



VALUE AT THE SPINDLE®

Micro Tool Catalog



New Expanded Offering

www.sgsmicrotools.com

ISO 9001:2015 Certified





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

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

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



New Expanded Tools

Table of Contents

KYOCERA	SGS Precision Tools	METRIC		
KSPT Micro	o End Mills	SERIES	DESCRIPTION	PAGE
KSPT Micro	o Drills6	M2M	2 Flute Square 1.5xD	66
Coatings .	8		2 Flute Square 3xD	67
Common L	_egend9	M2MB	2 Flute Ball 1.5xD	69
			2 Flute Ball 3xD	70
MILLING		M4M	4 Flute Square 1.5xD	72
FRACTIO	NAL		4 Flute Square 3xD	73
SERIES	DESCRIPTION PAGE	M4MB	4 Flute Ball 1.5xD	74
M2, M2CR	2 Flute Square & Corner Radius 1.5xD10		4 Flute Ball 3xD	75
	2 Flute Square & Corner Radius 3xD 14	Spood &	Feed Recommendations	76
	2 Flute Square 3xD, 8xD Overall Reach 18	Speed &	reed necommendations	/6
	2 Flute Square 3xD, 12xD Overall Reach 19	M032	3 Flute Square and Corner Radius	82
M2B	2 Flute Ball 1.5xD20	Speed &	Feed Recommendations	8
	2 Flute Ball 3xD	Opoou u		
	2 Flute Ball 3xD, 8xD Overall Reach 24			
	2 Flute Ball 3xD, 12xD Overall Reach 25			
M3, M3CR	3 Flute Square 1.5xD, 3xD Overall Reach26		MAKING	
	3 Flute Square & Corner Radius	M080	2 Flute Spotting Drill External Coolant.	
	1.5xD, 5xD Overall Reach	M081	2 Flute Spotting Drill External Coolant.	90
	3 Flute Square & Corner Radius	Speed &	Feed Recommendations	91
	1.5xD, 8xD Overall Reach			
	3 Flute Square & Corner Radius	M105	2 Flute External Coolant Standard and	
	1.5xD, 12xD Overall Reach		Extended length	93
	3 Flute Square 1.5xD, 15xD Overall Reach33	Speed &	Feed Recommendations	98
	3 Flute Square 1.5xD, 20xD Overall Reach34	M226	2 Flute External Coolant	Q
	3 Flute Square 1.5xD, 25xD Overall Reach35	L226	2 Flute Left Hand Cut External Coolant	
МЗВ	3 Flute Ball 1.5xD, 3xD Overall Reach36			
	3 Flute Ball 1.5xD, 5xD Overall Reach37	Speed &	Feed Recommendations	113
	3 Flute Ball 1.5xD, 8xD Overall Reach38	M814	2 Flute Internal Coolant	114
	3 Flute Ball 1.5xD, 12xD Overall Reach39			
	3 Flute Ball 1.5xD, 15xD Overall Reach40	Speed &	Feed Recommendations	116
	3 Flute Ball 1.5xD, 20xD Overall Reach41			
	3 Flute Ball 1.5xD, 25xD Overall Reach 42			
M4, M4CR	4 Flute Square & Corner Radius 1.5xD43	TECHN	IICAL INFORMATION	
	4 Flute Square & Corner Radius 3xD	EDP Index	(118
	4 Flute Square 3xD, 8xD Overall Reach 52	Decimal E	Equivalent Chart	130
	4 Flute Square 3xD, 12xD Overall Reach53	Hardness	Conversion Chart	131
M4L	4 Flute Square 5xD			
M4E	4 Flute Square 8xD			
M4X	4 Flute Square 12xD			
M4B	4 Flute Ball 1.5xD			
	4 Flute Ball 3xD			
	4 Flute Ball 3xD, 8xD Overall Reach			
NA 41-12	4 Flute Ball 3xD, 12xD Overall Reach 62			
M4LB	4 Flute Ball 5xD			
M4EB	4 Flute Ball 12vD 65			
11/1/4	4			

KSPT MICRO END MILLS

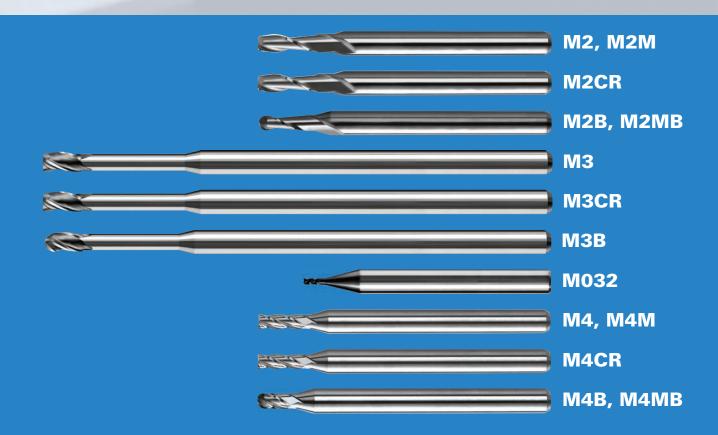
SMALLTOOLS. EPIC PROPORTIONS.

KYOCERA SGS Precision Tools (KSPT) commitment to providing superior quality round solid carbide cutting tools is unwavering, and these efforts are being taken one step further by introducing an impressive micro tool expansion. With a staggering expansion of over 2,500 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®!

EXPANSION HIGHLIGHTS:

- 2, 3, and 4 flutes in square, corner radii, and ball nose 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

- Uncoated options for tools in expanded and legacy portfolio
- Offered in 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.

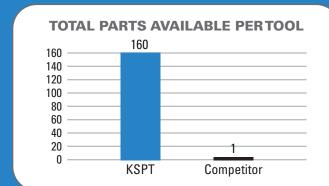
STRATEGY

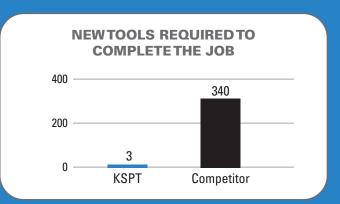
KSPT approached the job with a 4 flute 8XD Micro End Mill. The four flute design allows for higher feed rates and decreased deflection, improving productivity and surface finish.

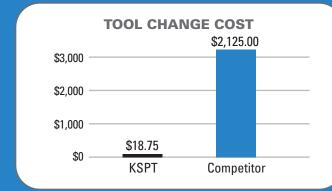
	KSPT	COMPETITOR
TOOL DIAMETER	.07"	.07
SPEED	6600 RPM	3400 RPM
FEED	4 IPM	2 IPM
RADIAL CUT (AE)	N/A	N/A
AXIAL CUT (AP)	0.38	0.38
CYCLE TIME	6 SECONDS	11.4 SECONDS

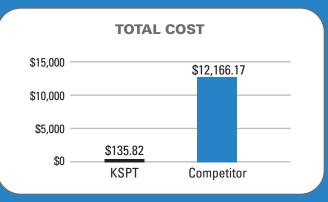
RESULTS

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 48% higher speed and a 50% 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.









KSPT MICRO DRILLS

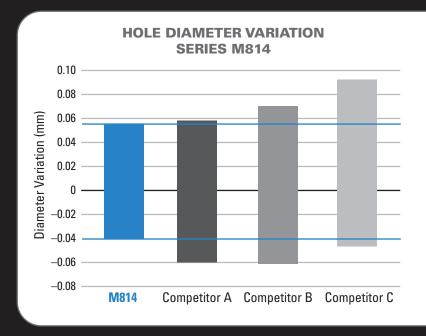
SMALL TOOLS. EPIC PROPORTIONS.

KYOCERA SGS Precision Tools (KSPT) commitment to providing superior quality round solid carbide cutting tools is unwavering, and these efforts are being taken one step further by introducing an impressive micro tool expansion. Within the expansion, KSPT introduces a new lineup of micro drills totaling more than 1,400 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 in new 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



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

Die Verietien

Cutting Conditions:

N = 6468 rpm, Vf = 575 mm/min Drill Diameter 0,3 mm Drilling Depth 25,4 mm, 17-4PH-900

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



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



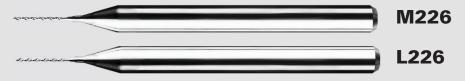
M080 & M081

- 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



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



KSPT COATINGS



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

Hardness (HV): 3700

Oxidation Temperature: 1100°C / 2010°F

Coefficient of Friction: 0.30

Thickness: 1 - 4 Microns (based on tool diameter)

KYOCERA SGS PRECISION TOOLS AITIN 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 thick- ness, typical of most normal coatings.





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 – 4 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

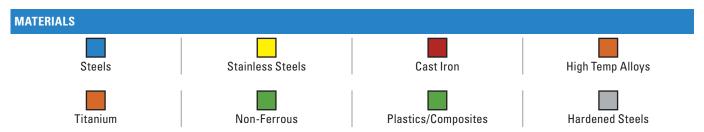
Service Representative for an RMA number.

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

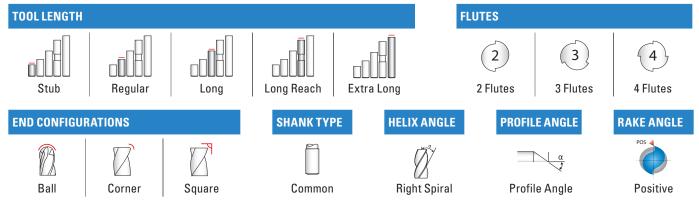




WARNING: This product can expose you to chemicals including Cobalt, which is known to the State of California to cause cancer. For more information go to www.p65warnings.ca.gov

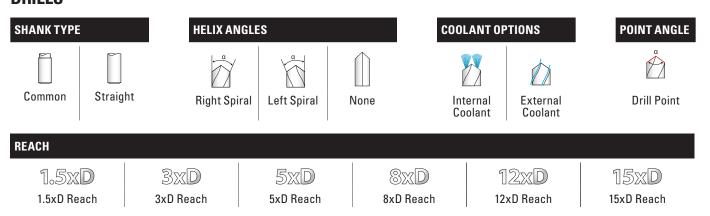


END MILLS



All tools are in Right Cut Direction unless noted

DRILLS



M2 • M2CR • 1.5xD











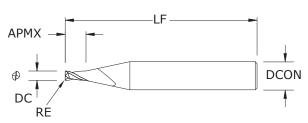








M2 • M2CR 1.5xD FRACTIONAL SERIES



 Iwo 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.

inch					EDP NO.		
CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	CORNER Radius Re	UNCOATED	TI-NAMITE-A (AITIN)	
0.004	1/8	0.006	1-1/2	_	<mark>04004</mark>	<mark>04000</mark>	
0.005	1/8	0.008	1-1/2	_	<mark>00301</mark>	02201	
0.006	1/8	0.009	1-1/2	-	<mark>00302</mark>	02202	
0.007	1/8	0.011	1-1/2	_	<mark>00303</mark>	02203	
0.008	1/8	0.012	1-1/2	_	<mark>00304</mark>	02204	
0.009	1/8	0.014	1-1/2	_	<mark>00305</mark>	02205	
0.010	1/8	0.015	1-1/2	_	<mark>00306</mark>	02206	
0.011	1/8	0.017	1-1/2	_	<mark>00307</mark>	02207	
0.012	1/8	0.018	1-1/2	-	<mark>00308</mark>	02208	
0.013	1/8	0.020	1-1/2	_	<mark>00309</mark>	02209	
0.014	1/8	0.021	1-1/2	-	<mark>00310</mark>	02210	
0.015	1/8	0.023	1-1/2	_	<mark>00311</mark>	02211	
0.015	1/8	0.023	1-1/2	0.003	<mark>08500</mark>	<mark>08641</mark>	
0.016	1/8	0.024	1-1/2	_	<mark>00312</mark>	02212	
0.017	1/8	0.026	1-1/2	-	<mark>00313</mark>	02213	
0.018	1/8	0.027	1-1/2	_	<mark>00314</mark>	02214	
0.019	1/8	0.029	1-1/2	_	<mark>00315</mark>	02215	
0.020	1/8	0.030	1-1/2	_	<mark>00316</mark>	02216	
0.020	1/8	0.030	1-1/2	0.003	<mark>08502</mark>	<mark>08643</mark>	
0.020	1/8	0.030	1-1/2	0.005	<mark>08504</mark>	<mark>08645</mark>	
0.021	1/8	0.032	1-1/2	-	<mark>00317</mark>	02217	
0.022	1/8	0.033	1-1/2	_	<mark>00318</mark>	02218	
0.023	1/8	0.035	1-1/2	_	<mark>00319</mark>	02219	
0.024	1/8	0.036	1-1/2	_	<mark>00320</mark>	02220	
0.025	1/8	0.038	1-1/2	_	<mark>00321</mark>	02221	
0.025	1/8	0.038	1-1/2	0.010	<mark>08505</mark>	<mark>08646</mark>	
0.026	1/8	0.039	1-1/2	_	<mark>00322</mark>	02222	
0.027	1/8	0.041	1-1/2	-	<mark>00323</mark>	02223	
0.028	1/8	0.042	1-1/2	-	<mark>00324</mark>	02224	
0.029	1/8	0.044	1-1/2	-	<mark>00325</mark>	02225	
0.030	1/8	0.045	1-1/2	-	<mark>00326</mark>	02226	
0.030	1/8	0.045	1-1/2	0.010	<mark>08507</mark>	<mark>08648</mark>	
0.031	1/8	0.047	1-1/2	-	<mark>00327</mark>	02227	
0.032	1/8	0.048	1-1/2	-	<mark>00328</mark>	02228	
0.033	1/8	0.050	1-1/2	-	<mark>00329</mark>	02229	
0.034	1/8	0.051	1-1/2	_	<mark>00330</mark>	02230	

New Expanded Tools

TOLERANCES (inch)

.004-.120 DIAMETER **DC** = +0.000/-0.001

DCON = h₆

RE = +0.0000/-0.0005



PLASTICS/COMPOSITES



New Expanded Tools

M2 • M2CR 1.5xD

continued

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

M2 • M2CR • 1.5xD





















M2 • M2CR FRACTIONAL SERIES

APMX -**DCON** RE

New Expanded Tools

TOLERANCES (inch) .004-.120 DIAMETER

DC = +0.000/-0.001

DCON = h₆

RE = +0.0000/-0.0005

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

continued

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

continued on next page



New Expanded Tools

M2 • M2CR 1.5xD

FRACTIONAL SERIES

continued

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

M2 • M2CR • 3xD















inch







EDP NO.

M2 • M2CR

APMX **DCON** DC RE

New Expanded Tools

TOLERANCES (inch) .004-.120 DIAMETER

DC = +0.000/-0.001

 $DCON = h_6$

= +0.0000/-0.0005

STEELS
STAINLESS STEELS
CAST IRON
HIGH TEMP ALLOYS
TITANIUM
IIIAIIION
HARDENED STEELS

NON-FERROUS

PLASTICS/COMPOSITES

non-ferrous material
applications that require
slotting or involve heavy
chip loads.
Enhanced corner

FRACTIONAL SERIES

• Two flute design is ideal for softer alloyed,

- 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.

inch		EDP NO.				
CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	CORNER RADIUS RE	UNCOATED	TI-NAMITE-A
0.004	1/8	0.012	1-1/2	-	<mark>04005</mark>	<mark>04001</mark>
0.005	1/8	0.015	1-1/2	_	<mark>00811</mark>	02275
0.006	1/8	0.018	1-1/2	-	<mark>00812</mark>	02276
0.007	1/8	0.021	1-1/2	_	<mark>00813</mark>	02277
0.008	1/8	0.024	1-1/2	-	<mark>00814</mark>	02278
0.009	1/8	0.027	1-1/2	_	<mark>00815</mark>	02279
0.010	1/8	0.030	1-1/2	-	<mark>00816</mark>	02280
0.011	1/8	0.033	1-1/2	_	<mark>00817</mark>	02281
0.012	1/8	0.036	1-1/2	-	<mark>00818</mark>	02282
0.013	1/8	0.039	1-1/2	_	<mark>00819</mark>	02283
0.014	1/8	0.042	1-1/2	-	<mark>00820</mark>	02284
0.015	1/8	0.045	1-1/2	_	<mark>00821</mark>	02285
0.015	1/8	0.045	1-1/2	0.003	<mark>08501</mark>	<mark>08642</mark>
0.016	1/8	0.048	1-1/2	_	<mark>00822</mark>	02286
0.017	1/8	0.051	1-1/2	_	<mark>00823</mark>	02287
0.018	1/8	0.054	1-1/2	-	<mark>00824</mark>	02288
0.019	1/8	0.057	1-1/2	-	<mark>00825</mark>	02289
0.020	1/8	0.060	1-1/2	_	<mark>00826</mark>	02290
0.020	1/8	0.060	1-1/2	0.003	<mark>08503</mark>	<mark>08644</mark>
0.020	1/8	0.060	1-1/2	0.005	<mark>04020</mark>	<mark>04021</mark>
0.021	1/8	0.063	1-1/2	-	<mark>00827</mark>	02291
0.022	1/8	0.066	1-1/2	-	<mark>00828</mark>	02292
0.023	1/8	0.069	1-1/2	_	<mark>00829</mark>	02293
0.024	1/8	0.072	1-1/2	-	<mark>00830</mark>	02294
0.025	1/8	0.075	1-1/2	-	<mark>00831</mark>	02295
0.025	1/8	0.075	1-1/2	0.005	<mark>04022</mark>	<mark>04023</mark>
0.025	1/8	0.075	1-1/2	0.010	<mark>08506</mark>	<mark>08647</mark>
0.026	1/8	0.078	1-1/2	_	<mark>00832</mark>	02296
0.027	1/8	0.081	1-1/2	-	<mark>00833</mark>	02297
0.028	1/8	0.084	1-1/2	_	<mark>00834</mark>	02298
0.029	1/8	0.087	1-1/2	-	<mark>00835</mark>	02299
0.030	1/8	0.090	1-1/2	_	<mark>00836</mark>	02300
0.030	1/8	0.090	1-1/2	0.010	<mark>08508</mark>	<mark>08649</mark>
0.031	1/8	0.093	1-1/2	_	<mark>00837</mark>	02301
0.032	1/8	0.096	1-1/2	_	<mark>00838</mark>	02302
0.033	1/8	0.099	1-1/2	_	<mark>00839</mark>	02303

continued on next page



New Expanded Tools

M2 • M2CR 3xD

FRACTIONAL SERIES

continued

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

M2 • M2CR • 3xD





















M2 • M2CR FRACTIONAL SERIES

APMX -**DCON** RE

New Expanded Tools

TOLERANCES (inch) .004-.120 DIAMETER

DC = +0.000/-0.001

 $DCON = h_6$

RE = +0.0000/-0.0005

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

continued

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

continued on next page



New Expanded Tools

M2 • M2CR 3xD

FRACTIONAL SERIES

continued

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

M2 • 3xD • 8xD Overall Reach











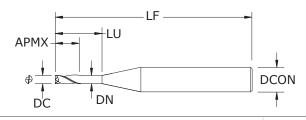








M2 • 3xD 8xD FRACTIONAL SERIES



 Iwo flute design is
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applications that require
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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.

		in	ch			EDI	PNO.
CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	UNCOATED	TI-NAMITE-A
0.010	1/8	0.030	0.080	0.009	1-1/2	<mark>09353</mark>	03400
0.015	1/8	0.045	0.120	0.014	1-1/2	<mark>09355</mark>	03401
0.020	1/8	0.060	0.160	0.018	1-1/2	<mark>09357</mark>	03402
0.025	1/8	0.075	0.200	0.023	1-1/2	<mark>09359</mark>	03403
0.030	1/8	0.090	0.240	0.028	1-1/2	<mark>09361</mark>	03404
0.031	1/8	0.093	0.248	0.029	1-1/2	<mark>09363</mark>	03405
0.035	1/8	0.105	0.280	0.032	1-1/2	<mark>09365</mark>	03406
0.040	1/8	0.120	0.320	0.037	1-1/2	<mark>09367</mark>	03407
0.045	1/8	0.135	0.360	0.042	2	<mark>09369</mark>	03408
0.047	1/8	0.141	0.376	0.044	2	<mark>09371</mark>	03409
0.050	1/8	0.150	0.400	0.047	2	<mark>09373</mark>	03410
0.055	1/8	0.165	0.440	0.051	2	<mark>09375</mark>	03411
0.060	1/8	0.180	0.480	0.056	2	<mark>09377</mark>	03412
0.062	1/8	0.186	0.496	0.058	2	<mark>09379</mark>	03413
0.065	1/8	0.195	0.520	0.061	2	<mark>09381</mark>	03414
0.070	1/8	0.210	0.560	0.065	2	<mark>09383</mark>	03415
0.075	1/8	0.225	0.600	0.070	2	<mark>09385</mark>	03416
0.078	1/8	0.234	0.624	0.073	2	<mark>09387</mark>	03417
0.080	1/8	0.240	0.640	0.075	2	<mark>09389</mark>	03418
0.085	1/8	0.255	0.680	0.079	2	<mark>09391</mark>	03419
0.090	1/8	0.270	0.720	0.084	2	<mark>09393</mark>	03420
0.093	1/8	0.279	0.744	0.087	2	<mark>09395</mark>	03421
0.095	1/8	0.285	0.760	0.089	2	<mark>09397</mark>	03422
0.100	1/8	0.300	0.800	0.094	2	<mark>09399</mark>	03423
0.110	1/8	0.330	0.880	0.103	2	<mark>09401</mark>	03424
0.115	1/8	0.345	0.920	0.108	2	<mark>09403</mark>	03425
0.120	1/8	0.360	0.960	0.112	2	<mark>09405</mark>	03426

TOLERANCES (inch)

.010—.120 DIAMETER
DC = +0.000/-0.001
DCON = h₆

STEELS

STAINLESS STEELS

CAST IRON

HIGH TEMP ALLOYS

TITANIUM

HARDENED STEELS

NON-FERROUS

PLASTICS/COMPOSITES

New Expanded Tools



₭YOCERa

M2 • 3xD • 12xD Overall Reach















New Expanded Tools

TOLERANCES (inch) .010-.120 DIAMETER **DC** = +0.000/-0.001 $DCON = h_6$

STEELS STAINLESS STEELS **CAST IRON** HIGH TEMP ALLOYS

TITANIUM HARDENED STEELS NON-FERROUS PLASTICS/COMPOSITES

APMX	
DC DN	DCON

		inc	ch			EDI	PNO.
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	0.030	0.120	0.009	1-1/2	<mark>09352</mark>	03427
0.015	1/8	0.045	0.180	0.014	1-1/2	<mark>09354</mark>	03428
0.020	1/8	0.060	0.240	0.018	1-1/2	<mark>09356</mark>	03429
0.025	1/8	0.075	0.300	0.023	1-1/2	<mark>09358</mark>	03430
0.030	1/8	0.090	0.360	0.028	2	<mark>09360</mark>	03431
0.031	1/8	0.093	0.372	0.029	2	<mark>09362</mark>	03432
0.035	1/8	0.105	0.420	0.032	2	<mark>09364</mark>	03433
0.040	1/8	0.120	0.480	0.037	2	<mark>09366</mark>	03434
0.045	1/8	0.135	0.540	0.042	2	<mark>09368</mark>	03435
0.047	1/8	0.141	0.564	0.044	2	<mark>09370</mark>	03436
0.050	1/8	0.150	0.600	0.047	2	<mark>09372</mark>	03437
0.055	1/8	0.165	0.660	0.051	2	<mark>09374</mark>	03438
0.060	1/8	0.180	0.720	0.056	2	<mark>09376</mark>	03439
0.062	1/8	0.186	0.744	0.058	2	<mark>09378</mark>	03440
0.065	1/8	0.195	0.780	0.061	2	<mark>09380</mark>	03441
0.070	1/8	0.210	0.840	0.065	2	<mark>09382</mark>	03442
0.075	1/8	0.225	0.900	0.070	2	<mark>09384</mark>	03443
0.078	1/8	0.234	0.936	0.073	2-1/2	<mark>09386</mark>	03444
0.080	1/8	0.240	0.960	0.075	2-1/2	<mark>09388</mark>	03445
0.085	1/8	0.255	1.020	0.079	2-1/2	<mark>09390</mark>	03446
0.090	1/8	0.270	1.080	0.084	2-1/2	<mark>09392</mark>	03447
0.093	1/8	0.279	1.116	0.087	2-1/2	<mark>09394</mark>	03448
0.095	1/8	0.285	1.140	0.089	2-1/2	<mark>09396</mark>	03449
0.100	1/8	0.300	1.200	0.094	2-1/2	<mark>09398</mark>	03450
0.110	1/8	0.330	1.320	0.103	2-1/2	<mark>09400</mark>	03451
0.115	1/8	0.345	1.380	0.108	2-1/2	<mark>09402</mark>	03452
0.120	1/8	0.360	1.440	0.112	2-1/2	<mark>09404</mark>	03453

M2 • 3xD

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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- High performance carbide substrate designed specifically for Micro Tool applications.
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- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.

M2B • 1.5xD



















M2B • 1.5xD FRACTIONAL SERIES

LF-APMX-**DCON** DC

- Two flute design is ideal for softer alloyed, non-ferrous material applications that require slotting or involve heavy chip loads.
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- 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.

	inc	ch .		EDI	P 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	00669	03029
0.006	1/8	0.009	1-1/2	<mark>00670</mark>	03030
0.007	1/8	0.011	1-1/2	<mark>00671</mark>	03031
0.008	1/8	0.012	1-1/2	<mark>00672</mark>	03032
0.009	1/8	0.014	1-1/2	<mark>00673</mark>	03033
0.010	1/8	0.015	1-1/2	<mark>00674</mark>	03034
0.011	1/8	0.017	1-1/2	<mark>00675</mark>	03035
0.012	1/8	0.018	1-1/2	<mark>00676</mark>	03036
0.013	1/8	0.020	1-1/2	<mark>00677</mark>	03037
0.014	1/8	0.021	1-1/2	<mark>00678</mark>	03038
0.015	1/8	0.023	1-1/2	<mark>00679</mark>	03039
0.016	1/8	0.024	1-1/2	<mark>00680</mark>	03040
0.017	1/8	0.026	1-1/2	<mark>00681</mark>	03041
0.018	1/8	0.027	1-1/2	<mark>00682</mark>	03042
0.019	1/8	0.029	1-1/2	<mark>00683</mark>	03043
0.020	1/8	0.030	1-1/2	<mark>00684</mark>	03044
0.021	1/8	0.032	1-1/2	<mark>00685</mark>	03045
0.022	1/8	0.033	1-1/2	<mark>00686</mark>	03046
0.023	1/8	0.035	1-1/2	<mark>00687</mark>	03047
0.024	1/8	0.036	1-1/2	<mark>00688</mark>	03048
0.025	1/8	0.038	1-1/2	<mark>00689</mark>	03049
0.026	1/8	0.039	1-1/2	<mark>00690</mark>	03050
0.027	1/8	0.041	1-1/2	<mark>00691</mark>	03051
0.028	1/8	0.042	1-1/2	<mark>00692</mark>	03052
0.029	1/8	0.044	1-1/2	<mark>00693</mark>	03053
0.030	1/8	0.045	1-1/2	<mark>00694</mark>	03054
0.031	1/8	0.047	1-1/2	<mark>00695</mark>	03055
0.032	1/8	0.048	1-1/2	<mark>00696</mark>	03056
0.033	1/8	0.050	1-1/2	<mark>00697</mark>	03057
0.034	1/8	0.051	1-1/2	<mark>00698</mark>	03058
0.035	1/8	0.053	1-1/2	<mark>00699</mark>	03059
0.036	1/8	0.054	1-1/2	<mark>00700</mark>	03060
0.037	1/8	0.056	1-1/2	<mark>00701</mark>	03061
0.038	1/8	0.057	1-1/2	<mark>00702</mark>	03062
0.039	1/8	0.059	1-1/2	<mark>00703</mark>	03063
0.040	1/8	0.060	1-1/2	<mark>00704</mark>	03064
E = 1/2 Cutting	Diameter (DC)			continu	ıed on next paç

New Expanded Tools

TOLERANCES (inch) .005-.120 DIAMETER

DC = +0.000/-0.001 $DCON = h_6$

STEELS
STAINLE









New Expanded Tools

M2B • 1.5xD FRACTIONAL SERIES

continued

	inc	ch		ED	PNO.
CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	UNCOATED	TI-NAMITE-A (AITIN)
0.041	1/8	0.062	1-1/2	<mark>00705</mark>	02504
0.042	1/8	0.063	1-1/2	<mark>00706</mark>	02505
0.043	1/8	0.065	1-1/2	<mark>00707</mark>	02506
0.044	1/8	0.066	1-1/2	<mark>00708</mark>	02507
0.045	1/8	0.068	1-1/2	<mark>00709</mark>	02508
0.046	1/8	0.069	1-1/2	<mark>00710</mark>	02509
0.047	1/8	0.071	1-1/2	<mark>00711</mark>	02510
0.048	1/8	0.072	1-1/2	<mark>00712</mark>	02511
0.049	1/8	0.074	1-1/2	<mark>00713</mark>	02512
0.050	1/8	0.075	1-1/2	<mark>00714</mark>	02513
0.051	1/8	0.077	1-1/2	<mark>00715</mark>	02514
0.052	1/8	0.078	1-1/2	<mark>00716</mark>	02515
0.053	1/8	0.080	1-1/2	<mark>00717</mark>	02516
0.054	1/8	0.081	1-1/2	<mark>00718</mark>	02517
0.055	1/8	0.083	1-1/2	<mark>00719</mark>	02518
0.056	1/8	0.084	1-1/2	<mark>00720</mark>	02519
0.057	1/8	0.086	1-1/2	<mark>00721</mark>	02520
0.058	1/8	0.087	1-1/2	<mark>00722</mark>	02521
0.059	1/8	0.089	1-1/2	<mark>00723</mark>	02522
0.060	1/8	0.090	1-1/2	<mark>00724</mark>	02523
0.062	1/8	0.093	1-1/2	<mark>00725</mark>	02524
0.065	1/8	0.098	1-1/2	<mark>00726</mark>	02525
0.070	1/8	0.105	1-1/2	<mark>00727</mark>	02526
0.075	1/8	0.112	1-1/2	<mark>04010</mark>	<mark>04008</mark>
0.078	1/8	0.117	1-1/2	<mark>00728</mark>	02527
0.080	1/8	0.120	1-1/2	<mark>00729</mark>	02528
0.085	1/8	0.128	1-1/2	<mark>00730</mark>	02529
0.090	1/8	0.135	1-1/2	<mark>00731</mark>	02530
0.093	1/8	0.140	1-1/2	<mark>00732</mark>	02531
0.095	1/8	0.143	1-1/2	<mark>00733</mark>	02532
0.100	1/8	0.150	1-1/2	<mark>00734</mark>	02533
0.105	1/8	0.158	1-1/2	<mark>00735</mark>	02534
0.110	1/8	0.165	1-1/2	<mark>00736</mark>	02535
0.115	1/8	0.173	1-1/2	<mark>00737</mark>	02536
0.120	1/8	0.180	1-1/2	<mark>00738</mark>	02537

M2B • 3xD



EDP NO.















M2B • 3xD FRACTIONAL SERIES

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APMX-	LF——LF	DCON
	inch	

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

New Expanded Tools

TOLERANCES (inch) .005-.120 DIAMETER

DC = +0.000/-0.001 $DCON = h_6$

STEELS
CTAIN!! FCC CTFF! C
STAINLESS STEELS
CAST IRON
HIGH TEMP ALLOYS
TITANIUM
HARDENED STEELS
NON-FERROUS

PLASTICS/COMPOSITES

continued on next page

New Expanded Tools

M2B • 3xD
FRACTIONAL SERIES

continued

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

M2B • 3xD • 8xD Overall Reach





New Expanded Tools

TOLERANCES (inch)

.010-.120 DIAMETER
DC = +0.000/-0.001

STAINLESS STEELS

 $DCON = h_6$

STEELS















M2B • 3xD 8xD FRACTIONAL SERIES

APMX DC DN DCON

•	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.

	EDI	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	0.030	0.080	0.009	1-1/2	<mark>09299</mark>	03697
0.015	1/8	0.045	0.120	0.014	1-1/2	<mark>09301</mark>	03698
0.020	1/8	0.060	0.160	0.018	1-1/2	<mark>09303</mark>	03699
0.025	1/8	0.075	0.200	0.023	1-1/2	<mark>09305</mark>	03700
0.030	1/8	0.090	0.240	0.028	1-1/2	<mark>09307</mark>	03701
0.031	1/8	0.093	0.248	0.029	1-1/2	<mark>09309</mark>	03702
0.035	1/8	0.105	0.280	0.032	1-1/2	<mark>09311</mark>	03703
0.040	1/8	0.120	0.320	0.037	1-1/2	<mark>09313</mark>	03704
0.045	1/8	0.135	0.360	0.042	2	<mark>09315</mark>	03705
0.047	1/8	0.141	0.376	0.044	2	<mark>09317</mark>	03706
0.050	1/8	0.150	0.400	0.047	2	<mark>09319</mark>	03707
0.055	1/8	0.165	0.440	0.051	2	<mark>09321</mark>	03708
0.060	1/8	0.180	0.480	0.056	2	<mark>09323</mark>	03709
0.062	1/8	0.186	0.496	0.058	2	<mark>09325</mark>	03710
0.065	1/8	0.195	0.520	0.061	2	<mark>09327</mark>	03711
0.070	1/8	0.210	0.560	0.065	2	<mark>09329</mark>	03712
0.075	1/8	0.225	0.600	0.070	2	<mark>09331</mark>	03713
0.078	1/8	0.234	0.624	0.073	2	<mark>09333</mark>	03714
0.080	1/8	0.240	0.640	0.075	2	<mark>09335</mark>	03715
0.085	1/8	0.255	0.680	0.079	2	<mark>09337</mark>	03716
0.090	1/8	0.270	0.720	0.084	2	<mark>09339</mark>	03717
0.093	1/8	0.279	0.744	0.087	2	<mark>09341</mark>	03718
0.095	1/8	0.285	0.760	0.089	2	<mark>09343</mark>	03719
0.100	1/8	0.300	0.800	0.094	2	<mark>09345</mark>	03720
0.110	1/8	0.330	0.880	0.103	2	<mark>09347</mark>	03721
0.115	1/8	0.345	0.920	0.108	2	<mark>09349</mark>	03722
0.120	1/8	0.360	0.960	0.112	2	<mark>09351</mark>	03723
E = 1/2 Cut	ting Diamete	er (DC)					

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

24



₭YOCERa

M2B • 3xD • 12xD Overall Reach















New Expanded Tools

TOLERANCES (inch) .010-.120 DIAMETER **DC** = +0.000/-0.001 $DCON = h_6$

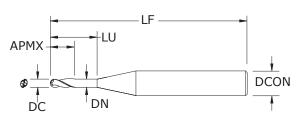
STEELS STAINLESS STEELS CAST IRON

HIGH TEMP ALLOYS TITANIUM

HARDENED STEELS

PLASTICS/COMPOSITES

NON-FERROUS



M2B • 3xD FRACTIONAL SERIES

		inc	ch			EDI	P 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	0.030	0.120	0.009	1-1/2	<mark>09298</mark>	03724
0.015	1/8	0.045	0.180	0.014	1-1/2	<mark>09300</mark>	03725
0.020	1/8	0.060	0.240	0.018	1-1/2	<mark>09302</mark>	03726
0.025	1/8	0.075	0.300	0.023	1-1/2	<mark>09304</mark>	03727
0.030	1/8	0.090	0.360	0.028	2	<mark>09306</mark>	03728
0.031	1/8	0.093	0.372	0.029	2	<mark>09308</mark>	03729
0.035	1/8	0.105	0.420	0.032	2	<mark>09310</mark>	03730
0.040	1/8	0.120	0.480	0.037	2	<mark>09312</mark>	03731
0.045	1/8	0.135	0.540	0.042	2	<mark>09314</mark>	03732
0.047	1/8	0.141	0.564	0.044	2	<mark>09316</mark>	03733
0.050	1/8	0.150	0.600	0.047	2	<mark>09318</mark>	03734
0.055	1/8	0.165	0.660	0.051	2	<mark>09320</mark>	03735
0.060	1/8	0.180	0.720	0.056	2	<mark>09322</mark>	03736
0.062	1/8	0.186	0.744	0.058	2	<mark>09324</mark>	03737
0.065	1/8	0.195	0.780	0.061	2	<mark>09326</mark>	03738
0.070	1/8	0.210	0.840	0.065	2	<mark>09328</mark>	03739
0.075	1/8	0.225	0.900	0.070	2	<mark>09330</mark>	03740
0.078	1/8	0.234	0.936	0.073	2-1/2	<mark>09332</mark>	03741
0.080	1/8	0.240	0.960	0.075	2-1/2	<mark>09334</mark>	03742
0.085	1/8	0.255	1.020	0.079	2-1/2	<mark>09336</mark>	03743
0.090	1/8	0.270	1.080	0.084	2-1/2	<mark>09338</mark>	03744
0.093	1/8	0.279	1.116	0.087	2-1/2	<mark>09340</mark>	03745
0.095	1/8	0.285	1.140	0.089	2-1/2	<mark>09342</mark>	03746
0.100	1/8	0.300	1.200	0.094	2-1/2	<mark>09344</mark>	03747
0.110	1/8	0.330	1.320	0.103	2-1/2	<mark>09346</mark>	03748
0.115	1/8	0.345	1.380	0.108	2-1/2	<mark>09348</mark>	03749
0.120	1/8	0.360	1.440	0.112	2-1/2	<mark>09350</mark>	03750
RE = 1/2 Cutt	ting Diamete	r (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.

M3 • 1.5xD • 3xD Overall Reach









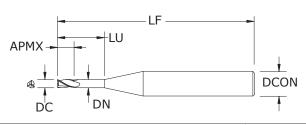








M3 • 1.5xD 3xD FRACTIONAL SERIES



- 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.

