

Solid Carbide Micro Drills

◆ Series 105 / 226 / 226L / 390 / 392

Workpiece Material	Material Hardness/Types	Uncoated Recommended Cutting Speed		AlTiN Coated Recommended Cutting Speed		Cutting Dia. DC (in)	Cutting Dia. DC (mm)	Feed Per Rev	
		(sfm)	(m/min)	(sfm)	(m/min)			(ipr)	(mm/rev)
Low Carbon Steel	12L14 A36	130 - 165	40 - 50	165 - 195	50 - 60	Ø0.005 - Ø0.010	Ø0.13 - Ø0.25	0.00015 - 0.00030	0.0040 - 0.0075
						Ø0.010 - Ø0.015	Ø0.25 - Ø0.38	0.00030 - 0.00045	0.0075 - 0.0115
						Ø0.015 - Ø0.020	Ø0.38 - Ø0.50	0.00045 - 0.00060	0.0115 - 0.0150
						Ø0.020 - Ø0.040	Ø0.50 - Ø1.00	0.00060 - 0.00120	0.0150 - 0.0300
						Ø0.040 - Ø0.080	Ø1.00 - Ø2.00	0.00120 - 0.00240	0.0300 - 0.0600
Mild Carbon Steel	1018 1028 1050	98 - 150	30 - 45	130 - 180	40 - 54	Ø0.005 - Ø0.010	Ø0.13 - Ø0.25	0.00014 - 0.00028	0.0035 - 0.0070
						Ø0.010 - Ø0.015	Ø0.25 - Ø0.38	0.00028 - 0.00042	0.0070 - 0.0106
						Ø0.015 - Ø0.020	Ø0.38 - Ø0.50	0.00042 - 0.00056	0.0106 - 0.0140
						Ø0.020 - Ø0.040	Ø0.50 - Ø1.00	0.00056 - 0.00115	0.0140 - 0.0280
						Ø0.040 - Ø0.080	Ø1.00 - Ø2.00	0.00115 - 0.00226	0.0280 - 0.0560
Alloy Steel	4130 4140 8620	180 - 245	55 - 75	195 - 260	60 - 80	Ø0.005 - Ø0.010	Ø0.13 - Ø0.25	0.00013 - 0.00026	0.0033 - 0.0066
						Ø0.010 - Ø0.015	Ø0.25 - Ø0.38	0.00026 - 0.00039	0.0066 - 0.0099
						Ø0.015 - Ø0.020	Ø0.38 - Ø0.50	0.00039 - 0.00052	0.0099 - 0.0132
						Ø0.020 - Ø0.040	Ø0.50 - Ø1.00	0.00052 - 0.00104	0.0132 - 0.0264
						Ø0.040 - Ø0.080	Ø1.00 - Ø2.00	0.00104 - 0.00208	0.0264 - 0.0528
Preharden Tool Steel	P20 4140PH A2 D2 H13	100 - 165	30 - 50	130 - 195	40 - 60	Ø0.005 - Ø0.010	Ø0.13 - Ø0.25	0.00008 - 0.00015	0.0020 - 0.0038
