552	49	09622	31	09692	31	09831	79
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09418	48	09488	48	09558	48	09628	29	09698	29	09837	79
09419	49	09489	49	09559	49	09629	31	09699	31	09838	71
09420	50	09490	50	09560	50	09630	33	09700	33	09839	70
09421	51	09491	51	09561	51	09631	35	09701	35	09840	71
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09424	47	09494	47	09564	47	09634	28	09704	28	09843	71
09425	48	09495	48	09565	48	09635	29	09705	29	09845	70
09426	49	09496	49	09566	49	09636	31	09706	31	09846	71
09427	50	09497	50	09567	50	09637	33	09707	33	09847	70
09428	51	09498	51	09568	51	09638	35	09708	35	09848	71
09429	52	09499	52	09569	52	09639	36	09709	36	09849	70
09430	53	09500	53	09570	53	09640	37	09710	37	09850	71
09431	47	09501	47	09571	47	09641	28	09711	28	09851	70
09432	48	09502	48	09572	48	09642	29	09712	30	09852	71
09433	49	09503	49	09573	49	09643	31	09713	31	09853	70
09434	50	09504	50	09574	50	09644	33	09714	34	09854	71
09435	51	09505	51	09575	51	09645	35	09715	35	09855	70
09436	52	09506	52	09576	52	09646	36	09716	36	09856	71
09437	53	09507	53	09577	53	09647	37	09717	37	09857	70
09438	47	09508	47	09578	47	09648	28	09718	28	09858	71
09439	48	09509	48	09579	48	09649	29	09719	30	09859	70
09440	49	09510	49	09580	49	09650	31	09720	32	09860	71
09441	50	09511	50	09581	50	09651	33	09721	34	09861	70
09442	51	09512	51	09582	51	09652	35	09722	35	09862	71
09443	52	09513	52	09583	52	09653	36	09723	36	09863	70
09444	53	09514	53	09584	53	09654	37	09724	37	09864	71
09445	47	09515	47	09585	47	09655	28	09725	28	09865	70
09446	48	09516	48	09586	48	09656	29	09726	30	09866	71
09447	49	09517	49	09587	49	09657	31	09727	32	09867	70
09448	50	09518	50	09588	50	09658	33	09728	34	09868	71
09449	51	09519	51	09589	51	09659	35	09729	35	09869	70
09450	52	09520	52	09590	52	09660	36	09730	36	09870	71
09451	53	09521	53	09591	53	09661	37	09731	37	09871	70
09452	47	09522	47	09592	47	09662	28	09732	28	09872	71
09453	48	09523	48	09593	48	09663	29	09733	30	09873	70
09454	49	09524	49	09594	49	09664	31	09734	32	09874	71
09455	50	09525	50	09595	53	09665	33	09735	34	09875	70
09456	51	09526	51	09596	35	09666	35	09736	35	09876	71
09457	52	09527	52	09597	36	09667	36	09737	36	09877	70
09458	53	09528	53	09598	37	09668	37	09738	37	09878	71
09459	47	09529	47	09599	28	09669	28	09739	28	09879	70
09460	48	09530	48	09600	29	09670	29	09740	30	09880	71
09461	49	09531	49	09601	31	09671	31	09741	32	09881	70
09462	50	09532	50	09602	33	09672	33	09742	34	09882	71
09463	51	09533	51	09603	35	09673	35	09743	35	09883	70
09464	52	09534	52	09604	36	09674	36	09744	36	09884	71
09465	53	09535	53	09605	37	09675	37	09745	37	09885	70
09466	47	09536	47	09606	28	09676	28	09746	28	09886	71
09467	48	09537	48	09607	29	09677	29	09747	30	09887	70
09468	49	09538	49	09608	31	09678	31	09748	32	09888	71
09469	50	09539	50	09609	33	09679	33	09749	34	09889	70
09470	51	09540	51	09610	35	09680	35	09750	35	09890	71
09471	52	09541	52	09611	36	09681	36	09751	36	09891	70
09472	53	09542	53	09612	37	09682	37	09752	37	09892	80
09473	47	09543	47	09613	28	09683	28	09753	28	09893	79
09474	48	09544	48	09614	29	09684	29	09754	30	09894	80
09475	49	09545	49	09615	31	09685	31	09755	32	09895	79
09476	50	09546	50	09616	33	09686	33	09756	34	09896	80
09477	51	09547	51	09617	35	09687	35	09757	35	09897	79