		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	<mark>09599</mark>	03508
0.015	1/8	0.023	0.045	0.014	2-1/2	<mark>09606</mark>	03509
0.020	1/8	0.030	0.060	0.018	2-1/2	<mark>09613</mark>	03510
0.025	1/8	0.038	0.075	0.023	2-1/2	<mark>09620</mark>	03511
0.030	1/8	0.045	0.090	0.028	2-1/2	<mark>09627</mark>	03512
0.031	1/8	0.047	0.093	0.029	2-1/2	<mark>09634</mark>	03513
0.035	1/8	0.053	0.105	0.032	2-1/2	<mark>09641</mark>	03514
0.040	1/8	0.060	0.120	0.037	2-1/2	<mark>09648</mark>	03515
0.045	1/8	0.068	0.135	0.042	2-1/2	<mark>09655</mark>	03516
0.047	1/8	0.071	0.141	0.044	2-1/2	<mark>09662</mark>	03517
0.050	1/8	0.075	0.150	0.047	2-1/2	<mark>09669</mark>	03518
0.055	1/8	0.083	0.165	0.051	2-1/2	<mark>09676</mark>	03519
0.060	1/8	0.090	0.180	0.056	2-1/2	<mark>09683</mark>	03520
0.062	1/8	0.093	0.186	0.058	2-1/2	<mark>09690</mark>	03521
0.065	1/8	0.098	0.195	0.061	2-1/2	<mark>09697</mark>	03522
0.070	1/8	0.105	0.210	0.065	2-1/2	<mark>09704</mark>	03523
0.075	1/8	0.113	0.225	0.070	2-1/2	<mark>09711</mark>	03524
0.078	1/8	0.117	0.234	0.073	2-1/2	<mark>09718</mark>	03525
0.080	1/8	0.120	0.240	0.075	2-1/2	<mark>09725</mark>	03526
0.085	1/8	0.128	0.255	0.079	2-1/2	<mark>09732</mark>	03527
0.090	1/8	0.135	0.270	0.084	2-1/2	<mark>09739</mark>	03528
0.093	1/8	0.140	0.279	0.087	2-1/2	<mark>09746</mark>	03529
0.095	1/8	0.143	0.285	0.089	2-1/2	<mark>09753</mark>	03530
0.100	1/8	0.150	0.300	0.094	2-1/2	<mark>09760</mark>	03531
0.110	1/8	0.165	0.330	0.103	2-1/2	<mark>09767</mark>	03532
0.115	1/8	0.173	0.345	0.108	2-1/2	<mark>09774</mark>	03533
0.120	1/8	0.180	0.360	0.112	2-1/2	<mark>09781</mark>	03534

TOLERANCES (inch)

.010—.120 DIAMETER
DC = +0.000/-0.001
DCON = h₆

STEELS

STAINLESS STEELS

New Expanded Tools





M3 • M3CR • 1.5xD • 5xD Overall Reach

☆Kyocera

















New Expanded Tools

TOLERANCES (inch)

.010-.120 DIAMETER DC = +0.000/-0.001

DCON = h₆

RE = +0.0000/-0.0005

STEELS
STAINLESS STEELS

CAST IRON
HIGH TEMP ALLOYS

TITANIUM

NON-FERROUS

HARDENED STEELS

PLASTICS/COMPOSITES

-	LF	-
APMX -	LU	
1 1		\ <u> </u>
		DCON
DC [†] /	DN	T

M3 • M3CR • 1.5xD 5xD

FRACTIONAL SERIES

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

continued on next page

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

M3 • M3CR • 1.5xD • 5xD Overall Reach

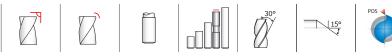


















M3 • M3CR • 1.5xD FRACTIONAL SERIES

+LU APMX → **DCON** DC $^{\mathsf{T}}\mathsf{DN}$

continued

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

TOLERANCES (inch) .010-.120 DIAMETER

DC = +0.000/-0.001

New Expanded Tools

DCON = ha **RE** = +0.0000/-0.0005

STEELS STAINLESS STEELS

CAST IRON HIGH TEMP ALLOYS

TITANIUM HARDENED STEELS

> NON-FERROUS PLASTICS/COMPOSITES



M3 • M3CR • 1.5xD • 8xD Overall Reach

☆Kyocera

















New Expanded Tools

TOLERANCES (inch) .010-.120 DIAMETER

 $\begin{array}{ll} \textbf{DC} & = +0.000/\!\!-\!0.001 \\ \textbf{DCON} & = h_6 \end{array}$

RE = +0.0000/-0.0005

STEELS

STAINLESS STEELS

CAST IRON

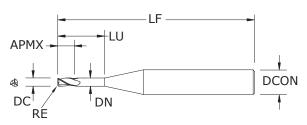
HIGH TEMP ALLOYS

HARDENED STEELS

TITANIUM

NON-FERROUS

PLASTICS/COMPOSITES



M3 • M3CR • 1.5xD 8xD

FRACTIONAL SERIES

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

M3 • M3CR • 1.5xD • 8xD Overall Reach



DCON















· LF



M3 • M3CR • 1.5xD FRACTIONAL SERIES

+LU APMX-DN RΈ

coi		

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

New Expanded Tools TOLERANCES (inch)

.010-.120 DIAMETER **DC** = +0.000/-0.001 $DCON = h_6$

RE = +0.0000/-0.0005



NON-FERROUS PLASTICS/COMPOSITES



M3 • M3CR • 1.5xD • 12xD Overall Reach

₡K90CERa

















New Expanded Tools

TOLERANCES (inch)

.010-.120 DIAMETER DC = +0.000/-0.001

DCON = h₆

RE = +0.0000/-0.0005



PLASTICS/COMPOSITES

-	LF	
APMX -	LU	
1 1		
		DCON
DC [†] / DN	I	1

M3 • M3CR • 1.5xD 12xD

FRACTIONAL SERIES

	RE							
			inch				EDP	NO.
CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	CORNER RADIUS RE	UNCOATED	TI- NAMITE-A (AITIN)
0.010	1/8	0.015	0.120	0.009	2-1/2	_	<mark>09595</mark>	03589
0.015	1/8	0.023	0.180	0.014	2-1/2	_	<mark>09602</mark>	03590
0.015	1/8	0.023	0.180	0.014	2-1/2	0.003	<mark>08784</mark>	<mark>08886</mark>
0.020	1/8	0.030	0.240	0.018	2-1/2	-	<mark>09609</mark>	03591
0.020	1/8	0.030	0.240	0.018	2-1/2	0.005	<mark>08787</mark>	<mark>08889</mark>
0.025	1/8	0.038	0.300	0.023	2-1/2	_	<mark>09616</mark>	03592
0.025	1/8	0.038	0.300	0.023	2-1/2	0.005	<mark>08790</mark>	<mark>08892</mark>
0.030	1/8	0.045	0.360	0.028	2-1/2	_	<mark>09623</mark>	03593
0.030	1/8	0.045	0.360	0.028	2-1/2	0.005	<mark>08793</mark>	<mark>08895</mark>
0.031	1/8	0.047	0.372	0.029	2-1/2	_	<mark>09630</mark>	03594
0.035	1/8	0.053	0.420	0.032	2-1/2	_	<mark>09637</mark>	03595
0.035	1/8	0.053	0.420	0.032	2-1/2	0.005	<mark>08796</mark>	<mark>08898</mark>
0.035	1/8	0.053	0.420	0.032	2-1/2	0.010	<mark>08799</mark>	<mark>08901</mark>
0.040	1/8	0.060	0.480	0.037	2-1/2	_	<mark>09644</mark>	03596
0.040	1/8	0.060	0.480	0.037	2-1/2	0.005	<mark>08802</mark>	<mark>08904</mark>
0.040	1/8	0.060	0.480	0.037	2-1/2	0.010	<mark>08805</mark>	<mark>08907</mark>
0.045	1/8	0.068	0.540	0.042	2-1/2	_	<mark>09651</mark>	03597
0.045	1/8	0.068	0.540	0.042	2-1/2	0.005	<mark>08808</mark>	<mark>08910</mark>
0.045	1/8	0.068	0.540	0.042	2-1/2	0.010	<mark>08811</mark>	<mark>08913</mark>
0.047	1/8	0.071	0.564	0.044	2-1/2	_	<mark>09658</mark>	03598
0.050	1/8	0.075	0.600	0.047	2-1/2	_	<mark>09665</mark>	03599
0.050	1/8	0.075	0.600	0.047	2-1/2	0.005	<mark>08814</mark>	<mark>08916</mark>
0.050	1/8	0.075	0.600	0.047	2-1/2	0.010	<mark>08817</mark>	<mark>08919</mark>
0.050	1/8	0.075	0.600	0.047	2-1/2	0.015	<mark>08820</mark>	<mark>08922</mark>
0.055	1/8	0.083	0.660	0.051	2-1/2	-	<mark>09672</mark>	03600
0.060	1/8	0.090	0.720	0.056	2-1/2	_	<mark>09679</mark>	03601
0.060	1/8	0.090	0.720	0.056	2-1/2	0.005	<mark>08823</mark>	<mark>08925</mark>
0.060	1/8	0.090	0.720	0.056	2-1/2	0.010	<mark>08826</mark>	<mark>08928</mark>
0.060	1/8	0.090	0.720	0.056	2-1/2	0.015	<mark>08829</mark>	<mark>08931</mark>
0.062	1/8	0.093	0.744	0.058	2-1/2	-	<mark>09686</mark>	03602
0.065	1/8	0.098	0.780	0.061	2-1/2	-	<mark>09693</mark>	03603
0.070	1/8	0.105	0.840	0.065	2-1/2	-	<mark>09700</mark>	03604
0.070	1/8	0.105	0.840	0.065	2-1/2	0.005	<mark>08832</mark>	<mark>08934</mark>
0.070	1/8	0.105	0.840	0.065	2-1/2	0.010	<mark>08835</mark>	<mark>08937</mark>
0.070	1/8	0.105	0.840	0.065	2-1/2	0.015	<mark>08838</mark>	<mark>08940</mark>
0.075	1/8	0.113	0.900	0.070	2-1/2	_	<mark>09707</mark>	03605
0.075	1/8	0.113	0.900	0.070	2-1/2	- c	0 <mark>9707</mark> ontinued or	

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

M3 • M3CR • 1.5xD • 12xD Overall Reach

















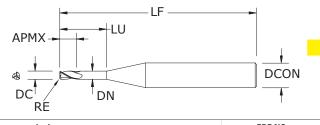






FRACTIONAL SERIES

continued



APMX DC DN RE	DCON
inch	EDP NO.

$\begin{array}{ll} \textbf{DC} & = +0.000/-0.001 \\ \textbf{DCON} = h_6 \\ \textbf{RE} & = +0.0000/-0.0005 \end{array}$
STEELS
STAINLESS STEELS
CAST IRON
HIGH TEMP ALLOYS
TITANIUM
HARDENED STEELS
NON-FERROUS
PLASTICS/COMPOSITES

New Expanded Tools

TOLERANCES (inch) .010-.120 DIAMETER

CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	CORNER Radius Re	UNCOATED	TI- NAMITE-A (AITIN)
0.078	1/8	0.117	0.936	0.073	2-1/2	_	<mark>09714</mark>	03606
0.080	1/8	0.120	0.960	0.075	2-1/2	_	<mark>09721</mark>	03607
0.080	1/8	0.120	0.960	0.075	2-1/2	0.005	<mark>08841</mark>	<mark>08943</mark>
0.080	1/8	0.120	0.960	0.075	2-1/2	0.010	<mark>08844</mark>	<mark>08946</mark>
0.080	1/8	0.120	0.960	0.075	2-1/2	0.015	<mark>08847</mark>	<mark>08949</mark>
0.085	1/8	0.128	1.020	0.079	2-1/2	_	<mark>09728</mark>	03608
0.090	1/8	0.135	1.080	0.084	2-1/2	_	<mark>09735</mark>	03609
0.090	1/8	0.135	1.080	0.084	2-1/2	0.005	<mark>08850</mark>	<mark>08952</mark>
0.090	1/8	0.135	1.080	0.084	2-1/2	0.010	<mark>08853</mark>	<mark>08955</mark>
0.090	1/8	0.135	1.080	0.084	2-1/2	0.015	<mark>08856</mark>	<mark>08958</mark>
0.093	1/8	0.140	1.116	0.087	2-1/2	-	<mark>09742</mark>	03610
0.095	1/8	0.143	1.140	0.089	2-1/2	_	<mark>09749</mark>	03611
0.100	1/8	0.150	1.200	0.094	2-1/2	-	<mark>09756</mark>	03612
0.100	1/8	0.150	1.200	0.094	2-1/2	0.005	<mark>08859</mark>	<mark>08961</mark>
0.100	1/8	0.150	1.200	0.094	2-1/2	0.010	<mark>08862</mark>	<mark>08964</mark>
0.100	1/8	0.150	1.200	0.094	2-1/2	0.015	<mark>08865</mark>	<mark>08967</mark>
0.110	1/8	0.165	1.320	0.103	2-1/2	-	<mark>09763</mark>	03613
0.110	1/8	0.165	1.320	0.103	2-1/2	0.005	<mark>08868</mark>	<mark>08970</mark>
0.110	1/8	0.165	1.320	0.103	2-1/2	0.010	<mark>08871</mark>	<mark>08973</mark>
0.110	1/8	0.165	1.320	0.103	2-1/2	0.015	<mark>08874</mark>	<mark>08976</mark>
0.115	1/8	0.173	1.380	0.108	2-1/2	-	<mark>09770</mark>	03614
0.120	1/8	0.180	1.440	0.112	2-1/2	_	<mark>09777</mark>	03615
0.120	1/8	0.180	1.440	0.112	2-1/2	0.005	<mark>08877</mark>	<mark>08979</mark>
0.120	1/8	0.180	1.440	0.112	2-1/2	0.010	<mark>08880</mark>	<mark>08982</mark>
0.120	1/8	0.180	1.440	0.112	2-1/2	0.015	<mark>08883</mark>	<mark>08985</mark>



M3 • 1.5xD • 15xD Overall Reach



₭YOCERa











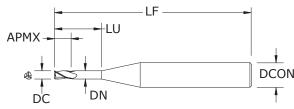




New Expanded Tools

TOLERANCES (inch) .010-.120 DIAMETER **DC** = +0.000/-0.001 $DCON = h_6$





APMX DC DN	DCON
inch	

	FRACTIONAL SERIES
-A	Three flute design features improved chip space over four flutes and increased strength and feed capability ove two flutes.
	Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low

M3 • 1.5xD

- spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
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- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.

	inch					EDI	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	0.150	0.009	2-1/2	<mark>09596</mark>	03616
0.015	1/8	0.023	0.225	0.014	2-1/2	<mark>09603</mark>	03617
0.020	1/8	0.030	0.300	0.018	2-1/2	<mark>09610</mark>	03618
0.025	1/8	0.038	0.375	0.023	2-1/2	<mark>09617</mark>	03619
0.030	1/8	0.045	0.450	0.028	2-1/2	<mark>09624</mark>	03620
0.031	1/8	0.047	0.465	0.029	2-1/2	<mark>09631</mark>	03621
0.035	1/8	0.053	0.525	0.032	2-1/2	<mark>09638</mark>	03622
0.040	1/8	0.060	0.600	0.037	2-1/2	<mark>09645</mark>	03623
0.045	1/8	0.068	0.675	0.042	2-1/2	<mark>09652</mark>	03624
0.047	1/8	0.071	0.705	0.044	2-1/2	<mark>09659</mark>	03625
0.050	1/8	0.075	0.750	0.047	2-1/2	<mark>09666</mark>	03626
0.055	1/8	0.083	0.825	0.051	2-1/2	<mark>09673</mark>	03627
0.060	1/8	0.090	0.900	0.056	2-1/2	<mark>09680</mark>	03628
0.062	1/8	0.093	0.930	0.058	2-1/2	<mark>09687</mark>	03629
0.065	1/8	0.098	0.975	0.061	2-1/2	<mark>09694</mark>	03630
0.070	1/8	0.105	1.050	0.065	2-1/2	<mark>09701</mark>	03631
0.075	1/8	0.113	1.125	0.070	2-1/2	<mark>09708</mark>	03632
0.078	1/8	0.117	1.170	0.073	2-1/2	<mark>09715</mark>	03633
0.080	1/8	0.120	1.200	0.075	2-1/2	<mark>09722</mark>	03634
0.085	1/8	0.128	1.275	0.079	2-1/2	<mark>09729</mark>	03635
0.090	1/8	0.135	1.350	0.084	2-1/2	<mark>09736</mark>	03636
0.093	1/8	0.140	1.395	0.087	3	<mark>09743</mark>	03637
0.095	1/8	0.143	1.425	0.089	3	<mark>09750</mark>	03638
0.100	1/8	0.150	1.500	0.094	3	<mark>09757</mark>	03639
0.110	1/8	0.165	1.650	0.103	3	<mark>09764</mark>	03640
0.115	1/8	0.173	1.725	0.108	3	<mark>09771</mark>	03641
0.120	1/8	0.180	1.800	0.112	3	<mark>09778</mark>	03642

M3 • 1.5xD • 20xD Overall Reach











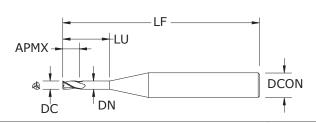








M3 • 1.5xD 20xD FRACTIONAL SERIES



New Expanded Tools

TOL	TOLERANCES (inch)			
.010)—. 120 diameter			
DC	= +0.000/-0.001			
DCO	N = he			



STAINLESS STEELS
CAST IRON

HIGH TEMP ALLOYS
TITANIUM

HARDENED STEELS

NON-FERROUS

PLASTICS/COMPOSITES

allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.

and feed capability over

 Three flute design features improved chip space over four flutes and increased strength

two flutes.
• Proprietary coating

- High performance carbide substrate designed specifically for Micro Tool applications.
- Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
- All tools in stock to meet customer order requirements.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.

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



M3 • 1.5xD • 25xD Overall Reach



₭YOCERa













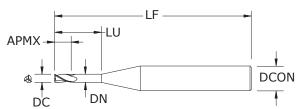


New Expanded Tools

TOLERANCES (inch) .010-.120 DIAMETER **DC** = +0.000/-0.001 $DCON = h_6$

STEELS STAINLESS STEELS **CAST IRON** HIGH TEMP ALLOYS TITANIUM

HARDENED STEELS NON-FERROUS PLASTICS/COMPOSITES



		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	0.250	0.009	2-1/2	<mark>09598</mark>	03670
0.015	1/8	0.023	0.375	0.014	2-1/2	<mark>09605</mark>	03671
0.020	1/8	0.030	0.500	0.018	2-1/2	<mark>09612</mark>	03672
0.025	1/8	0.038	0.625	0.023	2-1/2	<mark>09619</mark>	03673
0.030	1/8	0.045	0.750	0.028	2-1/2	<mark>09626</mark>	03674
0.031	1/8	0.047	0.775	0.029	2-1/2	<mark>09633</mark>	03675
0.035	1/8	0.053	0.875	0.032	2-1/2	<mark>09640</mark>	03676
0.040	1/8	0.060	1.000	0.037	2-1/2	<mark>09647</mark>	03677
0.045	1/8	0.068	1.125	0.042	2-1/2	<mark>09654</mark>	03678
0.047	1/8	0.071	1.175	0.044	2-1/2	<mark>09661</mark>	03679
0.050	1/8	0.075	1.250	0.047	2-1/2	<mark>09668</mark>	03680
0.055	1/8	0.083	1.375	0.051	3	<mark>09675</mark>	03681
0.060	1/8	0.090	1.500	0.056	3	<mark>09682</mark>	03682
0.062	1/8	0.093	1.550	0.058	3	<mark>09689</mark>	03683
0.065	1/8	0.098	1.625	0.061	3	<mark>09696</mark>	03684
0.070	1/8	0.105	1.750	0.065	3	<mark>09703</mark>	03685
0.075	1/8	0.113	1.875	0.070	3	<mark>09710</mark>	03686
0.078	1/8	0.117	1.950	0.073	4	<mark>09717</mark>	03687
0.080	1/8	0.120	2.000	0.075	4	<mark>09724</mark>	03688
0.085	1/8	0.128	2.125	0.079	4	<mark>09731</mark>	03689
0.090	1/8	0.135	2.250	0.084	4	<mark>09738</mark>	03690
0.093	1/8	0.140	2.325	0.087	4	<mark>09745</mark>	03691
0.095	1/8	0.143	2.375	0.089	4	<mark>09752</mark>	03692
0.100	1/8	0.150	2.500	0.094	4	<mark>09759</mark>	03693
0.110	1/8	0.165	2.750	0.103	4	<mark>09766</mark>	03694
0.115	1/8	0.173	2.875	0.108	4	<mark>09773</mark>	03695
0.120	1/8	0.180	3.000	0.112	4	<mark>09780</mark>	03696

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.

M3B • 1.5xD • 3xD Overall Reach











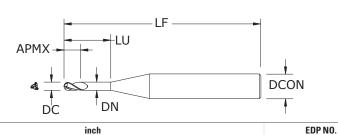








M3B • 1.5xD FRACTIONAL SERIES



TOLERANCES (inch)

New Expanded Tools

.010-.120 DIAMETER **DC** = +0.000/-0.001 $DCON = h_6$

STEELS

STAINLESS STEELS CAST IRON

HIGH TEMP ALLOYS

HARDENED STEELS

TITANIUM

NON-FERROUS

PLASTICS/COMPOSITES

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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.

		••••	011			LDI III.	
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	<mark>09410</mark>	03805
0.015	1/8	0.023	0.045	0.014	2-1/2	<mark>09417</mark>	03806
0.020	1/8	0.030	0.060	0.018	2-1/2	<mark>09424</mark>	03807
0.025	1/8	0.038	0.075	0.023	2-1/2	<mark>09431</mark>	03808
0.030	1/8	0.045	0.090	0.028	2-1/2	<mark>09438</mark>	03809
0.031	1/8	0.047	0.093	0.029	2-1/2	<mark>09445</mark>	03810
0.035	1/8	0.053	0.105	0.032	2-1/2	<mark>09452</mark>	03811
0.040	1/8	0.060	0.120	0.037	2-1/2	<mark>09459</mark>	03812
0.045	1/8	0.068	0.135	0.042	2-1/2	<mark>09466</mark>	03813
0.047	1/8	0.071	0.141	0.044	2-1/2	<mark>09473</mark>	03814
0.050	1/8	0.075	0.150	0.047	2-1/2	<mark>09480</mark>	03815
0.055	1/8	0.083	0.165	0.051	2-1/2	<mark>09487</mark>	03816
0.060	1/8	0.090	0.180	0.056	2-1/2	<mark>09494</mark>	03817
0.062	1/8	0.093	0.186	0.058	2-1/2	<mark>09501</mark>	03818
0.065	1/8	0.098	0.195	0.061	2-1/2	<mark>09508</mark>	03819
0.070	1/8	0.105	0.210	0.065	2-1/2	<mark>09515</mark>	03820
0.075	1/8	0.113	0.225	0.070	2-1/2	<mark>09522</mark>	03821
0.078	1/8	0.117	0.234	0.073	2-1/2	<mark>09529</mark>	03822
0.080	1/8	0.120	0.240	0.075	2-1/2	<mark>09536</mark>	03823
0.085	1/8	0.128	0.255	0.079	2-1/2	<mark>09543</mark>	03824
0.090	1/8	0.135	0.270	0.084	2-1/2	<mark>09550</mark>	03825
0.093	1/8	0.140	0.279	0.087	2-1/2	<mark>09557</mark>	03826
0.095	1/8	0.143	0.285	0.089	2-1/2	<mark>09564</mark>	03827
0.100	1/8	0.150	0.300	0.094	2-1/2	<mark>09571</mark>	03828
0.110	1/8	0.165	0.330	0.103	2-1/2	<mark>09578</mark>	03829
0.115	1/8	0.173	0.345	0.108	2-1/2	<mark>09585</mark>	03830
0.120	1/8	0.180	0.360	0.112	2-1/2	<mark>09592</mark>	03831

RE = 1/2 Cutting Diameter (DC)



₭YOCERa

M3B • 1.5xD • 5xD Overall Reach











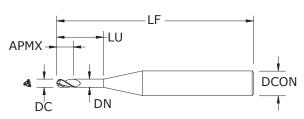




New Expanded Tools

TOLERANCES (inch) .010-.120 DIAMETER **DC** = +0.000/-0.001 $DCON = h_6$

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



M3B • 1.5xD FRACTIONAL SERIES

		inc	ch			EDI	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	0.050	0.009	2-1/2	<mark>09411</mark>	03832
0.015	1/8	0.023	0.075	0.014	2-1/2	<mark>09418</mark>	03833
0.020	1/8	0.030	0.100	0.018	2-1/2	<mark>09425</mark>	03834
0.025	1/8	0.038	0.125	0.023	2-1/2	<mark>09432</mark>	03835
0.030	1/8	0.045	0.150	0.028	2-1/2	<mark>09439</mark>	03836
0.031	1/8	0.047	0.155	0.029	2-1/2	<mark>09446</mark>	03837
0.035	1/8	0.053	0.175	0.032	2-1/2	<mark>09453</mark>	03838
0.040	1/8	0.060	0.200	0.037	2-1/2	<mark>09460</mark>	03839
0.045	1/8	0.068	0.225	0.042	2-1/2	<mark>09467</mark>	03840
0.047	1/8	0.071	0.235	0.044	2-1/2	<mark>09474</mark>	03841
0.050	1/8	0.075	0.250	0.047	2-1/2	<mark>09481</mark>	03842
0.055	1/8	0.083	0.275	0.051	2-1/2	<mark>09488</mark>	03843
0.060	1/8	0.090	0.300	0.056	2-1/2	<mark>09495</mark>	03844
0.062	1/8	0.093	0.310	0.058	2-1/2	<mark>09502</mark>	03845
0.065	1/8	0.098	0.325	0.061	2-1/2	<mark>09509</mark>	03846
0.070	1/8	0.105	0.350	0.065	2-1/2	<mark>09516</mark>	03847
0.075	1/8	0.113	0.375	0.070	2-1/2	<mark>09523</mark>	03848
0.078	1/8	0.117	0.390	0.073	2-1/2	<mark>09530</mark>	03849
0.080	1/8	0.120	0.400	0.075	2-1/2	<mark>09537</mark>	03850
0.085	1/8	0.128	0.425	0.079	2-1/2	<mark>09544</mark>	03851
0.090	1/8	0.135	0.450	0.084	2-1/2	<mark>09551</mark>	03852
0.093	1/8	0.140	0.465	0.087	2-1/2	<mark>09558</mark>	03853
0.095	1/8	0.143	0.475	0.089	2-1/2	<mark>09565</mark>	03854
0.100	1/8	0.150	0.500	0.094	2-1/2	<mark>09572</mark>	03855
0.110	1/8	0.165	0.550	0.103	2-1/2	<mark>09579</mark>	03856
0.115	1/8	0.173	0.575	0.108	2-1/2	<mark>09586</mark>	03857
0.120	1/8	0.180	0.600	0.112	2-1/2	<mark>09593</mark>	03858
RE = 1/2 Cutt	ting Diamete	r (DC)					

- Three flute design features improved chip space over four flutes and increased strength and feed capability over two flutes.
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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.
- All micro tools are manufactured in accordance with the KSPT ISO certified quality procedures.

M3B • 1.5xD • 8xD Overall Reach





New Expanded Tools

TOLERANCES (inch)
.010-.120 DIAMETER

 $\begin{array}{ll} \textbf{DC} & = +0.000/-0.001 \\ \textbf{DCON} = h_6 \\ \end{array}$

STAINLESS STEELS

HIGH TEMP ALLOYS

HARDENED STEELS

PLASTICS/COMPOSITES

NON-FERROUS

CAST IRON

TITANIUM

STEELS





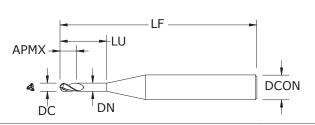








M3B • 1.5xD 8xD FRACTIONAL SERIES



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- 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	REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	UNCOATED	TI-NAMITE-A	
0.010	1/8	0.015	0.080	0.009	2-1/2	<mark>09412</mark>	03859	
0.015	1/8	0.023	0.120	0.014	2-1/2	<mark>09419</mark>	03860	
0.020	1/8	0.030	0.160	0.018	2-1/2	<mark>09426</mark>	03861	
0.025	1/8	0.038	0.200	0.023	2-1/2	<mark>09433</mark>	03862	
0.030	1/8	0.045	0.240	0.028	2-1/2	<mark>09440</mark>	03863	
0.031	1/8	0.047	0.248	0.029	2-1/2	<mark>09447</mark>	03864	
0.035	1/8	0.053	0.280	0.032	2-1/2	<mark>09454</mark>	03865	
0.040	1/8	0.060	0.320	0.037	2-1/2	<mark>09461</mark>	03866	
0.045	1/8	0.068	0.360	0.042	2-1/2	<mark>09468</mark>	03867	
0.047	1/8	0.071	0.376	0.044	2-1/2	<mark>09475</mark>	03868	
0.050	1/8	0.075	0.400	0.047	2-1/2	<mark>09482</mark>	03869	
0.055	1/8	0.083	0.440	0.051	2-1/2	<mark>09489</mark>	03870	
0.060	1/8	0.090	0.480	0.056	2-1/2	<mark>09496</mark>	03871	
0.062	1/8	0.093	0.496	0.058	2-1/2	<mark>09503</mark>	03872	
0.065	1/8	0.098	0.520	0.061	2-1/2	<mark>09510</mark>	03873	
0.070	1/8	0.105	0.560	0.065	2-1/2	<mark>09517</mark>	03874	
0.075	1/8	0.113	0.600	0.070	2-1/2	<mark>09524</mark>	03875	
0.078	1/8	0.117	0.624	0.073	2-1/2	<mark>09531</mark>	03876	
0.080	1/8	0.120	0.640	0.075	2-1/2	<mark>09538</mark>	03877	
0.085	1/8	0.128	0.680	0.079	2-1/2	<mark>09545</mark>	03878	
0.090	1/8	0.135	0.720	0.084	2-1/2	<mark>09552</mark>	03879	
0.093	1/8	0.140	0.744	0.087	2-1/2	<mark>09559</mark>	03880	
0.095	1/8	0.143	0.760	0.089	2-1/2	<mark>09566</mark>	03881	
0.100	1/8	0.150	0.800	0.094	2-1/2	<mark>09573</mark>	03882	
0.110	1/8	0.165	0.880	0.103	2-1/2	<mark>09580</mark>	03883	
0.115	1/8	0.173	0.920	0.108	2-1/2	<mark>09587</mark>	03884	
0.120	1/8	0.180	0.960	0.112	2-1/2	<mark>09594</mark>	03885	

RE = 1/2 Cutting Diameter (DC)



₭YOCERa

M3B • 1.5xD • 12xD Overall Reach















New Expanded Tools

 $\frac{\text{TOLERANCES (inch)}}{.010-.120 \text{ DIAMETER}}$ DC = +0.000/-0.001 DCON = h_6

STEELS

STAINLESS STEELS

CAST IRON

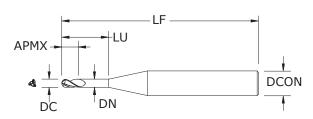
HIGH TEMP ALLOYS

TITANIUM

HARDENED STEELS

NON-FERROUS

PLASTICS/COMPOSITES



M3B • 1.5xD 12xD FRACTIONAL SERIES

	inch						P 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	0.120	0.009	2-1/2	<mark>09406</mark>	03886
0.015	1/8	0.023	0.180	0.014	2-1/2	<mark>09413</mark>	03887
0.020	1/8	0.030	0.240	0.018	2-1/2	<mark>09420</mark>	03888
0.025	1/8	0.038	0.300	0.023	2-1/2	<mark>09427</mark>	03889
0.030	1/8	0.045	0.360	0.028	2-1/2	<mark>09434</mark>	03890
0.031	1/8	0.047	0.372	0.029	2-1/2	<mark>09441</mark>	03891
0.035	1/8	0.053	0.420	0.032	2-1/2	<mark>09448</mark>	03892
0.040	1/8	0.060	0.480	0.037	2-1/2	<mark>09455</mark>	03893
0.045	1/8	0.068	0.540	0.042	2-1/2	<mark>09462</mark>	03894
0.047	1/8	0.071	0.564	0.044	2-1/2	<mark>09469</mark>	03895
0.050	1/8	0.075	0.600	0.047	2-1/2	<mark>09476</mark>	03896
0.055	1/8	0.083	0.660	0.051	2-1/2	<mark>09483</mark>	03897
0.060	1/8	0.090	0.720	0.056	2-1/2	<mark>09490</mark>	03898
0.062	1/8	0.093	0.744	0.058	2-1/2	<mark>09497</mark>	03899
0.065	1/8	0.098	0.780	0.061	2-1/2	<mark>09504</mark>	03900
0.070	1/8	0.105	0.840	0.065	2-1/2	<mark>09511</mark>	03901
0.075	1/8	0.113	0.900	0.070	2-1/2	<mark>09518</mark>	03902
0.078	1/8	0.117	0.936	0.073	2-1/2	<mark>09525</mark>	03903
0.080	1/8	0.120	0.960	0.075	2-1/2	<mark>09532</mark>	03904
0.085	1/8	0.128	1.020	0.079	2-1/2	<mark>09539</mark>	03905
0.090	1/8	0.135	1.080	0.084	2-1/2	<mark>09546</mark>	03906
0.093	1/8	0.140	1.116	0.087	2-1/2	<mark>09553</mark>	03907
0.095	1/8	0.143	1.140	0.089	2-1/2	<mark>09560</mark>	03908
0.100	1/8	0.150	1.200	0.094	2-1/2	<mark>09567</mark>	03909
0.110	1/8	0.165	1.320	0.103	2-1/2	<mark>09574</mark>	03910
0.115	1/8	0.173	1.380	0.108	2-1/2	<mark>09581</mark>	03911
0.120	1/8	0.180	1.440	0.112	2-1/2	<mark>09588</mark>	03912
RE = 1/2 Cut	ting Diamete	er (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 • 15xD Overall Reach

















M3B • 1.5xD 15xD

FRACTIONAL SERIES

- Three flute design features improved chip space over four flutes and increased strength and feed capability over two flutes.
- Proprietary coating allows for superior chip flow, driving industry leading productivity and value, even at low spindle speeds.
- High performance carbide substrate designed specifically for Micro Tool applications.
- · Broad portfolio, offering consistent lengths of cut, to ensure application demands are met.
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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.

APMX - LU	-
DC DN	DCON

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	0.150	0.009	2-1/2	<mark>09407</mark>	03913	
0.015	1/8	0.023	0.225	0.014	2-1/2	<mark>09414</mark>	03914	
0.020	1/8	0.030	0.300	0.018	2-1/2	<mark>09421</mark>	03915	
0.025	1/8	0.038	0.375	0.023	2-1/2	<mark>09428</mark>	03916	
0.030	1/8	0.045	0.450	0.028	2-1/2	<mark>09435</mark>	03917	
0.031	1/8	0.047	0.465	0.029	2-1/2	<mark>09442</mark>	03918	
0.035	1/8	0.053	0.525	0.032	2-1/2	<mark>09449</mark>	03919	
0.040	1/8	0.060	0.600	0.037	2-1/2	<mark>09456</mark>	03920	
0.045	1/8	0.068	0.675	0.042	2-1/2	<mark>09463</mark>	03921	
0.047	1/8	0.071	0.705	0.044	2-1/2	<mark>09470</mark>	03922	
0.050	1/8	0.075	0.750	0.047	2-1/2	<mark>09477</mark>	03923	
0.055	1/8	0.083	0.825	0.051	2-1/2	<mark>09484</mark>	03924	
0.060	1/8	0.090	0.900	0.056	2-1/2	<mark>09491</mark>	03925	
0.062	1/8	0.093	0.930	0.058	2-1/2	<mark>09498</mark>	03926	
0.065	1/8	0.098	0.975	0.061	2-1/2	<mark>09505</mark>	03927	
0.070	1/8	0.105	1.050	0.065	2-1/2	<mark>09512</mark>	03928	
0.075	1/8	0.113	1.125	0.070	2-1/2	<mark>09519</mark>	03929	
0.078	1/8	0.117	1.170	0.073	2-1/2	<mark>09526</mark>	03930	
0.080	1/8	0.120	1.200	0.075	2-1/2	<mark>09533</mark>	03931	
0.085	1/8	0.128	1.275	0.079	2-1/2	<mark>09540</mark>	03932	
0.090	1/8	0.135	1.350	0.084	2-1/2	<mark>09547</mark>	03933	
0.093	1/8	0.140	1.395	0.087	3	<mark>09554</mark>	03934	
0.095	1/8	0.143	1.425	0.089	3	<mark>09561</mark>	03935	
0.100	1/8	0.150	1.500	0.094	3	<mark>09568</mark>	03936	
0.110	1/8	0.165	1.650	0.103	3	<mark>09575</mark>	03937	
0.115	1/8	0.173	1.725	0.108	3	<mark>09582</mark>	03938	
0.120	1/8	0.180	1.800	0.112	3	<mark>09589</mark>	03939	
E _ 1/2 Cu+	tina Diamoto	r /DC\						

RE = 1/2 Cutting Diameter (DC)

New Expanded Tools **TOLERANCES** (inch)

.010-.120 DIAMETER **DC** = +0.000/-0.001 $DCON = h_6$

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

PLASTICS/COMPOSITES



₭YOCERa

M3B • 1.5xD • 20xD Overall Reach















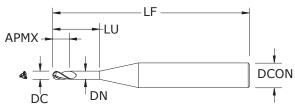
New Expanded Tools

TOLERANCES (inch) .010-.120 DIAMETER **DC** = +0.000/-0.001 $DCON = h_6$

STEELS STAINLESS STEELS **CAST IRON** HIGH TEMP ALLOYS TITANIUM HARDENED STEELS

NON-FERROUS

PLASTICS/COMPOSITES



M3B • 1.5xD FRACTIONAL SERIES

	D		714			ı	
		inc	ch			EDI	P 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	0.200	0.009	2-1/2	<mark>09408</mark>	03940
0.015	1/8	0.023	0.300	0.014	2-1/2	<mark>09415</mark>	03941
0.020	1/8	0.030	0.400	0.018	2-1/2	<mark>09422</mark>	03942
0.025	1/8	0.038	0.500	0.023	2-1/2	<mark>09429</mark>	03943
0.030	1/8	0.045	0.600	0.028	2-1/2	<mark>09436</mark>	03944
0.031	1/8	0.047	0.620	0.029	2-1/2	<mark>09443</mark>	03945
0.035	1/8	0.053	0.700	0.032	2-1/2	<mark>09450</mark>	03946
0.040	1/8	0.060	0.800	0.037	2-1/2	<mark>09457</mark>	03947
0.045	1/8	0.068	0.900	0.042	2-1/2	<mark>09464</mark>	03948
0.047	1/8	0.071	0.940	0.044	2-1/2	<mark>09471</mark>	03949
0.050	1/8	0.075	1.000	0.047	2-1/2	<mark>09478</mark>	03950
0.055	1/8	0.083	1.100	0.051	2-1/2	<mark>09485</mark>	03951
0.060	1/8	0.090	1.200	0.056	2-1/2	<mark>09492</mark>	03952
0.062	1/8	0.093	1.240	0.058	2-1/2	<mark>09499</mark>	03953
0.065	1/8	0.098	1.300	0.061	3	<mark>09506</mark>	03954
0.070	1/8	0.105	1.400	0.065	3	<mark>09513</mark>	03955
0.075	1/8	0.113	1.500	0.070	3	<mark>09520</mark>	03956
0.078	1/8	0.117	1.560	0.073	3	<mark>09527</mark>	03957
0.080	1/8	0.120	1.600	0.075	3	<mark>09534</mark>	03958
0.085	1/8	0.128	1.700	0.079	3	<mark>09541</mark>	03959
0.090	1/8	0.135	1.800	0.084	3	<mark>09548</mark>	03960
0.093	1/8	0.140	1.860	0.087	3	<mark>09555</mark>	03961
0.095	1/8	0.143	1.900	0.089	3	<mark>09562</mark>	03962
0.100	1/8	0.150	2.000	0.094	4	<mark>09569</mark>	03963
0.110	1/8	0.165	2.200	0.103	4	<mark>09576</mark>	03964
0.115	1/8	0.173	2.300	0.108	4	<mark>09583</mark>	03965
0.120	1/8	0.180	2.400	0.112	4	<mark>09590</mark>	03966
RE = 1/2 Cutt	ting Diamete	r (DC)					

RE

- 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.

M3B • 1.5xD • 25xD Overall Reach











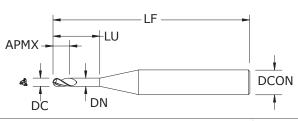








M3B • 1.5xD 25xD FRACTIONAL SERIES



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

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

		in	ch			EDI	P 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	0.250	0.009	2-1/2	<mark>09409</mark>	03967
0.015	1/8	0.023	0.375	0.014	2-1/2	<mark>09416</mark>	03968
0.020	1/8	0.030	0.500	0.018	2-1/2	<mark>09423</mark>	03969
0.025	1/8	0.038	0.625	0.023	2-1/2	<mark>09430</mark>	03970
0.030	1/8	0.045	0.750	0.028	2-1/2	<mark>09437</mark>	03971
0.031	1/8	0.047	0.775	0.029	2-1/2	<mark>09444</mark>	03972
0.035	1/8	0.053	0.875	0.032	2-1/2	<mark>09451</mark>	03973
0.040	1/8	0.060	1.000	0.037	2-1/2	<mark>09458</mark>	03974
0.045	1/8	0.068	1.125	0.042	2-1/2	<mark>09465</mark>	03975
0.047	1/8	0.071	1.175	0.044	2-1/2	<mark>09472</mark>	03976
0.050	1/8	0.075	1.250	0.047	2-1/2	<mark>09479</mark>	03977
0.055	1/8	0.083	1.375	0.051	3	<mark>09486</mark>	03978
0.060	1/8	0.090	1.500	0.056	3	<mark>09493</mark>	03979
0.062	1/8	0.093	1.550	0.058	3	<mark>09500</mark>	03980
0.065	1/8	0.098	1.625	0.061	3	<mark>09507</mark>	03981
0.070	1/8	0.105	1.750	0.065	3	<mark>09514</mark>	03982
0.075	1/8	0.113	1.875	0.070	3	<mark>09521</mark>	03983
0.078	1/8	0.117	1.950	0.073	4	<mark>09528</mark>	03984
0.080	1/8	0.120	2.000	0.075	4	<mark>09535</mark>	03985
0.085	1/8	0.128	2.125	0.079	4	<mark>09542</mark>	03986
0.090	1/8	0.135	2.250	0.084	4	<mark>09549</mark>	03987
0.093	1/8	0.140	2.325	0.087	4	<mark>09556</mark>	03988
0.095	1/8	0.143	2.375	0.089	4	<mark>09563</mark>	03989
0.100	1/8	0.150	2.500	0.094	4	<mark>09570</mark>	03990
0.110	1/8	0.165	2.750	0.103	4	<mark>09577</mark>	03991
0.115	1/8	0.173	2.875	0.108	4	<mark>09584</mark>	03992
0.120	1/8	0.180	3.000	0.112	4	<mark>09591</mark>	03993
RE = 1/2 Cu	tting Diamete	er (DC)					

New Expanded Tools



PLASTICS/COMPOSITES

M4 • M4CR • 1.5xD





















New Expanded Tools

TOLERANCES (inch) .005-.120 DIAMETER

DC = +0.000/-0.001

 $DCON = h_6$

RE = +0.0000/-0.0005



CAST IRON

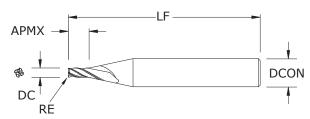
HIGH TEMP ALLOYS

TITANIUM

HARDENED STEELS

NON-FERROUS

PLASTICS/COMPOSITES



M4 • M4CR 1.5xD FRACTIONAL SERIES

		inch			EDI	PNO.
CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	CORNER Radius Re	UNCOATED	TI-NAMITE-A (AITiN)
0.005	1/8	0.008	1-1/2	_	<mark>00372</mark>	02238
0.006	1/8	0.009	1-1/2	_	<mark>00373</mark>	02239
0.007	1/8	0.011	1-1/2	_	<mark>00374</mark>	02240
0.008	1/8	0.012	1-1/2	_	<mark>00375</mark>	02241
0.009	1/8	0.014	1-1/2	_	<mark>00376</mark>	02242
0.010	1/8	0.015	1-1/2	_	<mark>00377</mark>	02243
0.011	1/8	0.017	1-1/2	_	<mark>00378</mark>	02244
0.012	1/8	0.018	1-1/2	_	<mark>00379</mark>	02245
0.013	1/8	0.020	1-1/2	_	<mark>00380</mark>	02246
0.014	1/8	0.021	1-1/2	_	<mark>00381</mark>	02247
0.015	1/8	0.023	1-1/2	_	00382	02248
0.015	1/8	0.023	1-1/2	0.003	<mark>08986</mark>	<mark>09126</mark>
0.016	1/8	0.024	1-1/2	_	00383	02249
0.017	1/8	0.026	1-1/2	_	<mark>00384</mark>	02250
0.018	1/8	0.027	1-1/2	_	00385	02251
0.019	1/8	0.029	1-1/2	_	<mark>00386</mark>	02252
0.020	1/8	0.030	1-1/2	_	<mark>00387</mark>	02253
0.020	1/8	0.030	1-1/2	0.003	<mark>08988</mark>	<mark>09128</mark>
0.020	1/8	0.030	1-1/2	0.005	<mark>04024</mark>	<mark>04025</mark>
0.021	1/8	0.032	1-1/2	_	<mark>00388</mark>	02254
0.022	1/8	0.033	1-1/2	_	00389	02255
0.023	1/8	0.035	1-1/2	_	<mark>00390</mark>	02256
0.024	1/8	0.036	1-1/2	_	<mark>00391</mark>	02257
0.025	1/8	0.038	1-1/2	_	<mark>00392</mark>	02258
0.025	1/8	0.038	1-1/2	0.005	<mark>04026</mark>	<mark>04027</mark>
0.025	1/8	0.038	1-1/2	0.010	<mark>08990</mark>	<mark>09130</mark>
0.026	1/8	0.039	1-1/2	-	00393	02259
0.027	1/8	0.041	1-1/2	_	<mark>00394</mark>	02260
0.028	1/8	0.042	1-1/2	-	00395	02261
0.029	1/8	0.044	1-1/2	_	<mark>00396</mark>	02262
0.030	1/8	0.045	1-1/2	_	<mark>00397</mark>	02263
0.030	1/8	0.045	1-1/2	0.010	<mark>08992</mark>	<mark>09132</mark>
0.031	1/8	0.047	1-1/2	-	<mark>00398</mark>	02264
0.032	1/8	0.048	1-1/2	_	00399	02265
0.033	1/8	0.050	1-1/2	-	00400	02266
0.034	1/8	0.051	1-1/2	_	<mark>00401</mark>	02267
					continue	d on next pag

- 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.
- that extend tool life, reduce chatter, cut cycle times, and improve part quality.

