

**New Expanded Tools**

**TOLERANCES (inch)**

**.005-.125 DIAMETER**

DC = +0.0000/-0.0003

DCON = h<sub>6</sub>

STEELS

STAINLESS STEELS

CAST IRON

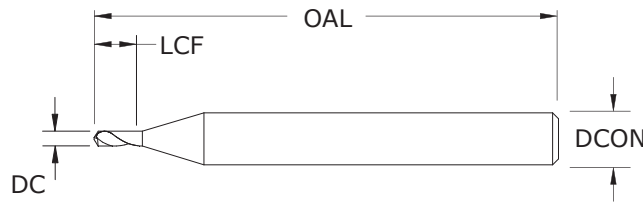
HIGH TEMP ALLOYS

TITANIUM

HARDENED STEELS

NON-FERROUS

PLASTICS/COMPOSITES

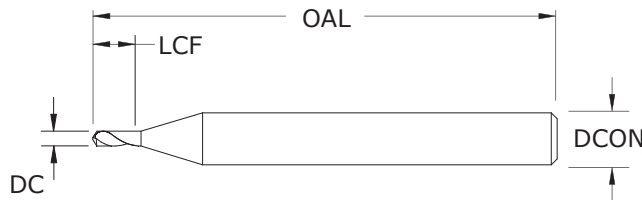


**M080**  
FRACTIONAL SERIES

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

- 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

# 2 Flute Spotting External Coolant



  New Expanded Tools

## M081 METRIC SERIES

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

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

### TOLERANCES (mm)

0,15–3,0 DIAMETER

DC = +0,000/–0,008

DCON = h<sub>6</sub>

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

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

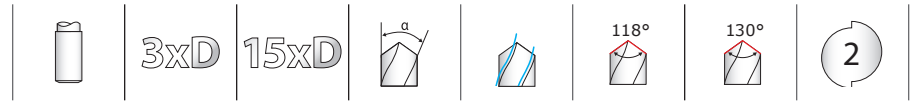
**Note:**

- 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

# Series M081

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

- 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



**New Expanded Tools**

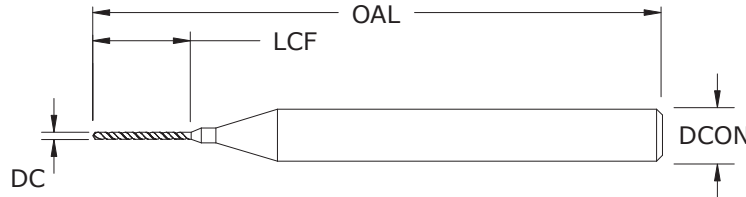
**TOLERANCES (inch)**

≤.125 DIAMETER  
DC = +.0000/+0.0003  
DCON = h<sub>6</sub>

**TOLERANCES (mm)**

0.1–3.0 DIAMETER  
DC = +0.000/+0.008  
DCON = h<sub>6</sub>

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



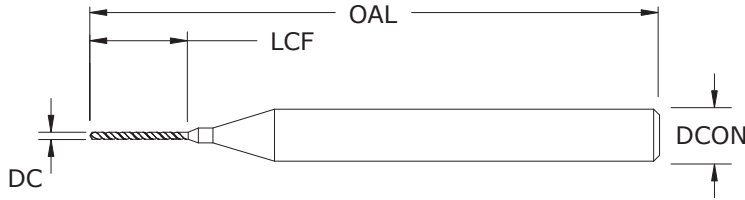
**M105**  
FRACTIONAL & METRIC SERIES

inch & mm						EDP NO.	
CUTTING DIAMETER DC	DECIMAL EQUIV.	SHANK DIAMETER DCON	FLUTE LENGTH LCF	OVERALL LENGTH OAL	POINT ANGLE	UNCOATED	TI-NAMITE-A (AlTiN)
0,1mm	0.0040	1/8	0.040	1-1/2	118	07088	07098
0,1mm	0.0040	1/8	0.070	1-1/2	118	07089	07099
0,13mm	0.0050	1/8	0.040	1-1/2	118	07064	07066
0,13mm	0.0050	1/8	0.070	1-1/2	118	07065	07067
#97	0.0059	1/8	0.080	1-1/2	118	07236	07068
#97	0.0059	1/8	0.120	1-1/2	118	07237	07069
#96	0.0063	1/8	0.080	1-1/2	118	07238	07070
#96	0.0063	1/8	0.120	1-1/2	118	07239	07071
#95	0.0067	1/8	0.080	1-1/2	118	07240	07072
#95	0.0067	1/8	0.120	1-1/2	118	07241	07073
#94	0.0071	1/8	0.100	1-1/2	118	07242	07074
#94	0.0071	1/8	0.150	1-1/2	118	07243	07075
#93	0.0075	1/8	0.100	1-1/2	118	07244	07076
#93	0.0075	1/8	0.150	1-1/2	118	07245	07077
#92	0.0079	1/8	0.100	1-1/2	118	07246	07078
#92	0.0079	1/8	0.150	1-1/2	118	07247	07079
#91	0.0083	1/8	0.100	1-1/2	118	07248	07080
#91	0.0083	1/8	0.150	1-1/2	118	07249	07081
#90	0.0087	1/8	0.100	1-1/2	118	07250	07082
#90	0.0087	1/8	0.150	1-1/2	118	07251	07083
#89	0.0091	1/8	0.150	1-1/2	118	07252	07084
#89	0.0091	1/8	0.220	1-1/2	118	07253	07085
#88	0.0095	1/8	0.150	1-1/2	118	07254	07086
#88	0.0095	1/8	0.220	1-1/2	118	07255	07087
0,25mm	0.0098	1/8	0.150	1-1/2	118	07108	07114
0,25mm	0.0098	1/8	0.220	1-1/2	118	07109	07115
#87	0.0100	1/8	0.150	1-1/2	118	07258	07090
#87	0.0100	1/8	0.220	1-1/2	118	07259	07091
#86	0.0105	1/8	0.150	1-1/2	118	07260	07092
#86	0.0105	1/8	0.220	1-1/2	118	07261	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 micro-tool applications
- Manufactured in accordance with KSPT ISO certified quality procedures

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# 2 Flute External Coolant • Standard & Extended Length