						Ø0.010 - Ø0.015	Ø0.25 - Ø0.38	0.00015 - 0.00023	0.0038 - 0.0058
						Ø0.015 - Ø0.020	Ø0.38 - Ø0.50	0.00023 - 0.00030	0.0038 - 0.0076
						Ø0.020 - Ø0.040	Ø0.50 - Ø1.00	0.00030 - 0.00060	0.0076 - 0.0152
						Ø0.040 - Ø0.080	Ø1.00 - Ø2.00	0.00060 - 0.00120	0.0152 - 0.0304
Harden Tool Steel	>48 HRC/ <55HRc	60 - 100	18 - 30	80 - 140	25 - 42	Ø0.005 - Ø0.010	Ø0.13 - Ø0.25	0.00006 - 0.00013	0.0015 - 0.0033
						Ø0.010 - Ø0.015	Ø0.25 - Ø0.38	0.00013 - 0.00019	0.0033 - 0.0048
						Ø0.015 - Ø0.020	Ø0.38 - Ø0.50	0.00019 - 0.00026	0.0048 - 0.0066
						Ø0.020 - Ø0.040	Ø0.50 - Ø1.00	0.00026 - 0.00052	0.0066 - 0.0132
						Ø0.040 - Ø0.080	Ø1.00 - Ø2.00	0.00052 - 0.00105	0.0132 - 0.0264
Stainless Steel	303 304 316 321	50 - 80	15 - 24	65 - 100	20 - 30	Ø0.005 - Ø0.010	Ø0.13 - Ø0.25	0.00011 - 0.00022	0.0028 - 0.0056
						Ø0.010 - Ø0.015	Ø0.25 - Ø0.38	0.00022 - 0.00033	0.0056 - 0.0084
						Ø0.015 - Ø0.020	Ø0.38 - Ø0.50	0.00033 - 0.00044	0.0084 - 0.0110
						Ø0.020 - Ø0.040	Ø0.50 - Ø1.00	0.00044 - 0.00087	0.0110 - 0.0220
						Ø0.040 - Ø0.080	Ø1.00 - Ø2.00	0.00087 - 0.00174	0.0220 - 0.0442
Stainless Steel	15-5PH 17-4PH 13-8 400 Series	30 - 50	10 - 15	40 - 70	12 - 21	Ø0.005 - Ø0.010	Ø0.13 - Ø0.25	0.00009 - 0.00017	0.0023 - 0.0043
						Ø0.010 - Ø0.015	Ø0.25 - Ø0.38	0.00017 - 0.00026	0.0043 - 0.0066
						Ø0.015 - Ø0.020	Ø0.38 - Ø0.50	0.00026 - 0.00035	0.0066 - 0.0089
						Ø0.020 - Ø0.040	Ø0.50 - Ø1.00	0.00035 - 0.00070	0.0089 - 0.0178
						Ø0.040 - Ø0.080	Ø1.00 - Ø2.00	0.00070 - 0.00139	0.0178 - 0.0353
						Ø0.080 - Ø0.125	Ø2.00 - Ø3.00	0.00139 - 0.00218	0.0353 - 0.0553