• Advanced geometries

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

M4 • M4CR • 1.5xD





















M4 • M4CR 1.5xD FRACTIONAL SERIES

APMX -**DCON** RE

New Expanded Tools

TOLERANCES (inch) .005-.120 DIAMETER

DC = +0.000/-0.001

 $DCON = h_6$

RE = +0.0000/-0.0005

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

continued

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

continued on next page



M4 • M4CR 1.5xD

continued

inch			EDP NO.			
CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	CORNER RADIUS RE	UNCOATED	TI-NAMITE-A (AITiN)
0.057	1/8	0.086	1-1/2	_	<mark>00424</mark>	02418
0.058	1/8	0.087	1-1/2	_	<mark>00425</mark>	02419
0.059	1/8	0.089	1-1/2	-	<mark>00426</mark>	02420
0.060	1/8	0.090	1-1/2	_	<mark>00427</mark>	02421
0.060	1/8	0.090	1-1/2	0.005	<mark>09018</mark>	<mark>09158</mark>
0.060	1/8	0.090	1-1/2	0.010	<mark>09020</mark>	<mark>09160</mark>
0.060	1/8	0.090	1-1/2	0.015	<mark>09022</mark>	<mark>09162</mark>
0.062	1/8	0.093	1-1/2	_	<mark>00428</mark>	02422
0.065	1/8	0.098	1-1/2	_	<mark>00429</mark>	02423
0.065	1/8	0.098	1-1/2	0.005	<mark>09024</mark>	<mark>09164</mark>
0.065	1/8	0.098	1-1/2	0.010	<mark>09026</mark>	<mark>09166</mark>
0.065	1/8	0.098	1-1/2	0.015	<mark>09028</mark>	<mark>09168</mark>
0.070	1/8	0.105	1-1/2	-	<mark>00430</mark>	02424
0.070	1/8	0.105	1-1/2	0.005	<mark>09030</mark>	<mark>09170</mark>
0.070	1/8	0.105	1-1/2	0.010	<mark>09032</mark>	<mark>09172</mark>
0.070	1/8	0.105	1-1/2	0.015	<mark>09034</mark>	<mark>09174</mark>
0.075	1/8	0.1125	1-1/2	_	<mark>04014</mark>	<mark>04012</mark>
0.075	1/8	0.113	1-1/2	0.005	<mark>09036</mark>	<mark>09176</mark>
0.075	1/8	0.113	1-1/2	0.010	<mark>09038</mark>	<mark>09178</mark>
0.075	1/8	0.113	1-1/2	0.015	<mark>09040</mark>	<mark>09180</mark>
0.075	1/8	0.113	1-1/2	0.020	<mark>09042</mark>	<mark>09182</mark>
0.078	1/8	0.117	1-1/2	_	<mark>00431</mark>	02425
0.080	1/8	0.120	1-1/2	-	<mark>00432</mark>	02426
0.080	1/8	0.120	1-1/2	0.005	<mark>09044</mark>	<mark>09184</mark>
0.080	1/8	0.120	1-1/2	0.010	<mark>09046</mark>	<mark>09186</mark>
0.080	1/8	0.120	1-1/2	0.015	<mark>09048</mark>	<mark>09188</mark>
0.080	1/8	0.120	1-1/2	0.020	<mark>09050</mark>	<mark>09190</mark>
0.085	1/8	0.128	1-1/2	_	<mark>00433</mark>	02427
0.085	1/8	0.128	1-1/2	0.005	<mark>09052</mark>	<mark>09192</mark>
0.085	1/8	0.128	1-1/2	0.010	<mark>09054</mark>	<mark>09194</mark>
0.085	1/8	0.128	1-1/2	0.015	<mark>09056</mark>	<mark>09196</mark>
0.085	1/8	0.128	1-1/2	0.020	<mark>09058</mark>	<mark>09198</mark>
0.090	1/8	0.135	1-1/2	_	<mark>00434</mark>	02428
0.090	1/8	0.135	1-1/2	0.005	<mark>09060</mark>	<mark>09200</mark>
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M4 • M4CR • 1.5xD





















M4 • M4CR 1.5xD FRACTIONAL SERIES

APMX -**DCON** RE

continued

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

New Expanded Tools

TOLERANCES (inch)

.005-.120 DIAMETER

DC = +0.000/-0.001

 $DCON = h_6$

RE = +0.0000/-0.0005



PLASTICS/COMPOSITES

continued on next page



M4 • M4CR 1.5xD

FRACTIONAL SERIES

		EDI	PNO.			
CUTTING DIAMETER DC	SHANK DIAMETER DCON	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	<mark>09116</mark>	<mark>09256</mark>
0.120	1/8	0.180	1-1/2	0.010	<mark>09118</mark>	<mark>09258</mark>
0.120	1/8	0.180	1-1/2	0.015	<mark>09120</mark>	<mark>09260</mark>
0.120	1/8	0.180	1-1/2	0.020	<mark>09122</mark>	<mark>09262</mark>
0.120	1/8	0.180	1-1/2	0.030	09124	<mark>09264</mark>

continued

M4 • M4CR • 3xD











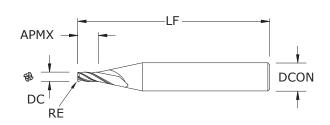












M4 • M4CR • 3xD

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 KSPT ISO certified quality procedures.

CUTTING	CHANK	inch	OVERALI	CODNED	EDI	PNO.
CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	CORNER Radius Re	UNCOATED	TI-NAMITE-A
0.005	1/8	0.015	1-1/2	-	<mark>00514</mark>	02312
0.006	1/8	0.018	1-1/2	_	<mark>00515</mark>	02313
0.007	1/8	0.021	1-1/2	_	<mark>00516</mark>	02314
0.008	1/8	0.024	1-1/2	_	<mark>00517</mark>	02315
0.009	1/8	0.027	1-1/2	-	<mark>00518</mark>	02316
0.010	1/8	0.030	1-1/2	_	<mark>00519</mark>	02317
0.011	1/8	0.033	1-1/2	-	<mark>00520</mark>	02318
0.012	1/8	0.036	1-1/2	_	<mark>00521</mark>	02319
0.013	1/8	0.039	1-1/2	-	<mark>00522</mark>	02320
0.014	1/8	0.042	1-1/2	_	<mark>00523</mark>	02321
0.015	1/8	0.045	1-1/2	-	<mark>00524</mark>	02322
0.015	1/8	0.045	1-1/2	0.003	<mark>08987</mark>	<mark>09127</mark>
0.016	1/8	0.048	1-1/2	-	<mark>00525</mark>	02323
0.017	1/8	0.051	1-1/2	_	<mark>00526</mark>	02324
0.018	1/8	0.054	1-1/2	-	<mark>00527</mark>	02325
0.019	1/8	0.057	1-1/2	_	<mark>00528</mark>	02326
0.020	1/8	0.060	1-1/2	-	<mark>00529</mark>	02327
0.020	1/8	0.060	1-1/2	0.003	<mark>08989</mark>	<mark>09129</mark>
0.020	1/8	0.060	1-1/2	0.005	<mark>04028</mark>	<mark>04029</mark>
0.021	1/8	0.063	1-1/2	_	<mark>00530</mark>	02328
0.022	1/8	0.066	1-1/2	-	<mark>00531</mark>	02329
0.023	1/8	0.069	1-1/2	_	<mark>00532</mark>	02330
0.024	1/8	0.072	1-1/2	_	<mark>00533</mark>	02331
0.025	1/8	0.075	1-1/2	_	<mark>00534</mark>	02332
0.025	1/8	0.075	1-1/2	0.005	<mark>04030</mark>	<mark>04031</mark>
0.025	1/8	0.075	1-1/2	0.010	<mark>08991</mark>	<mark>09131</mark>
0.026	1/8	0.078	1-1/2	-	<mark>00535</mark>	02333
0.027	1/8	0.081	1-1/2	_	<mark>00536</mark>	02334
0.028	1/8	0.084	1-1/2	_	<mark>00537</mark>	02335
0.029	1/8	0.087	1-1/2	_	<mark>00538</mark>	02336
0.030	1/8	0.090	1-1/2	_	<mark>00539</mark>	02337
0.030	1/8	0.090	1-1/2	0.010	<mark>08993</mark>	<mark>09133</mark>
0.031	1/8	0.093	1-1/2	_	<mark>00540</mark>	02338
0.032	1/8	0.096	1-1/2	_	<mark>00541</mark>	02339
0.033	1/8	0.099	1-1/2	_	<mark>00542</mark>	02340
0.034	1/8	0.102	1-1/2	_	<mark>00543</mark>	02341
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TOLERANCES (inch) .004-.120 DIAMETER **DC** = +0.000/-0.001DCON = h₆ RE = +0.0000/-0.0005 STEELS STAINLESS STEELS CAST IRON HIGH TEMP ALLOYS **TITANIUM** HARDENED STEELS NON-FERROUS

PLASTICS/COMPOSITES



₡K90cera

M4 • M4CR • 3xD

FRACTIONAL SERIES

continued

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

M4 • M4CR • 3xD















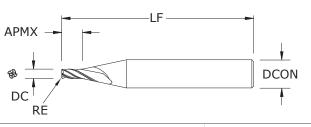






M4 • M4CR • 3xD FRACTIONAL SERIES

continued



APMX -	-	-LF	_	
1				
			<u> </u>	CON
DC [1
RE				
inch			EDI	P NO.
LENGTH OF CUT	OVERALL	CORNER	IINCOATED	TI-NAMITF-A

TOLERANCES (inch) .004-.120 DIAMETER **DC** = +0.000/-0.001 $DCON = h_6$ **RE** = +0.0000/-0.0005 STEELS STAINLESS STEELS CAST IRON HIGH TEMP ALLOYS TITANIUM HARDENED STEELS NON-FERROUS

PLASTICS/COMPOSITES

New Expanded Tools

		IIICII			EDI	r IVU.
CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	CORNER RADIUS RE	UNCOATED	TI-NAMITE-A (AITIN)
0.059	1/8	0.177	1-1/2	_	<mark>00568</mark>	02488
0.060	1/8	0.180	1-1/2	_	<mark>00569</mark>	02489
0.060	1/8	0.180	1-1/2	0.005	<mark>09019</mark>	<mark>09159</mark>
0.060	1/8	0.180	1-1/2	0.010	<mark>09021</mark>	<mark>09161</mark>
0.060	1/8	0.180	1-1/2	0.015	<mark>09023</mark>	<mark>09163</mark>
0.062	1/8	0.186	1-1/2	_	<mark>00570</mark>	02490
0.065	1/8	0.195	1-1/2	-	<mark>00571</mark>	02491
0.065	1/8	0.195	1-1/2	0.005	<mark>09025</mark>	<mark>09165</mark>
0.065	1/8	0.195	1-1/2	0.010	<mark>09027</mark>	<mark>09167</mark>
0.065	1/8	0.195	1-1/2	0.015	<mark>09029</mark>	<mark>09169</mark>
0.070	1/8	0.210	1-1/2	_	<mark>00572</mark>	02492
0.070	1/8	0.210	1-1/2	0.005	<mark>09031</mark>	<mark>09171</mark>
0.070	1/8	0.210	1-1/2	0.010	<mark>09033</mark>	<mark>09173</mark>
0.070	1/8	0.210	1-1/2	0.015	<mark>09035</mark>	<mark>09175</mark>
0.075	1/8	0.225	1-1/2	_	<mark>04015</mark>	<mark>04013</mark>
0.075	1/8	0.225	1-1/2	0.005	<mark>09037</mark>	<mark>09177</mark>
0.075	1/8	0.225	1-1/2	0.010	<mark>09039</mark>	<mark>09179</mark>
0.075	1/8	0.225	1-1/2	0.015	<mark>09041</mark>	<mark>09181</mark>
0.075	1/8	0.225	1-1/2	0.020	<mark>09043</mark>	<mark>09183</mark>
0.078	1/8	0.234	1-1/2	_	<mark>00573</mark>	02493
0.080	1/8	0.240	1-1/2	_	<mark>00574</mark>	02494
0.080	1/8	0.240	1-1/2	0.005	<mark>09045</mark>	<mark>09185</mark>
0.080	1/8	0.240	1-1/2	0.010	<mark>09047</mark>	<mark>09187</mark>
0.080	1/8	0.240	1-1/2	0.015	<mark>09049</mark>	<mark>09189</mark>
0.080	1/8	0.240	1-1/2	0.020	<mark>09051</mark>	<mark>09191</mark>
0.085	1/8	0.255	1-1/2	_	<mark>00575</mark>	02495
0.085	1/8	0.255	1-1/2	0.005	<mark>09053</mark>	<mark>09193</mark>
0.085	1/8	0.255	1-1/2	0.010	<mark>09055</mark>	<mark>09195</mark>
0.085	1/8	0.255	1-1/2	0.015	<mark>09057</mark>	<mark>09197</mark>
0.085	1/8	0.255	1-1/2	0.020	<mark>09059</mark>	<mark>09199</mark>
0.090	1/8	0.270	1-1/2	_	<mark>00576</mark>	02496
0.090	1/8	0.270	1-1/2	0.005	<mark>09061</mark>	<mark>09201</mark>
0.090	1/8	0.270	1-1/2	0.010	<mark>09063</mark>	<mark>09203</mark>
0.090	1/8	0.270	1-1/2	0.015	<mark>09065</mark>	<mark>09205</mark>
0.090	1/8	0.270	1-1/2	0.020	<mark>09067</mark>	<mark>09207</mark>
0.093	1/8	0.279	1-1/2	_	<mark>00577</mark>	02497



M4 • M4CR • 3xD

FRACTIONAL SERIES

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

continued

M4 • 3xD • 8xD Overall Reach











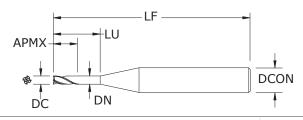








M4 • 3xD 8xD FRACTIONAL SERIES



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

TOLERANCES (inch)

.010-.120 DIAMETER

DC = +0.000/-0.001

DCON = h₆

STEELS

STAINLESS STEELS

CAST IRON

HIGH TEMP ALLOYS

TITANIUM

HARDENED STEELS

NON-FERROUS

PLASTICS/COMPOSITES

New Expanded Tools



M4 • 3xD • 12xD Overall Reach



₭YOCERa















New Expanded Tools

 $\frac{\text{TOLERANCES (inch)}}{.010-.120 \text{ DIAMETER}}$ DC = +0.000/-0.001 DCON = h_6

STEELS

STAINLESS STEELS

CAST IRON

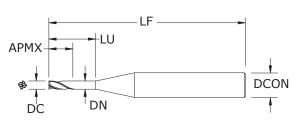
HIGH TEMP ALLOYS

TITANIUM

HARDENED STEELS

NON-FERROUS

PLASTICS/COMPOSITES



		inc	ch			EDI	PNO.
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	0.030	0.120	0.009	1-1/2	<mark>09838</mark>	03481
0.015	1/8	0.045	0.180	0.014	1-1/2	<mark>09840</mark>	03482
0.020	1/8	0.060	0.240	0.018	1-1/2	<mark>09842</mark>	03483
0.025	1/8	0.075	0.300	0.023	1-1/2	<mark>09844</mark>	03484
0.030	1/8	0.090	0.360	0.028	2	<mark>09846</mark>	03485
0.031	1/8	0.093	0.372	0.029	2	<mark>09848</mark>	03486
0.035	1/8	0.105	0.420	0.032	2	<mark>09850</mark>	03487
0.040	1/8	0.120	0.480	0.037	2	<mark>09852</mark>	03488
0.045	1/8	0.135	0.540	0.042	2	<mark>09854</mark>	03489
0.047	1/8	0.141	0.564	0.044	2	<mark>09856</mark>	03490
0.050	1/8	0.150	0.600	0.047	2	<mark>09858</mark>	03491
0.055	1/8	0.165	0.660	0.051	2	<mark>09860</mark>	03492
0.060	1/8	0.180	0.720	0.056	2	<mark>09862</mark>	03493
0.062	1/8	0.186	0.744	0.058	2	<mark>09864</mark>	03494
0.065	1/8	0.195	0.780	0.061	2	<mark>09866</mark>	03495
0.070	1/8	0.210	0.840	0.065	2	<mark>09868</mark>	03496
0.075	1/8	0.225	0.900	0.070	2	<mark>09870</mark>	03497
0.078	1/8	0.234	0.936	0.073	2-1/2	<mark>09872</mark>	03498
0.080	1/8	0.240	0.960	0.075	2-1/2	<mark>09874</mark>	03499
0.085	1/8	0.255	1.020	0.079	2-1/2	<mark>09876</mark>	03500
0.090	1/8	0.270	1.080	0.084	2-1/2	<mark>09878</mark>	03501
0.093	1/8	0.279	1.116	0.087	2-1/2	<mark>09880</mark>	03502
0.095	1/8	0.285	1.140	0.089	2-1/2	<mark>09882</mark>	03503
0.100	1/8	0.300	1.200	0.094	2-1/2	<mark>09884</mark>	03504
0.110	1/8	0.330	1.320	0.103	2-1/2	<mark>09886</mark>	03505
0.115	1/8	0.345	1.380	0.108	2-1/2	<mark>09888</mark>	03506
0.120	1/8	0.360	1.440	0.112	2-1/2	<mark>09890</mark>	03507

M4 • 3xD 12xD FRACTIONAL SERIES

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M4L • 5xD



















M4L • 5xD FRACTIONAL SERIES

LF **APMX DCON** DC

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i	for higher feed rates and
(decreased deflection,
i	improving productivity
	and surface finish.

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

New Expanded Tools TOLERANCES (inch)

.010-.120 DIAMETER **DC** = +0.000/-0.001 $DCON = h_6$



M4E • 8xD















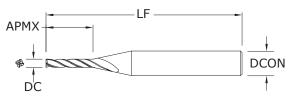




New Expanded Tools

TOLERANCES (inch) .010-.120 DIAMETER **DC** = +0.000/-0.001 $DCON = h_6$





M4E	•	8xD
FRAC	CTIO	NAL SERIES

	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	<mark>00611</mark>	02667	
0.015	1/8	0.120	2-1/2	<mark>00612</mark>	02668	
0.020	1/8	0.160	2-1/2	<mark>00613</mark>	02669	
0.025	1/8	0.200	2-1/2	<mark>00614</mark>	02670	
0.030	1/8	0.240	2-1/2	<mark>00615</mark>	02671	
0.031	1/8	0.248	2-1/2	<mark>00616</mark>	02672	
0.035	1/8	0.280	2-1/2	<mark>00617</mark>	02673	
0.040	1/8	0.320	2-1/2	<mark>00618</mark>	02674	
0.045	1/8	0.360	2-1/2	<mark>00619</mark>	02675	
0.047	1/8	0.376	2-1/2	<mark>00620</mark>	02676	
0.050	1/8	0.400	2-1/2	<mark>00621</mark>	02677	
0.055	1/8	0.440	2-1/2	<mark>00622</mark>	02678	
0.060	1/8	0.480	2-1/2	<mark>00623</mark>	02679	
0.062	1/8	0.496	2-1/2	<mark>00624</mark>	02680	
0.065	1/8	0.520	2-1/2	<mark>00625</mark>	02681	
0.070	1/8	0.560	2-1/2	<mark>00626</mark>	02682	
0.075	1/8	0.600	2-1/2	<mark>00627</mark>	02683	
0.078	1/8	0.624	2-1/2	<mark>00628</mark>	02684	
0.080	1/8	0.640	2-1/2	<mark>00629</mark>	02685	
0.085	1/8	0.680	2-1/2	<mark>00630</mark>	02686	
0.090	1/8	0.720	2-1/2	<mark>00631</mark>	02687	
0.093	1/8	0.744	2-1/2	<mark>00632</mark>	02688	
0.095	1/8	0.760	2-1/2	<mark>00633</mark>	02689	
0.100	1/8	0.800	2-1/2	<mark>00634</mark>	02690	
0.110	1/8	0.880	2-1/2	<mark>00635</mark>	02691	
0.115	1/8	0.920	2-1/2	<mark>00636</mark>	02692	
0.120	1/8	0.960	2-1/2	<mark>00637</mark>	02693	

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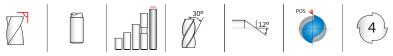
M4X • 12xD











CUTTING



APMX

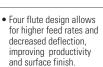


-LF



M4X • 12xD

FRACTIONAL SERIES



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# DC			DCON	
inc	:h		ED	P NO.
SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	UNCOATED	TI-NAMITE- (AITIN)
1/8	0.180	2-1/2	<mark>00639</mark>	02694
1/8	0.240	2-1/2	<mark>00640</mark>	02695
1/8	0.300	2-1/2	<mark>00641</mark>	02696
1/8	0.360	2-1/2	<mark>00642</mark>	02697
1/8	0.372	2-1/2	<mark>00643</mark>	02698
1/2	0.420	2-1/2	00644	02699

DIAMETER DC	DIAMETER DCON	OF CUT APMX	LENGTH LF	UNCOATED	TI-NAMITE-A (AITiN)
0.015	1/8	0.180	2-1/2	<mark>00639</mark>	02694
0.020	1/8	0.240	2-1/2	<mark>00640</mark>	02695
0.025	1/8	0.300	2-1/2	<mark>00641</mark>	02696
0.030	1/8	0.360	2-1/2	<mark>00642</mark>	02697
0.031	1/8	0.372	2-1/2	<mark>00643</mark>	02698
0.035	1/8	0.420	2-1/2	<mark>00644</mark>	02699
0.040	1/8	0.480	2-1/2	<mark>00645</mark>	02700
0.045	1/8	0.540	2-1/2	<mark>00646</mark>	02701
0.047	1/8	0.564	2-1/2	<mark>00647</mark>	02702
0.050	1/8	0.600	2-1/2	<mark>00648</mark>	02703
0.055	1/8	0.660	2-1/2	<mark>00649</mark>	02704
0.060	1/8	0.720	2-1/2	<mark>00650</mark>	02705
0.062	1/8	0.744	2-1/2	<mark>00651</mark>	02706
0.065	1/8	0.780	2-1/2	<mark>00652</mark>	02707
0.070	1/8	0.840	2-1/2	<mark>00653</mark>	02708
0.075	1/8	0.900	2-1/2	<mark>00654</mark>	02709
0.078	1/8	0.936	2-1/2	<mark>00655</mark>	02710
0.080	1/8	0.960	2-1/2	<mark>00656</mark>	02711
0.085	1/8	1.020	2-1/2	<mark>00657</mark>	02712
0.090	1/8	1.080	2-1/2	<mark>00658</mark>	02713
0.093	1/8	1.116	2-1/2	<mark>00659</mark>	02714
0.095	1/8	1.140	2-1/2	<mark>00660</mark>	02715
0.100	1/8	1.200	2-1/2	<mark>00661</mark>	02716
0.110	1/8	1.320	2-1/2	<mark>00662</mark>	02717
0.115	1/8	1.380	2-1/2	<mark>00663</mark>	02718
0.120	1/8	1.440	2-1/2	<mark>00664</mark>	02719

New Expanded Tools

TOLERANCES (inch) .015-.120 DIAMETER **DC** = +0.000/-0.001

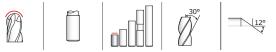
 $DCON = h_6$

















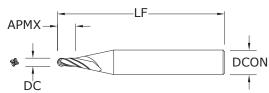


TOLERANCES (inch) .010-.120 DIAMETER **DC** = +0.000/-0.001 $DCON = h_6$

STEELS STAINLESS STEELS **CAST IRON** HIGH TEMP ALLOYS TITANIUM HARDENED STEELS

NON-FERROUS

PLASTICS/COMPOSITES



M4B • 1.5xD FRACTIONAL SERIES

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

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

M4B • 1.5xD





New Expanded Tools

TOLERANCES (inch)



continued













M4B • 1.5xD FRACTIONAL SERIES

-LF-**DCON** DC

.010-.120 DIAMETER **DC** = +0.000/-0.001EDP NO. inch $DCON = h_6$

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

	CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	UNCOATED	TI-NAMITE-A (AITIN)
	0.044	1/8	0.066	1-1/2	<mark>00779</mark>	02541
	0.045	1/8	0.068	1-1/2	<mark>00780</mark>	02542
	0.046	1/8	0.069	1-1/2	<mark>00781</mark>	02543
	0.047	1/8	0.071	1-1/2	<mark>00782</mark>	02544
	0.048	1/8	0.072	1-1/2	<mark>00783</mark>	02545
	0.049	1/8	0.074	1-1/2	<mark>00784</mark>	02546
	0.050	1/8	0.075	1-1/2	<mark>00785</mark>	02547
	0.051	1/8	0.077	1-1/2	<mark>00786</mark>	02548
	0.052	1/8	0.078	1-1/2	<mark>00787</mark>	02549
	0.053	1/8	0.080	1-1/2	<mark>00788</mark>	02550
	0.054	1/8	0.081	1-1/2	<mark>00789</mark>	02551
	0.055	1/8	0.083	1-1/2	<mark>00790</mark>	02552
	0.056	1/8	0.084	1-1/2	<mark>00791</mark>	02553
	0.057	1/8	0.086	1-1/2	<mark>00792</mark>	02554
	0.058	1/8	0.087	1-1/2	<mark>00793</mark>	02555
	0.059	1/8	0.089	1-1/2	<mark>00794</mark>	02556
	0.060	1/8	0.090	1-1/2	<mark>00795</mark>	02557
	0.062	1/8	0.093	1-1/2	<mark>00796</mark>	02558
	0.065	1/8	0.098	1-1/2	<mark>00797</mark>	02559
	0.070	1/8	0.105	1-1/2	<mark>00798</mark>	02560
	0.075	1/8	0.112	1-1/2	<mark>04018</mark>	<mark>04016</mark>
	0.078	1/8	0.117	1-1/2	<mark>00799</mark>	02561
	0.080	1/8	0.120	1-1/2	<mark>00800</mark>	02562
	0.085	1/8	0.128	1-1/2	<mark>00801</mark>	02563
	0.090	1/8	0.135	1-1/2	<mark>00802</mark>	02564
١.	0.093	1/8	0.140	1-1/2	00803	02565
	0.095	1/8	0.143	1-1/2	<mark>00804</mark>	02566
	0.100	1/8	0.150	1-1/2	<mark>00805</mark>	02567
	0.105	1/8	0.158	1-1/2	<mark>00806</mark>	02568
	0.110	1/8	0.165	1-1/2	<mark>00807</mark>	02569
	0.115	1/8	0.173	1-1/2	<mark>00808</mark>	02570
	0.120	1/8	0.180	1-1/2	<mark>00809</mark>	02571

RE = 1/2 Cutting Diameter (DC)











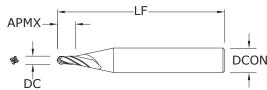






TOLERANCES (inch) .010-.120 DIAMETER **DC** = +0.000/-0.001 $DCON = h_6$

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



M4B • 3	DCON	
FRACTIONA		

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

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

M4B • 3xD





New Expanded Tools

TOLERANCES (inch)

.010-.120 DIAMETER

DC = +0.000/-0.001



continued













M4B • 3xD FRACTIONAL SERIES

LF. APMX-**DCON** DC

EDP NO.

 $DCON = h_6$ SHANK **OVERALL CUTTING** LENGTH DIAMETER OF CUT UNCOATED TI-NAMITE-A DIAMETER LENGTH DC DCON **APMX** LF (AITiN) STEELS 0.044 1/8 0.132 1-1/2 00921 02609 STAINLESS STEELS CAST IRON HIGH TEMP ALLOYS TITANIUM HARDENED STEELS NON-FERROUS PLASTICS/COMPOSITES

					02610
0.046	1/8	0.138	1-1/2	<mark>00923</mark>	02611
0.047	1/8	0.141	1-1/2	<mark>00924</mark>	02612
0.048	1/8	0.144	1-1/2	<mark>00925</mark>	02613
0.049	1/8	0.147	1-1/2	<mark>00926</mark>	02614
0.050	1/8	0.150	1-1/2	<mark>00927</mark>	02615
0.051	1/8	0.153	1-1/2	<mark>00928</mark>	02616
0.052	1/8	0.156	1-1/2	<mark>00929</mark>	02617
0.053	1/8	0.159	1-1/2	<mark>00930</mark>	02618
0.054	1/8	0.162	1-1/2	<mark>00931</mark>	02619
0.055	1/8	0.165	1-1/2	<mark>00932</mark>	02620
0.056	1/8	0.168	1-1/2	<mark>00933</mark>	02621
0.057	1/8	0.171	1-1/2	<mark>00934</mark>	02622
0.058	1/8	0.174	1-1/2	<mark>00935</mark>	02623
0.059	1/8	0.177	1-1/2	<mark>00936</mark>	02624
0.060	1/8	0.180	1-1/2	<mark>00937</mark>	02625
0.062	1/8	0.186	1-1/2	<mark>00938</mark>	02626
0.065	1/8	0.195	1-1/2	<mark>00939</mark>	02627
0.070	1/8	0.210	1-1/2	<mark>00940</mark>	02628
0.075	1/8	0.225	1-1/2	<mark>04019</mark>	<mark>04017</mark>
0.078	1/8	0.234	1-1/2	<mark>00941</mark>	02629
0.080	1/8	0.240	1-1/2	<mark>00942</mark>	02630
0.085	1/8	0.255	1-1/2	<mark>00943</mark>	02631
0.090	1/8	0.270	1-1/2	<mark>00944</mark>	02632
0.093	1/8	0.279	1-1/2	<mark>00945</mark>	02633
0.095	1/8	0.285	1-1/2	<mark>00946</mark>	02634
0.100	1/8	0.300	1-1/2	<mark>00947</mark>	02635
0.105	1/8	0.315	1-1/2	<mark>00948</mark>	02636
0.110	1/8	0.330	1-1/2	<mark>00949</mark>	02637
0.115	1/8	0.345	1-1/2	<mark>00950</mark>	02638
0.120	1/8	0.360	1-1/2	<mark>00951</mark>	02639
	0.048 0.049 0.050 0.051 0.052 0.053 0.054 0.055 0.056 0.057 0.058 0.059 0.060 0.062 0.065 0.070 0.075 0.078 0.080 0.085 0.090 0.093 0.093 0.095 0.110 0.115	0.047 1/8 0.048 1/8 0.049 1/8 0.050 1/8 0.051 1/8 0.052 1/8 0.053 1/8 0.054 1/8 0.055 1/8 0.056 1/8 0.057 1/8 0.058 1/8 0.059 1/8 0.060 1/8 0.062 1/8 0.070 1/8 0.075 1/8 0.078 1/8 0.080 1/8 0.093 1/8 0.100 1/8 0.105 1/8 0.110 1/8 0.115 1/8	0.047 1/8 0.141 0.048 1/8 0.144 0.049 1/8 0.147 0.050 1/8 0.150 0.051 1/8 0.153 0.052 1/8 0.156 0.053 1/8 0.159 0.054 1/8 0.162 0.055 1/8 0.165 0.056 1/8 0.168 0.057 1/8 0.171 0.058 1/8 0.174 0.059 1/8 0.177 0.060 1/8 0.180 0.062 1/8 0.186 0.065 1/8 0.195 0.070 1/8 0.210 0.075 1/8 0.225 0.078 1/8 0.234 0.080 1/8 0.240 0.085 1/8 0.255 0.090 1/8 0.270 0.093 1/8 0.285 0.100 1/8 0.300 0.105 1/8 0.315 0.110	0.047 1/8 0.141 1-1/2 0.048 1/8 0.144 1-1/2 0.049 1/8 0.147 1-1/2 0.050 1/8 0.150 1-1/2 0.051 1/8 0.153 1-1/2 0.052 1/8 0.156 1-1/2 0.053 1/8 0.159 1-1/2 0.054 1/8 0.162 1-1/2 0.055 1/8 0.165 1-1/2 0.056 1/8 0.168 1-1/2 0.057 1/8 0.171 1-1/2 0.058 1/8 0.174 1-1/2 0.059 1/8 0.180 1-1/2 0.060 1/8 0.180 1-1/2 0.062 1/8 0.186 1-1/2 0.070 1/8 0.210 1-1/2 0.075 1/8 0.225 1-1/2 0.075 1/8 0.234 1-1/2 0.075 1/8 0.234	0.047 1/8 0.141 1-1/2 00924 0.048 1/8 0.144 1-1/2 00925 0.049 1/8 0.147 1-1/2 00926 0.050 1/8 0.150 1-1/2 00927 0.051 1/8 0.153 1-1/2 00928 0.052 1/8 0.156 1-1/2 00929 0.053 1/8 0.159 1-1/2 00930 0.054 1/8 0.162 1-1/2 00931 0.055 1/8 0.165 1-1/2 00931 0.055 1/8 0.168 1-1/2 00932 0.056 1/8 0.168 1-1/2 00933 0.057 1/8 0.171 1-1/2 00934 0.058 1/8 0.174 1-1/2 00935 0.059 1/8 0.180 1-1/2 00935 0.060 1/8 0.180 1-1/2 00937 0.065 1/8 <td< th=""></td<>

RE = 1/2 Cutting Diameter (DC)



₭YOCERa

M4B • 3xD • 8xD Overall Reach













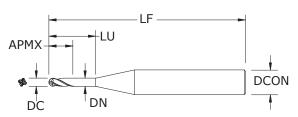


New Expanded Tools

TOLERANCES (inch) .010-.120 DIAMETER **DC** = +0.000/-0.001 $DCON = h_6$

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

PLASTICS/COMPOSITES



M4B • 3xD FRACTIONAL SERIES

		inc	ch			EDI	PNO.
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	0.030	0.080	0.009	1-1/2	<mark>09785</mark>	03751
0.015	1/8	0.045	0.120	0.014	1-1/2	<mark>09787</mark>	03752
0.020	1/8	0.060	0.160	0.018	1-1/2	<mark>09789</mark>	03753
0.025	1/8	0.075	0.200	0.023	1-1/2	<mark>09791</mark>	03754
0.030	1/8	0.090	0.240	0.028	1-1/2	<mark>09793</mark>	03755
0.031	1/8	0.093	0.248	0.029	1-1/2	<mark>09795</mark>	03756
0.035	1/8	0.105	0.280	0.032	1-1/2	<mark>09797</mark>	03757
0.040	1/8	0.120	0.320	0.037	1-1/2	<mark>09799</mark>	03758
0.045	1/8	0.135	0.360	0.042	2	<mark>09801</mark>	03759
0.047	1/8	0.141	0.376	0.044	2	<mark>09803</mark>	03760
0.050	1/8	0.150	0.400	0.047	2	<mark>09805</mark>	03761
0.055	1/8	0.165	0.440	0.051	2	<mark>09807</mark>	03762
0.060	1/8	0.180	0.480	0.056	2	<mark>09809</mark>	03763
0.062	1/8	0.186	0.496	0.058	2	<mark>09811</mark>	03764
0.065	1/8	0.195	0.520	0.061	2	<mark>09813</mark>	03765
0.070	1/8	0.210	0.560	0.065	2	<mark>09815</mark>	03766
0.075	1/8	0.225	0.600	0.070	2	<mark>09817</mark>	03767
0.078	1/8	0.234	0.624	0.073	2	<mark>09819</mark>	03768
0.080	1/8	0.240	0.640	0.075	2	<mark>09821</mark>	03769
0.085	1/8	0.255	0.680	0.079	2	<mark>09823</mark>	03770
0.090	1/8	0.270	0.720	0.084	2	<mark>09825</mark>	03771
0.093	1/8	0.279	0.744	0.087	2	<mark>09827</mark>	03772
0.095	1/8	0.285	0.760	0.089	2	<mark>09829</mark>	03773
0.100	1/8	0.300	0.800	0.094	2	<mark>09831</mark>	03774
0.110	1/8	0.330	0.880	0.103	2	<mark>09833</mark>	03775
0.115	1/8	0.345	0.920	0.108	2	<mark>09835</mark>	03776
0.120	1/8	0.360	0.960	0.112	2	<mark>09837</mark>	03777
RE = 1/2 Cut	ting Diamete	er (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.