  New Expanded Tools

## M105

FRACTIONAL & METRIC SERIES

*continued*

CUTTING DIAMETER DC	DECIMAL EQUIV.	inch & mm		POINT ANGLE	EDP NO.		
		SHANK DIAMETER DCON	FLUTE LENGTH LCF		OVERALL LENGTH OAL	UNCOATED	TI-NAMITE-A (AlTiN)
#83	0.0120	1/8	0.225	1-1/2	118	07268	07100
#83	0.0120	1/8	0.280	1-1/2	118	07269	07101
#82	0.0125	1/8	0.225	1-1/2	118	07270	07102
#82	0.0125	1/8	0.280	1-1/2	118	07271	07103
#81	0.0130	1/8	0.225	1-1/2	118	07272	07104
#81	0.0130	1/8	0.280	1-1/2	118	07273	07105
#80	0.0135	1/8	0.225	1-1/2	130	07274	07106
#80	0.0135	1/8	0.280	1-1/2	130	07275	07107
0,35mm	0.0138	1/8	0.225	1-1/2	130	07118	07122
0,35mm	0.0138	1/8	0.280	1-1/2	130	07119	07123
#79	0.0145	1/8	0.225	1-1/2	130	07278	07110
#79	0.0145	1/8	0.280	1-1/2	130	07279	07111
1/64	0.0156	1/8	0.250	1-1/2	130	07280	07112
1/64	0.0156	1/8	0.295	1-1/2	130	07281	07113
0,4mm	0.0157	1/8	0.250	1-1/2	130	07148	07233
0,4mm	0.0157	1/8	0.295	1-1/2	130	07232	07234
#78	0.0160	1/8	0.250	1-1/2	130	07284	07116
#78	0.0160	1/8	0.295	1-1/2	130	07285	07117
0,45mm	0.0177	1/8	0.250	1-1/2	130	07137	07143
0,45mm	0.0177	1/8	0.295	1-1/2	130	07140	07145
#77	0.0180	1/8	0.250	1-1/2	130	07288	07120
#77	0.0180	1/8	0.295	1-1/2	130	07289	07121
0,5mm	0.0197	1/8	0.260	1-1/2	130	07257	07267
0,5mm	0.0197	1/8	0.310	1-1/2	130	07266	07276
#76	0.0200	1/8	0.260	1-1/2	130	07292	07124
#76	0.0200	1/8	0.310	1-1/2	130	07293	07125
#75	0.0210	1/8	0.310	1-1/2	130	07294	07126
0,55mm	0.0217	1/8	0.340	1-1/2	130	07235	07256
#74	0.0225	1/8	0.340	1-1/2	130	07296	07128
0,6mm	0.0236	1/8	0.340	1-1/2	130	07283	07286
#73	0.0240	1/8	0.340	1-1/2	130	07298	07130
#72	0.0250	1/8	0.340	1-1/2	130	07299	07131
0,65mm	0.0256	1/8	0.340	1-1/2	130	07277	07282
#71	0.0260	1/8	0.340	1-1/2	130	07301	07133

### TOLERANCES (inch)

≤.125 DIAMETER  
DC = +.0000/+0.0003  
DCON = h<sub>6</sub>

### TOLERANCES (mm)

0,1–3,0 DIAMETER  
DC = +0,000/+0,008  
DCON = h<sub>6</sub>

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

*continued on next page*

# 2 Flute External Coolant • Standard & Extended Length

## M105

FRACTIONAL & METRIC SERIES

*continued*

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

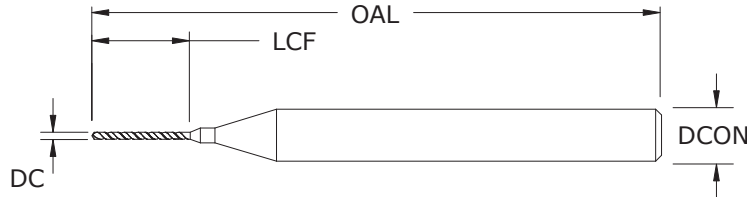
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# 2 Flute External Coolant • Standard & Extended Length