Recommended starting parameters are for standard flute length if using extended flute length drill reduce feed per rev by 25%

Recommended starting parameters based on good setup, minimum tool runout & good tooling

Note: These tools can also be used in PLASTICS, when doing so use the parameters for aluminum listed above

• Above recommendations are suggested starting parameters. Cutting speeds and feed rates may vary according to machining application and setup.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
SOLID TOOLS	L
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
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Solid Carbide Micro Drills

◆ Series 105 / 226 / 226L / 390 / 392

Workpiece Material	Material Hardness/Types	Uncoated Recommended Cutting Speed		AlTiN Coated Recommended Cutting Speed		Cutting Dia. DC (in)	Cutting Dia. DC (mm)	Feed Per Rev	
		(sfm)	(m/min)	(sfm)	(m/min)			(ipr)	(mm/rev)
Gray Cast Iron	-	130 - 165	40 - 50	165 - 190	50 - 57	Ø0.005 - Ø0.010	Ø0.13 - Ø0.25	0.00020 - 0.00039	0.0051 - 0.0099
						Ø0.010 - Ø0.015	Ø0.25 - Ø0.38	0.00039 - 0.00059	0.0099 - 0.0149
						Ø0.015 - Ø0.020	Ø0.38 - Ø0.50	0.00059 - 0.00078	0.0149 - 0.0198
						Ø0.020 - Ø0.040	Ø0.50 - Ø1.00	0.00078 - 0.00157	0.0198 - 0.0398
						Ø0.040 - Ø0.080	Ø1.00 - Ø2.00	0.00157 - 0.00313	0.0398 - 0.0795
Nodular Cast Iron	-	95 - 150	28 - 45	115 - 150	35 - 45	Ø0.005 - Ø0.010	Ø0.13 - Ø0.25	0.00015 - 0.00030	0.0040 - 0.0075
						Ø0.010 - Ø0.015	Ø0.25 - Ø0.38	0.00030 - 0.00045	0.0075 - 0.0115
						Ø0.015 - Ø0.020	Ø0.38 - Ø0.50	0.00045 - 0.00060	0.0115 - 0.0150
						Ø0.020 - Ø0.040	Ø0.50 - Ø1.00	0.00060 - 0.00120	0.0150 - 0.0300
						Ø0.040 - Ø0.080	Ø1.00 - Ø2.00	0.00120 - 0.00240	0.0300 - 0.0600
Aluminum	-	165 - 295	50 - 90	245 - 325	74 - 98	Ø0.005 - Ø0.010	Ø0.13 - Ø0.25	0.00025 - 0.00049	0.0063 - 0.0124
						Ø0.010 - Ø0.015	Ø0.25 - Ø0.38	0.00049 - 0.00074	0.0124 - 0.0188
						Ø0.015 - Ø0.020	Ø0.38 - Ø0.50	0.00074 - 0.00099	0.0188 - 0.0250
						Ø0.020 - Ø0.040	Ø0.50 - Ø1.00	0.00099 - 0.00197	0.0250 - 0.0500
						Ø0.040 - Ø0.080	Ø1.00 - Ø2.00	0.00197 - 0.00394	0.0500 - 0.1000
Copper Alloys	-	140 - 190	42 - 58	180 - 230	55 - 70	Ø0.005 - Ø0.010	Ø0.13 - Ø0.25	0.00025 - 0.00049	0.0063 - 0.0124
						Ø0.010 - Ø0.015	Ø0.25 - Ø0.38	0.00049 - 0.00074	0.0124 - 0.0188
						Ø0.015 - Ø0.020	Ø0.38 - Ø0.50	0.00074 - 0.00099	0.0188 - 0.0250
						Ø0.020 - Ø0.040	Ø0.50 - Ø1.00	0.00099 - 0.00197	0.0250 - 0.0500
						Ø0.040 - Ø0.080	Ø1.00 - Ø2.00	0.00197 - 0.00394	0.0500 - 0.1000
Heat Resistant Alloy	Waspaloy Hastelloy Inconel Monel	40 - 55	12 - 16	50 - 65	15 - 19	Ø0.005 - Ø0.010	Ø0.13 - Ø0.25	0.00005 - 0.00011	0.0014 - 0.0028
						Ø0.010 - Ø0.015	Ø0.25 - Ø0.38	0.00011 - 0.00016	0.0028 - 0.0041
						Ø0.015 - Ø0.020	Ø0.38 - Ø0.50	0.00016 - 0.00022	0.0041 - 0.0055
						Ø0.020 - Ø0.040	Ø0.50 - Ø1.00	0.00022 - 0.00044	0.0055 - 0.0110
						Ø0.040 - Ø0.080	Ø1.00 - Ø2.00	0.00044 - 0.00087	0.0110 - 0.0220
Titanium Alloy	-	40 - 55	12 - 16	50 - 65	15 - 19	Ø0.005 - Ø0.010	Ø0.13 - Ø0.25	0.00006 - 0.00013	0.0015 - 0.0033
						Ø0.010 - Ø0.015	Ø0.25 - Ø0.38	0.00013 - 0.00019	0.0033 - 0.0048
						Ø0.015 - Ø0.020	Ø0.38 - Ø0.50	0.00019 - 0.00026	0.0048 - 0.0066
						Ø0.020 - Ø0.040	Ø0.50 - Ø1.00	0.00026 - 0.00052	0.0066 - 0.0132
						Ø0.040 - Ø0.080	Ø1.00 - Ø2.00	0.00052 - 0.00105	0.0132 - 0.0264
						Ø0.080 - Ø0.125	Ø2.00 - Ø3.00	0.00105 - 0.00163	0.0264 - 0.0414

Recommended starting parameters are for standard flute length if using extended flute length drill reduce feed per rev by 25%

Recommended starting parameters based on good setup, minimum tool runout & good tooling

Note: These tools can also be used in PLASTICS, when doing so use the parameters for aluminum listed above

- Above recommendations are suggested starting parameters. Cutting speeds and feed rates may vary according to machining application and setup.