M4B • 3xD • 12xD Overall Reach



















M4B • 3xD 12xD FRACTIONAL SERIES

APMX DCON

New Expanded Tools

STEELS

STAINLESS STEELS

CAST IRON

HIGH TEMP ALLOYS

TITANIUM

HARDENED STEELS

NON-FERROUS

PLASTICS/COMPOSITES

- 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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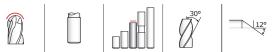
inch					EDP NO.		
CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	UNCOATED	TI-NAMITE-A (AITIN)
0.010	1/8	0.030	0.120	0.009	1-1/2	<mark>09784</mark>	03778
0.015	1/8	0.045	0.180	0.014	1-1/2	<mark>09786</mark>	03779
0.020	1/8	0.060	0.240	0.018	1-1/2	<mark>09788</mark>	03780
0.025	1/8	0.075	0.300	0.023	1-1/2	<mark>09790</mark>	03781
0.030	1/8	0.090	0.360	0.028	2	<mark>09792</mark>	03782
0.031	1/8	0.093	0.372	0.029	2	<mark>09794</mark>	03783
0.035	1/8	0.105	0.420	0.032	2	<mark>09796</mark>	03784
0.040	1/8	0.120	0.480	0.037	2	<mark>09798</mark>	03785
0.045	1/8	0.135	0.540	0.042	2	<mark>09800</mark>	03786
0.047	1/8	0.141	0.564	0.044	2	<mark>09802</mark>	03787
0.050	1/8	0.150	0.600	0.047	2	<mark>09804</mark>	03788
0.055	1/8	0.165	0.660	0.051	2	<mark>09806</mark>	03789
0.060	1/8	0.180	0.720	0.056	2	<mark>09808</mark>	03790
0.062	1/8	0.186	0.744	0.058	2	<mark>09810</mark>	03791
0.065	1/8	0.195	0.780	0.061	2	<mark>09812</mark>	03792
0.070	1/8	0.210	0.840	0.065	2	<mark>09814</mark>	03793
0.075	1/8	0.225	0.900	0.070	2	<mark>09816</mark>	03794
0.078	1/8	0.234	0.936	0.073	2-1/2	<mark>09818</mark>	03795
0.080	1/8	0.240	0.960	0.075	2-1/2	<mark>09820</mark>	03796
0.085	1/8	0.255	1.020	0.079	2-1/2	<mark>09822</mark>	03797
0.090	1/8	0.270	1.080	0.084	2-1/2	<mark>09824</mark>	03798
0.093	1/8	0.279	1.116	0.087	2-1/2	<mark>09826</mark>	03799
0.095	1/8	0.285	1.140	0.089	2-1/2	<mark>09828</mark>	03800
0.100	1/8	0.300	1.200	0.094	2-1/2	<mark>09830</mark>	03801
0.110	1/8	0.330	1.320	0.103	2-1/2	<mark>09832</mark>	03802
0.115	1/8	0.345	1.380	0.108	2-1/2	<mark>09834</mark>	03803
0.120	1/8	0.360	1.440	0.112	2-1/2	<mark>09836</mark>	03804
E _ 1/2 Cu+	tina Diamota	r (DC)					

RE = 1/2 Cutting Diameter (DC)











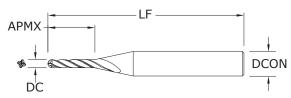






TOLERANCES (inch) .010-.120 DIAMETER **DC** = +0.000/-0.001 $DCON = h_6$





M4LB • 5xD FRACTIONAL SERIES

	inc	:h		EDI	P 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	<mark>00952</mark>	02720
0.015	1/8	0.075	2-1/2	<mark>00953</mark>	02721
0.020	1/8	0.100	2-1/2	<mark>00954</mark>	02722
0.025	1/8	0.125	2-1/2	<mark>00955</mark>	02723
0.030	1/8	0.150	2-1/2	<mark>00956</mark>	02724
0.031	1/8	0.155	2-1/2	<mark>00957</mark>	02725
0.035	1/8	0.175	2-1/2	<mark>00958</mark>	02726
0.040	1/8	0.200	2-1/2	<mark>00959</mark>	02727
0.045	1/8	0.225	2-1/2	<mark>00960</mark>	02728
0.047	1/8	0.235	2-1/2	<mark>00961</mark>	02729
0.050	1/8	0.250	2-1/2	<mark>00962</mark>	02730
0.055	1/8	0.275	2-1/2	<mark>00963</mark>	02731
0.060	1/8	0.300	2-1/2	<mark>00964</mark>	02732
0.062	1/8	0.310	2-1/2	<mark>00965</mark>	02733
0.065	1/8	0.325	2-1/2	<mark>00966</mark>	02734
0.070	1/8	0.350	2-1/2	<mark>00967</mark>	02735
0.075	1/8	0.375	2-1/2	<mark>00968</mark>	02736
0.078	1/8	0.390	2-1/2	<mark>00969</mark>	02737
0.080	1/8	0.400	2-1/2	<mark>00970</mark>	02738
0.085	1/8	0.425	2-1/2	<mark>00971</mark>	02739
0.090	1/8	0.450	2-1/2	<mark>00972</mark>	02740
0.093	1/8	0.465	2-1/2	<mark>00973</mark>	02741
0.095	1/8	0.475	2-1/2	<mark>00974</mark>	02742
0.100	1/8	0.500	2-1/2	<mark>00975</mark>	02743
0.110	1/8	0.550	2-1/2	<mark>00976</mark>	02744
0.115	1/8	0.575	2-1/2	<mark>00977</mark>	02745
0.120	1/8	0.600	2-1/2	<mark>00978</mark>	02746
RE = 1/2 Cutting	Diameter (DC)				

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

M4EB • 8xD















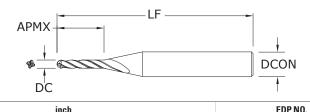




M4EB • 8xD

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

RE = 1/2 Cutting Diameter (DC)

TOLERANCES (inch) .010-.120 DIAMETER

New Expanded Tools

DC = +0.000/-0.001 $DCON = h_6$



HARDENED STEELS NON-FERROUS

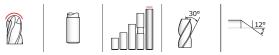
PLASTICS/COMPOSITES













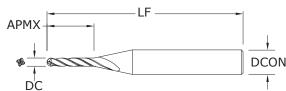






TOLERANCES (inch) .015-.120 DIAMETER **DC** = +0.000/-0.001 $DCON = h_6$





APMX	_	
*	Ì	DCON
DC		_

M4XB • 12xD FRACTIONAL SERIES

	inc	:h		EDI	PNO.
CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	UNCOATED	TI-NAMITE-A (AITIN)
0.015	1/8	0.180	2-1/2	<mark>01007</mark>	02774
0.020	1/8	0.240	2-1/2	<mark>01008</mark>	02775
0.025	1/8	0.300	2-1/2	<mark>01009</mark>	02776
0.030	1/8	0.360	2-1/2	<mark>01010</mark>	02777
0.031	1/8	0.372	2-1/2	<mark>01011</mark>	02778
0.035	1/8	0.420	2-1/2	<mark>01012</mark>	02779
0.040	1/8	0.480	2-1/2	<mark>01013</mark>	02780
0.045	1/8	0.540	2-1/2	<mark>01014</mark>	02781
0.047	1/8	0.564	2-1/2	<mark>01015</mark>	02782
0.050	1/8	0.600	2-1/2	<mark>01016</mark>	02783
0.055	1/8	0.660	2-1/2	<mark>01017</mark>	02784
0.060	1/8	0.720	2-1/2	<mark>01018</mark>	02785
0.062	1/8	0.744	2-1/2	<mark>01019</mark>	02786
0.065	1/8	0.780	2-1/2	<mark>01020</mark>	02787
0.070	1/8	0.840	2-1/2	<mark>01021</mark>	02788
0.075	1/8	0.900	2-1/2	<mark>01022</mark>	02789
0.078	1/8	0.936	2-1/2	<mark>01023</mark>	02790
0.080	1/8	0.960	2-1/2	<mark>01024</mark>	02791
0.085	1/8	1.020	2-1/2	<mark>01025</mark>	02792
0.090	1/8	1.080	2-1/2	<mark>01026</mark>	02793
0.093	1/8	1.116	2-1/2	<mark>01027</mark>	02794
0.095	1/8	1.140	2-1/2	<mark>01028</mark>	02795
0.100	1/8	1.200	2-1/2	<mark>01029</mark>	02796
0.110	1/8	1.320	2-1/2	<mark>01030</mark>	02797
0.115	1/8	1.380	2-1/2	<mark>01031</mark>	02798
0.120	1/8	1.440	2-1/2	<mark>01032</mark>	02799
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.
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M2M • 1.5xD













APMX-

DC







DCON

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.
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- Advanced geometries that extend tool life, reduce chatter, cut cycle times, and improve part quality.
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		mm			EDI	P NO.
CUTTING DIAMETER DC	DECIMAL EQUIVALENT	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	UNCOATED	TI-NAMITE-A (AITIN)
0,1	0.0039	3,0	0,1	38,0	<mark>05002</mark>	<mark>05000</mark>
0,2	0.0079	3,0	0,3	38,0	<mark>01801</mark>	02801
0,3	0.0118	3,0	0,4	38,0	<mark>01802</mark>	02802
0,4	0.0157	3,0	0,6	38,0	<mark>01803</mark>	02803
0,5	0.0197	3,0	0,7	38,0	<mark>01804</mark>	02804
0,6	0.0236	3,0	0,9	38,0	<mark>01805</mark>	02805
0,7	0.0276	3,0	1,0	38,0	<mark>01806</mark>	02806
0,8	0.0315	3,0	1,2	38,0	<mark>01807</mark>	02807
0,9	0.0354	3,0	1,3	38,0	<mark>01808</mark>	02808
1,0	0.0394	3,0	1,5	38,0	<mark>01809</mark>	02809
1,0	0.0394	4,0	1,5	50,0	<mark>01861</mark>	02819
1,1	0.0433	3,0	1,6	38,0	<mark>01810</mark>	02860
1,1	0.0433	4,0	1,6	50,0	<mark>01862</mark>	02892
1,2	0.0472	3,0	1,8	38,0	<mark>01811</mark>	02861
1,2	0.0472	4,0	1,8	50,0	<mark>01863</mark>	02893
1,3	0.0512	3,0	1,9	38,0	<mark>01812</mark>	02862
1,3	0.0512	4,0	1,9	50,0	<mark>01864</mark>	02894
1,4	0.0551	3,0	2,1	38,0	<mark>01813</mark>	02863
1,4	0.0551	4,0	2,1	50,0	<mark>01865</mark>	02895
1,5	0.0591	3,0	2,2	38,0	<mark>01814</mark>	02864
1,5	0.0591	4,0	2,2	50,0	<mark>01866</mark>	02896
1,6	0.0630	3,0	2,4	38,0	<mark>01815</mark>	02865
1,6	0.0630	4,0	2,4	50,0	<mark>01867</mark>	02897
1,7	0.0669	3,0	2,5	38,0	<mark>01816</mark>	02866
1,7	0.0669	4,0	2,5	50,0	<mark>01868</mark>	02898
1,8	0.0709	3,0	2,7	38,0	<mark>01817</mark>	02867
1,8	0.0709	4,0	2,7	50,0	<mark>01869</mark>	02899
1,9	0.0748	3,0	2,8	38,0	<mark>01818</mark>	02868
1,9	0.0748	4,0	2,8	50,0	<mark>01870</mark>	02900
2,0	0.0787	3,0	3,0	38,0	<mark>01819</mark>	02869
2,0	0.0787	4,0	3,0	50,0	<mark>01871</mark>	02901
2,5	0.0984	3,0	3,7	38,0	<mark>01820</mark>	02870
2,0	0.0001	0,0	0,1	00,0	01020	02070

3,7

4,5

4,5

50,0

38,0

50,0

01872

01821

01873

02902

02871

02903

TOLERANCES (mm) 0.1-3.0 DIAMETER **DC** = +0,0000/-0,0254 $DCON = h_6$ STEELS STAINLESS STEELS **CAST IRON** HIGH TEMP ALLOYS **TITANIUM** HARDENED STEELS NON-FERROUS PLASTICS/COMPOSITES

New Expanded Tools

0.0984

0.1181

0.1181

4,0

3,0

4,0

2,5

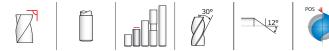
3,0

3,0











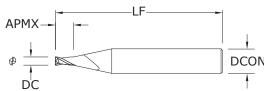






TOLERANCES (mm) 0.1-3.0 DIAMETER **DC** = +0,0000/-0,0254 $DCON = h_6$





V A		
	<u></u>	
	DCON	M2N
DC	<u> </u>	141214

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

continued on next page

/I • 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.

M2M • 3xD

















M2M • 3xD METRIC SERIES

APMX→ **DCON** DC

New Expanded Tools

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

DC = +0,0000/-0,0254 **DCON** = h₆

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

continued

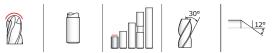
		mm			ED	PNO.
CUTTING DIAMETER DC	DECIMAL EQUIVALENT	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	UNCOATED	TI-NAMITE-A (AITIN)
1,8	0.0709	4,0	5,4	50,0	<mark>01891</mark>	02911
1,9	0.0748	3,0	5,7	38,0	<mark>01840</mark>	02880
1,9	0.0748	4,0	5,7	50,0	<mark>01892</mark>	02912
2,0	0.0787	3,0	6,0	38,0	<mark>01841</mark>	02881
2,0	0.0787	4,0	6,0	50,0	<mark>01893</mark>	02913
2,1	0.0827	3,0	6,3	38,0	<mark>01842</mark>	02882
2,2	0.0866	3,0	6,6	38,0	<mark>01843</mark>	02883
2,3	0.0906	3,0	6,9	38,0	<mark>01844</mark>	02884
2,4	0.0945	3,0	7,2	38,0	<mark>01845</mark>	02885
2,5	0.0984	3,0	7,5	38,0	<mark>01846</mark>	02886
2,5	0.0984	4,0	7,5	50,0	<mark>01894</mark>	02914
2,6	0.1024	3,0	7,8	38,0	<mark>01847</mark>	02887
2,7	0.1063	3,0	8,1	38,0	<mark>01848</mark>	02888
2,8	0.1102	3,0	8,4	38,0	<mark>01849</mark>	02889
2,9	0.1142	3,0	8,7	38,0	<mark>01850</mark>	02890
3,0	0.1181	3,0	9,0	38,0	<mark>01851</mark>	02891
3,0	0.1181	4,0	9,0	50,0	<mark>01895</mark>	02915













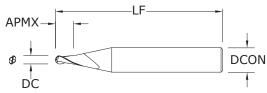






TOLERANCES (mm) 0,1-3,0 DIAMETER **DC** = +0.0000/-0.0254 $DCON = h_6$

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



M2MB	•	1.5xD
		METRIC SERIES

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

• 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.

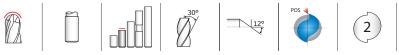
M2MB • 3xD



















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.

APMX——LF———	
	DCON
Ø TO	DCON

	mm					EDP NO.	
CUTTING DIAMETER DC	DECIMAL EQUIVALENT	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	UNCOATED	TI-NAMITE-A (AITIN)	
0,1	0.0039	3,0	0,3	38,0	<mark>05018</mark>	<mark>05005</mark>	
0,2	0.0079	3,0	0,6	38,0	<mark>05020</mark>	<mark>05007</mark>	
0,3	0.0118	3,0	0,9	38,0	<mark>05022</mark>	<mark>05009</mark>	
0,4	0.0157	3,0	1,2	38,0	<mark>05024</mark>	<mark>05011</mark>	
0,5	0.0197	3,0	1,5	38,0	<mark>05025</mark>	<mark>05012</mark>	
0,5	0.0197	4,0	1,5	50,0	<mark>02048</mark>	03200	
0,6	0.0236	3,0	1,8	38,0	<mark>05026</mark>	<mark>05013</mark>	
0,6	0.0236	4,0	1,8	50,0	<mark>02049</mark>	03201	
0,7	0.0276	3,0	2,1	38,0	<mark>05027</mark>	<mark>05014</mark>	
0,7	0.0276	4,0	2,1	50,0	<mark>02050</mark>	03202	
0,8	0.0315	3,0	2,4	38,0	<mark>05028</mark>	<mark>05015</mark>	
0,8	0.0315	4,0	2,4	50,0	<mark>02051</mark>	03203	
0,9	0.0354	3,0	2,7	38,0	<mark>05029</mark>	<mark>05016</mark>	
0,9	0.0354	4,0	2,7	50,0	<mark>02052</mark>	03204	
1,0	0.0394	3,0	3,0	38,0	<mark>01949</mark>	02829	
1,0	0.0394	4,0	3,0	50,0	<mark>02053</mark>	03205	
1,1	0.0433	3,0	3,3	38,0	<mark>01950</mark>	02940	
1,1	0.0433	4,0	3,3	50,0	<mark>02054</mark>	03004	
1,2	0.0472	3,0	3,6	38,0	<mark>01951</mark>	02941	
1,2	0.0472	4,0	3,6	50,0	<mark>02055</mark>	03005	
1,3	0.0512	3,0	3,9	38,0	<mark>01952</mark>	02942	
1,3	0.0512	4,0	3,9	50,0	<mark>02056</mark>	03006	
1,4	0.0551	3,0	4,2	38,0	<mark>01953</mark>	02943	
1,4	0.0551	4,0	4,2	50,0	<mark>02057</mark>	03007	
1,5	0.0591	3,0	4,5	38,0	<mark>01954</mark>	02944	
1,5	0.0591	4,0	4,5	50,0	<mark>02058</mark>	03008	
1,6	0.0630	3,0	4,8	38,0	<mark>01955</mark>	02945	
1,6	0.0630	4,0	4,8	50,0	<mark>02059</mark>	03009	
1,7	0.0669	3,0	5,1	38,0	<mark>01956</mark>	02946	
1,7	0.0669	4,0	5,1	50,0	<mark>02060</mark>	03010	
1,8	0.0709	3,0	5,4	38,0	<mark>01957</mark>	02947	
1,8	0.0709	4,0	5,4	50,0	<mark>02061</mark>	03011	
1,9	0.0748	3,0	5,7	38,0	<mark>01958</mark>	02948	
1,9	0.0748	4,0	5,7	50,0	<mark>02062</mark>	03012	
RE = 1/2 Cutt	ing Diameter ([OC)			continue	d on next page	

New Expanded Tools

TOLERANCES (mm) 0.1-3.0 DIAMETER

DC = +0,0000/-0,0254 $DCON = h_6$

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

PLASTICS/COMPOSITES

TOLERANCES (mm)

0,1-3,0 DIAMETER DC = +0,0000/-0,0254 **DCON** = h₆

STEELS

STAINLESS STEELS

CAST IRON

HIGHTEMP ALLOYS

TITANIUM

HARDENED STEELS

NON-FERROUS

PLASTICS/COMPOSITES

M2MB • 3xD METRIC SERIES

continued

mm					EDI	EDP NO.	
CUTTING DIAMETER DC	DECIMAL EQUIVALENT	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	UNCOATED	TI-NAMITE-A (AITIN)	
2,0	0.0787	3,0	6,0	38,0	<mark>01959</mark>	02949	
2,0	0.0787	4,0	6,0	50,0	<mark>02063</mark>	03013	
2,1	0.0827	3,0	6,3	38,0	<mark>01960</mark>	02950	
2,2	0.0866	3,0	6,6	38,0	<mark>01961</mark>	02951	
2,3	0.0906	3,0	6,9	38,0	<mark>01962</mark>	02952	
2,4	0.0945	3,0	7,2	38,0	<mark>01963</mark>	02953	
2,5	0.0984	3,0	7,5	38,0	<mark>01964</mark>	02954	
2,5	0.0984	4,0	7,5	50,0	<mark>02064</mark>	03014	
2,6	0.1024	3,0	7,8	38,0	<mark>01965</mark>	02955	
2,7	0.1063	3,0	8,1	38,0	<mark>01966</mark>	02956	
2,8	0.1102	3,0	8,4	38,0	<mark>01967</mark>	02957	
2,9	0.1142	3,0	8,7	38,0	<mark>01968</mark>	02958	
3,0	0.1181	3,0	9,0	38,0	<mark>01969</mark>	02959	
3,0	0.1181	4,0	9,0	50,0	<mark>02065</mark>	03015	
DE 4/0.0	D: /F	201					

RE = 1/2 Cutting Diameter (DC)

M4M • 1.5xD















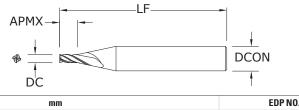




M4M • 1.5xD

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.



	mm					EDP NO.		
CUTTING DIAMETER DC	DECIMAL EQUIVALENT	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	UNCOATED	TI-NAMITE-A (AITiN)		
0,1	0.0039	3,0	0,15	38,0	<mark>05112</mark>	<mark>05076</mark>		
0,2	0.0079	3,0	0,30	38,0	<mark>05113</mark>	<mark>05077</mark>		
0,3	0.0118	3,0	0,45	38,0	<mark>05114</mark>	<mark>05078</mark>		
0,4	0.0157	3,0	0,60	38,0	<mark>05115</mark>	<mark>05079</mark>		
0,5	0.0197	3,0	0,75	38,0	<mark>05116</mark>	<mark>05080</mark>		
0,6	0.0236	3,0	0,90	38,0	<mark>05117</mark>	<mark>05081</mark>		
0,7	0.0276	3,0	1,05	38,0	<mark>05118</mark>	<mark>05082</mark>		
0,8	0.0315	3,0	1,20	38,0	<mark>05119</mark>	<mark>05083</mark>		
0,9	0.0354	3,0	1,35	38,0	<mark>05120</mark>	<mark>05084</mark>		
1,0	0.0394	3,0	1,50	38,0	<mark>05121</mark>	<mark>05085</mark>		
1,1	0.0433	3,0	1,65	38,0	<mark>09282</mark>	<mark>09290</mark>		
1,2	0.0472	3,0	1,80	38,0	<mark>09283</mark>	<mark>09291</mark>		
1,3	0.0512	3,0	1,95	38,0	<mark>09284</mark>	<mark>09292</mark>		
1,4	0.0551	3,0	2,10	38,0	<mark>09285</mark>	<mark>09293</mark>		
1,5	0.0591	3,0	2,25	38,0	<mark>05122</mark>	<mark>05086</mark>		
1,6	0.0630	3,0	2,40	38,0	<mark>09286</mark>	<mark>09294</mark>		
1,7	0.0669	3,0	2,55	38,0	<mark>09287</mark>	<mark>09295</mark>		
1,8	0.0709	3,0	2,70	38,0	<mark>09288</mark>	<mark>09296</mark>		
1,9	0.0748	3,0	2,85	38,0	<mark>09289</mark>	<mark>09297</mark>		
2,0	0.0787	3,0	3,00	38,0	<mark>05123</mark>	<mark>05087</mark>		
2,1	0.0827	3,0	3,15	38,0	<mark>09270</mark>	<mark>09278</mark>		
2,2	0.0866	3,0	3,30	38,0	<mark>09271</mark>	<mark>09279</mark>		
2,3	0.0906	3,0	3,45	38,0	<mark>09272</mark>	<mark>09280</mark>		
2,4	0.0945	3,0	3,60	38,0	<mark>09273</mark>	<mark>09281</mark>		
2,5	0.0984	3,0	3,75	38,0	<mark>05124</mark>	<mark>05088</mark>		
3,0	0.1181	3,0	4,50	38,0	<mark>05125</mark>	<mark>05089</mark>		

New Expanded Tools TOLERANCES (mm)

0.1-3.0 DIAMETER

DC = +0,0000/-0,0254 $DCON = h_6$

STEELS

STAINLESS STEELS

CAST IRON

HIGH TEMP ALLOYS

TITANIUM HARDENED STEELS

NON-FERROUS

M4M • 3xD











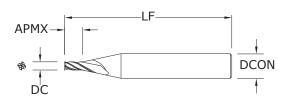








New Expanded Tools



M4M • 3xD
METRIC SERIES

0,1-3,0 DIAMETER									
DC	= +0,0000/-0,0254								
DCO	N = h ₆								
	STEEL S								

TOLERANCES (mm)

		mm			EDI	P NO.
CUTTING DIAMETER DC	DECIMAL EQUIVALENT	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	UNCOATED	TI-NAMITE-A (AITiN)
0,1	0.0039	3,0	0,3	38,0	<mark>05090</mark>	<mark>05054</mark>
0,2	0.0079	3,0	0,6	38,0	<mark>05091</mark>	<mark>05055</mark>
0,3	0.0118	3,0	0,9	38,0	<mark>05092</mark>	<mark>05056</mark>
0,4	0.0157	3,0	1,2	38,0	<mark>05093</mark>	<mark>05057</mark>
0,5	0.0197	3,0	1,5	38,0	<mark>05094</mark>	<mark>05058</mark>
0,6	0.0236	3,0	1,8	38,0	<mark>05095</mark>	<mark>05059</mark>
0,7	0.0276	3,0	2,1	38,0	<mark>05096</mark>	<mark>05060</mark>
0,8	0.0315	3,0	2,4	38,0	<mark>05097</mark>	<mark>05061</mark>
0,9	0.0354	3,0	2,7	38,0	<mark>05098</mark>	<mark>05062</mark>
1,0	0.0394	3,0	3,0	38,0	<mark>05099</mark>	<mark>05063</mark>
1,1	0.0433	3,0	3,3	38,0	<mark>05100</mark>	<mark>05064</mark>
1,2	0.0472	3,0	3,6	38,0	<mark>05101</mark>	<mark>05065</mark>
1,3	0.0512	3,0	3,9	38,0	<mark>05102</mark>	<mark>05066</mark>
1,4	0.0551	3,0	4,2	38,0	<mark>05103</mark>	<mark>05067</mark>
1,5	0.0591	3,0	4,5	38,0	<mark>05104</mark>	<mark>05068</mark>
1,6	0.0630	3,0	4,8	38,0	<mark>05105</mark>	<mark>05069</mark>
1,7	0.0669	3,0	5,1	38,0	<mark>05106</mark>	<mark>05070</mark>
1,8	0.0709	3,0	5,4	38,0	<mark>05107</mark>	<mark>05071</mark>
1,9	0.0748	3,0	5,7	38,0	<mark>05108</mark>	<mark>05072</mark>
2,0	0.0787	3,0	6,0	38,0	<mark>05109</mark>	<mark>05073</mark>
2,1	0.0827	3,0	6,3	38,0	<mark>09266</mark>	<mark>09274</mark>
2,2	0.0866	3,0	6,6	38,0	<mark>09267</mark>	<mark>09275</mark>
2,3	0.0906	3,0	6,9	38,0	<mark>09268</mark>	<mark>09276</mark>
2,4	0.0945	3,0	7,2	38,0	<mark>09269</mark>	<mark>09277</mark>
2,5	0.0984	3,0	7,5	38,0	<mark>05110</mark>	<mark>05074</mark>
3,0	0.1181	3,0	9,0	38,0	<mark>05111</mark>	<mark>05075</mark>

- 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.
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APMX LF—	DCON
mm	EDP NO.

					LD	
CUTTING DIAMETER DC	DECIMAL EQUIVALENT	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	UNCOATED	TI-NAMITE-A (AITIN)
0,4	0.0157	3,0	0,6	38,0	<mark>05042</mark>	<mark>05030</mark>
0,5	0.0197	3,0	0,7	38,0	<mark>05044</mark>	<mark>05032</mark>
0,6	0.0236	3,0	0,9	38,0	<mark>05046</mark>	<mark>05034</mark>
0,7	0.0276	3,0	1,0	38,0	<mark>05048</mark>	<mark>05036</mark>
0,8	0.0315	3,0	1,2	38,0	<mark>05050</mark>	<mark>05038</mark>
0,9	0.0354	3,0	1,3	38,0	<mark>05052</mark>	<mark>05040</mark>
1,0	0.0394	3,0	1,5	38,0	<mark>01927</mark>	03195
1,0	0.0394	4,0	1,5	50,0	<mark>02031</mark>	02859
1,1	0.0433	3,0	1,6	38,0	<mark>01928</mark>	02928
1,1	0.0433	4,0	1,6	50,0	<mark>02032</mark>	02992
1,2	0.0472	3,0	1,8	38,0	<mark>01929</mark>	02929
1,2	0.0472	4,0	1,8	50,0	<mark>02033</mark>	02993
1,3	0.0512	3,0	1,9	38,0	<mark>01930</mark>	02930
1,3	0.0512	4,0	1,9	50,0	<mark>02034</mark>	02994
1,4	0.0551	3,0	2,1	38,0	<mark>01931</mark>	02931
1,4	0.0551	4,0	2,1	50,0	<mark>02035</mark>	02995
1,5	0.0591	3,0	2,2	38,0	<mark>01932</mark>	02932
1,5	0.0591	4,0	2,2	50,0	<mark>02036</mark>	02996
1,6	0.0630	3,0	2,4	38,0	<mark>01933</mark>	02933
1,6	0.0630	4,0	2,4	50,0	<mark>02037</mark>	02997
1,7	0.0669	3,0	2,5	38,0	<mark>01934</mark>	02934
1,7	0.0669	4,0	2,5	50,0	<mark>02038</mark>	02998
1,8	0.0709	3,0	2,7	38,0	<mark>01935</mark>	02935
1,8	0.0709	4,0	2,7	50,0	<mark>02039</mark>	02999
1,9	0.0748	3,0	2,8	38,0	<mark>01936</mark>	02936
1,9	0.0748	4,0	2,8	50,0	<mark>02040</mark>	03000
2,0	0.0787	3,0	3,0	38,0	<mark>01937</mark>	02937
2,0	0.0787	4,0	3,0	50,0	<mark>02041</mark>	03001
2,5	0.0984	3,0	3,7	38,0	<mark>01938</mark>	02938
2,5	0.0984	4,0	3,7	50,0	<mark>02042</mark>	03002
3,0	0.1181	3,0	4,5	38,0	<mark>01939</mark>	02939
3,0	0.1181	4,0	4,5	50,0	<mark>02043</mark>	03003
F - 1/2 Cutt	ing Diameter ([nc)			-	

New Expanded Tools

TOLERANCES (mm) 0.4-3.0 DIAMETER

DC = +0,0000/-0,0254 $DCON = h_6$

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

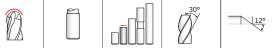
M4MB • 3xD















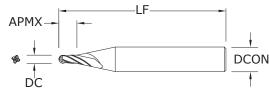




New Expanded Tools

TOLERANCES (mm) 0.4-3.0 DIAMETER **DC** = +0,0000/-0,0254 $DCON = h_6$





APMX -	
	DCON
DC	

M4MB • 3xD METRIC SERIES

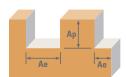
		mm			EDP NO.			
CUTTING DIAMETER DC	DECIMAL EQUIVALENT	SHANK DIAMETER DCON	LENGTH OF CUT APMX	OVERALL LENGTH LF	UNCOATED	TI-NAMITE-A		
0,4	0.0157	3,0	1,2	38,0	<mark>05043</mark>	<mark>05031</mark>		
0,5	0.0197	3,0	1,5	38,0	<mark>05045</mark>	<mark>05033</mark>		
0,6	0.0236	3,0	1,8	38,0	<mark>05047</mark>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

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FRACTIONAL & METRIC

Speeds and Feeds

- 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]
- Reduce speed and feed 30 percent when using uncoated tools
- Find Width of Cut (Ae) and Depth of Cut (Ap) recommendations on chart below
 refer to the KYOCERA SGS Tool Wizard® or sgsmicrotools.com for detailed technical charts by series



	INCH	Flute Length		1.5 >	(DC		3 x DC				
	2-Flute, Square,	Feed Multiplier		•	1			0	9		
	Corner Radius & Ball	Width/Depth	Ae	CDC	Арэ	k DC	Ae>	DC	Ap x DC		
	Without Reach	Diameter (DC)	≤0.0	312	>0.0	312	≤0.0	312	>0.0312		
P											
Н		Profile	≤.30 ≤.50		≤1		≤.10 ≤.25		≤2		
K	ALL										
M	ALL										
S		Slot		1	≤.20	≤.50	1		≤.15	≤.35	
N											

	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	Feed Multiplier		1.	57			1.4	41			0.!	59			0.!	59		0.3	36
		Width/Depth	Ae	CDC	Арэ	k DC	Ae>	(DC	Ар	k DC	Aex	(DC	Ар	k DC	Ae>	DC	Ap x DC	Ae>	DC	Ap x DC
	Without Reach	Diameter (DC)	≤0.0	312	>0.0	312	≤0.0	312	>0.0	312	≤0.0	312	>0.0	312	≤0.0	312	>0.0312	≤0.0	312	>0.0312
P																				
Н		Profile	≤.30	≤.50	≤	1	≤.10	≤.25	≤	2	≤.10	≤.25	_ ≤	:3	≤.05	≤.10	≤4	≤.03	≤.06	≤6
K	ALL																			
M	VI _																			
S		Slot	·	l	≤.20	≤.50	1	l	≤.15	≤.35	1	1	≤.10	≤.20						
N																				

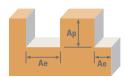
		Flute Length		1.5 >	(DC		3 x DC				
	METRIC	Feed Multiplier		•	ı			0.9			
	2-Flute Square & Ball	Width/Depth	Ae	(DC	Арэ	(DC	Ae>	(DC	Арэ	Ap x DC	
	Without Reach	Diameter (DC)	≤0.0	312	>0.0	312	≤0.0	312	>0.0312		
P											
Н		Profile	≤.30	≤.50	_ ≤	1	≤.10	≤.25	≤2		
K	ALL										
M	ALL										
S		Slot		l	≤.20	≤.20 ≤.50		1		≤.35	
N											

		Flute Length		1.5 >	CDC		3 x DC					
	METRIC	Feed Multiplier		1.	57		1.41					
	4-Flute Square & Ball	Width/Depth	Ae	CDC	Арэ	(DC	Ae>	DC	Ap x DC			
	Without Reach	Diameter (DC)	≤0.0	312	>0.0	312	≤0.0	312	>0.0312			
P												
Н		Profile	≤.30	≤.50	_ ≤	1	≤.10 ≤.25	≤.25	≤2			
K	ALL											
M	ALL											
S		Slot		l	≤.20	≤.50	0 1		≤.15	≤.35		
N												

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]
- Reduce speed and feed 30 percent when using uncoated tools
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- refer to the KYOCERA SGS Tool Wizard® or sgsmicrotools.com for detailed technical charts by series



		Flute Length		8 x	DC			12 x	DC	
	INCH	Feed Multiplier		0.	.6			0.	.5	
	2-Flute Square & Ball	Width/Depth	Ae	CDC	Арэ	(DC	Ae>	DC	Арэ	(DC
	With Reach	Diameter (DC)	≤0.0	312	>0.0	312	≤0.0	312	>0.0	312
P										
Н		Profile	≤.25	≤.50	≤.	30	≤.22	≤.45	≤	25
K	ALL									
M	ALL									
S		Slot		1	≤.07	≤.17	1	I	≤.06	≤.15
N										

	INCH	Flute Length		3 x	DC			5 x	DC		8 x	DC	1	12 x	CDC	15	x DC	20 2	k DC	25 >	CDC
	3-Flute	Feed Multiplier		1.	.4			1.	15		0	.9		0	.7	().6	0.	45	0.	35
	Square, Corner Radius & Ball	Width/Depth	Ae x	DC	Арэ	CDC	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	Ap x DC	Ap x DC
	With Reach	Diameter (DC)	≤0.0	312	>0.0	312	≤0.0	312	>0.0312	≤0.0	312	>0.0312	≤0.03	12	>0.0312	≤0.0312	>0.0312	≤0.0312	>0.0312	≤0.0312	>0.0312
Р																					
Н		Profile	≤.30	≤.60	≤	.5	≤.30	≤.60	≤.35	≤.25	≤.50	≤.30	≤.22 ≤	.45	≤.25	≤.15 ≤.30	≤.25	≤.12 ≤.25	≤.20	≤.12 <mark>≤.25</mark>	≤.20
K	ALL																				
M	ALL																				
S		Slot	1	l	≤.15	≤.30	1	l	≤.08 ≤.20	1		≤.07 ≤.17	1		≤.06 ≤.15	1	≤.06 ≤.15	1	≤.04 ≤.10	1	≤.04 ≤.10
N																					

		Flute Length		8 x	DC			12 x	DC	
	INCH	Feed Multiplier		0.9	95			0.	75	
	4-Flute Square & Ball	Width/Depth	Ae	CDC	Арэ	(DC	Ae>	(DC	Арэ	CDC
	With Reach	Diameter (DC)	≤0.0	312	>0.0	312	≤0.0	312	>0.0	312
Р										
Н		Profile	≤.25	≤.50	≤.	30	≤.22	≤.45	≤	25
K	ALL									
M	ALL									
S		Slot		l	≤.07	≤.17	1	1	≤.06	≤.15
N										

- Bhn (Brinell) HRc (Rockwell C)

- Bhn (Brinell) HRc (Rockwell C)
 reduce speed and feed 30 percent when using uncoated tools
 Fz x No. of Flutes x max available rpm when recommendation exceeds machine limit
 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® or sgsmicrotools.com for detailed technical charts by series

Baseline

INCH Baseline Speed and Feed								DC	• in					
	Square, Corner Radius & Ball End With and Without Reach	Hardness		Vc (sfm)		0.0050	0.0156	0.0312	0.0625	0.0938	0.1200			
			Profile	365	RPM	278860	89378	44689	22309	14865	11619			
			Fidile	(222 122)	Fz	0.000022	0.00007	0.00013	0.00027	0.00041	0.00052			
	CARBON STEELS 1018, 1040, 1080, 1090,	≤ 275 Bhn		(292-438)	Feed (ipm)	12.05	12.05	12.05	12.05	12.05	12.05			
P	10L50, 1140, 1212, 12L15, 1525, 1536	or ≤ 28 HRc	Slot	290	RPM	221560	71013	35506	17725	11810	9232			
	12113, 1323, 1330		Siot	(232-348)	Fz	0.000022	0.00007	0.00013	0.00027	0.00041	0.00052			
				(232-340)	Feed (ipm)	9.57	9.57	9.57	9.57	9.57	9.57			
			Profile	210	RPM	160440	51423	25712	12835	8552	6685			
	ALLOY STEELS			(168-252)	Fz	0.000019	0.00006	0.00012	0.00024	0.00036	0.00046			
Р	4140, 4150, 4320, 5120,	≤ 375 Bhn or		(100-232)	Feed (ipm)	6.16	6.16	6.16	6.16	6.16	6.16			
	5150, 8630, 86L20, 50100	≤ 40 HRc	Slot	165	RPM	126060	40404	20202	10085	6720	5253			
	55155			(132-198)	Fz	0.000019	0.00006	0.00012	0.00024	0.00036	0.00046			
				(132-130)	Feed (ipm)	4.84	4.84	4.84	4.84	4.84	4.84			
			Profile	340	RPM	259760	83256	41628	20781	13846	10823			
	STAINLESS STEELS			(272-408)	Fz	0.000022	0.00007	0.00013	0.00027	0.00041	0.00052			
м	(FREE MACHINING)	≤ 275 Bhn or		(272 400)	Feed (ipm)	11.22	11.22	11.22	11.22	11.22	11.22			
	303, 416, 420F, 430F, 440F	≤ 28 HRc	Slot	270	RPM	206280	66115	33058	16502	10996	8595			
				(216-324)	Fz	0.000022	0.00007	0.00013	0.00027	0.00041	0.00052			
				(2.0 02.)	Feed (ipm)	8.91	8.91	8.91	8.91	8.91	8.91			
			Profile	235	RPM	179540	57545	28772	14363	9570	7481			
				(188-282)	Fz	0.000019	0.00006	0.00012	0.00024	0.00036	0.00046			
М	STAINLESS STEELS (DIFFICULT)	S ≤ 275 Bhn or - ≤ 28 HRc		(111 = 11)	Feed (ipm)	6.90	6.90	6.90	6.90	6.90	6.90			
	304, 304L, 316, 316L		Slot	185	RPM	141340	45301	22651	11307	7534	5889			
				(148-222)	Fz	0.000019	0.00006	0.00012	0.00024	0.00036	0.00046			
							Feed (ipm)	5.43	5.43	5.43	5.43	5.43	5.43	
		Profil			Profile	215	RPM	164260	52647	26324	13141	8756	6844	
	STAINLESS STEELS	.00F.DI	A DOE DIS		(172-258)	Fz	0.000014	0.00004	0.00008	0.00017	0.00025	0.00033		
М	(PH) 13-8 PH, 15-5PH,	≤ 325 Bhn or			Feed (ipm)	4.46	4.46	4.46	4.46	4.46	4.46			
	17-4 PH, CUSTOM 450	≤ 35 HRc	Slot	170	RPM	129880	41628	20814	10390	6923	5412			
				(136-204)	Fz	0.000014	0.00004	0.00008	0.00017	0.00025	0.00033			
					Feed (ipm)	3.53	3.53	3.53	3.53	3.53	3.53			
			Profile	305	RPM	233020	74686	37343	18642	12421	9709			
	CAST IRONS (LOW & MEDIUM	≤ 220 Bhn		(244-366)	Fz	0.000022	0.00007	0.00014	0.00027	0.00041	0.00052			
K	ALLOY)	or		045	Feed (ipm)	10.08	10.08	10.08	10.08	10.08	10.08			
	Gray, Malleable, Ductile	≤ 19 HRc	Slot	245	RPM	187180	59994	29997	14974	9978	7799			
				(196-294)	Fz Fz	0.000022	0.00007	0.00014	0.00027	0.00041	0.00052			
				1000	Feed (ipm)	8.10	8.10	8.10	8.10	8.10	8.10			
			Profile	1000	RPM Fz	764000 0.000064	0.00020	0.00040	0.00080	40725 0.00120	31833 0.00153			
	ALUMINUM ALLOYS	≤ 150 Bhn		(800-1200)	Feed (ipm)	97.50	97.50	97.50	97.50	97.50	97.50			
N	2017, 2024, 356, 6061,	or		800	RPM	611200	195897	97949	48896	32580	25467			
	7075	≤7 HRc	Slot		Fz	0.000064	0.00020	0.00040	0.00080	0.00120	0.00153			
				(640-960)	Feed (ipm)	78.00	78.00	78.00	78.00	78.00	78.00			
				515	RPM	393460	126109	63054	31477	20973	16394			
			Profile	J1J	Fz	0.000048	0.00015	0.00030	0.00060	0.00090	0.00115			
	COPPER ALLOYS	≤ 140 Bhn		(412-618)	Feed (ipm)	37.68	37.68	37.68	37.68	37.68	37.68			
N	Alum Bronze, C110,	or		410	RPM	313240	100397	50199	25059	16697	13052			
	Muntz Brass	≤ 3 HRc Slot	410	Fz	0.000048	0.00015	0.00030	0.00060	0.00090	0.00115				
	25		(328-492)	Feed (ipm)	30.00	30.00	30.00	30.00	30.00	30.00				
								ı egu (ihiii)	30.00	30.00	30.00	30.00		