3xD

15xD



  New Expanded Tools

## M105

FRACTIONAL & METRIC SERIES

continued

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

### TOLERANCES (inch)

≤.125 DIAMETER  
DC = +.0000/+0.0003  
DCON = h<sub>6</sub>

### TOLERANCES (mm)

0,1–3,0 DIAMETER  
DC = +0,000/+0,008  
DCON = h<sub>6</sub>

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

continued on next page



# 2 Flute External Coolant • Standard & Extended Length

## M105

FRACTIONAL & METRIC SERIES

*continued*

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

# Series M105

Series M105	Hardness	Vc (sfm)	DC • in							
			0.004	0.010	0.020	0.040	0.080	0.125		
<b>P</b>	<b>CARBON STEELS</b> 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 175 Bhn or ≤ 7 HRc	130 (104-156)	RPM	124150	49660	24830	12415	6208	3973
				Fz	0.00012	0.00029	0.0006	0.0012	0.0023	0.0036
				Feed (ipm)	14.3	14.3	14.3	14.3	14.3	14.3
				RPM	186225	74490	37245	18623	9311	5959
				Fz	0.00010	0.00026	0.0005	0.0010	0.0021	0.0033
				Feed (ipm)	19.4	19.4	19.4	19.4	19.4	19.4
<b>H</b>	<b>TOOL STEELS</b> A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 475 Bhn or ≤ 50 HRc	80 (64-96)	RPM	76400	30560	15280	7640	3820	2445
				Fz	0.00005	0.00013	0.0003	0.0005	0.0010	0.0016
				Feed (ipm)	4.0	4.0	4.0	4.0	4.0	4.0
				RPM	267400	106960	53480	26740	13370	8557
				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
<b>M</b>	<b>STAINLESS STEELS (FREE MACHINING)</b> 303, 416, 420F, 430F, 440F	≤ 275 Bhn or ≤ 28 HRc	65 (52-78)	RPM	62075	24830	12415	6208	3104	1986
				Fz	0.00009	0.00022	0.0004	0.0009	0.0017	0.0027
				Feed (ipm)	5.4	5.4	5.4	5.4	5.4	5.4
				RPM	38200	15280	7640	3820	1910	1222
				Fz	0.0001	0.0002	0.0004	0.0007	0.0014	0.0022
				Feed (ipm)	2.7	2.7	2.7	2.7	2.7	2.7
<b>S</b>	<b>SUPER ALLOYS (NICKEL, COBALT, IRON BASE)</b> Inconel 601, 617, 625, Incoloy 800, Monel 400, Rene, Waspaloy	≤ 320 Bhn or ≤ 34 HRc	50 (40-60)	RPM	47750	19100	9550	4775	2388	1528
				Fz	0.00004	0.00011	0.0002	0.0004	0.0009	0.0014
				Feed (ipm)	2.1	2.1	2.1	2.1	2.1	2.1
				RPM	47750	19100	9550	4775	2388	1528
				Fz	0.00005	0.00013	0.0003	0.0005	0.0010	0.0016
				Feed (ipm)	2.5	2.5	2.5	2.5	2.5	2.5
<b>N</b>	<b>ALUMINUM ALLOYS</b> 2017, 2024, 356, 6061, 7075	≤ 150 Bhn or ≤ 7 HRc	245 (196-294)	RPM	233975	93590	46795	23398	11699	7487
				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
				RPM	171900	68760	34380	17190	8595	5501
				Fz	0.00020	0.00049	0.0010	0.0020	0.0039	0.0062
				Feed (ipm)	33.9	33.9	33.9	33.9	33.9	33.9
	<b>PLASTICS</b> Polycarbonate, PVC		245 (196-294)	RPM	233975	93590	46795	23398	11699	7487
				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)
  - 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



**New Expanded Tools**

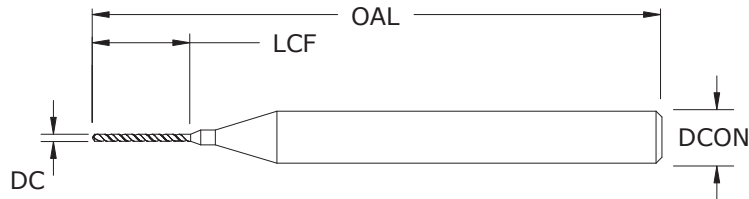
**TOLERANCES (mm)**

**0,04–3,0 DIAMETER**

DC = +0,000/–0,008

DCON = h<sub>6</sub>

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



**M226**  
METRIC SERIES

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

- 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

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# 2 Flute External Coolant



3xD

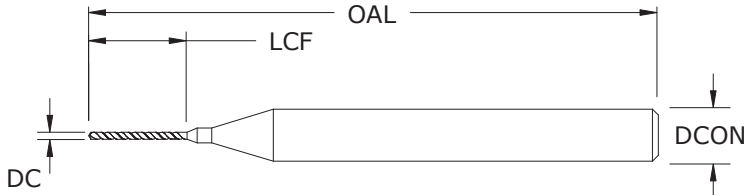
12xD



118°



130°



  New Expanded Tools

## M226 METRIC SERIES

continued

CUTTING DIAMETER DC	DECIMAL EQUIV.	mm				POINT ANGLE	EDP NO.	
		SHANK DIAMETER DCON	FLUTE LENGTH LCF	OVERALL LENGTH OAL	UNCOATED		TI-NAMITE-A (AlTiN)	
0,39	0.0154	3,0	6,4	38,0	130	07758	07414	
0,40	0.0157	3,0	6,4	38,0	130	07759	07415	
0,41	0.0161	3,0	6,4	38,0	130	07760	07416	
0,42	0.0165	3,0	6,4	38,0	130	07761	07417	
0,43	0.0169	3,0	6,4	38,0	130	07762	07418	
0,44	0.0173	3,0	6,4	38,0	130	07763	07419	
0,45	0.0177	3,0	6,4	38,0	130	07764	07420	
0,46	0.0181	3,0	6,4	38,0	130	07765	07421	
0,47	0.0185	3,0	6,4	38,0	130	07766	07422	
0,48	0.0189	3,0	6,6	38,0	130	07767	07423	
0,49	0.0193	3,0	6,6	38,0	130	07768	07424	
0,50	0.0197	3,0	6,6	38,0	130	07769	07425	
0,51	0.0201	3,0	6,6	38,0	130	07770	07426	
0,52	0.0205	3,0	6,6	38,0	130	07771	07427	
0,53	0.0209	3,0	6,6	38,0	130	07772	07428	
0,54	0.0213	3,0	6,6	38,0	130	07773	07429	
0,55	0.0217	3,0	8,6	38,0	130	07774	07430	
0,56	0.0220	3,0	8,6	38,0	130	07775	07431	
0,57	0.0224	3,0	8,6	38,0	130	07776	07432	
0,58	0.0228	3,0	8,6	38,0	130	07777	07433	
0,59	0.0232	3,0	8,6	38,0	130	07778	07434	
0,60	0.0236	3,0	8,6	38,0	130	07779	07435	
0,61	0.0240	3,0	8,6	38,0	130	07780	07436	
0,62	0.0244	3,0	8,6	38,0	130	07781	07437	
0,63	0.0248	3,0	8,6	38,0	130	07782	07438	
0,64	0.0252	3,0	8,6	38,0	130	07783	07439	
0,65	0.0256	3,0	8,6	38,0	130	07784	07440	
0,66	0.0260	3,0	8,6	38,0	130	07785	07441	
0,67	0.0264	3,0	8,6	38,0	130	07786	07442	
0,68	0.0268	3,0	8,6	38,0	130	07787	07443	
0,69	0.0272	3,0	8,6	38,0	130	07788	07444	
0,70	0.0276	3,0	10,2	38,0	130	07789	07445	
0,71	0.0280	3,0	10,2	38,0	130	07790	07446	
0,72	0.0283	3,0	10,2	38,0	130	07791	07447	
0,73	0.0287	3,0	10,2	38,0	130	07792	07448	
0,74	0.0291	3,0	10,2	38,0	130	07793	07449	