L	SOLID TOOLS
DRILLS	
END MILLS	
ROUTERS	
THREAD MILLS	
ENGRAVERS	
BORING BARS	
REAMERS	
TECHNICAL	

1/8" SHANK

MICRO DRILLS

0.0040" - 0.0200" DIAMETER

Mirror Surface Finishes
Sub Micron Grain Carbide



STANDARD Flute Length

Uncoated		AITIN Coating		Drill Size	Dimensions (in)				Point Angle
Part Number	Stock	Part Number	Stock		DC ^{+0.0000} _{-0.0003}	DCON	OAL	LCF	
105-0040.040	●	105-0040L040	●	0.10mm	0.0040	1/8	1 1/2	0.040	118°
105-0050.040	●	105-0050L040	●	0.13mm	0.0050	1/8	1 1/2	0.040	118°
105-0059.080	●	105-0059L080	●	#97	0.0059	1/8	1 1/2	0.080	118°
105-0063.080	●	105-0063L080	●	#96	0.0063	1/8	1 1/2	0.080	118°
105-0067.080	●	105-0067L080	●	#95	0.0067	1/8	1 1/2	0.080	118°
105-0071.100	●	105-0071L100	●	#94	0.0071	1/8	1 1/2	0.100	118°
105-0075.100	●	105-0075L100	●	#93	0.0075	1/8	1 1/2	0.100	118°
105-0079.100	●	105-0079L100	●	#92	0.0079	1/8	1 1/2	0.100	118°
105-0083.100	●	105-0083L100	●	#91	0.0083	1/8	1 1/2	0.100	118°
105-0087.100	●	105-0087L100	●	#90	0.0087	1/8	1 1/2	0.100	118°
105-0091.150	●	105-0091L150	●	#89	0.0091	1/8	1 1/2	0.150	118°
105-0095.150	●	105-0095L150	●	#88	0.0095	1/8	1 1/2	0.150	118°
105-0098.150	●	105-0098L150	●	0.25mm	0.0098	1/8	1 1/2	0.150	118°
105-0100.150	●	105-0100L150	●	#87	0.0100	1/8	1 1/2	0.150	118°
105-0105.150	●	105-0105L150	●	#86	0.0105	1/8	1 1/2	0.150	118°
105-0110.150	●	105-0110L150	●	#85	0.0110	1/8	1 1/2	0.150	118°
105-0115.150	●	105-0115L150	●	#84	0.0115	1/8	1 1/2	0.150	118°
105-0118.225	●	105-0118L225	●	0.30mm	0.0118	1/8	1 1/2	0.225	118°
105-0120.225	●	105-0120L225	●	#83	0.0120	1/8	1 1/2	0.225	118°
105-0125.225	●	105-0125L225	●	#82	0.0125	1/8	1 1/2	0.225	118°
105-0130.225	●	105-0130L225	●	#81	0.0130	1/8	1 1/2	0.225	118°
105-0135.225	●	105-0135L225	●	#80	0.0135	1/8	1 1/2	0.225	130°
105-0138.225	●	105-0138L225	●	0.35mm	0.0138	1/8	1 1/2	0.225	130°
105-0145.225	●	105-0145L225	●	#79	0.0145	1/8	1 1/2	0.225	130°
105-0156.250	●	105-0156L250	●	1/64"	0.0156	1/8	1 1/2	0.250	130°
105-0157.250	●	105-0157L250	●	0.40mm	0.0157	1/8	1 1/2	0.250	130°
105-0160.250	●	105-0160L250	●	#78	0.0160	1/8	1 1/2	0.250	130°
105-0177.250	●	105-0177L250	●	0.45mm	0.0177	1/8	1 1/2	0.250	130°
105-0180.250	●	105-0180L250	●	#77	0.0180	1/8	1 1/2	0.250	130°
105-0197.260	●	105-0197L260	●	0.50mm	0.0197	1/8	1 1/2	0.260	130°
105-0200.260	●	105-0200L260	●	#76	0.0200	1/8	1 1/2	0.260	130°