FRACTIONAL

Baseline

	INCH Baseline Speed and Feed Square, Corner Radius							DC	• in		
	Square, Corner Radius & Ball End With and Without Reach	Hardness		Vc (sfm)		0.0050	0.0156	0.0312	0.0625	0.0938	0.1200
			Profile	1000	RPM	764000	244872	122436	61120	40725	31833
				(800-1200)	Fz	0.000064	0.00020	0.00040	0.00080	0.00120	0.00153
N	PLASTICS Polycarbonate, PVC,			(000-1200)	Feed (ipm)	97.50	97.50	97.50	97.50	97.50	97.50
IV	Polypropylene		Slot	800	RPM	611200	195897	97949	48896	32580	25467
				(640-960)	Fz	0.000064	0.00020	0.00040	0.00080	0.00120	0.00153
				(040-300)	Feed (ipm)	78.00	78.00	78.00	78.00	78.00	78.00
			Profile	60	RPM	45840	14692	7346	3667	2443	1910
	SUPER ALLOYS			(48-72)	Fz	0.000012	0.00004	0.00008	0.00015	0.00023	0.00029
S	(NICKEL, COBALT, IRON BASE)	≤ 300 Bhn or		(40-72)	Feed (ipm)	1.11	1.11	1.11	1.11	1.11	1.11
3	Inconel 601, 617, 625,	≤ 32 HRc	Slot	45	RPM	34380	11019	5510	2750	1833	1433
	Incoloy, Monel 400			(36-54)	Fz	0.000012	0.00004	0.00008	0.00015	0.00023	0.00029
				(30-34)	Feed (ipm)	0.83	0.83	0.83	0.83	0.83	0.83
			Profile	45	RPM	34380	11019	5510	2750	1833	1433
	SUPER ALLOYS			(36-54)	Fz	0.000008	0.00003	0.00005	0.00010	0.00015	0.00019
S	(NICKEL, COBALT, IRON BASE)	≤ 400 Bhn or		(30-34)	Feed (ipm)	0.55	0.55	0.55	0.55	0.55	0.55
3	Inconel 718, X-750, Incoloy, Waspaloy,	≤ 43 HRc	Slot	35	RPM	26740	8571	4285	2139	1425	1114
	Hastelloy, Rene			(28-42)	Fz	0.000008	0.00003	0.00005	0.00010	0.00015	0.00019
				(20-42)	Feed (ipm)	0.43	0.43	0.43	0.43	0.43	0.43
			Profile	160	RPM	122240	39179	19590	9779	6516	5093
	TITANIUM ALLOYS			(128-192)	Fz	0.000014	0.00004	0.00008	0.00017	0.00025	0.00033
S	Pure Titanium, Ti6AI4V.	≤ 350 Bhn or		(120-132)	Feed (ipm)	3.32	3.32	3.32	3.32	3.32	3.32
ŭ	Ti6Al2Sn4Zr2Mo,	≤ 38 HRc	Slot	130	RPM	99320	31833	15917	7946	5294	4138
	Ti4Al4Mo2Sn0.5Si			(104-156)	Fz	0.000014	0.00004	0.00008	0.00017	0.00025	0.00033
				(104 130)	Feed (ipm)	2.70	2.70	2.70	2.70	2.70	2.70
	TITANIUM ALLOYS		Profile	60	RPM	45840	14692	7346	3667	2443	1910
	(DIFFICULT) Ti10Al2Fe3Al,			(48-72)	Fz	0.000010	0.00003	0.00006	0.00012	0.00018	0.00023
S	Ti5Al5V5Mo3Cr,	≤ 440 Bhn or		(10 72)	Feed (ipm)	0.88	0.88	0.88	0.88	0.88	0.88
Ĭ	Ti7Al4Mo, Ti3Al8V6Cr4Zr4Mo,	≤ 47 HRc	Slot	45	RPM	34380	11019	5510	2750	1833	1433
	Ti6Al6V6Sn, Ti15V3 Cr3Sn3Al			(36-54)	Fz	0.000010	0.00003	0.00006	0.00012	0.00018	0.00023
				(00 04)	Feed (ipm)	0.66	0.66	0.66	0.66	0.66	0.66
			Profile	175	RPM	133700	42853	21426	10696	7127	5571
				(140-210)	Fz	0.000016	0.00005	0.00010	0.00020	0.00030	0.00038
н		≤ 375 Bhn or		(110 210)	Feed (ipm)	4.28	4.28	4.28	4.28	4.28	4.28
	P20, S7, T15, W2	≤ 40 HRc	Slot	140	RPM	106960	34282	17141	8557	5701	4457
	P20, S7, T15, W2		Slot	(112-168)	Fz	0.000016	0.00005	0.00010	0.00020	0.00030	0.00038
				(112-100)	Feed (ipm)	3.42	3.42	3.42	3.42	3.42	3.42

- $\label{eq:Note:Note:} \textbf{Note:} \\ \textbf{B} \text{In (Brinell)} & \text{HRc (Rockwell C)} \\ \textbf{When recommended speed exceeds your capability, use maximum available and recalculate ipm} \\ \textbf{P} & \text{P} & \text{$

Baseline

	METRIC Baseline Speed and Feed								DC • (mm)				
	Square & Ball End With and Without Reach	Hardness		Vc (m/min)		0.1	0.5	1	1.5	2	2.5	3	
			Profile	111	RPM	353837	70767	35384	23589	17692	14153	11795	
	CARBON STEELS			(89-134)	Fz	0.00043	0.00216	0.00432	0.00648	0.00865	0.01081	0.01297	
Р	1018, 1040, 1080, 1090,	≤ 275 Bhn or		(00 101)	Feed (mm/min)	306	306	306	306	306	306	306	
•	10L50, 1140, 1212, 12L15, 1525, 1536	≤ 28 HRc	Slot	88	RPM	281131	56226	28113	18742	14057	11245	9371	
				(71-106)	Fz	0.00043	0.00216	0.00432	0.00648	0.00865	0.01081	0.01297	
					Feed (mm/min)	243	243	243	243	243	243	243	
			Profile	64	RPM	203577	40715	20358	13572	10179	8143	6786	
	ALLOY STEELS			(51-77)	Fz	0.00038	0.00192	0.00384	0.00576	0.00769	0.00961	0.01153	
Р	4140, 4150, 4320, 5120,	≤ 375 Bhn or		(0. 77)	Feed (mm/min)	156	156	156	156	156	156	156	
	5150, 8630, 86L20, 50100	≤ 40 HRc	Slot	50	RPM	159954	31991	15995	10664	7998	6398	5332	
				(40-60)	Fz	0.00038	0.00192	0.00384	0.00576	0.00769	0.00961	0.01153	
				(40 00)	Feed (mm/min)	123	123	123	123	123	123	123	
			Profile	104	RPM	329602	65920	32960	21973	16480	13184	10987	
	STAINLESS STEELS			(83-124)	Fz	0.00043	0.00216	0.00432	0.00648	0.00865	0.01081	0.01295	
М	(FREE MACHINING)	≤ 275 Bhn or		(00 121)	Feed (mm/min)	285	285	285	285	285	285	285	
	303, 416, 420F, 430F, 440F	≤ 28 HRc	Slot	82	RPM	261742	52348	26174	17449	13087	10470	8725	
				(66-99)	Fz	0.00043	0.00216	0.00432	0.00648	0.00865	0.01081	0.01295	
				(00-33)	Feed (mm/min)	226	226	226	226	226	226	226	
			Profile	72	RPM	227813	45563	22781	15188	11391	9113	7594	
				(57-86)	Fz	0.00038	0.00192	0.00385	0.00577	0.00769	0.00961	0.01154	
м	STAINLESS STEELS (DIFFICULT)	S ≤ 275 Bhn or		(37-00)	Feed (mm/min)	175	175	175	175	175	175	175	
IVI	304, 304L, 316, 316L	≤ 28 HRc	Slot	56	RPM	179342	35868	17934	11956	8967	7174	5978	
				(45-68)	Fz	0.00038	0.00192	0.00385	0.00577	0.00769	0.00961	0.01154	
					(43-00)	Feed (mm/min)	138	138	138	138	138	138	138
			Profile	66	RPM	208425	41685	20842	13895	10421	8337	6947	
	STAINLESS STEELS			(52-79)	Fz	0.00027	0.00136	0.00272	0.00408	0.00544	0.00680	0.00819	
М	(PH)	≤ 325 Bhn or		(02 70)	Feed (mm/min)	113	113	113	113	113	113	113	
•••	13-8 PH, 15-5PH, 17-4 PH, CUSTOM 450	≤ 35 HRc	Slot	52	RPM	164801	32960	16480	10987	8240	6592	5493	
				(41-62)	Fz	0.00027	0.00136	0.00272	0.00408	0.00544	0.00680	0.00819	
				(02)	Feed (mm/min)	90	90	90	90	90	90	90	
			Profile	93	RPM	295672	59134	29567	19711	14784	11827	9856	
	CAST IRONS			(74-112)	Fz	0.00043	0.00217	0.00433	0.00650	0.00866	0.01083	0.01301	
К	(LOW & MEDIUM ALLOY)	≤ 220 Bhn or		(Feed (mm/min)	256	256	256	256	256	256	256	
	Gray, Malleable,	≤ 19 HRc	Slot	75	RPM	237507	47501	23751	15834	11875	9500	7917	
	Ductile			(60-90)	Fz	0.00043	0.00217	0.00433	0.00650	0.00866	0.01083	0.01301	
				(00 00)	Feed (mm/min)	206	206	206	206	206	206	206	
			Profile	305	RPM	969416	193883	96942	64628	48471	38777	32314	
				(244-366)	Fz	0.00128	0.00639	0.01277	0.01916	0.02555	0.03193	0.03832	
N	2017, 2024, 356, 6061, or	≤ 150 Bhn or		(=::::::)	Feed (mm/min)	2477	2477	2477	2477	2477	2477	2477	
		≤ 7 HRc	Slot	244	RPM	775533	155107	77553	51702	38777	31021	25851	
				(195-293)	Fz	0.00128	0.00639	0.01277	0.01916	0.02555	0.03193	0.03832	
				,	Feed (mm/min)	1981	1981	1981	1981	1981	1981	1981	
	N COPPER ALLOYS ≤ 140 Bhn Alum Bronze, C110, or Muntz Brass ≤ 3 HRc		Profile	157	RPM	499249	99850	49925	33283	24962	19970	16642	
				(126-188)	Fz	0.00096	0.00479	0.00959	0.01438	0.01917	0.02396	0.02876	
N				,5 100/	Feed (mm/min)	957	957	957	957	957	957	957	
			Slot	125	RPM	397461	79492	39746	26497	19873	15898	13249	
			(100-150)	Fz	0.00096	0.00479	0.00959	0.01438	0.01917	0.02396	0.02876		
			,:50 100/	Feed (mm/min)	762	762	762	762	762	762	762		

Baseline

	METRIC Baseline Speed and Feed								DC • (mm)			
	Square & Ball End With and Without Reach	Hardness		Vc (m/min)		0.1	0.5	1	1.5	2	2.5	3
			Profile	305	RPM	969416	193883	96942	64628	48471	38777	32314
				(244.200)	Fz	0.00128	0.00639	0.01277	0.01916	0.02555	0.03193	0.03832
N	PLASTICS			(244-366)	Feed (mm/min)	2477	2477	2477	2477	2477	2477	2477
IV	Polycarbonate, PVC, Polypropylene		Slot	244	RPM	775533	155107	77553	51702	38777	31021	25851
				(195-293)	Fz	0.00128	0.00639	0.01277	0.01916	0.02555	0.03193	0.03832
				(190-293)	Feed (mm/min)	1981	1981	1981	1981	1981	1981	1981
			Profile	18	RPM	58165	11633	5816	3878	2908	2327	1939
	SUPER ALLOYS		Tronic	(15-22)	Fz	0.00024	0.00121	0.00242	0.00362	0.00483	0.00604	0.00722
S	(NICKEL, COBALT,	≤ 300 Bhn		(10-22)	Feed (mm/min)	28	28	28	28	28	28	28
3	IRON BASE) Inconel 601, 617, 625,	or ≤ 32 HRc	Slot	14	RPM	43624	8725	4362	2908	2181	1745	1454
	Incoloy, Monel 400		Siot	/11 10\	Fz	0.00024	0.00121	0.00242	0.00362	0.00483	0.00604	0.00722
				(11-16)	Feed (mm/min)	21	21	21	21	21	21	21
			Profile	14	RPM	43624	8725	4362	2908	2181	1745	1454
	SUPER ALLOYS			(11-16)	Fz	0.00016	0.00080	0.00161	0.00241	0.00322	0.00402	0.00486
S	(NICKEL, COBALT, IRON BASE)	≤ 400 Bhn		(11-10)	Feed (mm/min)	14	14	14	14	14	14	14
3	Inconel 718, X-750, Incoloy, Waspaloy,	or ≤ 43 HRc	Slot	11	RPM	33930	6786	3393	2262	1696	1357	1131
	Hastelloy, Rene			(9-13)	Fz	0.00016	0.00080	0.00161	0.00241	0.00322	0.00402	0.00486
				(9-13)	Feed (mm/min)	11	11	11	11	11	11	11
			Profile	49	RPM	155107	31021	15511	10340	7755	6204	5170
	TITANIUM ALLOYS		Profile	(39-59)	Fz	0.00027	0.00136	0.00272	0.00408	0.00544	0.00680	0.00821
S	Pure Titanium, Ti6Al4V.	≤ 350 Bhn or		(33-33)	Feed (mm/min)	84	84	84	84	84	84	84
3	Ti6Al2Sn4Zr2Mo,	≤ 38 HRc	Slot	40	RPM	126024	25205	12602	8402	6301	5041	4201
	Ti4Al4Mo2Sn0.5Si			(32-48)	Fz	0.00027	0.00136	0.00272	0.00408	0.00544	0.00680	0.00821
				(32-40)	Feed (mm/min)	69	69	69	69	69	69	69
	TITANIUM ALLOYS		Profile	18	RPM	58165	11633	5816	3878	2908	2327	1939
	(DIFFICULT) Ti10Al2Fe3Al.			(15-22)	Fz	0.00019	0.00096	0.00192	0.00288	0.00384	0.00480	0.00585
S	Ti5Al5V5Mo3Cr,	≤ 440 Bhn or		(13-22)	Feed (mm/min)	22	22	22	22	22	22	22
3	Ti7Al4Mo, Ti3Al8V6Cr4Zr4Mo,	≤ 47 HRc	Slot	14	RPM	43624	8725	4362	2908	2181	1745	1454
	Ti6Al6V6Sn,			(11-16)	Fz	0.00019	0.00096	0.00192	0.00288	0.00384	0.00480	0.00585
	Ti15V3 Cr3Sn3AI T00L STEELS ≤ 375 Bhn A2, D2, H13, L2, M2, P20, S7, T15, W2 ≤ 40 HRc			(11-10)	Feed (mm/min)	17	17	17	17	17	17	17
			Profile	53	RPM	169648	33930	16965	11310	8482	6786	5655
				(43-64)	Fz	0.00032	0.00160	0.00320	0.00480	0.00640	0.00800	0.00962
н				(40-04)	Feed (mm/min)	109	109	109	109	109	109	109
			Slot	43	RPM	135718	27144	13572	9048	6786	5429	4524
			Slot —	(34-51)	Fz	0.00032	0.00160	0.00320	0.00480	0.00640	0.00800	0.00962
		•	(34-51) -	Feed (mm/min)	87	87	87	87	87	87	87	

Note:

- Note:

 Bhn (Brinell) HRc (Rockwell C)

 when recommended speed exceeds your capability, use maximum available and recalculate mm/min

 rpm = (Vc x 1000) / (DC x 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 D₁ maximum)

 refer to the KYOCERA SGS Tool Wizard® or sgsmicrotools.com for detailed technical charts by series

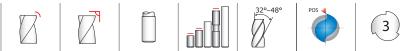


















M032 FRACTIONAL SERIES

- 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

LF	-
APMX -	
	DCON
DC [†] / DN RE	

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

	New Expanded Tools
	TOLERANCES (inch)
	.031109 DIAMETER
	DC = $+0.000/-0.001$
	$DCON = h_6$
-A	RE = $+0.002/-0.002$
	STEELS
	STAINLESS STEELS
	CAST IRON
	HIGH TEMP ALLOYS
	TITANIUM
	HARDENED STEELS
	NON-FERROUS
	PLASTICS/COMPOSITES



CUTTING

DIAMETED

SHANK

DIAMETED

LENGTH

OF CUIT



mm

DEVCH





OVERALL

LENGTH

63,5

63,5

63,5

63,5

63,5

63,5

63,5



CORNER

DADILIC



EDP NO,

TI NAMITE A





New Expanded Tools

TOLERANCES (mm)

1.0-3.0 DIAMETER

DC = +0,0000/-0,0254 $DCON = h_6$

= +0,050/-0,050

STEELS

STAINLESS STEELS

CAST IRON

HIGH TEMP ALLOYS

TITANIUM

HARDENED STEELS NON-FERROUS

PLASTICS/COMPOSITES

-	→ LU	LF	-	
APMX -	-			1
				DCON
DC /	DN			—
RE				'

NECK

DIAMETED

DIAMETER DC	DIAMETER DCON	OF CUT APMX	REACH LU	DIAMETER DN	LENGTH LF	RADIUS RE	TI-NAMITE-A (AITIN)
1,0	6,0	1,5	-	-	63,5	-	<mark>05324</mark>
1,0	6,0	1,5	_	_	63,5	0,1	<mark>05321</mark>
1,0	6,0	1,5	_	-	63,5	0,2	<mark>05322</mark>
1,0	6,0	1,5	_	_	63,5	0,3	<mark>05323</mark>
1,0	6,0	3,0	_	-	63,5	_	<mark>05328</mark>
1,0	6,0	3,0	_	_	63,5	0,1	<mark>05325</mark>
1,0	6,0	3,0	_	-	63,5	0,2	<mark>05326</mark>
1,0	6,0	3,0	_	_	63,5	0,3	<mark>05327</mark>
1,0	6,0	3,0	10,0	0,92	75,0	_	<mark>05332</mark>
1,0	6,0	3,0	10,0	0,92	63,5	0,1	<mark>05329</mark>
1,0	6,0	3,0	10,0	0,92	63,5	0,2	<mark>05330</mark>
1,0	6,0	3,0	10,0	0,92	63,5	0,3	<mark>05331</mark>
1,5	6,0	2,5	-	_	63,5	-	<mark>05310</mark>
1,5	6,0	2,5	_	_	63,5	0,1	<mark>05306</mark>
1,5	6,0	2,5	-	-	63,5	0,2	<mark>05307</mark>
1,5	6,0	2,5	_	_	63,5	0,3	<mark>05308</mark>
1,5	6,0	2,5	_	-	63,5	0,5	<mark>05309</mark>
1,5	6,0	4,5	_	_	63,5	_	<mark>05315</mark>
1,5	6,0	4,5	_	_	63,5	0,1	<mark>05311</mark>
1,5	6,0	4,5	_	_	63,5	0,2	<mark>05312</mark>
1,5	6,0	4,5	_	_	63,5	0,3	<mark>05313</mark>
1,5	6,0	4,5	_	_	63,5	0,5	<mark>05314</mark>
1,5	6,0	4,5	15,0	1,38	75,0	_	<mark>05320</mark>
1,5	6,0	4,5	15,0	1,38	63,5	0,1	<mark>05316</mark>
1,5	6,0	4,5	15,0	1,38	63,5	0,2	<mark>05317</mark>
1,5	6,0	4,5	15,0	1,38	63,5	0,3	<mark>05318</mark>
1,5	6,0	4,5	15,0	1,38	63,5	0,5	<mark>05319</mark>
0.0							05040

- · 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 microtool applications
- · Manufactured in accordance with KSPT ISO certified quality procedures

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05348

05345 <mark>05346</mark>

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M032







METRIC SERIES

continued



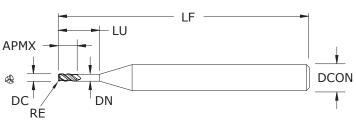












New Expanded Tools

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

DC = +0.0000/-0.0254 $DCON = h_6$

RE

= +0,050/-0,050

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

PLASTICS/COMPOSITES

	KE						
			mm				EDP NO,
CUTTING DIAMETER DC	SHANK DIAMETER DCON	LENGTH OF CUT APMX	REACH LU	NECK DIAMETER DN	OVERALL LENGTH LF	CORNER RADIUS RE	TI-NAMITE-A (AITIN)
2,0	6,0	6,0	_	-	63,5	0,5	<mark>05351</mark>
2,0	6,0	6,0	20,0	1,84	75,0	_	<mark>05356</mark>
2,0	6,0	6,0	20,0	1,84	63,5	0,2	<mark>05353</mark>
2,0	6,0	6,0	20,0	1,84	63,5	0,3	<mark>05354</mark>
2,0	6,0	6,0	20,0	1,84	63,5	0,5	<mark>05355</mark>
2,5	6,0	4,0	_	_	63,5	_	<mark>05336</mark>
2,5	6,0	4,0	_	_	63,5	0,2	<mark>05333</mark>
2,5	6,0	4,0	_	_	63,5	0,3	<mark>05334</mark>
2,5	6,0	4,0	_	-	63,5	0,5	<mark>05335</mark>
2,5	6,0	7,5	_	_	63,5	_	<mark>05340</mark>
2,5	6,0	7,5	_	_	63,5	0,2	<mark>05337</mark>
2,5	6,0	7,5	_	_	63,5	0,3	<mark>05338</mark>
2,5	6,0	7,5	_	_	63,5	0,5	<mark>05339</mark>
2,5	6,0	7,5	25,0	2,3	75,0	_	<mark>05344</mark>
2,5	6,0	7,5	25,0	2,3	63,5	0,2	<mark>05341</mark>
2,5	6,0	7,5	25,0	2,3	63,5	0,3	<mark>05342</mark>
2,5	6,0	7,5	25,0	2,3	63,5	0,5	<mark>05343</mark>
3,0	6,0	5,0	_	_	63,5	_	<mark>05361</mark>
3,0	6,0	5,0	-	-	63,5	0,2	<mark>05357</mark>
3,0	6,0	5,0	_	_	63,5	0,3	<mark>05358</mark>

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05369 <mark>05370</mark>

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Series M032

Carias				 					
Series M032			<mark>← Ae →</mark>	Ae	Vc			DC • in	
Fractional	Hardness		Ae x DC	Ap x DC	(sfm)		1/32	5/64	7/64
		Profile			790	RPM	96570	38628	27591
			≤ 0.25	≤ 1	(632-948)	Fz	0.00009	0.00022	0.00031
OADDON CTEELO					(032-340)	Feed (ipm)	26.0	26.0	26.0
CARBON STEELS 1018, 1040, 1080,	≤ 275 Bhn	Slot			630	RPM	77011	30804	22003
P 1090, 10L50, 1140,	or		1	≤ .5	(EQ4.7EC)	Fz	0.00009	0.00022	0.00031
1212, 12L15, 1525, 1536	≤ 28 HRc				(504-756)	Feed (ipm)	20.5	20.5	20.5
		Finish			1565	RPM	191306	76522	54659
			≤ .02	1	/1252 1070\	Fz	0.00017	0.00041	0.00058
					(1252-1878)	Feed (ipm)	95.0	95.0	95.0
		Profile			450	RPM	55008	22003	15717
			≤ 0.25	≤ 1	(000 540)	Fz	0.00007	0.00017	0.00023
					(360-540)	Feed (ipm)	11.0	11.0	11.0
ALLOY STEELS	≤ 375 Bhn	Slot			360	RPM	44006	17603	12573
P 4140, 4150, 4320, 5120, 5150, 8630,	or		1	≤ .5	(000, 400)	Fz	0.00007	0.00017	0.00024
86L20, 50100	≤ 40 HRc				(288-432)	Feed (ipm)	8.9	8.9	8.9
		Finish			895	RPM	109405	43762	31259
			≤ .02	1	(740, 4074)	Fz	0.00012	0.00030	0.00043
					(716-1074)	Feed (ipm)	40.0	40.0	40.0
		Profile		≤1	93	RPM	11368	4547	3248
			≤ 0.25		(74.440)	Fz	0.00003	0.00007	0.00010
					(74-112)	Feed (ipm)	0.9	0.9	0.9
ALLOY STEELS	≤ 560 Bhn	Slot		≤.5	65	RPM	7946	3178	2270
P 4140, 4150, 4320, 5120, 5150, 8630,	or	•	1		(50.70)	Fz	0.00003	0.00006	0.00009
86L20, 50100	≤ 55 HRc				(52-78)	Feed (ipm)	0.6	0.6	0.6
		Finish			167	RPM	20414	8166	5833
			≤ .02		(124 200)	Fz	0.00004	0.00011	0.00016
					(134-200)	Feed (ipm)	2.8	2.8	2.8
		Profile			69	RPM	8435	3374	2410
			≤ 0.25	≤ 1	(EE 02)	Fz	0.00003	0.00007	0.00010
					(55-83)	Feed (ipm)	0.8	0.8	0.8
TOOL STEELS	≤ 375 Bhn	Slot			50	RPM	6112	2445	1746
H A2, D2, H13, L2, M	2, or		1	≤ .5	(40,00)	Fz	0.00002	0.00006	0.00009
P20, S7, T15, W2	≤ 40 HRc				(40-60)	Feed (ipm)	0.5	0.5	0.5
		Finish			124	RPM	15158	6063	4331
			≤ .02	1	(00.140)	Fz	0.00005	0.00012	0.00017
					(99-149)	Feed (ipm)	2.2	2.2	2.2
		Profile			620	RPM	75789	30316	21654
			≤ 0.25	≤ 1	(AOC 744)	Fz	0.00011	0.00028	0.00039
OAGT IDONG					(496-744)	Feed (ipm)	25.5	25.5	25.5
CAST IRONS (LOW & MEDIUM	≤ 220 Bhn	Slot			450	RPM	55008	22003	15717
ALLOY)	or	1.00	1	≤ .5	(260 E40)	Fz	0.00010	0.00024	0.00034
Gray, Malleable, Ductile	≤ 19 HRc				(360-540)	Feed (ipm)	16.0	16.0	16.0
Duotiis		Finish			1115	RPM	136298	54519	38942
			≤ .02	1	(000 1000)	Fz	0.00018	0.00045	0.00062
					(892-1338)	Feed (ipm)	73.0	73.0	73.0

FRACTIONAL

Series M032

					Ap					
	Series M032			<mark>∢ Ae</mark> →	Ae	Vc			DC • in	
	Fractional	Hardness		Ae x DC	Ap x DC	(sfm)		1/32	5/64	7/64
			Profile			335	RPM	40950	16380	11700
				≤ 0.25	≤ 1	(268-402)	Fz	0.00008	0.00020	0.00028
						(200-402)	Feed (ipm)	9.9	9.9	9.9
	STAINLESS STEELS	≤ 275 Bhn	Slot			245	RPM	29949	11980	8557
M	(DIFFICULT)	or		1	≤ .5	(106 204)	Fz	0.00007	0.00017	0.00023
	304, 304L, 316, 316L	≤ 28 HRc				(196-294)	Feed (ipm)	6.0	6.0	6.0
			Finish			605	RPM	73955	29582	21130
				≤ .02	1	(484-726)	Fz	0.00012	0.00031	0.00043
							Feed (ipm)	27.5	27.5	27.5
			Profile			310	RPM	37894	15158	10827
				≤ 0.25	≤1	(248-372)	Fz	0.00008	0.00020	0.00028
		≤ 325 Bhn or ≤ 35 HRc				(240-372)	Feed (ipm)	9.0	9.0	9.0
	STAINLESS STEELS		Slot Finish	1	≤ .5	225	RPM	27504	11002	7858
M	(PH) 13-8 PH, 15-5 PH,					(180-270)	Fz	0.00007	0.00017	0.00023
	17-4 PH, Custom 450					(160-270)	Feed (ipm)	5.5	5.5	5.5
				≤ .02	1 ≤ 1.5	555	RPM	67843	27137	19384
						(444-666)	Fz	0.00013	0.00031	0.00044
						(444-000)	Feed (ipm)	25.5	25.5	25.5
			Profile			200	RPM	24448	9779	6985
				≤ 0.5		(160-240)	Fz	0.00007	0.00017	0.00024
	SUPER ALLOYS	≤ 400 Bhn or			≤ 1	(100-240)	Feed (ipm)	5.1	5.1	5.1
	(NICKEL, COBALT,		Slot			145	RPM	17725	7090	5064
S	IRON BASE) Inconel 718, X-750,			1		(110 174)	Fz	0.00006	0.00015	0.00021
	Incoloy, Waspaloy,	≤ 43 HRc				(116-174)	Feed (ipm)	3.2	3.2	3.2
	Hastelloy, Rene		Finish			360	RPM	44006	17603	12573
				≤ .02	1	(288-432)	Fz	0.00011	0.00027	0.00038
						(200-432)	Feed (ipm)	14.5	14.5	14.5
			Profile			245	RPM	29949	11980	8557
				≤ 0.5	≤ 1.5	(196-294)	Fz	0.00007	0.00018	0.00025
	TITANIUM ALLOYS					(130-234)	Feed (ipm)	6.3	6.3	6.3
	Pure Titanium,	≤ 350 Bhn	Slot			180	RPM	22003	8801	6287
S	Ti6AI4V,	or		1	≤ 1	(144-216)	Fz	0.00006	0.00015	0.00021
	Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si	≤ 38 HRc				(144-210)	Feed (ipm)	3.9	3.9	3.9
			Finish			440	RPM	53786	21514	15367
				≤ .02	1	(352-528)	Fz	0.00011	0.00028	0.00039
						(332-320)	Feed (ipm)	18.0	18.0	18.0

HRc (Rockwell C) Bhn (Brinell)

rpm = Vc x 3.82 / DC

METRIC

Series M032

	Series M032			Ae	Ae	Vc	_		DC • mm	
	Metric	Hardness		Ae x DC	Ap x DC	(m/min)		1	2	3
			Profile			241	RPM	76584	38292	25528
				≤ 0.25	≤ 1	(400,000)	Fz	0.0029	0.0057	0.0086
						(193-289)	Feed (mm/min)	660	660	660
	CARBON STEELS 1018, 1040, 1080,	_ ≤ 275 Bhn	Slot			192	RPM	61073	30537	20358
P	1090, 10L50, 1140,	or	olot (1	≤ .5	/154 000\	Fz	0.0028	0.0057	0.0085
	1212, 12L15, 1525, 1536	≤ 28 HRc				(154-230)	Feed (ipm)	521	521	521
	1000		Finish			477	RPM	151714	75857	50571
				≤ .02	1	/202 572\	Fz	0.0053	0.0106	0.0159
						(382-572)	Feed (ipm)	2413	2413	2413
			Profile			137	RPM	43624	21812	14541
				≤ 0.25	≤ 1	/110 165\	Fz	0.0021	0.0043	0.0064
		_				(110-165)	Feed (ipm)	279	279	279
	ALLOY STEELS	≤ 375 Bhn	Slot			110	RPM	34899	17449	11633
P	4140, 4150, 4320, 5120, 5150, 8630,	or		1	≤ .5	(88-132)	Fz	0.0022	0.0043	0.0065
	86L20, 50100	≤ 40 HRc _	•			(00-132)	Feed (ipm)	226	226	226
			Finish			273	RPM	86763	43381	28921
				≤ .02	1	(210 227)	Fz	0.0039	0.0078	0.0117
						(218-327)	Feed (ipm)	1016	1016	1016
			Profile			28	RPM	9016	4508	3005
			≤	≤ 0.25	≤ 1	(22.24)	Fz	0.0009	0.0018	0.0026
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100	_				(23-34)	Feed (ipm)	24	24	24
		≤ 560 Bhn	Slot	1	≤ .5 -	20	RPM	6301	3151	2100
P		or ≤ 55 HRc –				/16 24\	Fz	0.0008	0.0016	0.0025
						(16-24)	Feed (ipm)	15	15	15
			Finish			51	RPM	16189	8095	5396
				≤ .02		(41-61)	Fz	0.0014	0.0029	0.0043
							Feed (ipm)	70	70	70
			Profile			21	RPM	6689	3344	2230
				≤ 0.25	≤1	(17-25)	Fz	0.0009	0.0019	0.0028
		_				(17-23)	Feed (ipm)	19	19	19
	TOOL STEELS	≤ 375 Bhn	Slot			15	RPM	4847	2424	1616
Н	A2, D2, H13, L2, M2,	or . 40 UD		1	≤ .5	(12-18)	Fz	0.0008	0.0016	0.0024
	P20, S7, T15, W2	≤ 40 HRc _				(12-10)	Feed (ipm)	11	11	11
			Finish			38	RPM	12021	6010	4007
				≤ .02	1	(30-45)	Fz	0.0015	0.0031	0.0046
						(00 43)	Feed (ipm)	56	56	56
			Profile			189	RPM	60104	30052	20035
				≤ 0.25	≤ 1	(151-227)	Fz	0.0036	0.0072	0.0108
	CAST IRONS	_					Feed (ipm)	648	648	648
	(LOW & MEDIUM	≤ 220 Bhn	Slot			137	RPM	43624	21812	14541
K	ALLOY) Gray, Malleable,	or ≤ 19 HRc		1	≤ .5	(110-165)	Fz	0.0031	0.0062	0.0093
	Ductile	= 10 HHC					Feed (ipm)	406	406	406
			Finish			340	RPM	108090	54045	36030
				≤ .02	1	(272-408)	Fz	0.0057	0.0114	0.0172
			•	(2/2-408)	Feed (ipm)	1854	1854	1854		

METRIC

Series M032

					Ар										
	Series M032			<mark>≺ Ae →</mark>	Ae	Vc			DC • mm						
	Metric	Hardness		Ae x DC	Ap x DC	(m/min)		1	2	3					
			Profile			102	RPM	32475	16238	10825					
				≤ 0.25	≤ 1	(82-123)	Fz	0.0026	0.0052	0.0077					
		_				(02-123)	Feed (ipm)	251	251	251					
	STAINLESS STEELS	≤ 275 Bhn	Slot			75	RPM	23751	11875	7917					
M	(DIFFICULT)	or		1	≤ .5	(60-90)	Fz	0.0021	0.0043	0.0064					
	304, 304L, 316, 316L	≤ 28 HRc _				(60-90)	Feed (ipm)	152	152	152					
			Finish			184	RPM	58650	29325	19550					
				≤ .02	1	(148-221)	Fz	0.0040	0.0079	0.0119					
						(140-221)	Feed (ipm)	699	699	699					
			Profile			94	RPM	30052	15026	10017					
				≤ 0.25	≤ 1	(76-113)	Fz	0.0025	0.0051	0.0076					
		_				(70-113)	Feed (ipm)	229	229	229					
	STAINLESS STEELS	≤ 325 Bhn or ≤ 35 HRc	Slot	1	≤ .5	69	RPM	21812	10906	7271					
M	(PH) 13-8 PH, 15-5 PH,		•			(55-82)	Fz	0.0021	0.0043	0.0064					
	17-4 PH, Custom 450					(55-02)	Feed (ipm)	140	140	140					
			Finish		1 ≤ 1.5	169	RPM	53803	26901	17934					
				≤ .02		(135-203)	Fz	0.0040	0.0080	0.0120					
						(133-203)	Feed (ipm)	648	648	648					
			Profile			61	RPM	19388	9694	6463					
				≤ 0.5		(49-73)	Fz	0.0022	0.0045	0.0067					
	SUPER ALLOYS	≤ 400 Bhn or				(49-73)	Feed (ipm)	130	130	130					
	(NICKEL, COBALT,		≤ 400 Bhn	≤ 400 Bhn	≤ 400 Bhn	≤ 400 Bhn	≤ 400 Bhn	Slot			44	RPM	14057	7028	4686
S	IRON BASE) Inconel 718, X-750,			1	≤1	(35-53)	Fz	0.0019	0.0039	0.0058					
	Incoloy, Waspaloy,	≤ 43 HRc _				(00-00)	Feed (ipm)	81	81	81					
	Hastelloy, Rene		Finish			110	RPM	34899	17449	11633					
				≤ .02	1	(88-132)	Fz	0.0035	0.0070	0.0106					
						(00-132)	Feed (ipm)	368	368	368					
			Profile			75	RPM	23751	11875	7917					
				≤ 0.5	≤ 1.5	(60-90)	Fz	0.0022	0.0045	0.0067					
	TITANIUM ALLOYS	_				(00 30)	Feed (ipm)	160	160	160					
	Pure Titanium,	≤ 350 Bhn	Slot			55	RPM	17449	8725	5816					
S	Ti6Al4V,	or		1	≤ 1	(44-66)	Fz	0.0019	0.0038	0.0057					
	Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si	≤ 38 HRc _				(44-00)	Feed (ipm)	99	99	99					
			Finish			134	RPM	42654	21327	14218					
				≤ .02	1	(107-161)	Fz	0.0036	0.0071	0.0107					
						(107-101)	Feed (ipm)	457	457	457					

Bhn (Brinell) HRc (Rockwell C)

 $\begin{array}{ll} & \text{Fint (billet)} & \text{Fint (billet)} \\ & \text{rpm} = (\text{Vc} \times 1000) \, / \, (\text{DC} \times 3.14) \\ & \text{mm/min} = \text{Fz} \times 3 \, \text{x} \, \text{rpm} \, (\text{Fz} \times 3 \, \text{x} \, \text{max} \, \text{available rpm} \, \text{when recommendation exceeds machine limit)} \\ & \text{reduce speed and feed for materials harder than listed} \\ & \text{refer to the KYOCERA SGS Tool Wizard} \\ & \text{for complete technical information (www.kyocera-sgstool.com)} \\ \end{array}$



₭YOCERa

2 Flute Spotting External Coolant













New Expanded Tools

TOLERANCES (inch) .005-.125 DIAMETER

DC = +0.0000/-0.0003

 $DCON = h_6$

STEELS

STAINLESS STEELS

HIGH TEMP ALLOYS

CAST IRON

TITANIUM

HARDENED STEELS

NON-FERROUS

PLASTICS/COMPOSITES

OAL -LCF **DCON**

M080
FRACTIONAL SERIES

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

- · 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 microtool applications
- Manufactured in accordance with KSPT ISO certified quality procedures

2 Flute Spotting External Coolant



















- 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



		mm			EDI	P NO.
CUTTIN DIAMET DC		FLUTE LENGTH LCF	OVERALL LENGTH OAL	POINT ANGLE	UNCOATED	TI-NAMITE-A (AITiN)
0,15	3,0	0,65	38,0	90	<mark>07048</mark>	<mark>07032</mark>
0,25	3,0	0,90	38,0	90	<mark>07049</mark>	<mark>07033</mark>
0,40	3,0	1,15	38,0	90	<mark>07050</mark>	<mark>07034</mark>
0,50	3,0	1,30	38,0	90	<mark>07051</mark>	<mark>07035</mark>
1,00	3,0	2,30	38,0	90	<mark>07052</mark>	<mark>07036</mark>
1,50	3,0	5,00	38,0	90	<mark>07053</mark>	<mark>07037</mark>
2,00	3,0	5,00	38,0	90	<mark>07054</mark>	<mark>07038</mark>
3,00	3,0	5,00	38,0	90	<mark>07055</mark>	<mark>07039</mark>
0,15	3,0	0,65	38,0	130	<mark>07056</mark>	<mark>07040</mark>
0,25	3,0	0,90	38,0	130	<mark>07057</mark>	<mark>07041</mark>
0,40	3,0	1,15	38,0	130	<mark>07058</mark>	<mark>07042</mark>
0,50	3,0	1,30	38,0	130	<mark>07059</mark>	<mark>07043</mark>
1,00	3,0	2,30	38,0	130	<mark>07060</mark>	<mark>07044</mark>
1,50	3,0	5,00	38,0	130	<mark>07061</mark>	<mark>07045</mark>
2,00	3,0	5,00	38,0	130	<mark>07062</mark>	<mark>07046</mark>
3,00	3,0	5,00	38,0	130	<mark>07063</mark>	<mark>07047</mark>

New Expanded Tools

| TOLERANCES (mm)