**TOLERANCES (mm)**

**0,04–3,0 DIAMETER**

DC = +0,000/-0,008

DCON = h<sub>6</sub>

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

continued on next page

CUTTING DIAMETER DC	DECIMAL EQUIV.	mm				POINT ANGLE	EDP NO.	
		SHANK DIAMETER DCON	FLUTE LENGTH LCF	OVERALL LENGTH OAL	UNCOATED		TI-NAMITE-A (AlTiN)	
0,75	0.0295	3,0	10,2	38,0	130	07794	07450	
0,75	0.0295	3,0	11,0	50,0	130	07795	07451	
0,76	0.0299	3,0	10,2	38,0	130	07796	07452	
0,77	0.0303	3,0	10,2	38,0	130	07797	07453	
0,78	0.0307	3,0	10,2	38,0	130	07798	07454	
0,79	0.0311	3,0	10,2	38,0	130	07799	07455	
0,80	0.0315	3,0	10,2	38,0	130	07800	07456	
0,80	0.0315	3,0	11,0	50,0	130	07801	07457	
0,81	0.0319	3,0	10,2	38,0	130	07802	07458	
0,82	0.0323	3,0	10,2	38,0	130	07803	07459	
0,83	0.0327	3,0	10,2	38,0	130	07804	07460	
0,84	0.0331	3,0	10,2	38,0	130	07805	07461	
0,85	0.0335	3,0	10,2	38,0	130	07806	07462	
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	0.0382	3,0	10,2	38,0	130	07821	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	07480	
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	
1,02	0.0402	3,0	10,2	38,0	130	07827	07483	
1,03	0.0406	3,0	10,2	38,0	130	07828	07484	
1,04	0.0409	3,0	10,2	38,0	130	07829	07485	
1,05	0.0413	3,0	10,2	38,0	130	07830	07486	
1,05	0.0413	3,0	17,0	50,0	130	07831	07487	
1,06	0.0417	3,0	10,2	38,0	130	07832	07488	
1,07	0.0421	3,0	10,2	38,0	130	07833	07489	
1,08	0.0425	3,0	10,2	38,0	130	07834	07490	
1,09	0.0429	3,0	10,2	38,0	130	07835	07491	
1,10	0.0433	3,0	10,2	38,0	130	07836	07492	
1,10	0.0433	3,0	17,0	50,0	130	07837	07493	
1,11	0.0437	3,0	10,2	38,0	130	07838	07494	
1,12	0.0441	3,0	10,2	38,0	130	07839	07495	

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# 2 Flute External Coolant



3xD

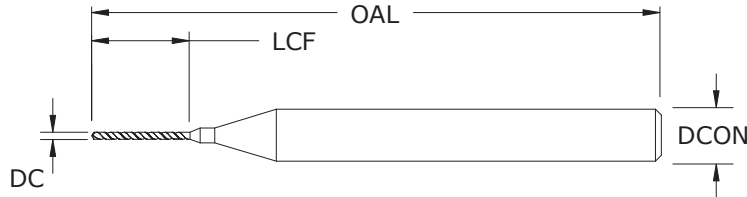
12xD



118°



130°



  New Expanded Tools

## M226 METRIC SERIES

continued

CUTTING DIAMETER DC	DECIMAL EQUIV.	mm				POINT ANGLE	EDP NO.	
		SHANK DIAMETER DCON	FLUTE LENGTH LCF	OVERALL LENGTH OAL	UNCOATED		TI-NAMITE-A (AlTiN)	
1,13	0.0445	3,0	10,2	38,0	130	07840	07496	
1,14	0.0449	3,0	10,2	38,0	130	07841	07497	
1,15	0.0453	3,0	10,2	38,0	130	07842	07498	
1,15	0.0453	3,0	17,0	50,0	130	07843	07499	
1,16	0.0457	3,0	10,2	38,0	130	07844	07500	
1,17	0.0461	3,0	10,2	38,0	130	07845	07501	
1,18	0.0465	3,0	10,2	38,0	130	07846	07502	
1,19	0.0469	3,0	10,2	38,0	130	07847	07503	
1,20	0.0472	3,0	10,2	38,0	130	07848	07504	
1,20	0.0472	3,0	17,0	50,0	130	07849	07505	
1,21	0.0476	3,0	10,2	38,0	130	07850	07506	
1,22	0.0480	3,0	10,2	38,0	130	07851	07507	
1,23	0.0484	3,0	10,2	38,0	130	07852	07508	
1,24	0.0488	3,0	10,2	38,0	130	07853	07509	
1,25	0.0492	3,0	10,2	38,0	130	07854	07510	
1,25	0.0492	3,0	19,0	50,0	130	07855	07511	
1,26	0.0496	3,0	10,2	38,0	130	07856	07512	
1,27	0.0500	3,0	10,2	38,0	130	07857	07513	
1,28	0.0504	3,0	10,2	38,0	130	07858	07514	
1,29	0.0508	3,0	10,2	38,0	130	07859	07515	
1,30	0.0512	3,0	10,2	38,0	130	07860	07516	
1,30	0.0512	3,0	19,0	50,0	130	07861	07517	
1,31	0.0516	3,0	10,2	38,0	130	07862	07518	
1,32	0.0520	3,0	10,2	38,0	130	07863	07519	
1,33	0.0524	3,0	10,2	38,0	130	07864	07520	
1,34	0.0528	3,0	10,2	38,0	130	07865	07521	
1,35	0.0531	3,0	10,2	38,0	130	07866	07522	
1,35	0.0531	3,0	19,0	50,0	130	07867	07523	
1,36	0.0535	3,0	10,2	38,0	130	07868	07524	
1,37	0.0539	3,0	10,2	38,0	130	07869	07525	
1,38	0.0543	3,0	10,2	38,0	130	07870	07526	
1,39	0.0547	3,0	10,2	38,0	130	07871	07527	
1,40	0.0551	3,0	10,2	38,0	130	07872	07528	
1,40	0.0551	3,0	19,0	50,0	130	07873	07529	
1,41	0.0555	3,0	10,2	38,0	130	07874	07530	
1,42	0.0559	3,0	10,2	38,0	130	07875	07531	