- L SOLID TOOLS
- DRILLS
- END MILLS
- ROUTERS
- THREAD MILLS
- ENGRAVERS
- BORING BARS
- REAMERS
- TECHNICAL

SERIES 105 WORKPIECE MATERIAL																
Coating	P	P	H	H	M	K	N	N	N	N	N	N	N	S	S	
	Steel ~30HRC	Steel 30-40HRC	Hardened Steel ~55HRC	Hardened Steel ~68HRC	Stainless Steel	Cast Iron	Aluminum	Graphite	Copper Alloy	Brass	CFRP	Plastic	Thermoset Plastic	High Density Plastic	Nickel / Cobalt	Titanium Alloy
AITIN	★	★	★	★	★	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆
Uncoated						☆	☆	★	★	★	★	★	★	★	★	☆

★ : Priority ☆ : Applicable Materials

Recommended Cutting Conditions Page L193-L194

Symbol Descriptions Page L3

1/8" SHANK

MICRO DRILLS

0.0210" - 0.0430" DIAMETER

Mirror Surface Finishes
Sub Micron Grain Carbide



4 Facet Point Geometry



STANDARD Flute Length

Uncoated		AITIN Coating		Drill Size	Dimensions (in)				Point Angle
Part Number	Stock	Part Number	Stock		DC ^{+0.0000} _{-0.0003}	DCON	OAL	LCF	
105-0210.310	●	105-0210L310	●	#75	0.0210	1/8	1 1/2	0.310	130°
105-0217.340	●	105-0217L340	●	0.55mm	0.0217	1/8	1 1/2	0.340	130°
105-0225.340	●	105-0225L340	●	#74	0.0225	1/8	1 1/2	0.340	130°
105-0236.340	●	105-0236L340	●	0.60mm	0.0236	1/8	1 1/2	0.340	130°
105-0240.340	●	105-0240L340	●	#73	0.0240	1/8	1 1/2	0.340	130°
105-0250.340	●	105-0250L340	●	#72	0.0250	1/8	1 1/2	0.340	130°
105-0256.340	●	105-0256L340	●	0.65mm	0.0256	1/8	1 1/2	0.340	130°
105-0260.340	●	105-0260L340	●	#71	0.0260	1/8	1 1/2	0.340	130°
105-0276.400	●	105-0276L400	●	0.70mm	0.0276	1/8	1 1/2	0.400	130°
105-0280.400	●	105-0280L400	●	#70	0.0280	1/8	1 1/2	0.400	130°
105-0292.400	●	105-0292L400	●	#69	0.0292	1/8	1 1/2	0.400	130°
105-0295.400	●	105-0295L400	●	0.75mm	0.0295	1/8	1 1/2	0.400	130°
105-0310.400	●	105-0310L400	●	#68	0.0310	1/8	1 1/2	0.400	130°
105-0312.400	●	105-0312L400	●	1/32"	0.0312	1/8	1 1/2	0.400	130°
105-0315.400	●	105-0315L400	●	0.80mm	0.0315	1/8	1 1/2	0.400	130°
105-0320.400	●	105-0320L400	●	#67	0.0320	1/8	1 1/2	0.400	130°
105-0330.400	●	105-0330L400	●	#66	0.0330	1/8	1 1/2	0.400	130°
105-0335.400	●	105-0335L400	●	0.85mm	0.0335	1/8	1 1/2	0.400	130°
105-0350.400	●	105-0350L400	●	#65	0.0350	1/8	1 1/2	0.400	130°
105-0354.400	●	105-0354L400	●	0.90mm	0.0354	1/8	1 1/2	0.400	130°
105-0360.400	●	105-0360L400	●	#64	0.0360	1/8	1 1/2	0.400	130°
105-0370.400	●	105-0370L400	●	#63	0.0370	1/8	1 1/2	0.400	130°
105-0374.400	●	105-0374L400	●	0.95mm	0.0374	1/8	1 1/2	0.400	130°
105-0380.400	●	105-0380L400	●	#62	0.0380	1/8	1 1/2	0.400	130°
105-0390.400	●	105-0390L400	●	#61	0.0390	1/8	1 1/2	0.400	130°
105-0394.400	●	105-0394L400	●	1.00mm	0.0394	1/8	1 1/2	0.400	130°
105-0400.400	●	105-0400L400	●	#60	0.0400	1/8	1 1/2	0.400	130°
105-0410.400	●	105-0410L400	●	#59	0.0410	1/8	1 1/2	0.400	130°
105-0413.400	●	105-0413L400	●	1.05mm	0.0413	1/8	1 1/2	0.400	130°
105-0420.400	●	105-0420L400	●	#58	0.0420	1/8	1 1/2	0.400	130°
105-0430.400	●	105-0430L400	●	#57	0.0430	1/8	1 1/2	0.400	130°