0,15	-3,0 DIAMETER
DC	= +0,000/-0,008
DCOM	l = h ₆

STEELS
STAINLESS STEELS
CAST IRON
HIGH TEMP ALLOYS
TITANIUM

HARDENED STEELS
NON-FERROUS

Series M080

			V-				DC	• in		
	Series M080	Hardness	Vc (sfm)		0.005	0.010	0.020	0.040	0.080	0.125
	CARBON STEELS	< 175 Rhn		RPM	213920	106960	53480	26740	13370	8557
	1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	Hardness ≤ 175 Bhn or ≤ 7 HRc ≤ 275 Bhn or ≤ 28 HRc ≤ 475 Bhn or ≤ 50 HRc ≤ 220 Bhn or ≤ 19 HRc ≤ 24 HRc ≤ 250 Bhn or ≤ 24 HRc ≤ 320 Bhn or ≤ 34 HRc ≤ 350 Bhn or ≤ 38 HRc	280 (224-336)	Fz	0.00010	0.00021	0.0004	0.0008	0.0016	0.0026
P	1140, 1212, 12115, 1525, 1550			Feed (ipm)	22.0	22.0	22.0	22.0	22.0	22.0
	ALLOY STEELS	< 275 Rhn		RPM	137520	68760	34380	17190	8595	5501
	4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100	or	180 (144-216)	Fz	0.00010	0.00019	0.0004	0.0008	0.0015	0.0024
	3130, 0030, 00120, 30100	2 20 11110		Feed (ipm)	13.3	13.3	13.3	13.3	13.3	13.3
	TOOL STEELS	< 475 Bhn		RPM	53480	26740	13370	6685	3343	2139
Н	A2, D2, H13, L2, M2, P20, S7, T15, W2	or	70 (56-84)	Fz	0.00004	0.00008	0.0002	0.0003	0.0006	0.0010
	120, 31, 113, 112	≤ DU HKC		Feed (ipm)	2.1	2.1	2.1	2.1	2.1	2.1
		< 220 Bhn		RPM	213920	106960	53480	26740	13370	8557
K	CAST IRONS Gray, Malleable, Ductile	or	280 (224-336)	Fz	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
	STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 250 Bhn		RPM	160440	80220	40110	20055	10028	6418
		or	210 (168-252)	Fz	0.00011	0.00021	0.0004	0.0008	0.0017	0.0026
М	303, 410, 4201, 4301, 4401	2 24 11110		Feed (ipm)	17.0	17.0	17.0	17.0	17.0	17.0
	STAINLESS STEELS (DIFFICULT) 304, 316, 321, 13-8 PH, 15-5PH, 17-4 PH, CUSTOM 450	< 275 Bhn		RPM	137520	68760	34380	17190	8595	5501
		or	180 (144-216)	Fz	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
	SUPER ALLOYS (NICKEL, COBALT, IRON BASE)	or	70 (56-84)	RPM	53480	26740	13370	6685	3343	2139
	Inconel 601, 617, 625, Incoloy 800, Monel 400, Rene,			Fz	0.00006	0.00012	0.0002	0.0005	0.0010	0.0015
S	Waspaloy			Feed (ipm)	3.2	3.2	3.2	3.2	3.2	3.2
	TITANIUM ALLOYS	< 350 Bhn		RPM	91680	45840	22920	11460	5730	3667
	Pure Titanium, Ti6Al4V, Ti6Al2Sn4Zr2Mo,	or	120 (96-144)	Fz	0.00006	0.00012	0.0002	0.0005	0.0010	0.0015
	Ti4Al4Mo2Sn0.5Si	≥ 30 ⊓⊓€		Feed (ipm)	5.6	5.6	5.6	5.6	5.6	5.6
		≤ 150 Bhn		RPM	458400	229200	114600	57300	28650	18336
	ALUMINUM ALLOYS 2017, 2024, 356, 6061, 7075	or ≤ 7 HRc	600 (480-720)	Fz	0.00012	0.00024	0.0005	0.0009	0.0019	0.0029
		≥ / HNC		Feed (ipm)	54.0	54.0	54.0	54.0	54.0	54.0
	COPPER ALLOYS	≤ 140 Bhn		RPM	145160	72580	36290	18145	9073	5806
N	Alum Bronze, C110, Muntz	or ≤ 3 HRc	190 (152-228)	Fz	0.00010	0.00019	0.0004	0.0008	0.0016	0.0024
	Brass	2 0 HHC		Feed (ipm)	14.1	14.1	14.1	14.1	14.1	14.1
				RPM	382000	191000	95500	47750	23875	15280
	PLASTICS Polycarbonate, PVC		500 (400-600)	Fz	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

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® or sgsmicrotools.com for complete technical information

METRIC

Series M081

			Vc		DC • mm					
	Series M081	Hardness	(m/min)		0.15	0.25	0.5	1	2	3
	CARBON STEELS	≤ 175 Bhn		RPM	180958	108575	54287	27144	13572	9048
	1018, 1040, 1080, 1090, 10L50,	≤ 173 Billi or ≤ 7 HRc	85 (68-102)	F7 0.0031 0.0051 0.0103	0.0103	0.0206	0.0412	0.0618		
Р	1140, 1212, 12L15, 1525, 1536	≤ / nnc		Feed (mm/min)	559	559	559	559	559	559
•	ALLOY STEELS	≤ 275 Bhn		RPM	116330	69798	34899	17449	8725	5816
	4140, 4150, 4320, 5120,	or	55 (44-66)	Fz	0.0029	0.0048	0.0097	0.0194	1 2 3 27144 13572 9048 0.0206 0.0412 0.061 559 559 559 17449 8725 5816 0.0194 0.0387 0.058 338 338 338 6786 3393 2262 0.0079 0.0157 0.023 53 53 53 27144 13572 9048 401 401 401 401 401 401 401 401 401 20358 10179 6786 0.0212 0.0424 0.063 432 432 432 17449 8725 5816 0.0194 0.0387 0.058 338 338 338 338 338 338 6786 3393 2262 0.0120 0.0240 0.035 81 81 81	0.0581
	5150, 8630, 86L20, 50100	≤ 28 HRc	. ,	Feed (mm/min)	338	338	338	338	338	338
	TOOL STEELS	≤ 475 Bhn		RPM	45239	27144	13572	6786	3393	2262
Н	A2, D2, H13, L2, M2,	≤ 473 Billi or ≤ 50 HRc	21 (17-26)	Fz	0.0012	0.0020	0.0039	0.0079	0.0157	0.0236
	P20, S7, T15, W2	≤ 30 HKC		Feed (mm/min)	53	53	53	53	53	53
		≤ 220 Bhn		RPM	180958	108575	54287	27144	13572	9048
K	CAST IRONS Gray, Malleable, Ductile	or	85 (68-102)	Fz	0.0022	0.0037	0.0074	0.0148	0.0296	0.0444
	•	≤ 19 HRc		Feed (mm/min)	401	401	401	401	401	401
	STAINLESS STEELS	≤ 250 Bhn		RPM	135718	81431	40715	20358	10179	6786
	(FREE MACHINING) 303, 416, 420F, 430F, 440F	or ≤ 24 HRc	64 (51-77)	Fz	0.0032	0.0053	0.0106	0.0212	0.0424	0.0636
м		≤ 24 nnc		Feed (mm/min)	432	432	432	432	432	432
IVI	STAINLESS STEELS (DIFFICULT) 304, 316, 321, 13-8 PH, 15-5PH, 17-4 PH, CUSTOM 450	≤ 275 Bhn		RPM	116330	69798	34899	17449	8725	5816
		or ≤ 28 HRc	55 (44-66)	Fz	0.0029	0.0048	0.0097	0.0194	0.0387	0.0581
		≤ 20 ⊓nc		Feed (mm/min)	338	338	338	338	338	338
	SUPER ALLOYS (NICKEL, COBALT, IRON BASE)	≤ 320 Bhn		RPM	45239	27144	13572	6786	3393	2262
	Inconel 601, 617, 625, Incoloy 800, Monel 400, Rene,	or ≤ 34 HRc	21 (17-26)		0.0018	0.0030	0.0060	0.0120	0.0240	0.0359
S	Waspaloy	≤ 34 HKC		Feed (mm/min)	81	81	81	81	81	81
3	TITANIUM ALLOYS	≤ 350 Bhn		RPM	77553	46532	23266	11633	5816	3878
	Pure Titanium, Ti6Al4V, Ti6Al2Sn4Zr2Mo,	or	37 (29-44)	Fz	0.0018	0.0031	0.0061	0.0122	0.0245	0.0367
	Ti4Al4Mo2Sn0.5Si	≤ 38 HRc		Feed (mm/min)	142	142	142	142	142	142
		≤ 150 Bhn		RPM	387767	232660	116330	58165	29082	19388
	ALUMINUM ALLOYS 2017, 2024, 356, 6061, 7075	or ≤ 7 HRc	183 (146-219)	Fz	0.0035	0.0059	0.0118	0.0236	0.0472	0.0707
		≥ / HNC		Feed (mm/min)	1372	1372	1372	1372	1372	1372
	COPPER ALLOYS	≤ 140 Bhn		RPM	122793	73676	36838	18419	9209	6140
N	Alum Bronze, C110, Muntz	or ≤ 3 HRc	58 (46-69)	Fz	0.0029	0.0049	0.0097	0.0194	0.0389	0.0583
	Brass	> 3 HHC		Feed (mm/min)	358	358	358	358	358	358
				RPM	323139	193883	96942	48471	24235	16157
	PLASTICS Polycarbonate, PVC		152 (122-183)	Fz	0.0035	0.0059	0.0118	0.0236	0.0472	0.0707
				Feed (mm/min)	1143	1143	1143	1143	1143	1143

 $[\]begin{tabular}{lll} \textbf{Note:} & & Bhn (Brinell) & HRc (Rockwell C) & HRb (Rockwell B) \\ & & & pm = (Vc x 1000) / (DC x 3.14) \\ & & & mm/min = Fr \times pm (Fr \times 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® or sgsmicrotools.com for complete technical information \\ \end{tabular}$



₡K90cera

2 Flute External Coolant • Standard & Extended Length



















New Expanded Tools

TOLERANCES (inch)

TOLERANCES (mm)

0.1-3.0 DIAMETERDC = +0.000/+0.008
DCON = h_6

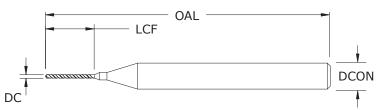
STEELS

STAINLESS STEELS

CAST IRON
HIGH TEMP ALLOYS
TITANIUM

NON-FERROUS

HARDENED STEELS



	M 1	05
FRACTIONAL &	METRIC S	SERIES

CUTTING	DECIMAL	inch 8	k mm FLUTE	OVERALL	POINT	EDI	PNO.
CUTTING DIAMETER DC	EQUIV.	DIAMETER DCON	LENGTH LCF	LENGTH OAL	ANGLE	UNCOATED	TI-NAMITE-/
0,1mm	0.0040	1/8	0.040	1-1/2	118	<mark>07088</mark>	<mark>07098</mark>
0,1mm	0.0040	1/8	0.070	1-1/2	118	<mark>07089</mark>	<mark>07099</mark>
0,13mm	0.0050	1/8	0.040	1-1/2	118	<mark>07064</mark>	<mark>07066</mark>
0,13mm	0.0050	1/8	0.070	1-1/2	118	<mark>07065</mark>	<mark>07067</mark>
#97	0.0059	1/8	0.080	1-1/2	118	<mark>07236</mark>	<mark>07068</mark>
#97	0.0059	1/8	0.120	1-1/2	118	<mark>07237</mark>	<mark>07069</mark>
#96	0.0063	1/8	0.080	1-1/2	118	<mark>07238</mark>	<mark>07070</mark>
#96	0.0063	1/8	0.120	1-1/2	118	<mark>07239</mark>	<mark>07071</mark>
#95	0.0067	1/8	0.080	1-1/2	118	<mark>07240</mark>	<mark>07072</mark>
#95	0.0067	1/8	0.120	1-1/2	118	<mark>07241</mark>	<mark>07073</mark>
#94	0.0071	1/8	0.100	1-1/2	118	<mark>07242</mark>	<mark>07074</mark>
#94	0.0071	1/8	0.150	1-1/2	118	<mark>07243</mark>	<mark>07075</mark>
#93	0.0075	1/8	0.100	1-1/2	118	<mark>07244</mark>	<mark>07076</mark>
#93	0.0075	1/8	0.150	1-1/2	118	<mark>07245</mark>	<mark>07077</mark>
#92	0.0079	1/8	0.100	1-1/2	118	<mark>07246</mark>	<mark>07078</mark>
#92	0.0079	1/8	0.150	1-1/2	118	<mark>07247</mark>	<mark>07079</mark>
#91	0.0083	1/8	0.100	1-1/2	118	<mark>07248</mark>	<mark>07080</mark>
#91	0.0083	1/8	0.150	1-1/2	118	<mark>07249</mark>	<mark>07081</mark>
#90	0.0087	1/8	0.100	1-1/2	118	<mark>07250</mark>	<mark>07082</mark>
#90	0.0087	1/8	0.150	1-1/2	118	<mark>07251</mark>	<mark>07083</mark>
#89	0.0091	1/8	0.150	1-1/2	118	<mark>07252</mark>	<mark>07084</mark>
#89	0.0091	1/8	0.220	1-1/2	118	<mark>07253</mark>	<mark>07085</mark>
#88	0.0095	1/8	0.150	1-1/2	118	<mark>07254</mark>	<mark>07086</mark>
#88	0.0095	1/8	0.220	1-1/2	118	<mark>07255</mark>	<mark>07087</mark>
0,25mm	0.0098	1/8	0.150	1-1/2	118	<mark>07108</mark>	<mark>07114</mark>
0,25mm	0.0098	1/8	0.220	1-1/2	118	<mark>07109</mark>	<mark>07115</mark>
#87	0.0100	1/8	0.150	1-1/2	118	07258	07090
#87	0.0100	1/8	0.220	1-1/2	118	<mark>07259</mark>	<mark>07091</mark>
#86	0.0105	1/8	0.150	1-1/2	118	<mark>07260</mark>	<mark>07092</mark>
#86	0.0105	1/8	0.220	1-1/2	118	<mark>07261</mark>	07093
#85	0.0110	1/8	0.150	1-1/2	118	07262	07094
#85	0.0110	1/8	0.220	1-1/2	118	07263	07095
#84	0.0115	1/8	0.150	1-1/2	118	07264	07096
#84	0.0115	1/8	0.220	1-1/2	118	07265	07097
0,3mm	0.0118	1/8	0.225	1-1/2	118	07127	07132
0,3mm	0.0118	1/8	0.280	1-1/2	118	07129	07134

- 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 microtool applications
- Manufactured in accordance with KSPT ISO certified quality procedures

2 Flute External Coolant • **Standard & Extended Length**



DCON

EDP NO.









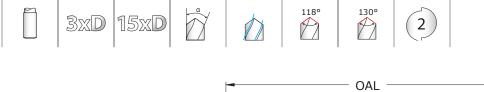












LCF FRACTIONAL & METRIC SERIES inch & mm

continued

CUTTING DIAMETER DC	DECIMAL EQUIV.	SHANK DIAMETER DCON	FLUTE LENGTH LCF	OVERALL LENGTH OAL	POINT ANGLE	UNCOATED	TI-NAMITE-A (AITIN)
#83	0.0120	1/8	0.225	1-1/2	118	<mark>07268</mark>	<mark>07100</mark>
#83	0.0120	1/8	0.280	1-1/2	118	<mark>07269</mark>	<mark>07101</mark>
#82	0.0125	1/8	0.225	1-1/2	118	<mark>07270</mark>	<mark>07102</mark>
#82	0.0125	1/8	0.280	1-1/2	118	<mark>07271</mark>	<mark>07103</mark>
#81	0.0130	1/8	0.225	1-1/2	118	<mark>07272</mark>	<mark>07104</mark>
#81	0.0130	1/8	0.280	1-1/2	118	<mark>07273</mark>	<mark>07105</mark>
#80	0.0135	1/8	0.225	1-1/2	130	<mark>07274</mark>	<mark>07106</mark>
#80	0.0135	1/8	0.280	1-1/2	130	<mark>07275</mark>	<mark>07107</mark>
0,35mm	0.0138	1/8	0.225	1-1/2	130	<mark>07118</mark>	<mark>07122</mark>
0,35mm	0.0138	1/8	0.280	1-1/2	130	<mark>07119</mark>	<mark>07123</mark>
#79	0.0145	1/8	0.225	1-1/2	130	<mark>07278</mark>	<mark>07110</mark>
#79	0.0145	1/8	0.280	1-1/2	130	<mark>07279</mark>	<mark>07111</mark>
1/64	0.0156	1/8	0.250	1-1/2	130	<mark>07280</mark>	<mark>07112</mark>
1/64	0.0156	1/8	0.295	1-1/2	130	<mark>07281</mark>	<mark>07113</mark>
0,4mm	0.0157	1/8	0.250	1-1/2	130	<mark>07148</mark>	<mark>07233</mark>
0,4mm	0.0157	1/8	0.295	1-1/2	130	<mark>07232</mark>	<mark>07234</mark>
#78	0.0160	1/8	0.250	1-1/2	130	<mark>07284</mark>	<mark>07116</mark>
#78	0.0160	1/8	0.295	1-1/2	130	<mark>07285</mark>	<mark>07117</mark>
0,45mm	0.0177	1/8	0.250	1-1/2	130	<mark>07137</mark>	<mark>07143</mark>
0,45mm	0.0177	1/8	0.295	1-1/2	130	<mark>07140</mark>	<mark>07145</mark>
#77	0.0180	1/8	0.250	1-1/2	130	<mark>07288</mark>	<mark>07120</mark>
#77	0.0180	1/8	0.295	1-1/2	130	<mark>07289</mark>	<mark>07121</mark>
0,5mm	0.0197	1/8	0.260	1-1/2	130	<mark>07257</mark>	<mark>07267</mark>
0,5mm	0.0197	1/8	0.310	1-1/2	130	<mark>07266</mark>	<mark>07276</mark>
#76	0.0200	1/8	0.260	1-1/2	130	<mark>07292</mark>	<mark>07124</mark>
#76	0.0200	1/8	0.310	1-1/2	130	<mark>07293</mark>	<mark>07125</mark>
#75	0.0210	1/8	0.310	1-1/2	130	<mark>07294</mark>	<mark>07126</mark>
0,55mm	0.0217	1/8	0.340	1-1/2	130	<mark>07235</mark>	<mark>07256</mark>
#74	0.0225	1/8	0.340	1-1/2	130	<mark>07296</mark>	<mark>07128</mark>
0,6mm	0.0236	1/8	0.340	1-1/2	130	<mark>07283</mark>	<mark>07286</mark>
#73	0.0240	1/8	0.340	1-1/2	130	<mark>07298</mark>	<mark>07130</mark>
#72	0.0250	1/8	0.340	1-1/2	130	<mark>07299</mark>	<mark>07131</mark>
0,65mm	0.0256	1/8	0.340	1-1/2	130	<mark>07277</mark>	<mark>07282</mark>
#71	0.0260	1/8	0.340	1-1/2	130	<mark>07301</mark>	<mark>07133</mark>

New Expanded Tools

TOLERANCES (inch)

≤.125 DIAMETER DC = +.0000/+.0003 $DCON = h_6$

TOLERANCES (mm)

0,1-3,0 DIAMETER

DC = +0.000/+0.008

 $DCON = h_6$

STEELS
STAINLESS STEELS
CAST IRON
HIGH TEMP ALLOYS

TITANIUM NON-FERROUS

HARDENED STEELS



₡K90cera

2 Flute External Coolant • Standard & Extended Length

M₁₀₅

continued

FRACTIONAL & METRIC SERIES

		inch &				EDI	NO.
CUTTING DIAMETER DC	DECIMAL EQUIV.	SHANK DIAMETER DCON	FLUTE LENGTH LCF	OVERALL LENGTH OAL	POINT ANGLE	UNCOATED	TI-NAMITE-A
0,7mm	0.0276	1/8	0.400	1-1/2	130	<mark>07291</mark>	<mark>07295</mark>
#70	0.0280	1/8	0.400	1-1/2	130	<mark>07303</mark>	<mark>07135</mark>
#69	0.0292	1/8	0.400	1-1/2	130	<mark>07304</mark>	<mark>07136</mark>
0,75mm	0.0295	1/8	0.400	1-1/2	130	<mark>07287</mark>	<mark>07290</mark>
#68	0.0310	1/8	0.400	1-1/2	130	<mark>07306</mark>	<mark>07138</mark>
1/32	0.0312	1/8	0.400	1-1/2	130	<mark>07307</mark>	<mark>07139</mark>
0,8mm	0.0315	1/8	0.400	1-1/2	130	<mark>07302</mark>	<mark>07305</mark>
#67	0.0320	1/8	0.400	1-1/2	130	<mark>07309</mark>	<mark>07141</mark>
#66	0.0330	1/8	0.400	1-1/2	130	<mark>07310</mark>	<mark>07142</mark>
0,85mm	0.0335	1/8	0.400	1-1/2	130	<mark>07297</mark>	<mark>07300</mark>
#65	0.0350	1/8	0.400	1-1/2	130	<mark>07312</mark>	<mark>07144</mark>
0,9mm	0.0354	1/8	0.400	1-1/2	130	<mark>07313</mark>	<mark>07316</mark>
#64	0.0360	1/8	0.400	1-1/2	130	<mark>07314</mark>	<mark>07146</mark>
#63	0.0370	1/8	0.400	1-1/2	130	<mark>07315</mark>	<mark>07147</mark>
0,95mm	0.0374	1/8	0.400	1-1/2	130	<mark>07308</mark>	<mark>07311</mark>
#62	0.0380	1/8	0.400	1-1/2	130	<mark>07317</mark>	<mark>07149</mark>
#61	0.0390	1/8	0.400	1-1/2	130	<mark>07318</mark>	<mark>07150</mark>
1,0mm	0.0394	1/8	0.400	1-1/2	130	<mark>07319</mark>	<mark>07151</mark>
#60	0.0400	1/8	0.400	1-1/2	130	<mark>07320</mark>	<mark>07152</mark>
#59	0.0410	1/8	0.400	1-1/2	130	<mark>07321</mark>	<mark>07153</mark>
1,05mm	0.0413	1/8	0.400	1-1/2	130	<mark>07322</mark>	<mark>07154</mark>
#58	0.0420	1/8	0.400	1-1/2	130	<mark>07323</mark>	<mark>07155</mark>
#57	0.0430	1/8	0.400	1-1/2	130	<mark>07324</mark>	<mark>07156</mark>
1,1mm	0.0433	1/8	0.400	1-1/2	130	<mark>07325</mark>	<mark>07157</mark>
1,12mm	0.0440	1/8	0.400	1-1/2	130	<mark>07326</mark>	<mark>07158</mark>
1,15mm	0.0453	1/8	0.400	1-1/2	130	<mark>07327</mark>	<mark>07159</mark>
#56	0.0465	1/8	0.400	1-1/2	130	<mark>07328</mark>	<mark>07160</mark>
3/64	0.0469	1/8	0.400	1-1/2	130	<mark>07329</mark>	<mark>07161</mark>
1,2mm	0.0472	1/8	0.400	1-1/2	130	<mark>07330</mark>	<mark>07162</mark>
1,25mm	0.0492	1/8	0.400	1-1/2	130	<mark>07331</mark>	<mark>07163</mark>
1,3mm	0.0512	1/8	0.400	1-1/2	130	<mark>07332</mark>	<mark>07164</mark>
#55	0.0520	1/8	0.400	1-1/2	130	<mark>07333</mark>	<mark>07165</mark>
1,35mm	0.0531	1/8	0.400	1-1/2	130	<mark>07334</mark>	<mark>07166</mark>
#54	0.0550	1/8	0.400	1-1/2	130	<mark>07335</mark>	<mark>07167</mark>
1,4mm	0.0551	1/8	0.400	1-1/2	130	<mark>07336</mark>	<mark>07168</mark>
1,45mm	0.0571	1/8	0.400	1-1/2	130	<mark>07337</mark>	<mark>07169</mark>
1,5mm	0.0591	1/8	0.400	1-1/2	130	<mark>07338</mark>	<mark>07170</mark>
#53	0.0595	1/8	0.400	1-1/2	130	<mark>07339</mark>	<mark>07171</mark>
1,55mm	0.0610	1/8	0.400	1-1/2	130	<mark>07340</mark>	<mark>07172</mark>
1/16	0.0625	1/8	0.400	1-1/2	130	<mark>07341</mark>	<mark>07173</mark>
1,6mm	0.0630	1/8	0.400	1-1/2	130	<mark>07342</mark>	<mark>07174</mark>
#52	0.0635	1/8	0.400	1-1/2	130	<mark>07343</mark>	<mark>07175</mark>
1,65mm	0.0650	1/8	0.400	1-1/2	130	<mark>07344</mark>	<mark>07176</mark>
1,7mm	0.0669	1/8	0.400	1-1/2	130	<mark>07345</mark>	<mark>07177</mark>

2 Flute External Coolant • Standard & Extended Length



DCON

EDP NO.















inch & mm





OAL LCF FRACTIONAL & METRIC SERIES

continued

mon & mm		EDI NO.					
CUTTING DIAMETER DC	DECIMAL EQUIV.	SHANK DIAMETER DCON	FLUTE LENGTH LCF	OVERALL LENGTH OAL	POINT ANGLE	UNCOATED	TI-NAMITE-A
#51	0.0670	1/8	0.400	1-1/2	130	<mark>07346</mark>	<mark>07178</mark>
1,75mm	0.0689	1/8	0.400	1-1/2	130	<mark>07347</mark>	<mark>07179</mark>
#50	0.0700	1/8	0.400	1-1/2	130	<mark>07348</mark>	<mark>07180</mark>
1,8mm	0.0709	1/8	0.400	1-1/2	130	<mark>07349</mark>	<mark>07181</mark>
1,85mm	0.0728	1/8	0.400	1-1/2	130	<mark>07350</mark>	<mark>07182</mark>
#49	0.0730	1/8	0.400	1-1/2	130	<mark>07351</mark>	<mark>07183</mark>
1,9mm	0.0748	1/8	0.400	1-1/2	130	<mark>07352</mark>	<mark>07184</mark>
#48	0.0760	1/8	0.400	1-1/2	130	<mark>07353</mark>	<mark>07185</mark>
1,95mm	0.0768	1/8	0.400	1-1/2	130	<mark>07354</mark>	<mark>07186</mark>
5/64	0.0781	1/8	0.400	1-1/2	130	<mark>07355</mark>	<mark>07187</mark>
#47	0.0785	1/8	0.400	1-1/2	130	<mark>07356</mark>	<mark>07188</mark>
2,0mm	0.0787	1/8	0.400	1-1/2	130	<mark>07357</mark>	<mark>07189</mark>
2,05mm	0.0807	1/8	0.400	1-1/2	130	<mark>07358</mark>	<mark>07190</mark>
#46	0.0810	1/8	0.400	1-1/2	130	<mark>07359</mark>	<mark>07191</mark>
#45	0.0820	1/8	0.400	1-1/2	130	<mark>07360</mark>	<mark>07192</mark>
2,1mm	0.0827	1/8	0.400	1-1/2	130	<mark>07361</mark>	<mark>07193</mark>
2,15mm	0.0846	1/8	0.400	1-1/2	130	<mark>07362</mark>	<mark>07194</mark>
#44	0.0860	1/8	0.400	1-1/2	130	<mark>07363</mark>	<mark>07195</mark>
2,2mm	0.0866	1/8	0.400	1-1/2	130	<mark>07364</mark>	<mark>07196</mark>
2,25mm	0.0886	1/8	0.400	1-1/2	130	<mark>07365</mark>	<mark>07197</mark>
#43	0.0890	1/8	0.400	1-1/2	130	<mark>07366</mark>	<mark>07198</mark>
2,3mm	0.0906	1/8	0.400	1-1/2	130	<mark>07367</mark>	<mark>07199</mark>
2,35mm	0.0925	1/8	0.400	1-1/2	130	<mark>07368</mark>	<mark>07200</mark>
#42	0.0935	1/8	0.400	1-1/2	130	<mark>07369</mark>	<mark>07201</mark>
3/32	0.0938	1/8	0.400	1-1/2	130	<mark>07370</mark>	<mark>07202</mark>
2,4mm	0.0945	1/8	0.400	1-1/2	130	<mark>07371</mark>	<mark>07203</mark>
#41	0.0960	1/8	0.400	1-1/2	130	<mark>07372</mark>	<mark>07204</mark>
2,45mm	0.0965	1/8	0.400	1-1/2	130	<mark>07373</mark>	<mark>07205</mark>
#40	0.0980	1/8	0.400	1-1/2	130	<mark>07374</mark>	<mark>07206</mark>
2,5mm	0.0984	1/8	0.400	1-1/2	130	<mark>07375</mark>	<mark>07207</mark>
#39	0.0995	1/8	0.400	1-1/2	130	<mark>07376</mark>	<mark>07208</mark>
2,55mm	0.1004	1/8	0.400	1-1/2	130	<mark>07377</mark>	<mark>07209</mark>
#38	0.1015	1/8	0.400	1-1/2	130	<mark>07378</mark>	<mark>07210</mark>
2,6mm	0.1024	1/8	0.400	1-1/2	130	<mark>07379</mark>	<mark>07211</mark>

New Expanded Tools

TOLERANCES (inch)

≤.125 DIAMETER DC = +.0000/+.0003

 $DCON = h_6$

TOLERANCES (mm)

0,1-3,0 DIAMETER

DC = +0.000/+0.008

 $DCON = h_6$

STEELS
STAINLESS STEELS
CAST IRON
HIGH TEMP ALLOYS
TITANIUM

NON-FERROUS HARDENED STEELS



₡K90cera

2 Flute External Coolant • Standard & Extended Length

M₁₀₅

FRACTIONAL & METRIC SERIES

		inch 8	mm			EDI	P NO.
CUTTING DIAMETER DC	DECIMAL EQUIV.	SHANK DIAMETER DCON	FLUTE LENGTH LCF	OVERALL LENGTH OAL	POINT Angle	UNCOATED	TI-NAMITE-A
#37	0.1040	1/8	0.400	1-1/2	130	<mark>07380</mark>	<mark>07212</mark>
2,65mm	0.1043	1/8	0.400	1-1/2	130	<mark>07381</mark>	<mark>07213</mark>
2,7mm	0.1063	1/8	0.400	1-1/2	130	<mark>07382</mark>	<mark>07214</mark>
#36	0.1065	1/8	0.400	1-1/2	130	<mark>07383</mark>	<mark>07215</mark>
2,75mm	0.1083	1/8	0.400	1-1/2	130	<mark>07384</mark>	<mark>07216</mark>
7/64	0.1094	1/8	0.400	1-1/2	130	<mark>07385</mark>	<mark>07217</mark>
#35	0.1100	1/8	0.400	1-1/2	130	<mark>07386</mark>	<mark>07218</mark>
2,8mm	0.1102	1/8	0.400	1-1/2	130	<mark>07387</mark>	<mark>07219</mark>
#34	0.1110	1/8	0.400	1-1/2	130	<mark>07388</mark>	<mark>07220</mark>
2,85mm	0.1122	1/8	0.400	1-1/2	130	<mark>07389</mark>	<mark>07221</mark>
#33	0.1130	1/8	0.400	1-1/2	130	<mark>07390</mark>	<mark>07222</mark>
2,9mm	0.1142	1/8	0.400	1-1/2	130	<mark>07391</mark>	<mark>07223</mark>
#32	0.1160	1/8	0.400	1-1/2	130	<mark>07392</mark>	<mark>07224</mark>
2,95mm	0.1161	1/8	0.400	1-1/2	130	<mark>07393</mark>	<mark>07225</mark>
3,0mm	0.1181	1/8	0.400	1-1/2	130	<mark>07394</mark>	<mark>07226</mark>
#31	0.1200	1/8	0.400	1-1/2	130	<mark>07395</mark>	<mark>07227</mark>
3,05mm	0.1201	1/8	0.400	1-1/2	130	<mark>07396</mark>	<mark>07228</mark>
3,1mm	0.1220	1/8	0.400	1-1/2	130	<mark>07397</mark>	<mark>07229</mark>
3,15mm	0.1240	1/8	0.400	1-1/2	130	<mark>07398</mark>	<mark>07230</mark>
1/8	0.1250	1/8	0.400	1-1/2	130	<mark>07399</mark>	<mark>07231</mark>

continued

FRACTIONAL

Series M105

			V-		DC • in					
	Series M105	Hardness	Vc (sfm)		0.004	0.010	0.020	0.040	0.080	0.125
	CARBON STEELS	≤ 175 Bhn		RPM	124150	49660	24830	12415	6208	3973
	1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	or ≤ 7 HRc	130 (104-156)	Fz	0.00012	0.00029	0.0006	0.0012	0.0023	0.0036
Р	1140, 1212, 12L13, 1323, 1330	≥ / HNC		Feed (ipm)	14.3	14.3	14.3	14.3	14.3	14.3
Ċ	ALLOY STEELS	≤ 275 Bhn		RPM	186225	74490	37245	18623	9311	5959
	4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100	or ≤ 28 HRc	195 (156-234)	Fz	0.00010	0.00026	0.0005	0.0010	9311 5959 0.0021 0.003: 19.4 19.4 3820 2445 0.0010 0.0010 4.0 4.0 13370 8557 0.0013 0.0020 17.5 17.5 3104 1986 0.0017 0.0020 5.4 5.4 1910 1222 0.0014 0.0020 2.7 2.7 2388 1528 0.0009 0.0010 2.1 2.1 2388 1528	0.0033
	3130, 0030, 00120, 30100	5 20 TITIC		Feed (ipm)	19.4	19.4	19.4	19.4	19.4	19.4
	TOOL STEELS	≤ 475 Bhn		RPM	76400	30560	15280	7640	3820	2445
Н	A2, D2, H13, L2, M2, P20, S7, T15, W2	or ≤ 50 HRc	80 (64-96)	Fz	0.00005	0.00013	0.0003	0.0005	0.0010	0.0016
	P20, 57, 115, WZ	≥ 30 HHC		Feed (ipm)	4.0	4.0	4.0	4.0	4.0	4.0
		≤ 220 Bhn		RPM	267400	106960	53480	26740	13370	8557
K	CAST IRONS Gray, Malleable, Ductile	or ≤ 19 HRc	280 (224-336)	Fz	0.00007	0.00016	0.0003	0.0007	0.0013	0.0020
				Feed (ipm)	17.5	17.5	17.5	17.5	17.5	17.5
	STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 Bhn		RPM	62075	24830	12415	6208	3104	1986
		or ≤ 28 HRc	65 (52-78)	Fz	0.00009	0.00022	0.0004	0.0009		0.0027
М	303, 410, 420F, 430F, 440F	≤ 20 ⊓nc		Feed (ipm)	5.4	5.4	5.4	0.0009 0.0017 0 5.4 5.4 3820 1910 0.0007 0.0014 0	5.4	
141	STAINLESS STEELS (DIFFICULT) 304, 316, 321, 13-8 PH, 15-5PH, 17-4 PH, CUSTOM 450	≤ 325 Bhn		RPM	38200	15280	7640	3820	1910	1222
		or	40 (32-48)	Fz	0.0001	0.0002	0.0004	0.0007	0.0014	0.0022
		≤ 35 HRc		Feed (ipm)	2.7	2.7	2.7	2.7	2.7	2.7
	SUPER ALLOYS (NICKEL, COBALT, IRON BASE)	25, Incoloy or	50 (40-60)	RPM	47750	19100	9550	4775	2388	1528
	Inconel 601, 617, 625, Incoloy			Fz	0.00004	0.00011	0.0002	0.0004	0.0009	0.0014
S	800, Monel 400, Rene, Waspaloy			Feed (ipm)	2.1	2.1	2.1	2.1	2.1	2.1
3	TITANIUM ALLOYS	≤ 350 Bhn		RPM	47750	19100	9550	4775	2388	1528
	Pure Titanium, Ti6Al4V, Ti6Al2Sn4Zr2Mo,	or	50 (40-60)	Fz	0.00005	0.00013	0.0003	0.0005	0.0010	0.0016
	Ti4Al4Mo2Sn0.5Si	≤ 38 HRc		Feed (ipm)	2.5	2.5	2.5	2.5	2.5	2.5
		≤ 150 Bhn		RPM	233975	93590	46795	23398	11699	7487
	ALUMINUM ALLOYS 2017, 2024, 356, 6061, 7075	or	245 (196-294)	Fz	0.00020	0.00049	0.0010	0.0020	0.0039	0.0062
		≤ 7 HRc		Feed (ipm)	46.1	46.1	46.1	46.1	46.1	46.1
	COPPER ALLOYS	≤ 140 Bhn		RPM	171900	68760	34380	17190	8595	5501
N	Alum Bronze, C110, Muntz	or	180 (144-216)	Fz	0.00020	0.00049	0.0010	0.0020	0.0039	0.0062
	Brass	≤ 3 HRc		Feed (ipm)	33.9	33.9	33.9	33.9	33.9	33.9
				RPM	233975	93590	46795	23398	11699	7487
	PLASTICS Polycarbonate, PVC		245 (196-294)	Fz	0.00020	0.00049	0.0010	0.0020	0.0039	0.0062
	· 			Feed (ipm)	46.1	46.1	46.1	46.1	46.1	46.1

Note:

Bhn (Brinell) HRc (Rockwell C) HRb (Rockwell B)

pm = 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® or sgsmicrotools.com for complete technical information



2 Flute External Coolant



















New Expanded Tools

₭YOCERa

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

DC = +0,000/-0,008

 $DCON = h_6$

STEELS

STAINLESS STEELS

CAST IRON

HIGH TEMP ALLOYS TITANIUM

HARDENED STEELS

NON-FERROUS PLASTICS/COMPOSITES

-	OAL CF	-
,		
		DCON
DC	~	

DC '							1
		mr	n			EDF	NO.
CUTTING DIAMETER DC	DECIMAL EQUIV.	SHANK DIAMETER DCON	FLUTE LENGTH LCF	OVERALL LENGTH OAL	POINT ANGLE	UNCOATED	TI-NAMITE-A (AITiN)
0,04	0.0016	3,0	0,5	38,0	118	<mark>07722</mark>	_
0,04	0.0018	3,0	0,6	38,0	118	<mark>07723</mark>	_
0,05	0.0020	3,0	0,8	38,0	118	<mark>07724</mark>	_
0,06	0.0024	3,0	0,8	38,0	118	<mark>07725</mark>	_
0,07	0.0028	3,0	1,3	38,0	118	<mark>07726</mark>	_
0,08	0.0031	3,0	1,3	38,0	118	<mark>07727</mark>	_
0,09	0.0035	3,0	1,3	38,0	118	<mark>07728</mark>	_
0,10	0.0039	3,0	1,0	38,0	118	<mark>07729</mark>	_
0,11	0.0043	3,0	1,0	38,0	118	<mark>07730</mark>	_
0,12	0.0047	3,0	1,0	38,0	118	<mark>07731</mark>	_
0,13	0.0051	3,0	1,0	38,0	118	<mark>07732</mark>	_
0,14	0.0055	3,0	1,0	38,0	118	<mark>07733</mark>	_
0,15	0.0059	3,0	2,0	38,0	118	<mark>07734</mark>	_
0,16	0.0063	3,0	2,0	38,0	118	<mark>07735</mark>	_
0,17	0.0067	3,0	2,0	38,0	118	<mark>07736</mark>	_
0,18	0.0071	3,0	2,5	38,0	118	<mark>07737</mark>	_
0,19	0.0075	3,0	2,5	38,0	118	<mark>07738</mark>	_
0,20	0.0079	3,0	2,5	38,0	118	<mark>07739</mark>	_
0,21	0.0083	3,0	2,5	38,0	118	<mark>07740</mark>	_
0,22	0.0087	3,0	2,5	38,0	118	<mark>07741</mark>	_
0,23	0.0091	3,0	3,8	38,0	118	<mark>07742</mark>	_
0,24	0.0094	3,0	3,8	38,0	118	<mark>07743</mark>	
0,25	0.0098	3,0	3,8	38,0	118	<mark>07744</mark>	<mark>07400</mark>
0,26	0.0102	3,0	3,8	38,0	118	<mark>07745</mark>	<mark>07401</mark>
0,27	0.0106	3,0	3,8	38,0	118	<mark>07746</mark>	<mark>07402</mark>
0,28	0.0110	3,0	3,8	38,0	118	<mark>07747</mark>	<mark>07403</mark>
0,29	0.0114	3,0	3,8	38,0	118	<mark>07748</mark>	<mark>07404</mark>
0,30	0.0118	3,0	5,7	38,0	118	<mark>07749</mark>	<mark>07405</mark>
0,31	0.0122	3,0	5,7	38,0	118	<mark>07750</mark>	<mark>07406</mark>
0,32	0.0126	3,0	5,7	38,0	118	<mark>07751</mark>	<mark>07407</mark>
0,33	0.0130	3,0	5,7	38,0	118	<mark>07752</mark>	<mark>07408</mark>
0,34	0.0134	3,0	5,7	38,0	118	<mark>07753</mark>	<mark>07409</mark>
0,35	0.0138	3,0	5,7	38,0	130	<mark>07754</mark>	<mark>07410</mark>
0,36	0.0142	3,0	5,7	38,0	130	<mark>07755</mark>	<mark>07411</mark>
0,37	0.0146	3,0	5,7	38,0	130	<mark>07756</mark>	<mark>07412</mark>
0,38	0.0150	3,0	6,4	38,0	130	<mark>07757</mark>	<mark>07413</mark>