### TOLERANCES (mm)

0,04–3,0 DIAMETER

DC = +0,000/–0,008

DCON = h<sub>6</sub>

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

continued on next page

CUTTING DIAMETER DC	DECIMAL EQUIV.	mm				POINT ANGLE	EDP NO.	
		SHANK DIAMETER DCON	FLUTE LENGTH LCF	OVERALL LENGTH OAL	UNCOATED		TI-NAMITE-A (AlTiN)	
1,43	0.0563	3,0	10,2	38,0	130	07876	07532	
1,44	0.0567	3,0	10,2	38,0	130	07877	07533	
1,45	0.0571	3,0	10,2	38,0	130	07878	07534	
1,45	0.0571	3,0	20,0	50,0	130	07879	07535	
1,46	0.0575	3,0	10,2	38,0	130	07880	07536	
1,47	0.0579	3,0	10,2	38,0	130	07881	07537	
1,48	0.0583	3,0	10,2	38,0	130	07882	07538	
1,49	0.0587	3,0	10,2	38,0	130	07883	07539	
1,50	0.0591	3,0	10,2	38,0	130	07884	07540	
1,50	0.0591	3,0	20,0	50,0	130	07885	07541	
1,51	0.0594	3,0	10,2	38,0	130	07886	07542	
1,52	0.0598	3,0	10,2	38,0	130	07887	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	07553	
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	07903	07559	
1,66	0.0654	3,0	10,2	38,0	130	07904	07560	
1,67	0.0657	3,0	10,2	38,0	130	07905	07561	
1,68	0.0661	3,0	10,2	38,0	130	07906	07562	
1,69	0.0665	3,0	10,2	38,0	130	07907	07563	
1,70	0.0669	3,0	10,2	38,0	130	07908	07564	
1,70	0.0669	3,0	20,0	50,0	130	07909	07565	
1,71	0.0673	3,0	10,2	38,0	130	07910	07566	
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	07570	
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	07917	07573	
1,78	0.0701	3,0	10,2	38,0	130	07918	07574	
1,79	0.0705	3,0	10,2	38,0	130	07919	07575	
1,80	0.0709	3,0	10,2	38,0	130	07920	07576	
1,80	0.0709	3,0	20,0	50,0	130	07921	07577	

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# 2 Flute External Coolant



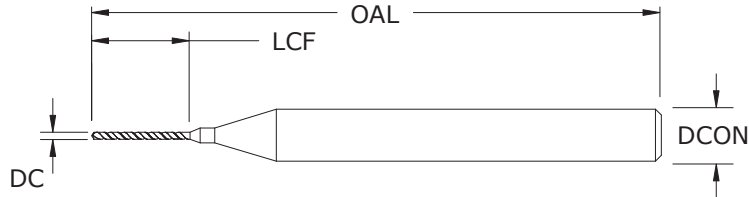
3xD

12xD



## M226 METRIC SERIES

continued



  New Expanded Tools

### TOLERANCES (mm)

0,04–3,0 DIAMETER

DC = +0,000/-0,008

DCON = h<sub>6</sub>

CUTTING DIAMETER DC	DECIMAL EQUIV.	mm				POINT ANGLE	EDP NO.	
		SHANK DIAMETER DCON	FLUTE LENGTH LCF	OVERALL LENGTH OAL	UNCOATED		TI-NAMITE-A (AlTiN)	
1,81	0.0713	3,0	10,2	38,0	130	07922	07578	
1,82	0.0717	3,0	10,2	38,0	130	07923	07579	
1,83	0.0720	3,0	10,2	38,0	130	07924	07580	
1,84	0.0724	3,0	10,2	38,0	130	07925	07581	
1,85	0.0728	3,0	10,2	38,0	130	07926	07582	
1,85	0.0728	3,0	22,8	60,0	130	07927	07583	
1,86	0.0732	3,0	10,2	38,0	130	07928	07584	
1,87	0.0736	3,0	10,2	38,0	130	07929	07585	
1,88	0.0740	3,0	10,2	38,0	130	07930	07586	
1,89	0.0744	3,0	10,2	38,0	130	07931	07587	
1,90	0.0748	3,0	10,2	38,0	130	07932	07588	
1,90	0.0748	3,0	22,8	60,0	130	07933	07589	
1,91	0.0752	3,0	10,2	38,0	130	07934	07590	
1,92	0.0756	3,0	10,2	38,0	130	07935	07591	
1,93	0.0760	3,0	10,2	38,0	130	07936	07592	
1,94	0.0764	3,0	10,2	38,0	130	07937	07593	
1,95	0.0768	3,0	10,2	38,0	130	07938	07594	
1,95	0.0768	3,0	24,0	60,0	130	07939	07595	
1,96	0.0772	3,0	10,2	38,0	130	07940	07596	
1,97	0.0776	3,0	10,2	38,0	130	07941	07597	
1,98	0.0780	3,0	10,2	38,0	130	07942	07598	
1,99	0.0783	3,0	10,2	38,0	130	07943	07599	
2,00	0.0787	3,0	10,2	38,0	130	07944	07600	
2,00	0.0787	3,0	24,0	60,0	130	07945	07601	
2,01	0.0791	3,0	10,2	38,0	130	07946	07602	
2,02	0.0795	3,0	10,2	38,0	130	07947	07603	
2,03	0.0799	3,0	10,2	38,0	130	07948	07604	
2,04	0.0803	3,0	10,2	38,0	130	07949	07605	
2,05	0.0807	3,0	10,2	38,0	130	07950	07606	
2,05	0.0807	3,0	25,2	60,0	130	07951	07607	
2,06	0.0811	3,0	10,2	38,0	130	07952	07608	
2,07	0.0815	3,0	10,2	38,0	130	07953	07609	
2,08	0.0819	3,0	10,2	38,0	130	07954	07610	
2,09	0.0823	3,0	10,2	38,0	130	07955	07611	
2,10	0.0827	3,0	10,2	38,0	130	07956	07612	
2,10	0.0827	3,0	25,2	60,0	130	07957	07613	