SERIES 105 WORKPIECE MATERIAL																
Coating	P	P	H	H	M	K	N	N	N	N	N	N	N	S	S	
	Steel ~30HRC	Steel 30-40HRC	Hardened Steel ~55HRC	Hardened Steel ~68HRC	Stainless Steel	Cast Iron	Aluminum	Graphite	Copper Alloy	Brass	CFRP	Plastic	Thermoset Plastic	High Density Plastic	Nickel / Cobalt	Titanium Alloy
AITIN	★	★	★	★	★	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆
Uncoated							☆	☆	★	★	☆	★	★	★	☆	☆

★ : Priority ☆ : Applicable Materials

Recommended Cutting Conditions Page L193-L194

Symbol Descriptions Page L3

● : U.S. Stock Standard
■ : NOT STOCKED - Call for Delivery

(U.S.) 1.888.848.8449
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INSERT GRADES A
 TURNING INSERTS B
 GEN/PCD INSERTS C
 TURNING HOLDERS D
 SMALL TOOLS E
 BORING F
 GROOVING G
 CUT-OFF H
 THREADING J
 DRILLING K
 SOLID TOOLS L
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1/8" SHANK

MICRO DRILLS

0.0433" - 0.0768" DIAMETER

Mirror Surface Finishes
Sub Micron Grain Carbide



4 Facet Point Geometry



STANDARD Flute Length

Uncoated		AITIN Coating		Drill Size	Dimensions (in)				Point Angle
Part Number	Stock	Part Number	Stock		DC ^{+0.0000} _{-0.0003}	DCON	OAL	LCF	
105-0433.400	●	105-0433L400	●	1.10mm	0.0433	1/8	1 1/2	0.400	130°
105-0440.400	●	105-0440L400	●	1.12mm	0.0440	1/8	1 1/2	0.400	130°
105-0453.400	●	105-0453L400	●	1.15mm	0.0453	1/8	1 1/2	0.400	130°
105-0465.400	●	105-0465L400	●	#56	0.0465	1/8	1 1/2	0.400	130°
105-0469.400	●	105-0469L400	●	3/64"	0.0469	1/8	1 1/2	0.400	130°
105-0472.400	●	105-0472L400	●	1.20mm	0.0472	1/8	1 1/2	0.400	130°
105-0492.400	●	105-0492L400	●	1.25mm	0.0492	1/8	1 1/2	0.400	130°
105-0512.400	●	105-0512L400	●	1.30mm	0.0512	1/8	1 1/2	0.400	130°
105-0520.400	●	105-0520L400	●	#55	0.0520	1/8	1 1/2	0.400	130°
105-0531.400	●	105-0531L400	●	1.35mm	0.0531	1/8	1 1/2	0.400	130°
105-0550.400	●	105-0550L400	●	#54	0.0550	1/8	1 1/2	0.400	130°
105-0551.400	●	105-0551L400	●	1.40mm	0.0551	1/8	1 1/2	0.400	130°
105-0571.400	●	105-0571L400	●	1.45mm	0.0571	1/8	1 1/2	0.400	130°
105-0591.400	●	105-0591L400	●	1.50mm	0.0591	1/8	1 1/2	0.400	130°
105-0595.400	●	105-0595L400	●	#53	0.0595	1/8	1 1/2	0.400	130°
105-0610.400	●	105-0610L400	●	1.55mm	0.0610	1/8	1 1/2	0.400	130°
105-0625.400	●	105-0625L400	●	1/16"	0.0625	1/8	1 1/2	0.400	130°
105-0630.400	●	105-0630L400	●	1.60mm	0.0630	1/8	1 1/2	0.400	130°
105-0635.400	●	105-0635L400	●	#52	0.0635	1/8	1 1/2	0.400	130°
105-0650.400	●	105-0650L400	●	1.65mm	0.0650	1/8	1 1/2	0.400	130°
105-0669.400	●	105-0669L400	●	1.70mm	0.0669	1/8	1 1/2	0.400	130°
105-0670.400	●	105-0670L400	●	#51	0.0670	1/8	1 1/2	0.400	130°
105-0689.400	●	105-0689L400	●	1.75mm	0.0689	1/8	1 1/2	0.400	130°
105-0700.400	●	105-0700L400	●	#50	0.0700	1/8	1 1/2	0.400	130°
105-0709.400	●	105-0709L400	●	1.80mm	0.0709	1/8	1 1/2	0.400	130°
105-0728.400	●	105-0728L400	●	1.85mm	0.0728	1/8	1 1/2	0.400	130°
105-0730.400	●	105-0730L400	●	#49	0.0730	1/8	1 1/2	0.400	130°
105-0748.400	●	105-0748L400	●	1.90mm	0.0748	1/8	1 1/2	0.400	130°
105-0760.400	●	105-0760L400	●	#48	0.0760	1/8	1 1/2	0.400	130°
105-0768.400	●	105-0768L400	●	1.95mm	0.0768	1/8	1 1/2	0.400	130°