- 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 microtool applications
- Manufactured in accordance with KSPT ISO certified quality procedures

2 Flute External Coolant









3xD

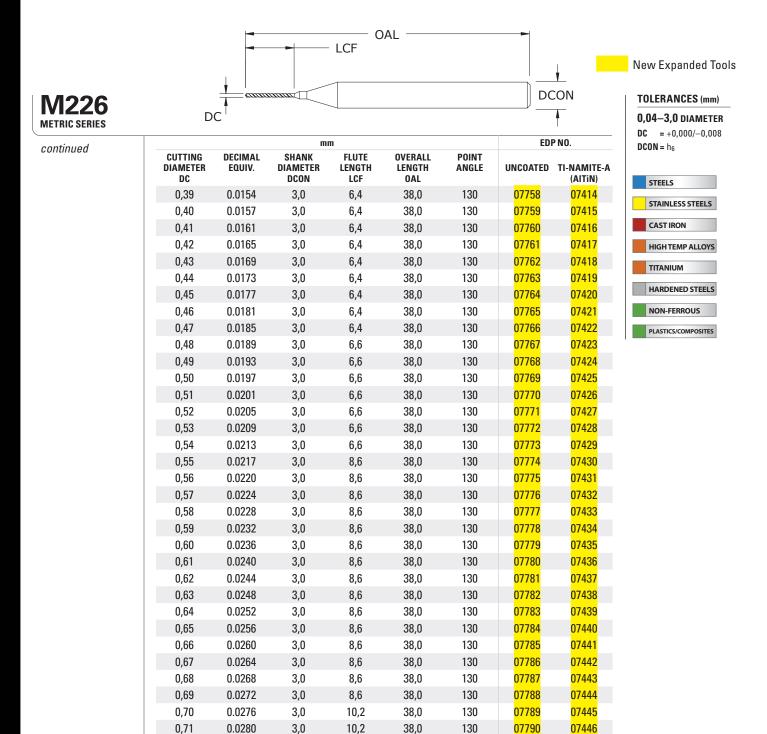












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<mark>07791</mark>

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0,72

0,73

0,74



₡K90cera

2 Flute External Coolant

M226 METRIC SERIES

continued

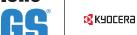
		mı	n			EDP NO.		
CUTTING DIAMETER DC	DECIMAL EQUIV.	SHANK DIAMETER DCON	FLUTE LENGTH LCF	OVERALL LENGTH OAL	POINT ANGLE	UNCOATED	TI-NAMITE-A (AITiN)	
0,75	0.0295	3,0	10,2	38,0	130	<mark>07794</mark>	<mark>07450</mark>	
0,75	0.0295	3,0	11,0	50,0	130	<mark>07795</mark>	<mark>07451</mark>	
0,76	0.0299	3,0	10,2	38,0	130	<mark>07796</mark>	<mark>07452</mark>	
0,77	0.0303	3,0	10,2	38,0	130	<mark>07797</mark>	<mark>07453</mark>	
0,78	0.0307	3,0	10,2	38,0	130	<mark>07798</mark>	<mark>07454</mark>	
0,79	0.0311	3,0	10,2	38,0	130	<mark>07799</mark>	<mark>07455</mark>	
0,80	0.0315	3,0	10,2	38,0	130	<mark>07800</mark>	<mark>07456</mark>	
0,80	0.0315	3,0	11,0	50,0	130	<mark>07801</mark>	<mark>07457</mark>	
0,81	0.0319	3,0	10,2	38,0	130	<mark>07802</mark>	<mark>07458</mark>	
0,82	0.0323	3,0	10,2	38,0	130	<mark>07803</mark>	<mark>07459</mark>	
0,83	0.0327	3,0	10,2	38,0	130	<mark>07804</mark>	07460	
0,84	0.0331	3,0	10,2	38,0	130	<mark>07805</mark>	<mark>07461</mark>	
0,85	0.0335	3,0	10,2	38,0	130	<mark>07806</mark>	<mark>07462</mark>	
0,85	0.0335	3,0	13,0	50,0	130	07807	07463	
0,86	0.0339	3,0	10,2	38,0	130	07808	07464	
0,87	0.0343	3,0	10,2	38,0	130	07809	07465	
0,88	0.0346	3,0	10,2	38,0	130	07810	07466	
0,89	0.0350	3,0	10,2	38,0	130	07811	07467	
0,90	0.0354	3,0	10,2	38,0	130	07812	07468	
0,90	0.0354	3,0	13,0	50,0	130	07813	07469	
0,91	0.0358	3,0	10,2	38,0	130	07814	07470	
0,92	0.0362	3,0	10,2	38,0	130	07815	07471	
0,93	0.0366	3,0	10,2	38,0	130	07816	07472	
0,94	0.0370	3,0	10,2	38,0	130	07817	07473	
0,95	0.0374	3,0	10,2	38,0	130	07818	07474	
0,95	0.0374	3,0	15,0	50,0	130	07819	07475	
0,96	0.0378	3,0	10,2	38,0	130	07820	07476	
0,97	0.0370	3,0	10,2	38,0	130	07821	07477 07477	
0,98	0.0386	3,0	10,2	38,0	130	07822	07478	
0,99	0.0390	3,0	10,2	38,0	130	07823	07479	
1,00	0.0394	3,0	10,2	38,0	130	07824	07473	
1,00	0.0394	3,0	15,0	50,0	130	07825	07481	
1,01	0.0398	3,0	10,2	38,0	130	07826	07482	
1,01	0.0398	3,0	10,2	38,0	130	07827	07482	
1,02	0.0402	3,0	10,2	38,0	130	07828	07483 07484	
1,03	0.0400	3,0	10,2	38,0	130	07829	0748 4 07485	
1,04	0.0403	3,0	10,2	38,0	130	07829 07830	07486	
1,05	0.0413	3,0	17,0	50,0	130	07831	07480	
1,06	0.0413	3,0	10,2	38,0	130	07832	07488	
1,00	0.0417	3,0	10,2	38,0	130	07833	07489	
1,07	0.0421	3,0	10,2	38,0	130	07834	07489	
1,08	0.0429	3,0	10,2	38,0	130	0783 4 07835	07490 07491	
1,10		3,0		38,0		07836	07491	
	0.0433		10,2		130		07492 07493	
1,10 1,11	0.0433 0.0437	3,0	17,0 10,2	50,0 38,0	130 130	07837 07838	07493 07494	
1,11	0.0437	3,0 3,0	10,2	38,0	130	07839	07494 07495	

2 Flute External Coolant



DCON

EDP NO.





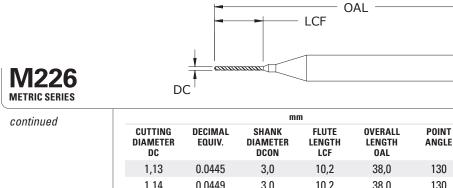












	New Expanded Tools
	TOLERANCES (mm) 0,04-3,0 DIAMETER DC = +0,000/-0,008
	DCON = h ₆
E-A	STEELS
	STAINLESS STEELS
	CAST IRON HIGH TEMP ALLOYS
	TITANIUM
	HARDENED STEELS

NON-FERROUS PLASTICS/COMPOSITES

110.	LDI			"	••••		
TI-NAMITE-A	UNCOATED	POINT ANGLE	OVERALL LENGTH OAL	FLUTE LENGTH LCF	SHANK DIAMETER DCON	DECIMAL EQUIV.	CUTTING DIAMETER DC
<mark>07496</mark>	<mark>07840</mark>	130	38,0	10,2	3,0	0.0445	1,13
<mark>07497</mark>	<mark>07841</mark>	130	38,0	10,2	3,0	0.0449	1,14
<mark>07498</mark>	<mark>07842</mark>	130	38,0	10,2	3,0	0.0453	1,15
<mark>07499</mark>	<mark>07843</mark>	130	50,0	17,0	3,0	0.0453	1,15
<mark>07500</mark>	<mark>07844</mark>	130	38,0	10,2	3,0	0.0457	1,16
<mark>07501</mark>	<mark>07845</mark>	130	38,0	10,2	3,0	0.0461	1,17
<mark>07502</mark>	<mark>07846</mark>	130	38,0	10,2	3,0	0.0465	1,18
<mark>07503</mark>	<mark>07847</mark>	130	38,0	10,2	3,0	0.0469	1,19
<mark>07504</mark>	<mark>07848</mark>	130	38,0	10,2	3,0	0.0472	1,20
<mark>07505</mark>	<mark>07849</mark>	130	50,0	17,0	3,0	0.0472	1,20
<mark>07506</mark>	<mark>07850</mark>	130	38,0	10,2	3,0	0.0476	1,21
<mark>07507</mark>	<mark>07851</mark>	130	38,0	10,2	3,0	0.0480	1,22
<mark>07508</mark>	<mark>07852</mark>	130	38,0	10,2	3,0	0.0484	1,23
<mark>07509</mark>	<mark>07853</mark>	130	38,0	10,2	3,0	0.0488	1,24
<mark>07510</mark>	<mark>07854</mark>	130	38,0	10,2	3,0	0.0492	1,25
<mark>07511</mark>	<mark>07855</mark>	130	50,0	19,0	3,0	0.0492	1,25
<mark>07512</mark>	07856	130	38,0	10,2	3,0	0.0496	1,26
<mark>07513</mark>	<mark>07857</mark>	130	38,0	10,2	3,0	0.0500	1,27
<mark>07514</mark>	07858	130	38,0	10,2	3,0	0.0504	1,28
<mark>07515</mark>	<mark>07859</mark>	130	38,0	10,2	3,0	0.0508	1,29
<mark>07516</mark>	<mark>07860</mark>	130	38,0	10,2	3,0	0.0512	1,30
<mark>07517</mark>	<mark>07861</mark>	130	50,0	19,0	3,0	0.0512	1,30
<mark>07518</mark>	<mark>07862</mark>	130	38,0	10,2	3,0	0.0516	1,31
<mark>07519</mark>	<mark>07863</mark>	130	38,0	10,2	3,0	0.0520	1,32
<mark>07520</mark>	07864	130	38,0	10,2	3,0	0.0524	1,33
<mark>07521</mark>	<mark>07865</mark>	130	38,0	10,2	3,0	0.0528	1,34
<mark>07522</mark>	<mark>07866</mark>	130	38,0	10,2	3,0	0.0531	1,35
<mark>07523</mark>	<mark>07867</mark>	130	50,0	19,0	3,0	0.0531	1,35
<mark>07524</mark>	07868	130	38,0	10,2	3,0	0.0535	1,36
<mark>07525</mark>	<mark>07869</mark>	130	38,0	10,2	3,0	0.0539	1,37
07526	<mark>07870</mark>	130	38,0	10,2	3,0	0.0543	1,38
<mark>07527</mark>	<mark>07871</mark>	130	38,0	10,2	3,0	0.0547	1,39
07528	07872	130	38,0	10,2	3,0	0.0551	1,40
07529	<mark>07873</mark>	130	50,0	19,0	3,0	0.0551	1,40
07530	07874	130	38,0	10,2	3,0	0.0555	1,41
<mark>07531</mark>	<mark>07875</mark>	130	38,0	10,2	3,0	0.0559	1,42
	continued (,-	,			•



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2 Flute External Coolant

M226 METRIC SERIES

continued

mm						EDP NO.		
CUTTING DIAMETER DC	DECIMAL EQUIV.	SHANK DIAMETER DCON	FLUTE LENGTH LCF	OVERALL LENGTH OAL	POINT ANGLE	UNCOATED	TI-NAMITE-A (AITIN)	
1,43	0.0563	3,0	10,2	38,0	130	<mark>07876</mark>	<mark>07532</mark>	
1,44	0.0567	3,0	10,2	38,0	130	<mark>07877</mark>	<mark>07533</mark>	
1,45	0.0571	3,0	10,2	38,0	130	<mark>07878</mark>	<mark>07534</mark>	
1,45	0.0571	3,0	20,0	50,0	130	<mark>07879</mark>	<mark>07535</mark>	
1,46	0.0575	3,0	10,2	38,0	130	<mark>07880</mark>	<mark>07536</mark>	
1,47	0.0579	3,0	10,2	38,0	130	<mark>07881</mark>	<mark>07537</mark>	
1,48	0.0583	3,0	10,2	38,0	130	<mark>07882</mark>	<mark>07538</mark>	
1,49	0.0587	3,0	10,2	38,0	130	<mark>07883</mark>	<mark>07539</mark>	
1,50	0.0591	3,0	10,2	38,0	130	<mark>07884</mark>	<mark>07540</mark>	
1,50	0.0591	3,0	20,0	50,0	130	<mark>07885</mark>	<mark>07541</mark>	
1,51	0.0594	3,0	10,2	38,0	130	<mark>07886</mark>	07542	
1,52	0.0598	3,0	10,2	38,0	130	<mark>07887</mark>	07543	
1,53	0.0602	3,0	10,2	38,0	130	07888	07544	
1,54	0.0606	3,0	10,2	38,0	130	07889	07545	
1,55	0.0610	3,0	10,2	38,0	130	07890	07546	
1,55	0.0610	3,0	20,0	50,0	130	07891	07547	
1,56	0.0614	3,0	10,2	38,0	130	07892	07548	
1,57	0.0618	3,0	10,2	38,0	130	07893	07549	
1,58	0.0622	3,0	10,2	38,0	130	07894	07550	
1,59	0.0626	3,0	10,2	38,0	130	07895	07551	
1,60	0.0630	3,0	10,2	38,0	130	07896	07552	
1,60	0.0630	3,0	20,0	50,0	130	07897	07552	
1,61	0.0634	3,0	10,2	38,0	130	07898	07554	
1,62	0.0638	3,0	10,2	38,0	130	07899	07555	
1,63	0.0642	3,0	10,2	38,0	130	07900	07556	
1,64	0.0646	3,0	10,2	38,0	130	07901	07557	
1,65	0.0650	3,0	10,2	38,0	130	07902	07558	
1,65	0.0650	3,0	20,0	50,0	130	07902	07559	
1,66	0.0654	3,0	10,2	38,0	130	07904	07560	
	0.0657				130	07904	07561	
1,67 1,68	0.0661	3,0 3,0	10,2 10,2	38,0 38,0	130	07905	07562	
1,69	0.0665	3,0	10,2	38,0	130	07900	07563	
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1,70	0.0669	3,0	10,2	38,0 50.0	130 130	<mark>07908</mark> 07909	07564 07565	
1,70	0.0669	3,0	20,0	50,0			07566	
1,71	0.0673	3,0	10,2	38,0	130	07910		
1,72	0.0677	3,0	10,2	38,0	130	07911	07567	
1,73	0.0681	3,0	10,2	38,0	130	07912	07568	
1,74	0.0685	3,0	10,2	38,0	130	07913	07569	
1,75	0.0689	3,0	10,2	38,0	130	07914	<mark>07570</mark>	
1,75	0.0689	3,0	20,0	50,0	130	07915	07571	
1,76	0.0693	3,0	10,2	38,0	130	07916	07572	
1,77	0.0697	3,0	10,2	38,0	130	<mark>07917</mark>	<mark>07573</mark>	
1,78	0.0701	3,0	10,2	38,0	130	<mark>07918</mark>	<mark>07574</mark>	
1,79	0.0705	3,0	10,2	38,0	130	<mark>07919</mark>	<mark>07575</mark>	
1,80	0.0709	3,0	10,2	38,0	130	07920	<mark>07576</mark>	
1,80	0.0709	3,0	20,0	50,0	130	<mark>07921</mark>	<mark>07577</mark>	

2 Flute External Coolant









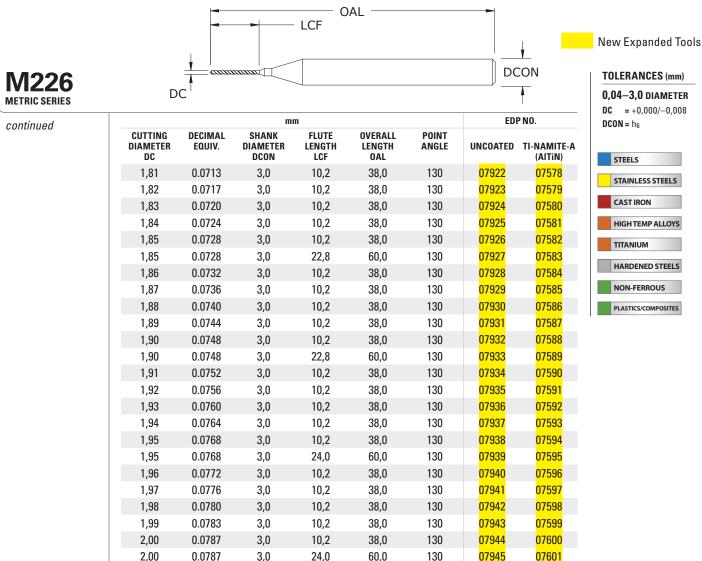












0.04-3.0 DIAMETER

DC = +0.000/-0.008

HIGH TEMP ALLOYS
TITANIIIIA

HARDENED STEELS
NON-FERROUS

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₡K90cera

2 Flute External Coolant

M226 METRIC SERIES

continued

	mm						EDP NO.		
CUTTING DIAMETER DC	DECIMAL EQUIV.	SHANK DIAMETER DCON	FLUTE LENGTH LCF	OVERALL LENGTH OAL	POINT ANGLE	UNCOATED	TI-NAMITE-A (AITIN)		
2,11	0.0831	3,0	10,2	38,0	130	<mark>07958</mark>	<mark>07614</mark>		
2,12	0.0835	3,0	10,2	38,0	130	<mark>07959</mark>	<mark>07615</mark>		
2,13	0.0839	3,0	10,2	38,0	130	<mark>07960</mark>	<mark>07616</mark>		
2,14	0.0843	3,0	10,2	38,0	130	<mark>07961</mark>	<mark>07617</mark>		
2,15	0.0846	3,0	10,2	38,0	130	<mark>07962</mark>	<mark>07618</mark>		
2,15	0.0846	3,0	26,4	60,0	130	<mark>07963</mark>	<mark>07619</mark>		
2,16	0.0850	3,0	10,2	38,0	130	<mark>07964</mark>	<mark>07620</mark>		
2,17	0.0854	3,0	10,2	38,0	130	<mark>07965</mark>	<mark>07621</mark>		
2,18	0.0858	3,0	10,2	38,0	130	<mark>07966</mark>	<mark>07622</mark>		
2,19	0.0862	3,0	10,2	38,0	130	<mark>07967</mark>	<mark>07623</mark>		
2,20	0.0866	3,0	10,2	38,0	130	07968	07624		
2,20	0.0866	3,0	26,4	60,0	130	<mark>07969</mark>	07625		
2,21	0.0870	3,0	10,2	38,0	130	07970	07626		
2,22	0.0874	3,0	10,2	38,0	130	07971	07627		
2,23	0.0878	3,0	10,2	38,0	130	07972	07628		
2,24	0.0882	3,0	10,2	38,0	130	07973	07629		
2,25	0.0886	3,0	10,2	38,0	130	07974	07630		
2,25	0.0886	3,0	27,6	60,0	130	07975	07631		
2,26	0.0890	3,0	10,2	38,0	130	07976	07632		
2,27	0.0894	3,0	10,2	38,0	130	07977	07633		
2,28	0.0898	3,0	10,2	38,0	130	07978	07634		
2,29	0.0902	3,0	10,2	38,0	130	07979	07635		
2,30	0.0906	3,0	10,2	38,0	130	07980	07636		
2,30	0.0906	3,0	27,6	60,0	130	07981	07637		
2,31	0.0909	3,0	10,2	38,0	130	07982	07638		
2,32	0.0913	3,0	10,2	38,0	130	07983	07639		
2,33	0.0917	3,0	10,2	38,0	130	07984	07640		
2,34	0.0917	3,0	10,2	38,0	130	07985	07641		
2,35	0.0921	3,0	10,2	38,0	130	07986	07642		
	0.0925				130	07987	07643		
2,35 2,36	0.0929	3,0 3,0	28,8 10,2	60,0 38,0	130	07987	07643 07644		
2,30	0.0929	3,0	10,2	38,0	130	07989	0764 4 07645		
•		•							
2,38	0.0937 0.0941	3,0	10,2	38,0	130	07990 07991	07646 07647		
2,39		3,0	10,2	38,0	130	07991 07992			
2,40	0.0945	3,0	10,2	38,0	130		07648		
2,40	0.0945	3,0	28,8	60,0	130	07993	07649		
2,41	0.0949	3,0	10,2	38,0	130	07994	07650		
2,42	0.0953	3,0	10,2	38,0	130	07995	07651		
2,43	0.0957	3,0	10,2	38,0	130	07996	07652		
2,44	0.0961	3,0	10,2	38,0	130	07997	07653		
2,45	0.0965	3,0	10,2	38,0	130	07998	07654		
2,45	0.0965	3,0	30,0	60,0	130	07999	<mark>07655</mark>		
2,46	0.0969	3,0	10,2	38,0	130	08000	<mark>07656</mark>		
2,47	0.0972	3,0	10,2	38,0	130	<mark>08001</mark>	<mark>07657</mark>		
2,48	0.0976	3,0	10,2	38,0	130	08002	07658		
2,49	0.0980	3,0	10,2	38,0	130	<mark>08003</mark>	<mark>07659</mark>		

2 Flute External Coolant











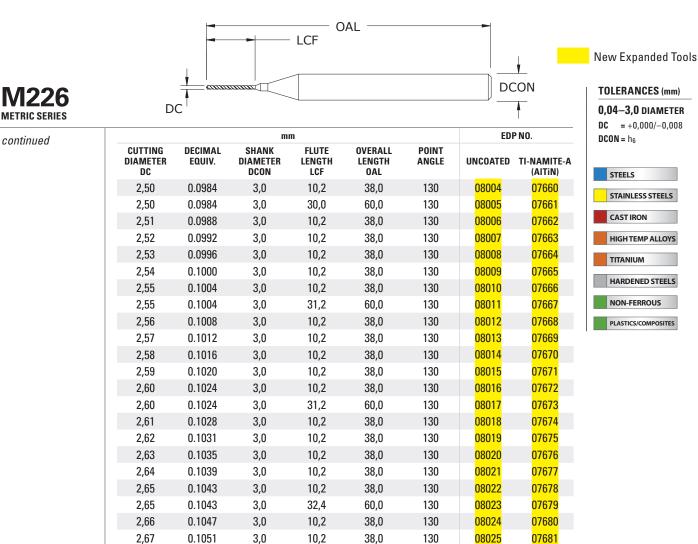












0.04-3.0 DIAMETER DC = +0.000/-0.008STAINLESS STEELS HIGH TEMP ALLOYS HARDENED STEELS

continued on next page

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₡K90cera

2 Flute External Coolant

M226 METRIC SERIES

continued

		EDP NO.					
CUTTING DIAMETER DC	DECIMAL EQUIV.	SHANK DIAMETER DCON	FLUTE LENGTH LCF	OVERALL LENGTH OAL	POINT ANGLE	UNCOATED	TI-NAMITE-A (AITIN)
2,80	0.1102	3,0	10,2	38,0	130	<mark>08040</mark>	<mark>07696</mark>
2,80	0.1102	3,0	33,6	60,0	130	<mark>08041</mark>	<mark>07697</mark>
2,81	0.1106	3,0	10,2	38,0	130	<mark>08042</mark>	<mark>07698</mark>
2,82	0.1110	3,0	10,2	38,0	130	<mark>08043</mark>	<mark>07699</mark>
2,83	0.1114	3,0	10,2	38,0	130	<mark>08044</mark>	<mark>07700</mark>
2,84	0.1118	3,0	10,2	38,0	130	<mark>08045</mark>	<mark>07701</mark>
2,85	0.1122	3,0	10,2	38,0	130	<mark>08046</mark>	<mark>07702</mark>
2,85	0.1122	3,0	34,8	60,0	130	<mark>08047</mark>	<mark>07703</mark>
2,86	0.1126	3,0	10,2	38,0	130	<mark>08048</mark>	<mark>07704</mark>
2,87	0.1130	3,0	10,2	38,0	130	<mark>08049</mark>	<mark>07705</mark>
2,88	0.1134	3,0	10,2	38,0	130	<mark>08050</mark>	<mark>07706</mark>
2,89	0.1138	3,0	10,2	38,0	130	<mark>08051</mark>	<mark>07707</mark>
2,90	0.1142	3,0	10,2	38,0	130	<mark>08052</mark>	<mark>07708</mark>
2,90	0.1142	3,0	34,8	60,0	130	<mark>08053</mark>	<mark>07709</mark>
2,91	0.1146	3,0	10,2	38,0	130	<mark>08054</mark>	<mark>07710</mark>
2,92	0.1150	3,0	10,2	38,0	130	<mark>08055</mark>	<mark>07711</mark>
2,93	0.1154	3,0	10,2	38,0	130	<mark>08056</mark>	<mark>07712</mark>
2,94	0.1157	3,0	10,2	38,0	130	<mark>08057</mark>	<mark>07713</mark>
2,95	0.1161	3,0	10,2	38,0	130	<mark>08058</mark>	<mark>07714</mark>
2,95	0.1161	3,0	36,0	60,0	130	<mark>08059</mark>	<mark>07715</mark>
2,96	0.1165	3,0	10,2	38,0	130	<mark>08060</mark>	<mark>07716</mark>
2,97	0.1169	3,0	10,2	38,0	130	<mark>08061</mark>	<mark>07717</mark>
2,98	0.1173	3,0	10,2	38,0	130	<mark>08062</mark>	<mark>07718</mark>
2,99	0.1177	3,0	10,2	38,0	130	<mark>08063</mark>	<mark>07719</mark>
3,00	0.1181	3,0	10,2	38,0	130	<mark>08064</mark>	<mark>07720</mark>
3,00	0.1181	3,0	36,0	60,0	130	<mark>08065</mark>	<mark>07721</mark>

2 Flute Left Hand Cut External Coolant























- 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

LCF	OAL	
DC		DCON

mm							EDP NO.		
CUTTING DIAMETER DC	DECIMAL EQUIV.	SHANK DIAMETER DCON	FLUTE LENGTH LCF	OVERALL LENGTH OAL	POINT ANGLE	UNCOATED	TI-NAMITE-A (AITIN)		
0,04	0.0016	3,0	0,5	38,0	118	<mark>08228</mark>	_		
0,05	0.0020	3,0	0,8	38,0	118	<mark>08229</mark>	_		
0,06	0.0024	3,0	0,8	38,0	118	<mark>08230</mark>	-		
0,07	0.0028	3,0	1,3	38,0	118	<mark>08231</mark>	_		
0,08	0.0031	3,0	1,3	38,0	118	<mark>08232</mark>	-		
0,09	0.0035	3,0	1,3	38,0	118	<mark>08233</mark>	-		
0,10	0.0039	3,0	1,0	38,0	118	<mark>08234</mark>	-		
0,11	0.0043	3,0	1,0	38,0	118	<mark>08235</mark>	_		
0,12	0.0047	3,0	1,0	38,0	118	<mark>08236</mark>	-		
0,13	0.0051	3,0	1,0	38,0	118	<mark>08237</mark>	_		
0,14	0.0055	3,0	2,0	38,0	118	<mark>08238</mark>	-		
0,15	0.0059	3,0	2,0	38,0	118	<mark>08239</mark>	_		
0,16	0.0063	3,0	2,0	38,0	118	<mark>08240</mark>	_		
0,17	0.0067	3,0	2,0	38,0	118	<mark>08241</mark>	_		
0,18	0.0071	3,0	2,5	38,0	118	<mark>08242</mark>	-		
0,19	0.0075	3,0	2,5	38,0	118	<mark>08243</mark>	_		
0,20	0.0079	3,0	2,5	38,0	118	<mark>08244</mark>	_		
0,21	0.0083	3,0	2,5	38,0	118	<mark>08245</mark>	_		
0,22	0.0087	3,0	2,5	38,0	118	<mark>08246</mark>	_		
0,23	0.0091	3,0	3,8	38,0	118	<mark>08247</mark>	_		
0,24	0.0094	3,0	3,8	38,0	118	<mark>08248</mark>	_		
0,25	0.0098	3,0	3,8	38,0	118	<mark>08249</mark>	<mark>08066</mark>		
0,26	0.0102	3,0	3,8	38,0	118	<mark>08250</mark>	<mark>08067</mark>		
0,27	0.0106	3,0	3,8	38,0	118	<mark>08251</mark>	<mark>08068</mark>		
0,28	0.0110	3,0	3,8	38,0	118	<mark>08252</mark>	08069		
0,29	0.0114	3,0	3,8	38,0	118	<mark>08253</mark>	<mark>08070</mark>		
0,30	0.0118	3,0	5,7	38,0	118	<mark>08254</mark>	<mark>08071</mark>		
0,31	0.0122	3,0	5,7	38,0	118	<mark>08255</mark>	<mark>08072</mark>		
0,32	0.0126	3,0	5,7	38,0	118	08256	<mark>08073</mark>		
0,33	0.0130	3,0	5,7	38,0	118	<mark>08257</mark>	<mark>08074</mark>		
0,34	0.0134	3,0	5,7	38,0	118	<mark>08258</mark>	<mark>08075</mark>		
0,35	0.0138	3,0	5,7	38,0	130	<mark>08259</mark>	<mark>08076</mark>		
0,36	0.0142	3,0	5,7	38,0	130	<mark>08260</mark>	<mark>08077</mark>		
0,37	0.0146	3,0	5,7	38,0	130	<mark>08261</mark>	<mark>08078</mark>		
0,38	0.0150	3,0	6,4	38,0	130	08262	<mark>08079</mark>		
0,39	0.0154	3,0	6,4	38,0	130	08263	08080		
•		•	•	•		continued	on next page		





₡Kyocera

L226
METRIC SERIES

continued

NO.	EDP		mm							
TI-NAMITE-A	UNCOATED	POINT ANGLE	OVERALL LENGTH OAL	FLUTE LENGTH LCF	SHANK DIAMETER DCON	DECIMAL EQUIV.	CUTTING DIAMETER DC			
<mark>08081</mark>	<mark>08264</mark>	130	38,0	6,4	3,0	0.0157	0,40			
<mark>08082</mark>	<mark>08265</mark>	130	38,0	6,4	3,0	0.0161	0,41			
<mark>08083</mark>	<mark>08266</mark>	130	38,0	6,4	3,0	0.0165	0,42			
<mark>08084</mark>	<mark>08267</mark>	130	38,0	6,4	3,0	0.0169	0,43			
<mark>08085</mark>	<mark>08268</mark>	130	38,0	6,4	3,0	0.0173	0,44			
<mark>08086</mark>	<mark>08269</mark>	130	38,0	6,4	3,0	0.0177	0,45			
<mark>08087</mark>	<mark>08270</mark>	130	38,0	6,4	3,0	0.0181	0,46			
<mark>08088</mark>	<mark>08271</mark>	130	38,0	6,4	3,0	0.0185	0,47			
<mark>08089</mark>	<mark>08272</mark>	130	38,0	6,6	3,0	0.0189	0,48			
<mark>08090</mark>	<mark>08273</mark>	130	38,0	6,6	3,0	0.0193	0,49			
<mark>08091</mark>	<mark>08274</mark>	130	38,0	6,6	3,0	0.0197	0,50			
<mark>08092</mark>	<mark>08275</mark>	130	38,0	6,6	3,0	0.0201	0,51			
<mark>08093</mark>	<mark>08276</mark>	130	38,0	6,6	3,0	0.0205	0,52			
<mark>08094</mark>	<mark>08277</mark>	130	38,0	6,6	3,0	0.0209	0,53			
<mark>08095</mark>	<mark>08278</mark>	130	38,0	6,6	3,0	0.0213	0,54			
<mark>08096</mark>	<mark>08279</mark>	130	38,0	8,6	3,0	0.0217	0,55			
<mark>08097</mark>	<mark>08280</mark>	130	38,0	8,6	3,0	0.0220	0,56			
<mark>08098</mark>	<mark>08281</mark>	130	38,0	8,6	3,0	0.0224	0,57			
<mark>08099</mark>	<mark>08282</mark>	130	38,0	8,6	3,0	0.0228	0,58			
<mark>08100</mark>	<mark>08283</mark>	130	38,0	8,6	3,0	0.0232	0,59			
<mark>08101</mark>	<mark>08284</mark>	130	38,0	8,6	3,0	0.0236	0,60			
<mark>08102</mark>	<mark>08285</mark>	130	38,0	8,6	3,0	0.0240	0,61			
<mark>08103</mark>	<mark>08286</mark>	130	38,0	8,6	3,0	0.0244	0,62			
<mark>08104</mark>	<mark>08287</mark>	130	38,0	8,6	3,0	0.0248	0,63			
<mark>08105</mark>	<mark>08288</mark>	130	38,0	8,6	3,0	0.0252	0,64			
<mark>08106</mark>	<mark>08289</mark>	130	38,0	8,6	3,0	0.0256	0,65			
<mark>08107</mark>	<mark>08290</mark>	130	38,0	8,6	3,0	0.0260	0,66			
<mark>08108</mark>	<mark>08291</mark>	130	38,0	8,6	3,0	0.0264	0,67			
<mark>08109</mark>	<mark>08292</mark>	130	38,0	8,6	3,0	0.0268	0,68			
<mark>08110</mark>	<mark>08293</mark>	130	38,0	8,6	3,0	0.0272	0,69			
<mark>08111</mark>	<mark>08294</mark>	130	38,0	10,2	3,0	0.0276	0,70			
<mark>08112</mark>	<mark>08295</mark>	130	38,0	10,2	3,0	0.0280	0,71			
<mark>08113</mark>	<mark>08296</mark>	130	38,0	10,2	3,0	0.0283	0,72			
<mark>08114</mark>	<mark>08297</mark>	130	38,0	10,2	3,0	0.0287	0,73			
<mark>08115</mark>	<mark>08298</mark>	130	38,0	10,2	3,0	0.0291	0,74			
<mark>08116</mark>	<mark>08299</mark>	130	38,0	10,2	3,0	0.0295	0,75			
<mark>08117</mark>	<mark>08300</mark>	130	50,0	11,0	3,0	0.0295	0,75			
<mark>08118</mark>	<mark>08301</mark>	130	38,0	10,2	3,0	0.0299	0,76			
<mark>08119</mark>	<mark>08302</mark>	130	38,0	10,2	3,0	0.0303	0,77			
<mark>08120</mark>	<mark>08303</mark>	130	38,0	10,2	3,0	0.0307	0,78			
<mark>08121</mark>	<mark>08304</mark>	130	38,0	10,2	3,0	0.0311	0,79			
08122	<mark>08305</mark>	130	38,0	10,2	3,0	0.0315	0,80			
08123	08306	130	50,0	11,0	3,0	0.0315	0,80			
08124	08307	130	38,0	10,2	3,0	0.0319	0,81			
08125	08308	130	38,0	10,2	3,0	0.0323	0,82			
08126	08309	130	38,0	10,2	3,0	0.0327	0,83			







METRIC SERIES

continued





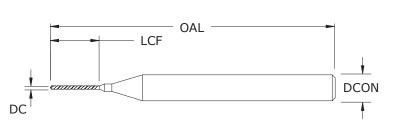












New Expanded Tools

TOLERANCES (mm)

0,04-3,0 DIAMETER
DC = +0,000/-0,008
DCON = h₆

STEELS

STAINLESS STEELS

CAST IRON

HIGHTEMP ALLOYS

TITANIUM

HARDENED STEELS

NON-FERROUS

PLASTICS/COMPOSITES

		mı	m			EDP NO.		
CUTTING DIAMETER DC	DECIMAL EQUIV.	SHANK DIAMETER DCON	FLUTE LENGTH LCF	OVERALL LENGTH OAL	POINT ANGLE	UNCOATED	TI-NAMITE-A (AITiN)	
0,84	0.0331	3,0	10,2	38,0	130	<mark>08310</mark>	<mark>08127</mark>	
0,85	0.0335	3,0	10,2	38,0	130	<mark>08311</mark>	<mark>08128</mark>	
0,85	0.0335	3,0	13,0	50,0	130	<mark>08312</mark>	<mark>08129</mark>	
0,86	0.0339	3,0	10,2	38,0	130	<mark>08313</mark>	<mark>08130</mark>	
0,87	0.0343	3,0	10,2	38,0	130	<mark>08314</mark>	<mark>08131</mark>	
0,88	0.0346	3,0	10,2	38,0	130	<mark>08315</mark>	<mark>08132</mark>	
0,89	0.0350	3,0	10,2	38,0	130	<mark>08316</mark>	<mark>08133</mark>	
0,90	0.0354	3,0	10,2	38,0	130	<mark>08317</mark>	<mark>08134</mark>	
0,90	0.0354	3,0	13,0	50,0	130	<mark>08318</mark>	<mark>08135</mark>	
0,91	0.0358	3,0	10,2	38,0	130	<mark>08319</mark>	<mark>08136</mark>	
0,92	0.0362	3,0	10,2	38,0	130	<mark>08320</mark>	<mark>08137</mark>	
0,93	0.0366	3,0	10,2	38,0	130	<mark>08321</mark>	<mark>08138</mark>	
0,94	0.0370	3,0	10,2	38,0	130	<mark>08322</mark>	<mark>08139</mark>	
0,95	0.0374	3,0	10,2	38,0	130	<mark>08323</mark>	<mark>08140</mark>	
0,95	0.0374	3,0	15,0	50,0	130	<mark>08324</mark>	<mark>08141</mark>	
0,96	0.0378	3,0	10,2	38,0	130	<mark>08325</mark>	<mark>08142</mark>	
0,97	0.0382	3,0	10,2	38,0	130	<mark>08326</mark>	<mark>08143</mark>	
0,98	0.0386	3,0	10,2	38,0	130	<mark>08327</mark>	<mark>08144</mark>	
0,99	0.0390	3,0	10,2	38,0	130	<mark>08328</mark>	<mark>08145</mark>	
1,00	0.0394	3,0	10,2	38,0	130	<mark>08329</mark>	<mark>08146</mark>	
1,00	0.0394	3,0	15,0	50,0	130	<mark>08330</mark>	<mark>08147</mark>	
1,05	0.0413	3,0	10,2	38,0	130	<mark>08331</mark>	<mark>08148</mark>	
1,05	0.0413	3,0	17,0	50,0	130	<mark>08332</mark>	<mark>08149</mark>	
1,10	0.0433	3,0	10,2	38,0	130	<mark>08333</mark>	<mark>08150</mark>	
1,10	0.0433	3,0	17,0	50,0	130	<mark>08334</mark>	<mark>08151</mark>	
1,15	0.0453	3,0	10,2	38,0	130	<mark>08335</mark>	<mark>08152</mark>	
1,15	0.0453	3,0	17,0	50,0	130	<mark>08336</mark>	<mark>08153</mark>	
1,20	0.0472	3,0	10,2	38,0	130	<mark>08337</mark>	<mark>08154</mark>	
1,20	0.0472	3,0	17,0	50,0	130	<mark>08338</mark>	<mark>08155</mark>	
1,25	0.0492	3,0	10,2	38,0	130	<mark>08339</mark>	<mark>08156</mark>	
1,25	0.0492	3,0	19,0	50,0	130	<mark>08340</mark>	<mark>08157</mark>	
1,30	0.0512	3,0	10,2	38,0	130	<mark>08341</mark>	<mark>08158</mark>	
1,30	0.0512	3,0	19,0	50,0	130	<mark>08342</mark>	<mark>08159</mark>	
1,35	0.0531	3,0	10,2	38,0	130	<mark>08343</mark>	<mark>08160</mark>	
1,35	0.0531	3,0	19,0	50,0	130	<mark>08344</mark>	<mark>08161</mark>	
1,40	0.0551	3,0	10,2	38,0	130	<mark>08345</mark>	<mark>08162</mark>	