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

continued on next page



CUTTING DIAMETER DC	DECIMAL EQUIV.	mm				POINT ANGLE	EDP NO.	
		SHANK DIAMETER DCON	FLUTE LENGTH LCF	OVERALL LENGTH OAL	UNCOATED		TI-NAMITE-A (AlTiN)	
2,11	0.0831	3,0	10,2	38,0	130	07958	07614	
2,12	0.0835	3,0	10,2	38,0	130	07959	07615	
2,13	0.0839	3,0	10,2	38,0	130	07960	07616	
2,14	0.0843	3,0	10,2	38,0	130	07961	07617	
2,15	0.0846	3,0	10,2	38,0	130	07962	07618	
2,15	0.0846	3,0	26,4	60,0	130	07963	07619	
2,16	0.0850	3,0	10,2	38,0	130	07964	07620	
2,17	0.0854	3,0	10,2	38,0	130	07965	07621	
2,18	0.0858	3,0	10,2	38,0	130	07966	07622	
2,19	0.0862	3,0	10,2	38,0	130	07967	07623	
2,20	0.0866	3,0	10,2	38,0	130	07968	07624	
2,20	0.0866	3,0	26,4	60,0	130	07969	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	0.0921	3,0	10,2	38,0	130	07985	07641	
2,35	0.0925	3,0	10,2	38,0	130	07986	07642	
2,35	0.0925	3,0	28,8	60,0	130	07987	07643	
2,36	0.0929	3,0	10,2	38,0	130	07988	07644	
2,37	0.0933	3,0	10,2	38,0	130	07989	07645	
2,38	0.0937	3,0	10,2	38,0	130	07990	07646	
2,39	0.0941	3,0	10,2	38,0	130	07991	07647	
2,40	0.0945	3,0	10,2	38,0	130	07992	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	07655	
2,46	0.0969	3,0	10,2	38,0	130	08000	07656	
2,47	0.0972	3,0	10,2	38,0	130	08001	07657	
2,48	0.0976	3,0	10,2	38,0	130	08002	07658	
2,49	0.0980	3,0	10,2	38,0	130	08003	07659	

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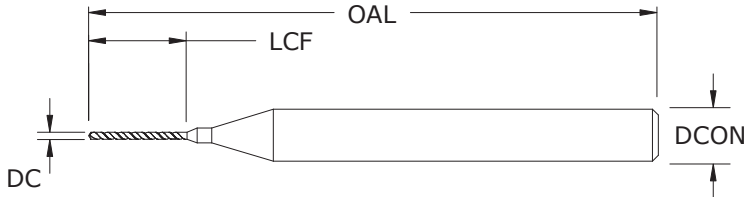
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# 2 Flute External Coolant



3xD

12xD



  New Expanded Tools

## M226 METRIC SERIES

continued

CUTTING DIAMETER DC	DECIMAL EQUIV.	mm				POINT ANGLE	EDP NO.	
		SHANK DIAMETER DCON	FLUTE LENGTH LCF	OVERALL LENGTH OAL	UNCOATED		TI-NAMITE-A (AlTiN)	
2,50	0.0984	3,0	10,2	38,0	130	08004	07660	
2,50	0.0984	3,0	30,0	60,0	130	08005	07661	
2,51	0.0988	3,0	10,2	38,0	130	08006	07662	
2,52	0.0992	3,0	10,2	38,0	130	08007	07663	
2,53	0.0996	3,0	10,2	38,0	130	08008	07664	
2,54	0.1000	3,0	10,2	38,0	130	08009	07665	
2,55	0.1004	3,0	10,2	38,0	130	08010	07666	
2,55	0.1004	3,0	31,2	60,0	130	08011	07667	
2,56	0.1008	3,0	10,2	38,0	130	08012	07668	
2,57	0.1012	3,0	10,2	38,0	130	08013	07669	
2,58	0.1016	3,0	10,2	38,0	130	08014	07670	
2,59	0.1020	3,0	10,2	38,0	130	08015	07671	
2,60	0.1024	3,0	10,2	38,0	130	08016	07672	
2,60	0.1024	3,0	31,2	60,0	130	08017	07673	
2,61	0.1028	3,0	10,2	38,0	130	08018	07674	
2,62	0.1031	3,0	10,2	38,0	130	08019	07675	
2,63	0.1035	3,0	10,2	38,0	130	08020	07676	
2,64	0.1039	3,0	10,2	38,0	130	08021	07677	
2,65	0.1043	3,0	10,2	38,0	130	08022	07678	
2,65	0.1043	3,0	32,4	60,0	130	08023	07679	
2,66	0.1047	3,0	10,2	38,0	130	08024	07680	
2,67	0.1051	3,0	10,2	38,0	130	08025	07681	
2,68	0.1055	3,0	10,2	38,0	130	08026	07682	
2,69	0.1059	3,0	10,2	38,0	130	08027	07683	
2,70	0.1063	3,0	10,2	38,0	130	08028	07684	
2,70	0.1063	3,0	32,4	60,0	130	08029	07685	
2,71	0.1067	3,0	10,2	38,0	130	08030	07686	
2,72	0.1071	3,0	10,2	38,0	130	08031	07687	
2,73	0.1075	3,0	10,2	38,0	130	08032	07688	
2,74	0.1079	3,0	10,2	38,0	130	08033	07689	
2,75	0.1083	3,0	10,2	38,0	130	08034	07690	
2,75	0.1083	3,0	33,6	60,0	130	08035	07691	
2,76	0.1087	3,0	10,2	38,0	130	08036	07692	
2,77	0.1091	3,0	10,2	38,0	130	08037	07693	
2,78	0.1094	3,0	10,2	38,0	130	08038	07694	
2,79	0.1098	3,0	10,2	38,0	130	08039	07695	

### TOLERANCES (mm)

0,04–3,0 DIAMETER

DC = +0,000/-0,008

DCON = h<sub>6</sub>

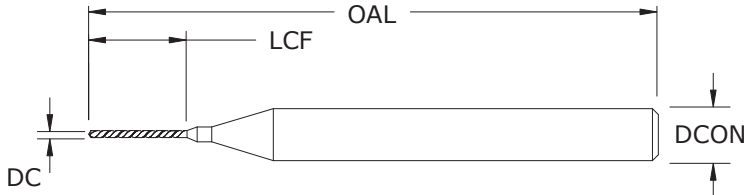
- STEELS
- STAINLESS STEELS
- CAST IRON
- HIGH TEMP ALLOYS
- TITANIUM
- HARDENED STEELS
- NON-FERROUS
- PLASTICS/COMPOSITES