- SOLID TOOLS
- DRILLS
- END MILLS
- ROUTERS
- THREAD MILLS
- ENGRAVERS
- BORING BARS
- REAMERS
- TECHNICAL

SERIES 105 WORKPIECE MATERIAL																
Coating	P	P	H	H	M	K	N	N	N	N	N	N	N	S	S	
	Steel ~30HRC	Steel 30-40HRC	Hardened Steel ~55HRC	Hardened Steel ~68HRC	Stainless Steel	Cast Iron	Aluminum	Graphite	Copper Alloy	Brass	CFRP	Plastic	Thermoset Plastic	High Density Plastic	Nickel / Cobalt	Titanium Alloy
AITIN	★	★	★	★	★	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆
Uncoated						☆	☆	★	★	☆	★	★	★			☆

★ : Priority ☆ : Applicable Materials

Recommended Cutting Conditions Page L193-L194

Symbol Descriptions Page L3

1/8" SHANK

MICRO DRILLS

0.0781" - 0.1083" DIAMETER

Mirror Surface Finishes
Sub Micron Grain Carbide



STANDARD Flute Length



Uncoated		AITIN Coating		Drill Size	Dimensions (in)				Point Angle
Part Number	Stock	Part Number	Stock		DC ^{+0.0000} _{-0.0003}	DCON	OAL	LCF	
105-0781.400	●	105-0781L400	●	5/64"	0.0781	1/8	1 1/2	0.400	130°
105-0785.400	●	105-0785L400	●	#47	0.0785	1/8	1 1/2	0.400	130°
105-0787.400	●	105-0787L400	●	2.00mm	0.0787	1/8	1 1/2	0.400	130°
105-0807.400	●	105-0807L400	●	2.05mm	0.0807	1/8	1 1/2	0.400	130°
105-0810.400	●	105-0810L400	●	#46	0.0810	1/8	1 1/2	0.400	130°
105-0820.400	●	105-0820L400	●	#45	0.0820	1/8	1 1/2	0.400	130°
105-0827.400	●	105-0827L400	●	2.10mm	0.0827	1/8	1 1/2	0.400	130°
105-0846.400	●	105-0846L400	●	2.15mm	0.0846	1/8	1 1/2	0.400	130°
105-0860.400	●	105-0860L400	●	#44	0.0860	1/8	1 1/2	0.400	130°
105-0866.400	●	105-0866L400	●	2.20mm	0.0866	1/8	1 1/2	0.400	130°
105-0886.400	●	105-0886L400	●	2.25mm	0.0886	1/8	1 1/2	0.400	130°
105-0890.400	●	105-0890L400	●	#43	0.0890	1/8	1 1/2	0.400	130°
105-0906.400	●	105-0906L400	●	2.30mm	0.0906	1/8	1 1/2	0.400	130°
105-0925.400	●	105-0925L400	●	2.35mm	0.0925	1/8	1 1/2	0.400	130°
105-0935.400	●	105-0935L400	●	#42	0.0935	1/8	1 1/2	0.400	130°
105-0938.400	●	105-0938L400	●	3/32"	0.0938	1/8	1 1/2	0.400	130°
105-0945.400	●	105-0945L400	●	2.40mm	0.0945	1/8	1 1/2	0.400	130°