# 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	B	6,05	0.2380	–	8,90	0.3504	9/16	14,29	0.5625
#79	0,37	0.0145	–	1,80	0.0709	#25	3,80	0.1495	–	6,10	0.2402	–	9,00	0.3543	–	14,50	0.5709
1/64	0,40	0.0156	#49	1,85	0.0728	–	3,80	0.1496	C	6,15	0.2420	T	9,09	0.3580	37/64	14,68	0.5781
#78	0,41	0.0160	–	1,90	0.0748	#24	3,86	0.1520	–	6,20	0.2441	–	9,10	0.3583	–	15,00	0.5906
–	0,45	0.0177	#48	1,93	0.0760	–	3,90	0.1535	D	6,25	0.2461	23/64	9,13	0.3594	19/32	15,08	0.5938
#77	0,46	0.0180	–	1,95	0.0768	#23	3,91	0.1540	E	6,35	0.2500	–	9,25	0.3642	–	15,50	0.6102
–	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	G	6,63	0.2610	–	9,30	0.3661	5/8	15,88	0.6250
#75	0,53	0.0210	–	2,00	0.0787	–	4,00	0.1575	1/4	6,35	0.2500	U	9,35	0.3680	–	16,00	0.6299
–	0,55	0.0217	–	2,05	0.0807	#21	4,04	0.1590	–	6,40	0.2520	–	9,40	0.3701	41/64	16,27	0.6406
#74	0,57	0.0225	#46	2,06	0.0810	#20	4,09	0.1610	–	6,50	0.2559	–	9,50	0.3740	–	16,50	0.6496
–	0,60	0.0236	#45	2,08	0.0820	–	4,10	0.1614	F	6,53	0.2570	–	9,50	0.3750	21/32	16,67	0.6562
#73	0,61	0.0240	–	2,10	0.0827	–	4,20	0.1654	–	6,60	0.2598	3/8	9,53	0.3750	43/64	17,07	0.6719
#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	11/16	17,46	0.6875
#71	0,66	0.0260	–	2,20	0.0866	–	4,30	0.1693	17/64	6,75	0.2656	–	9,70	0.3819	–	17,50	0.6890
–	0,70	0.0276	–	2,25	0.0886	#18	4,31	0.1695	H	6,76	0.2660	–	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

## SOLUTIONS AROUND THE GLOBE

KYOCERA SGS Precision Tools is an ISO 9001:2015 Certified leader of round solid carbide cutting tool technology for the aerospace, metalworking, and automotive industries with manufacturing sites in the United States and United Kingdom. Our global network of Sales Representatives, Industrial Distributors, and Agents blanket the world selling into more than 60 countries.

## LEADERS IN SOLID CARBIDE TOOL TECHNOLOGY

Brand names such as Z-Carb, S-Carb®, V-Carb, Hi-PerCarb®, Multi-Carb have become synonymous with high performance tooling in the machining and metalworking industry.

We're proud to have pioneered some of the world's most advanced cutting technology right here on our Northeast Ohio manufacturing campus. KSPT high performance end mills, drills and routers are increasing productivity and reducing cost around the world.

## EXCEEDING CUSTOMER EXPECTATIONS

As the world's manufacturing needs change, so does KSPT. It's all about the science, starting with our lab inspected substrate materials to our tool designs and coatings. Our exceptional team of researchers, engineers, and machinists are dedicated to developing the absolute best and delivering the ultimate Value at the Spindle®.

- Incredible batch-to-batch consistency
- Metallurgical lab dedicated to testing and rigorous quality control
- ISO 9001:2015 Certified quality procedures
- Patented geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality—even at extreme parameters
- Specialists in extreme and demanding product applications
- Comprehensive tooling services
- Experienced Field Sales Engineers who work to optimize a tool for your particular application
- Dedicated multi-lingual customer service representatives

SGS PRODUCTS ARE DISTRIBUTED BY:



[www.kyocera-sgstool.com](http://www.kyocera-sgstool.com)



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