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

# 2 Flute Left Hand Cut External Coolant



  New Expanded Tools

## L226 METRIC SERIES

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

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

### TOLERANCES (mm)

0,04–3,0 DIAMETER

DC = +0,000/–0,008

DCON = h<sub>6</sub>

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

continued on next page

# 2 Flute Left Hand Cut External Coolant

METRIC

**L226**  
METRIC SERIES

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

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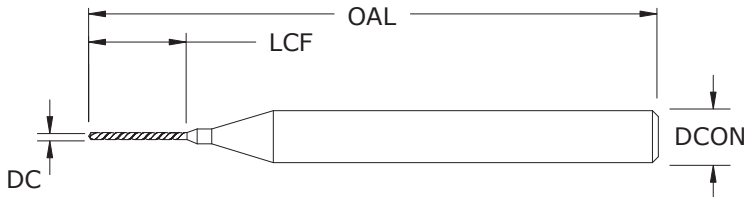
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# 2 Flute Left Hand Cut External Coolant



3xD

12xD



  New Expanded Tools

## L226 METRIC SERIES

continued

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

**TOLERANCES (mm)**

**0,04–3,0 DIAMETER**

DC = +0,000/–0,008

DCON = h<sub>6</sub>

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

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# 2 Flute Left Hand Cut External Coolant

METRIC

**L226**  
METRIC SERIES

CUTTING DIAMETER DC	DECIMAL EQUIV.	mm				POINT ANGLE	EDP NO.	
		SHANK DIAMETER DCON	FLUTE LENGTH LCF	OVERALL LENGTH OAL	UNCOATED		TI-NAMITE-A (AlTiN)	
1,40	0.0551	3,0	19,0	50,0	130	08346	08163	
1,45	0.0571	3,0	10,2	38,0	130	08347	08164	
1,45	0.0571	3,0	20,0	50,0	130	08348	08165	
1,50	0.0591	3,0	10,2	38,0	130	08349	08166	
1,50	0.0591	3,0	20,0	50,0	130	08350	08167	
1,55	0.0610	3,0	10,2	38,0	130	08351	08168	
1,55	0.0610	3,0	20,0	50,0	130	08352	08169	
1,60	0.0630	3,0	10,2	38,0	130	08353	08170	
1,60	0.0630	3,0	20,0	50,0	130	08354	08171	
1,65	0.0650	3,0	10,2	38,0	130	08355	08172	
1,65	0.0650	3,0	20,0	50,0	130	08356	08173	
1,70	0.0669	3,0	10,2	38,0	130	08357	08174	
1,70	0.0669	3,0	20,0	50,0	130	08358	08175	
1,75	0.0689	3,0	10,2	38,0	130	08359	08176	
1,75	0.0689	3,0	20,0	50,0	130	08360	08177	
1,80	0.0709	3,0	10,2	38,0	130	08361	08178	
1,80	0.0709	3,0	20,0	50,0	130	08362	08179	
1,85	0.0728	3,0	10,2	38,0	130	08363	08180	
1,85	0.0728	3,0	22,8	60,0	130	08364	08181	
1,90	0.0748	3,0	10,2	38,0	130	08365	08182	
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	08186	
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	08202	
2,40	0.0945	3,0	28,8	60,0	130	08386	08203	
2,45	0.0965	3,0	10,2	38,0	130	08387	08204	
2,45	0.0965	3,0	30,0	60,0	130	08388	08205	
2,50	0.0984	3,0	10,2	38,0	130	08389	08206	
2,50	0.0984	3,0	30,0	60,0	130	08390	08207	
2,55	0.1004	3,0	10,2	38,0	130	08391	08208	

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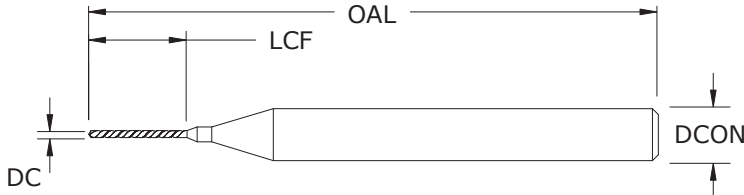
METRIC