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₡K90cera

L226
METRIC SERIES

continued

		m		01/55 411		EDP NO.		
CUTTING DIAMETER DC	DECIMAL EQUIV.	SHANK DIAMETER DCON	FLUTE LENGTH LCF	OVERALL LENGTH OAL	POINT ANGLE	UNCOATED	TI-NAMITE-A	
1,40	0.0551	3,0	19,0	50,0	130	<mark>08346</mark>	<mark>08163</mark>	
1,45	0.0571	3,0	10,2	38,0	130	<mark>08347</mark>	<mark>08164</mark>	
1,45	0.0571	3,0	20,0	50,0	130	<mark>08348</mark>	<mark>08165</mark>	
1,50	0.0591	3,0	10,2	38,0	130	<mark>08349</mark>	<mark>08166</mark>	
1,50	0.0591	3,0	20,0	50,0	130	<mark>08350</mark>	<mark>08167</mark>	
1,55	0.0610	3,0	10,2	38,0	130	<mark>08351</mark>	<mark>08168</mark>	
1,55	0.0610	3,0	20,0	50,0	130	<mark>08352</mark>	<mark>08169</mark>	
1,60	0.0630	3,0	10,2	38,0	130	<mark>08353</mark>	<mark>08170</mark>	
1,60	0.0630	3,0	20,0	50,0	130	<mark>08354</mark>	<mark>08171</mark>	
1,65	0.0650	3,0	10,2	38,0	130	<mark>08355</mark>	<mark>08172</mark>	
1,65	0.0650	3,0	20,0	50,0	130	<mark>08356</mark>	<mark>08173</mark>	
1,70	0.0669	3,0	10,2	38,0	130	<mark>08357</mark>	<mark>08174</mark>	
1,70	0.0669	3,0	20,0	50,0	130	<mark>08358</mark>	<mark>08175</mark>	
1,75	0.0689	3,0	10,2	38,0	130	<mark>08359</mark>	<mark>08176</mark>	
1,75	0.0689	3,0	20,0	50,0	130	<mark>08360</mark>	<mark>08177</mark>	
1,80	0.0709	3,0	10,2	38,0	130	<mark>08361</mark>	<mark>08178</mark>	
1,80	0.0709	3,0	20,0	50,0	130	08362	<mark>08179</mark>	
1,85	0.0728	3,0	10,2	38,0	130	08363	<mark>08180</mark>	
1,85	0.0728	3,0	22,8	60,0	130	08364	<mark>08181</mark>	
1,90	0.0748	3,0	10,2	38,0	130	08365	<mark>08182</mark>	
1,90	0.0748	3,0	22,8	60,0	130	08366	08183	
1,95	0.0768	3,0	10,2	38,0	130	08367	08184	
1,95	0.0768	3,0	23,4	60,0	130	08368	08185	
2,00	0.0787	3,0	10,2	38,0	130	08369	<mark>08186</mark>	
2,00	0.0787	3,0	24,0	60,0	130	08370	08187	
2,05	0.0807	3,0	10,2	38,0	130	08371	08188	
2,05	0.0807	3,0	25,2	60,0	130	08372	08189	
2,10	0.0827	3,0	10,2	38,0	130	08373	08190	
2,10	0.0827	3,0	25,2	60,0	130	08374	08191	
2,15	0.0846	3,0	10,2	38,0	130	08375	08192	
2,15	0.0846	3,0	26,4	60,0	130	08376	08193	
2,20	0.0866	3,0	10,2	38,0	130	08377	08194	
2,20	0.0866	3,0	26,4	60,0	130	08378	08195	
2,25	0.0886	3,0	10,2	38,0	130	08379	08196	
2,25	0.0886	3,0	27,6	60,0	130	08380	08197	
2,30	0.0906	3,0	10,2	38,0	130	08381	08198	
2,30	0.0906	3,0	27,6	60,0	130	08382	08199	
2,35	0.0925	3,0	10,2	38,0	130	08383	08200	
2,35	0.0925	3,0	28,8	60,0	130	08384	08201	
2,40	0.0945	3,0	10,2	38,0	130	08385	08201	
2,40	0.0945	3,0	28,8	60,0	130	08386	08202	
2,40	0.0945	3,0	10,2	38,0	130	08387	08203	
2,45	0.0965	3,0	30,0	60,0	130	08388	08204	
2,45	0.0984	3,0	10,2	38,0	130	08389	08205	
2,50	0.0984	3,0	30,0	60,0	130	08390	08200	
2,50	0.0984	3,0	10,2	38,0	130	08390 08391	08207	







continued





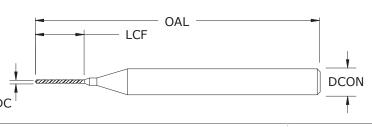












		mı	n			EDF	P NO.
CUTTING DIAMETER DC	DECIMAL EQUIV.	SHANK DIAMETER DCON	FLUTE LENGTH LCF	OVERALL LENGTH OAL	POINT ANGLE	UNCOATED	TI-NAMITE-A (AITIN)
2,55	0.1004	3,0	31,2	60,0	130	<mark>08392</mark>	<mark>08209</mark>
2,60	0.1024	3,0	10,2	38,0	130	<mark>08393</mark>	<mark>08210</mark>
2,60	0.1024	3,0	31,2	60,0	130	<mark>08394</mark>	<mark>08211</mark>
2,65	0.1043	3,0	10,2	38,0	130	<mark>08395</mark>	<mark>08212</mark>
2,65	0.1043	3,0	32,4	60,0	130	<mark>08396</mark>	<mark>08213</mark>
2,70	0.1063	3,0	10,2	38,0	130	<mark>08397</mark>	<mark>08214</mark>
2,70	0.1063	3,0	32,4	60,0	130	<mark>08398</mark>	<mark>08215</mark>
2,75	0.1083	3,0	10,2	38,0	130	<mark>08399</mark>	<mark>08216</mark>
2,75	0.1083	3,0	33,6	60,0	130	<mark>08400</mark>	<mark>08217</mark>
2,80	0.1102	3,0	10,2	38,0	130	<mark>08401</mark>	<mark>08218</mark>
2,80	0.1102	3,0	33,6	60,0	130	<mark>08402</mark>	<mark>08219</mark>
2,85	0.1122	3,0	10,2	38,0	130	<mark>08403</mark>	<mark>08220</mark>
2,85	0.1122	3,0	34,8	60,0	130	<mark>08404</mark>	<mark>08221</mark>
2,90	0.1142	3,0	10,2	38,0	130	<mark>08405</mark>	<mark>08222</mark>
2,90	0.1142	3,0	34,8	60,0	130	<mark>08406</mark>	<mark>08223</mark>
2,95	0.1161	3,0	10,2	38,0	130	<mark>08407</mark>	<mark>08224</mark>
2,95	0.1161	3,0	36,0	60,0	130	<mark>08408</mark>	<mark>08225</mark>
3,00	0.1181	3,0	10,2	38,0	130	<mark>08409</mark>	<mark>08226</mark>
3,00	0.1181	3,0	36,0	60,0	130	08410	<mark>08227</mark>

TOLERANCES (mm)

0,04-3,0 DIAMETER
DC = +0,000/-0,008
DCON = h6

STEELS

STAINLESS STEELS

New Expanded Tools

STEELS
STAINLESS STEELS
CAST IRON
HIGH TEMP ALLOYS
TITANIUM
TITANIUM
TITANIUM HARDENED STEELS
HARDENED STEELS
HARDENED STEELS

Series M226 • L226

			Vc		DC • mm					
	Series M226 • L226	Hardness	(m/min)		0.04	0.25	0.5	1	2	3
	CARBON STEELS	≤ 175 Bhn		RPM	315060	50410	25205	12602	6301	4201
	1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	or ≤ 7 HRc	40 (32-48)	Fz	0.001	0.007	0.014	0.029	0.058	0.086
Р	1140, 1212, 12115, 1525, 1550	≥ / HNC		Feed (mm/min)	363	363	363	363	363	363
	ALLOY STEELS	≤ 275 Bhn		RPM	472590	75614	37807	18904	9452	6301
	4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100	or ≤ 28 HRc	59 (48-71)	Fz	0.001	0.007	0.013	0.026	0.052	0.078
	3130, 8030, 80L20, 30100			Feed (mm/min)	493	493	493	493	493	493
	TOOL STEELS	≤ 475 Bhn		RPM	193883	31021	15511	7755	3878	2585
Н	A2, D2, H13, L2, M2,	or ≤ 50 HRc	24 (20-29)	Fz	0.001	0.003	0.007	0.013	0.026	0.039
	P20, S7, T15, W2	≥ 30 mmc		Feed (mm/min)	102	102	102	102	102	102
		≤ 220 Bhn		RPM	678591	108575	54287	27144	13572	9048
K	CAST IRONS Gray, Malleable, Ductile	or	85 (68-102)	Fz	0.001	0.004	0.008	0.016	0.033	0.049
	·	≤ 19 HRc		Feed (mm/min)	445	445	445	445	445	445
	STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 Bhn or ≤ 28 HRc		RPM	157530	25205	12602	6301	3151	2100
			20 (16-24)	Fz	0.001	0.005	0.011	0.022	0.044	0.065
М				Feed (mm/min)	137	137	137	137	137	137
141	STAINLESS STEELS (DIFFICULT) 304, 316, 321, 13-8 PH, 15-5PH, 17-4 PH, CUSTOM 450	≤ 32 5 Bhn		RPM	96942	15511	7755	3878	1939	1293
		or ≤ 35 HRc	12 (10-15)	Fz	0.001	0.004	0.009	0.018	0.035	0.053
		2 33 HHC		Feed (mm/min)	69	69	69	69	69	69
	SUPER ALLOYS (NICKEL, COBALT, IRON BASE)	≤ 320 Bhn		RPM	121177	19388	9694	4847	2424	1616
	Inconel 601, 617, 625, Incoloy 800, Monel 400, Rene,	or ≤ 34 HRc	15 (12-18)	Fz	0.000	0.003	0.006	0.011	0.022	0.033
S	Waspaloy			Feed (mm/min)	53	53	53	53	53	53
3	TITANIUM ALLOYS	≤ 350 Bhn		RPM	121177	19388	9694	4847	2424	1616
	Pure Titanium, Ti6Al4V, Ti6Al2Sn4Zr2Mo,	or ≤ 38 HRc	15 (12-18)	Fz	0.001	0.004	0.008	0.017	0.034	0.051
	Ti4Al4Mo2Sn0.5Si	≥ 30 HHC		Feed (mm/min)	82	82	82	82	82	82
		≤ 150 Bhn		RPM	593768	95003	47501	23751	11875	7917
	ALUMINUM ALLOYS 2017, 2024, 356, 6061, 7075	or ≤ 7 HRc	75 (60-90)	Fz	0.002	0.012	0.025	0.049	0.099	0.148
		2 / IIIIC		Feed (mm/min)	1171	1171	1171	1171	1171	1171
	COPPER ALLOYS	≤ 140 Bhn		RPM	436237	69798	34899	17449	8725	5816
N	Alum Bronze, C110, Muntz Brass	or ≤ 3 HRc	55 (44-66)	Fz	0.002	0.012	0.025	0.049	0.099	0.148
	Digos	≥ 3 HHC		Feed (mm/min)	861	861	861	861	861	861
				RPM	593768	95003	47501	23751	11875	7917
	PLASTICS Polycarbonate, PVC		75 (60-90)	Fz	0.002	0.012	0.025	0.049	0.099	0.148
				Feed (mm/min)	1171	1171	1171	1171	1171	1171

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® or sgsmicrotools.com for complete technical information

2 Flute Internal Coolant



EDD NO







15xD









M814 METRIC SERIES

- 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 highperformance coating and mirror polished fluting increase tool life and productivity in moderateto-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

LCF	OAL —
LU LU	
	DCON
DC	

mm								
TTING Meter DC	DECIMAL EQUIVALENT	SHANK DIAMETER DCON	FLUTE Length LCF	CLEARED LENGTH LU	OVERALL LENGTH OAL	TI-NAMITE-CF (AICrN)		
1,0	0.0394	4,0	13,3	8,0	53,0	<mark>06000</mark>		
1,1	0.0433	4,0	14,1	8,8	53,0	<mark>06001</mark>		
1,2	0.0472	4,0	14,9	9,6	53,0	<mark>06002</mark>		
1,3	0.0512	4,0	15,7	10,4	53,0	<mark>06003</mark>		
1,4	0.0551	4,0	16,5	11,2	53,0	<mark>06004</mark>		
1,5	0.0591	4,0	17,3	12,0	53,0	<mark>06005</mark>		
1,6	0.0630	4,0	18,1	12,8	64,0	<mark>06006</mark>		
1,7	0.0669	4,0	18,9	13,6	64,0	<mark>06007</mark>		
1,8	0.0709	4,0	20,4	14,4	64,0	<mark>06008</mark>		
1,9	0.0748	4,0	21,2	15,2	64,0	<mark>06009</mark>		
2,0	0.0787	4,0	22,0	16,0	64,0	<mark>06010</mark>		
2,1	0.0827	4,0	22,8	16,8	64,0	<mark>06011</mark>		
2,2	0.0866	4,0	25,7	17,6	64,0	<mark>06012</mark>		
2,3	0.0906	4,0	26,5	18,4	64,0	<mark>06013</mark>		
2,4	0.0945	4,0	27,3	19,2	64,0	<mark>06014</mark>		
2,5	0.0984	4,0	28,1	20,0	64,0	<mark>06015</mark>		
2,6	0.1024	4,0	28,9	20,8	76,0	<mark>06016</mark>		
2,7	0.1063	4,0	29,7	21,6	76,0	<mark>06017</mark>		
2,8	0.1102	4,0	30,5	22,4	76,0	<mark>06018</mark>		
2,9	0.1142	4,0	32,2	23,2	76,0	<mark>06019</mark>		
3,0	0.1181	4,0	33,0	24,0	76,0	<mark>06020</mark>		
3,1	0.1220	4,0	33,8	24,8	76,0	<mark>06021</mark>		
3,2	0.1260	4,0	34,6	25,6	76,0	<mark>06022</mark>		
3,3	0.1299	4,0	35,4	26,4	76,0	<mark>06023</mark>		
3,4	0.1339	4,0	38,1	27,2	76,0	<mark>06024</mark>		
3,5	0.1378	4,0	38,9	28,0	76,0	<mark>06025</mark>		
3,6	0.1417	4,0	39,7	28,8	76,0	<mark>06026</mark>		
3,7	0.1457	4,0	40,5	29,6	76,0	<mark>06027</mark>		
3,8	0.1496	4,0	41,3	30,4	76,0	<mark>06028</mark>		
3,9	0.1535	4,0	42,1	31,2	76,0	<mark>06029</mark>		
4,0	0.1575	4,0	42,9	32,0	76,0	<mark>06030</mark>		
1,0	0.0394	4,0	20,3	15,0	64,0	<mark>06031</mark>		
1,1	0.0433	4,0	21,8	16,5	64,0	<mark>06032</mark>		
1,2	0.0472	4,0	23,3	18,0	64,0	<mark>06033</mark>		

TOLERANCES (mm)

New Expanded Tools

1,0-4,0 DIAMETER DC = +0,000/-0,008 **DCON** = h₆

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

continued on next page



₡K90cera

2 Flute Internal Coolant

M814 METRIC SERIES

continued

		mı	m			EDP NO.
CUTTING DIAMETER DC	DECIMAL EQUIVALENT	SHANK DIAMETER DCON	FLUTE LENGTH LCF	CLEARED LENGTH LU	OVERALL LENGTH OAL	TI-NAMITE-CI (AICrN)
1,3	0.0512	4,0	24,8	19,5	64,0	<mark>06034</mark>
1,4	0.0551	4,0	26,3	21,0	64,0	<mark>06035</mark>
1,5	0.0591	4,0	27,8	22,5	64,0	<mark>06036</mark>
1,6	0.0630	4,0	29,3	24,0	81,0	<mark>06037</mark>
1,7	0.0669	4,0	30,8	25,5	81,0	<mark>06038</mark>
1,8	0.0709	4,0	33,0	27,0	81,0	<mark>06039</mark>
1,9	0.0748	4,0	34,5	28,5	81,0	<mark>06040</mark>
2,0	0.0787	4,0	36,0	30,0	81,0	<mark>06041</mark>
2,1	0.0827	4,0	37,5	31,5	81,0	<mark>06042</mark>
2,2	0.0866	4,0	41,1	33,0	81,0	<mark>06043</mark>
2,3	0.0906	4,0	42,6	34,5	81,0	<mark>06044</mark>
2,4	0.0945	4,0	44,1	36,0	81,0	<mark>06045</mark>
2,5	0.0984	4,0	45,6	37,5	90,0	<mark>06046</mark>
2,6	0.1024	4,0	47,1	39,0	90,0	<mark>06047</mark>
2,7	0.1063	4,0	48,6	40,5	90,0	<mark>06048</mark>
2,8	0.1102	4,0	50,1	42,0	90,0	<mark>06049</mark>
2,9	0.1142	4,0	52,5	43,5	90,0	<mark>06050</mark>
3,0	0.1181	4,0	54,0	45,0	90,0	<mark>06051</mark>
3,1	0.1220	4,0	55,5	46,5	106,0	<mark>06052</mark>
3,2	0.1260	4,0	57,0	48,0	106,0	<mark>06053</mark>
3,3	0.1299	4,0	58,5	49,5	106,0	<mark>06054</mark>
3,4	0.1339	4,0	61,9	51,0	106,0	<mark>06055</mark>
3,5	0.1378	4,0	63,4	52,5	106,0	<mark>06056</mark>
3,6	0.1417	4,0	64,9	54,0	106,0	<mark>06057</mark>
3,7	0.1457	4,0	66,4	55,5	106,0	<mark>06058</mark>
3,8	0.1496	4,0	67,9	57,0	106,0	<mark>06059</mark>
3,9	0.1535	4,0	69,4	58,6	106,0	<mark>06060</mark>
4,0	0.1575	4,0	70,9	60,0	106,0	<mark>06061</mark>

Series M814 8xD

			Vc		DC • mm			
	Series M814 8xD	Hardness	(m/min)		1	2	3	4
	CARBON STEELS	≤ 175 Bhn		RPM	39746	19873	13249	9937
	1018, 1040, 1080, 1090, 10L50,	or ≤ 7 HRc	125 (100-150)	Fz	0.0229	0.0458	0.0686	0.0915
Р	1140, 1212, 12L15, 1525, 1536	≤ / ⊓nc		Feed (mm/min)	909	909	909	909
Ĺ	ALLOY STEELS	≤ 275 Bhn		RPM	30052	15026	10017	7513
	4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100	or ≤ 28 HRc	94 (76-113)	Fz	0.0216	0.0431	0.0647	0.0862
	3130, 3330, 33120, 30100	≥ 20 HHC		Feed (mm/min)	648	648	648	648
	TOOL STEELS	≤ 475 Bhn		RPM	14541	7271	4847	3635
Н	A2, D2, H13, L2, M2, P20, S7, T15, W2	or ≤ 50 HRc	46 (37-55)	Fz	0.0101	0.0203	0.0304	0.0405
		≥ 30 HHC	(= ==,	Feed (mm/min)	147	147	147	147
	CAST IRONS Gray, Malleable, Ductile	≤ 220 Bhn	110 (88-132)	RPM	34899	17449	11633	8725
К		or ≤ 19 HRc		Fz	0.0318	0.0636	0.0954	0.1272
				Feed (mm/min)	1110	1110	1110	1110
	STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 Bhn		RPM	17449	8725	5816	4362
М		or ≤ 28 HRc	55 (44-66)	Fz	0.0178	0.0355	0.0533	0.0710
		≤ 20 HNC		Feed (mm/min)	310	310	310	310
IVI	STAINLESS STEELS (DIFFICULT) 304, 316, 321, 13-8 PH, 15-5PH,	≤ 325 Bhn or ≤ 35 HRc	38 (30-46)	RPM	12118	6059	4039	3029
				Fz	0.0140	0.0281	0.0421	0.0562
	17-4 PH, CUSTOM 450			Feed (mm/min)	170	170	170	170
	SUPER ALLOYS	≤ 320 Bhn		RPM	8725	4362	2908	2181
	(NICKEL, COBALT, IRON BASE) Inconel 601, 617, 625, Incoloy 800,	or ≤ 34 HRc	27 (22-33)	Fz	0.0096	0.0192	0.0288	0.0384
S	Monel 400, Rene, Waspaloy	≥ 34 rmc		Feed (mm/min)	84	84	84	84
3	TITANIUM ALLOYS	≤ 350 Bhn		RPM	14541	7271	4847	3635
	Pure Titanium, Ti6Al4V, Ti6Al2Sn4Zr2Mo,	s 330 Billi or ≤ 38 HRc	46 (37-55)	Fz	0.0093	0.0185	0.0278	0.0370
	Ti4Al4Mo2Sn0.5Si	≤ 38 HHC		Feed (mm/min)	135	135	135	135
		≤ 150 Bhn		RPM	41200	20600	13733	10300
	ALUMINUM ALLOYS 2017, 2024, 356, 6061, 7075	or	130 (104-155)	Fz	0.0395	0.0789	0.1184	0.1578
N	· 	≤7 HRc		Feed (mm/min)	1626	1626	1626	1626
IN		≤ 140 Bhn		RPM	31506	15753	10502	7877
	COPPER ALLOYS Alum Bronze, C110, Muntz Brass	or	99 (79-119)	Fz	0.0407	0.0814	0.1221	0.1629
		≤ 3 HRc		Feed (mm/min)	1283	1283	1283	1283

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 30% when using uncoated drills

• reduce speed and feed for materials harder than listed

• refer to the KYOCERA SGS Tool Wizard® or sgsmicrotools.com for complete technical information

Series M814 15xD

			Vc		DC • mm			
	Series M814 15xD	Hardness	(m/min)		1	2	3	4
	CARBON STEELS	≤ 175 Bhn		RPM	39746	19873	13249	9937
	1018, 1040, 1080, 1090, 10L50,	or	125 (100-150)	Fz	0.0160	0.0320	0.0479	0.0639
P	1140, 1212, 12L15, 1525, 1536	≤7 HRc		Feed (mm/min)	635	635	635	635
	ALLOY STEELS	≤ 275 Bhn	94 (76-113)	RPM	30052	15026	10017	7513
	4140, 4150, 4320, 5120,	or ≤ 28 HRc		Fz	0.0139	0.0279	0.0418	0.0558
	5150, 8630, 86L20, 50100	≤ 20 ⊓nc		Feed (mm/min)	419	419	419	419
	TOOL STEELS	≤ 475 Bhn		RPM	14541	7271	4847	3635
Н	A2, D2, H13, L2, M2, P20, S7, T15, W2	or ≤ 50 HRc	46 (37-55)	Fz	0.0070	0.0140	0.0210	0.0279
	P20, 57, 115, W2	≤ 50 HKC		Feed (mm/min)	102	102	102	102
	CAST IRONS Gray, Malleable, Ductile	≤ 220 Bhn		RPM	34899	17449	11633	8725
K		≤ 220 Bnn or ≤ 19 HRc	110 (68-132)	Fz	0.0229	0.0459	0.0688	0.0917
				Feed (mm/min)	800	800	800	800
	STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 Bhn or ≤ 28 HRc	55 (44-66)	RPM	17449	8725	5816	4362
				Fz	0.0127	0.0253	0.0380	0.0507
М		≤ 20 mmc		Feed (mm/min)	221	221	221	221
141	STAINLESS STEELS (DIFFICULT) 304, 316, 321, 13-8 PH, 15-5PH, 17-4	≤ 325 Bhn or ≤ 35 HRc	38 (30-46)	RPM	12118	6059	4039	3029
				Fz	0.0094	0.0189	0.0283	0.0377
	PH, CUSTOM 450			Feed (mm/min)	114	114	114	114
	SUPER ALLOYS	≤ 320 Bhn		RPM	8725	4362	2908	2181
	(NICKEL, COBALT, IRON BASE) Inconel 601, 617, 625, Incoloy 800,	or ≤ 34 HRc	27 (22-33)	Fz	0.0064	0.0128	0.0192	0.0256
S	Monel 400, Rene, Waspaloy	≥ 34 mmc		Feed (mm/min)	56	56	56	56
3	TITANIUM ALLOYS	≤ 350 Bhn		RPM	14541	7271	4847	3635
	Pure Titanium, Ti6Al4V, Ti6Al2Sn4Zr2Mo,	or ≤ 38 HRc	46 (37-55)	Fz	0.0077	0.0154	0.0231	0.0307
	Ti4Al4Mo2Sn0.5Si	≤ 30 HHC		Feed (mm/min)	112	112	112	112
		≤ 150 Bhn		RPM	41200	20600	13733	10300
	ALUMINUM ALLOYS 2017, 2024, 356, 6061, 7075	or ≤ 7 HRc	130 (104-155)	Fz	0.0287	0.0573	0.0860	0.1147
N		≤ / ⊓nc		Feed (mm/min)	1181	1181	1181	1181
14		≤ 140 Bhn		RPM	31506	15753	10502	7877
	COPPER ALLOYS Alum Bronze, C110, Muntz Brass	or ≤ 3 HRc	99 (79-119)	Fz	0.0286	0.0572	0.0859	0.1145
		≤ 3 ⊓NC		Feed (mm/min)	902	902	902	902

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 30% when using uncoated drills

reduce speed and feed for materials harder than listed

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EDP NO. PAGE	EDP NO. PAGE	EDP NO. PAGE	EDP NO. PAGE	EDP NO. PAGE	EDP NO. PAGE	EDP NO. PAGE
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0030310	0037013	0043846	0050617	0057450	0064256	0071321
0030410	0037243	0043946	0050717	0057550	0064356	0071421
0030510	0037343	0044046	0050817	0057650	0064456	0071521
0030610	0037443	0044146	0050917	0057750	0064556	0071621
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0030910	0037743	0044522	0051217	0058051	0064856	0071921
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| EDP NO. PAGE |
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| EDP NO. PAGE |
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| 0903445 | 0910151 | 0916845 | 0923551 | 0930225 | 0936918 | 0943641 |
| 0903550 | 0910246 | 0916950 | 0923646 | 0930324 | 0937019 | 0943742 |
| 0903645 | 0910351 | 0917045 | 0923751 | 0930425 | 0937118 | 0943836 |
| 0903750 | 0910446 | 0917150 | 0923846 | 0930524 | 0937219 | 0943937 |
| 0903845 | 0910551 | 0917245 | 0923951 | 0930625 | 0937318 | 0944038 |
| 0903950 | 0910646 | 0917350 | 0924046 | 0930724 | 0937419 | 0944139 |
| 0904045 | 0910751 | 0917445 | 0924151 | 0930825 | 0937518 | 0944240 |
| 0904150 | 0910846 | 0917550 | 0924246 | 0930924 | 0937619 | 0944341 |
| 0904245 | 0910951 | 0917645 | 0924351 | 0931025 | 0937718 | 0944442 |
| 0904350 | 0911046 | 0917750 | 0924446 | 0931124 | 0937819 | 0944536 |
| 0904445
0904550 | 0911151
0911246 | 0917845
0917950 | 0924551
0924646 | 0931225
0931324 | 0937918
0938019 | 0944637
0944738 |
| 0904645 | 0911351 | 0918045 | 0924751 | 0931425 | 0938118 | 0944839 |
| 0904750 | 0911446 | 0918150 | 0924846 | 0931524 | 0938219 | 0944940 |
| 0904845 | 0911551 | 0918245 | 0924951 | 0931625 | 0938318 | 0945041 |
| 0904950 | 0911647 | 0918350 | 0925046 | 0931724 | 0938419 | 0945142 |
| 0905045 | 0911751 | 0918445 | 0925151 | 0931825 | 0938518 | 0945236 |
| 0905150 | 0911847 | 0918550 | 0925246 | 0931924 | 0938619 | 0945337 |
| 0905245 | 0911951 | 0918645 | 0925351 | 0932025 | 0938718 | 0945438 |
| 0905350 | 0912047 | 0918750 | 0925446 | 0932124 | 0938819 | 0945539 |
| 0905445 | 0912151 | 0918845 | 0925551 | 0932225 | 0938918 | 0945640 |
| 0905550 | 0912247 | 0918950 | 0925647 | 0932324 | 0939019 | 0945741 |
| 0905645 | 0912351 | 0919045 | 0925751 | 0932425 | 0939118 | 0945842 |
| 0905750 | 0912447 | 0919150 | 0925847 | 0932524 | 0939219 | 0945936 |
| 0905845 | 0912551 | 0919245 | 0925951 | 0932625 | 0939318 | 0946037 |
| 0905950 | 0912643 | 0919350 | 0926047 | 0932724 | 0939419 | 0946138 |
| 0906045
0906150 | 0912748 | 0919445
0919550 | 0926151 | 0932825 | 0939518 | 0946239 |
| 0906246 | 0912843
0912948 | 0919645 | 0926247
0926351 | 0932924
0933025 | 0939619
0939718 | 0946340
0946441 |
| 0906350 | 0913043 | 0919750 | 0926447 | 0933124 | 0939819 | 0946542 |
| 0906446 | 0913148 | 0919845 | 0926551 | 0933225 | 0939918 | 0946636 |
| 0906550 | 0913243 | 0919950 | 0926673 | 0933324 | 0940019 | 0946737 |
| 0906646 | 0913348 | 0920045 | 0926773 | 0933425 | 0940118 | 0946838 |
| 0906750 | 0913444 | 0920150 | 0926873 | 0933524 | 0940219 | 0946939 |
| 0906846 | 0913549 | 0920246 | 0926973 | 0933625 | 0940318 | 0947040 |
| 0906951 | 0913644 | 0920350 | 0927072 | 0933724 | 0940419 | 0947141 |
| 0907046 | 0913749 | 0920446 | 0927172 | 0933825 | 0940518 | 0947242 |
| 0907151 | 0913844 | 0920550 | 0927272 | 0933924 | 0940639 | 0947336 |
| 0907246 | 0913949 | 0920646 | 0927372 | 0934025 | 0940740 | 0947437 |
| 0907351 | 0914044 | 0920750 | 0927473 | 0934124 | 0940841 | 0947538 |
| 0907446 | 0914149 | 0920846 | 0927573 | 0934225 | 0940942 | 0947639 |
| 0907551 | 0914244 | 0920951 | 0927673 | 0934324 | 0941036 | 0947740 |
| 0907646 | 0914349 | 0921046 | 0927773 | 0934425 | 0941137 | 0947841 |
| 0907751
0907846 | 0914444
0914549 | 0921151
0921246 | 0927872
0927972 | 0934524
0934625 | 0941238
0941339 | 0947942
0948036 |
| 0907951 | 0914644 | 0921351 | 0928072 | 0934724 | 0941440 | 0948137 |
| 0908046 | 0914749 | 0921446 | 0928172 | 0934825 | 0941541 | 0948238 |
| 0908151 | 0914844 | 0921551 | 0928272 | 0934924 | 0941642 | 0948339 |
| | | | | | 77 | |

| EDP NO. PAGE |
|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| 0948440 | 0954336 | 0960231 | 0966135 | 0972030 | 0977934 | 0983853 |
| 0948541 | 0954437 | 0960333 | 0966226 | 0972132 | 0978035 | 0983952 |
| 0948642 | 0954538 | 0960434 | 0966327 | 0972233 | 0978126 | 0984053 |
| 0948736 | 0954639 | 0960535 | 0966429 | 0972334 | 0978228 | 0984152 |
| 0948837 | 0954740 | 0960626 | 0966531 | 0972435 | 0978330 | 0984253 |
| 0948938 | 0954841 | 0960727 | 0966633 | 0972526 | 0978462 | 0984352 |
| 0949039 | 0954942 | 0960829 | 0966734 | 0972628 | 0978561 | 0984453 |
| 0949140 | 0955036 | 0960931 | 0966835 | 0972730 | 0978662 | 0984552 |
| 0949241 | 0955137 | 0961033 | 0966926 | 0972832 | 0978761 | 0984653 |
| 0949342 | 0955238 | 0961134 | 0967027 | 0972933 | 0978862 | 0984752 |
| 0949436 | 0955339 | 0961235 | 0967129 | 0973034 | 0978961 | 0984853 |
| 0949537 | 0955440 | 0961326 | 0967231 | 0973135 | 0979062 | 0984952 |
| 0949638 | 0955541 | 0961427 | 0967333 | 0973226 | 0979161 | 0985053 |
| 0949739 | 0955642 | 0961529 | 0967434 | 0973328 | 0979262 | 0985152 |
| 0949840 | 0955736 | 0961631 | 0967535 | 0973430 | 0979361 | 0985253 |
| 0949941 | 0955837 | 0961733 | 0967626 | 0973532 | 0979462 | 0985352 |
| 0950042 | 0955938 | 0961834 | 0967727 | 0973633 | 0979561 | 0985453 |
| 0950136 | 0956039 | 0961935 | 0967829 | 0973734 | 0979662 | 0985552 |
| 0950237 | 0956140 | 0962026 | 0967931 | 0973835 | 0979761 | 0985653 |
| 0950338 | 0956241 | 0962127 | 0968033 | 0973926 | 0979862 | 0985752 |
| 0950439 | 0956342 | 0962229 | 0968134 | 0974028 | 0979961 | 0985853 |
| 0950540 | 0956436 | 0962331 | 0968235 | 0974130 | 0980062 | 0985952 |
| 0950641 | 0956537 | 0962433 | 0968326 | 0974232 | 0980161 | 0986053 |
| 0950742 | 0956638 | 0962534 | 0968427 | 0974333 | 0980262 | 0986152 |
| 0950836 | 0956739 | 0962635 | 0968529 | 0974434 | 0980361 | 0986253 |
| 0950937 | 0956840 | 0962726 | 0968631 | 0974535 | 0980462 | 0986352 |
| 0951038 | 0956941 | 0962827 | 0968733 | 0974626 | 0980561 | 0986453 |
| 0951139 | 0957042
0957136 | 0962929 | 0968834 | 0974728
0974830 | 0980662 | 0986552
0986653 |
| 0951240 | 0957136 | 0963031 | 0968935 | 0974830 | 0980761 | 0986752 |
| 0951341
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0963234 | 0969026
0969127 | 0975033 | 0980862
0980961 | 0986853 |
| 0951536 | 0957439 | 0963335 | 0969229 | 0975134 | 0981062 | 0986952 |
| 0951637 | 0957540 | 0963426 | 0969331 | 0975235 | 0981161 | 0987053 |
| 0951738 | 0957641 | 0963527 | 0969433 | 0975326 | 0981262 | 0987152 |
| 0951839 | 0957742 | 0963629 | 0969534 | 0975428 | 0981361 | 0987253 |
| 0951940 | 0957836 | 0963731 | 0969635 | 0975530 | 0981462 | 0987352 |
| 0952041 | 0957937 | 0963833 | 0969726 | 0975632 | 0981561 | 0987453 |
| 0952142 | 0958038 | 0963934 | 0969827 | 0975733 | 0981662 | 0987552 |
| 0952236 | 0958139 | 0964035 | 0969929 | 0975834 | 0981761 | 0987653 |
| 0952337 | 0958240 | 0964126 | 0970031 | 0975935 | 0981862 | 0987752 |
| 0952438 | 0958341 | 0964227 | 0970133 | 0976026 | 0981961 | 0987853 |
| 0952539 | 0958442 | 0964329 | 0970234 | 0976128 | 0982062 | 0987952 |
| 0952640 | 0958536 | 0964431 | 0970335 | 0976230 | 0982161 | 0988053 |
| 0952741 | 0958637 | 0964533 | 0970426 | 0976332 | 0982262 | 0988152 |
| 0952842 | 0958738 | 0964634 | 0970527 | 0976433 | 0982361 | 0988253 |
| 0952936 | 0958839 | 0964735 | 0970629 | 0976534 | 0982462 | 0988352 |
| 0953037 | 0958940 | 0964826 | 0970731 | 0976635 | 0982561 | 0988453 |
| 0953138 | 0959041 | 0964927 | 0970833 | 0976726 | 0982662 | 0988552 |
| 0953239 | 0959142 | 0965029 | 0970934 | 0976828 | 0982761 | 0988653 |
| 0953340 | 0959236 | 0965131 | 0971035 | 0976930 | 0982862 | 0988752 |
| 0953441 | 0959337 | 0965233 | 0971126 | 0977032 | 0982961 | 0988853 |
| 0953542 | 0959438 | 0965334 | 0971228 | 0977133 | 0983062 | 0988952 |
| 0953636 | 0959531 | 0965435 | 0971329 | 0977234 | 0983161 | 0989053 |
| 0953737
0953838 | 0959633
0959734 | 0965526
0965627 | 0971432
0971533 | 0977335
0977426 | 0983262
0983361 | 0989152 |
| 0953939 | 0959835 | 0965729 | 0971634 | 0977528 | 0983462 | |
| 0954040 | 0959926 | 0965831 | 0971735 | 0977630 | 0983561 | |
| 0954141 | 0960027 | 0965933 | 0971826 | 0977732 | 0983662 | |
| 0954242 | 0960129 | 0966034 | 0971928 | 0977833 | 0983761 | |
| | | | | | | |

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		Α	5,94	0.2340		-	8,75	0.3445		-	13,50	0.5315
#80	0,34	0.0135	_	1,75	0.0689	#26	3,73	0.1470		15/64	5,95	0.2344		-	8,80	0.3465		35/64	13,89	0.5469
_	0,35	0.0138	#50	1,78	0.0700	_	3,75	0.1476		-	6,00	0.2362		S	8,84	0.3480		-	14,00	0.5512
#79	0,37	0.0145	_	1,80	0.0709	#25	3,80	0.1495		В	6,05	0.2380		-	8,90	0.3504		9/16	14,29	0.5625
1/64	0,40	0.0156	#49	1,85	0.0728	_	3,80	0.1496		-	6,10	0.2402		-	9,00	0.3543		-	14,50	0.5709
#78	0,41	0.0160	_	1,90	0.0748	#24	3,86	0.1520		С	6,15	0.2420		T	9,09	0.3580		37/64	14,68	0.5781
_	0,45	0.0177	#48	1,93	0.0760	_	3,90	0.1535		-	6,20	0.2441		-	9,10	0.3583		-	15,00	0.5906
#77	0,46	0.0180	_	1,95	0.0768	#23	3,91	0.1540		D	6,25	0.2461		23/64	9,13	0.3594		19/32	15,08	0.5938
-	0,50	0.0197	5/64	1,98	0.0781	5/32	3,97	0.1562		-	6,30	0.2480		-	9,20	0.3622		39/64	15,48	0.6094
#76	0,51	0.0200	#47	1,99	0.0785	#22	3,99	0.1570		Е	6,35	0.2500		-	9,25	0.3642	L	-	15,50	0.6102
#75	0,53	0.0210	-	2,00	0.0787	_	4,00	0.1575		1/4	6,35	0.2500		-	9,30	0.3661		5/8	15,88	0.6250
_	0,55	0.0217	_	2,05	0.0807	#21	4,04	0.1590		-	6,40	0.2520		U	9,35	0.3680	ı	-	16,00	0.6299
#74	0,57	0.0225	#46	2,06	0.0810	#20	4,09	0.1610		_	6,50	0.2559		-	9,40	0.3701		41/64	16,27	0.6406
_	0,60	0.0236	#45	2,08	0.0820	_	4,10	0.1614		F	6,53	0.2570		-	9,50	0.3740	ı	-	16,50	0.6496
#73	0,61	0.0240	_	2,10	0.0827	_	4,20	0.1654		-	6,60	0.2598		3/8	9,53	0.3750	ı	21/32	16,67	0.6562
#72	0,64	0.0250		2,15	0.0846	#19	4,22	0.1660		G	6,63	0.2610		V	9,56	0.3770	ı	-	17,00	0.6693
-	0,65	0.0256	#44	2,18	0.0860	-	4,25	0.1673		-	6,70	0.2638		-	9,60	0.3780		43/64	17,07	0.6719
#71	0,66	0.0260	_	2,20	0.0866	-	4,30	0.1693		17/64	6,75	0.2656		-	9,70	0.3819		11/16	17,46	0.6875
- 470	0,70	0.0276	- "40	2,25	0.0886	#18	4,31	0.1695		Н	6,76	0.2660		-	9,75	0.3839		45/04	17,50	0.6890
#70	0,71	0.0280	#43	2,26	0.0890	11/64		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		- 2E/C/I	9,90	0.3898		22/22	18,00	0.7087
# C0	0,75	0.0295	440	2,35	0.0925	- #1C	4,40	0.1732		I	6,91	0.2720		25/64	9,92	0.3906		23/32	18,26	0.7188
#68 1/32	0,79 0,79	0.0310 0.0313	#42 3/32	2,37 2,38	0.0935	#16	4,50 4,50	0.1770 0.1772		– Ј	7,00 7,04	0.2756 0.2770		X	10,00 10,08	0.3937		47/64	18,50 18,65	0.7283 0.7344
1/32	0,75	0.0315	-	2,40	0.0936	#15	4,50	0.1772		_	7,10	0.2770		_	10,00	0.3976		-	19,00	0.7344
#67	0,81	0.0313	#41	2,44	0.0960	# 13 _	4,60	0.1811		K	7,10	0.2733		_	10,10	0.4016		3/4	19,05	0.7500
#66	0,84	0.0320		2,45	0.0965	#14	4,62	0.1820		9/32	7,14	0.2812		Υ	10,26	0.4040		49/64	19,45	0.7656
	0,85	0.0335	#40	2,50	0.0984	#13	4,70	0.1850		-	7,14	0.2835		_	10,30	0.4055	ı	-	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	ı	_	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	ı	_	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	Т	_	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	Г	- 1	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	Г	- 1	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	13/6	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		0	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		Р	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	L	_	8,60	0.3386		1/2	12,70	0.5000		1	25,40	1.0000

Hardness Conversion Chart

Hilbs Hilb	ROCKWELL	ROCKWELL	BRINELL	VICKERS	TENSILE	PSI
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 - 223 234 756 101 98 21 230	HARDNESS (HRb)	HARDNESS (HRc)	HARDNESS (HR)	HARDNESS (HV)	STRENGTH (N/mm2)	(1000lb/in2)
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Conversions from each scale are approximate

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