# 2 Flute Left Hand Cut External Coolant



3xD

12xD



  New Expanded Tools

## L226 METRIC SERIES

continued

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

### TOLERANCES (mm)

0,04–3,0 DIAMETER

DC = +0,000/–0,008

DCON = h<sub>6</sub>

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

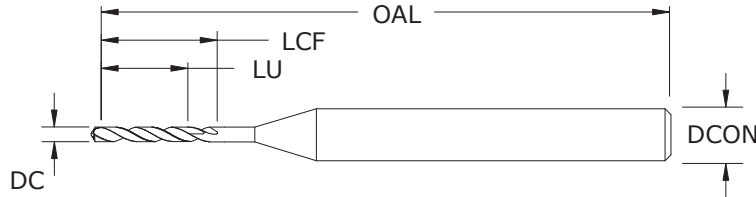


Series M226 • L226	Hardness	Vc (m/min)	DC • mm							
			0.04	0.25	0.5	1	2	3		
<b>P</b>	<b>CARBON STEELS</b> 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 175 Bhn or ≤ 7 HRc	40 (32-48)	RPM	315060	50410	25205	12602	6301	4201
				Fz	0.001	0.007	0.014	0.029	0.058	0.086
				Feed (mm/min)	363	363	363	363	363	363
				RPM	472590	75614	37807	18904	9452	6301
				Fz	0.001	0.007	0.013	0.026	0.052	0.078
				Feed (mm/min)	493	493	493	493	493	493
<b>H</b>	<b>TOOL STEELS</b> A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 475 Bhn or ≤ 50 HRc	24 (20-29)	RPM	193883	31021	15511	7755	3878	2585
				Fz	0.001	0.003	0.007	0.013	0.026	0.039
				Feed (mm/min)	102	102	102	102	102	102
				RPM	678591	108575	54287	27144	13572	9048
				Fz	0.001	0.004	0.008	0.016	0.033	0.049
				Feed (mm/min)	445	445	445	445	445	445
<b>K</b>	<b>CAST IRONS</b> Gray, Malleable, Ductile	≤ 220 Bhn or ≤ 19 HRc	85 (68-102)	RPM	157530	25205	12602	6301	3151	2100
				Fz	0.001	0.005	0.011	0.022	0.044	0.065
				Feed (mm/min)	137	137	137	137	137	137
				RPM	96942	15511	7755	3878	1939	1293
				Fz	0.001	0.004	0.009	0.018	0.035	0.053
				Feed (mm/min)	69	69	69	69	69	69
<b>M</b>	<b>STAINLESS STEELS (FREE MACHINING)</b> 303, 416, 420F, 430F, 440F	≤ 275 Bhn or ≤ 28 HRc	20 (16-24)	RPM	121177	19388	9694	4847	2424	1616
				Fz	0.000	0.003	0.006	0.011	0.022	0.033
				Feed (mm/min)	53	53	53	53	53	53
				RPM	121177	19388	9694	4847	2424	1616
				Fz	0.001	0.004	0.008	0.017	0.034	0.051
				Feed (mm/min)	82	82	82	82	82	82
<b>S</b>	<b>STAINLESS STEELS (DIFFICULT)</b> 304, 316, 321, 13-8 PH, 15-5PH, 17-4 PH, CUSTOM 450	≤ 320 Bhn or ≤ 35 HRc	15 (12-18)	RPM	593768	95003	47501	23751	11875	7917
				Fz	0.002	0.012	0.025	0.049	0.099	0.148
				Feed (mm/min)	1171	1171	1171	1171	1171	1171
				RPM	436237	69798	34899	17449	8725	5816
				Fz	0.002	0.012	0.025	0.049	0.099	0.148
				Feed (mm/min)	861	861	861	861	861	861
<b>N</b>	<b>ALUMINUM ALLOYS</b> 2017, 2024, 356, 6061, 7075	≤ 150 Bhn or ≤ 7 HRc	75 (60-90)	RPM	593768	95003	47501	23751	11875	7917
				Fz	0.002	0.012	0.025	0.049	0.099	0.148
				Feed (mm/min)	1171	1171	1171	1171	1171	1171
				RPM	593768	95003	47501	23751	11875	7917
				Fz	0.002	0.012	0.025	0.049	0.099	0.148
				Feed (mm/min)	1171	1171	1171	1171	1171	1171
<b>N</b>	<b>COPPER ALLOYS</b> Alum Bronze, C110, Muntz Brass	≤ 140 Bhn or ≤ 3 HRc	55 (44-66)	RPM	593768	95003	47501	23751	11875	7917
				Fz	0.002	0.012	0.025	0.049	0.099	0.148
				Feed (mm/min)	1171	1171	1171	1171	1171	1171
				RPM	593768	95003	47501	23751	11875	7917
				Fz	0.002	0.012	0.025	0.049	0.099	0.148
				Feed (mm/min)	1171	1171	1171	1171	1171	1171
<b>N</b>	<b>PLASTICS</b> Polycarbonate, PVC	75 (60-90)	75 (60-90)	RPM	593768	95003	47501	23751	11875	7917
				Fz	0.002	0.012	0.025	0.049	0.099	0.148
				Feed (mm/min)	1171	1171	1171	1171	1171	1171
				RPM	593768	95003	47501	23751	11875	7917
				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



  New Expanded Tools

## 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 high-performance coating and mirror polished fluting increase tool life and productivity in moderate-to-difficult workpiece materials
- Available from stock in a selection of popular lengths and diameters
- Application specific sub-micron grain carbide designed specifically for micro-tool applications
- Manufactured in accordance with KSPT ISO certified quality procedures

mm						EDP NO.
CUTTING DIAMETER DC	DECIMAL EQUIVALENT	SHANK DIAMETER DCON	FLUTE LENGTH LCF	CLEARED LENGTH LU	OVERALL LENGTH OAL	TI-NAMITE-CR (AICrN)
1,0	0.0394	4,0	13,3	8,0	53,0	06000
1,1	0.0433	4,0	14,1	8,8	53,0	06001
1,2	0.0472	4,0	14,9	9,6	53,0	06002
1,3	0.0512	4,0	15,7	10,4	53,0	06003
1,4	0.0551	4,0	16,5	11,2	53,0	06004
1,5	0.0591	4,0	17,3	12,0	53,0	06005
1,6	0.0630	4,0	18,1	12,8	64,0	06006
1,7	0.0669	4,0	18,9	13,6	64,0	06007
1,8	0.0709	4,0	20,4	14,4	64,0	06008
1,9	0.0748	4,0	21,2	15,2	64,0	06009
2,0	0.0787	4,0	22,0	16,0	64,0	06010
2,1	0.0827	4,0	22,8	16,8	64,0	06011
2,2	0.0866	4,0	25,7	17,6	64,0	06012
2,3	0.0906	4,0	26,5	18,4	64,0	06013
2,4	0.0945	4,0	27,3	19,2	64,0	06014
2,5	0.0984	4,0	28,1	20,0	64,0	06015
2,6	0.1024	4,0	28,9	20,8	76,0	06016
2,7	0.1063	4,0	29,7	21,6	76,0	06017
2,8	0.1102	4,0	30,5	22,4	76,0	06018
2,9	0.1142	4,0	32,2	23,2	76,0	06019
3,0	0.1181	4,0	33,0	24,0	76,0	06020
3,1	0.1220	4,0	33,8	24,8	76,0	06021
3,2	0.1260	4,0	34,6	25,6	76,0	06022
3,3	0.1299	4,0	35,4	26,4	76,0	06023
3,4	0.1339	4,0	38,1	27,2	76,0	06024
3,5	0.1378	4,0	38,9	28,0	76,0	06025
3,6	0.1417	4,0	39,7	28,8	76,0	06026
3,7	0.1457	4,0	40,5	29,6	76,0	06027
3,8	0.1496	4,0	41,3	30,4	76,0	06028
3,9	0.1535	4,0	42,1	31,2	76,0	06029
4,0	0.1575	4,0	42,9	32,0	76,0	06030
1,0	0.0394	4,0	20,3	15,0	64,0	06031
1,1	0.0433	4,0	21,8	16,5	64,0	06032
1,2	0.0472	4,0	23,3	18,0	64,0	06033

### TOLERANCES (mm)

1,0–4,0 DIAMETER

DC = +0,000/–0,008

DCON = h<sub>6</sub>

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

continued on next page

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

*continued*

## Series M814 8xD

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

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