105-0960.400	●	105-0960L400	●	#41	0.0960	1/8	1 1/2	0.400	130°
105-0965.400	●	105-0965L400	●	2.45mm	0.0965	1/8	1 1/2	0.400	130°
105-0980.400	●	105-0980L400	●	#40	0.0980	1/8	1 1/2	0.400	130°
105-0984.400	●	105-0984L400	●	2.50mm	0.0984	1/8	1 1/2	0.400	130°
105-0995.400	●	105-0995L400	●	#39	0.0995	1/8	1 1/2	0.400	130°
105-1004.400	●	105-1004L400	●	2.55mm	0.1004	1/8	1 1/2	0.400	130°
105-1015.400	●	105-1015L400	●	#38	0.1015	1/8	1 1/2	0.400	130°
105-1024.400	●	105-1024L400	●	2.60mm	0.1024	1/8	1 1/2	0.400	130°
105-1040.400	●	105-1040L400	●	#37	0.1040	1/8	1 1/2	0.400	130°
105-1043.400	●	105-1043L400	●	2.65mm	0.1043	1/8	1 1/2	0.400	130°
105-1063.400	●	105-1063L400	●	2.70mm	0.1063	1/8	1 1/2	0.400	130°
105-1065.400	●	105-1065L400	●	#36	0.1065	1/8	1 1/2	0.400	130°
105-1083.400	●	105-1083L400	●	2.75mm	0.1083	1/8	1 1/2	0.400	130°

SERIES 105 WORKPIECE MATERIAL																
Coating	P	P	H	H	M	K	N	N	N	N	N	N	N	S	S	
	Steel ~30HRC	Steel 30~40HRC	Hardened Steel ~55HRC	Hardened Steel ~68HRC	Stainless Steel	Cast Iron	Aluminum	Graphite	Copper Alloy	Brass	CFRP	Plastic	Thermoset Plastic	High Density Plastic	Nickel / Cobalt	Titanium Alloy
AITIN	★	★	★	★	★	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆
Uncoated							☆	☆	★	★	☆	★	★	★	☆	☆

★ : Priority ☆ : Applicable Materials Recommended Cutting Conditions Page L193-L194 Symbol Descriptions Page L3

● : U.S. Stock Standard
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INSERT GRADES A
TURNING INSERTS B
GEN/PCD INSERTS C
TURNING HOLDERS D
SMALL TOOLS E
BORING F
GROOVING G
CUT-OFF H
THREADING J
DRILLING K
SOLID TOOLS L
MILLING M
QUICK CHANGE TOOLING N
SPARE PARTS P
TECHNICAL R
INDEX T

1/8" SHANK

MICRO DRILLS

0.1094" - 0.1250" DIAMETER

Mirror Surface Finishes
Sub Micron Grain Carbide



4 Facet Point Geometry



STANDARD Flute Length

Uncoated		AlTiN Coating		Drill Size	Dimensions (in)				Point Angle
Part Number	Stock	Part Number	Stock		DC ^{+0.0000} _{-0.0003}	DCON	OAL	LCF	
105-1094.400	●	105-1094L400	●	7/64"	0.1094	1/8	1 1/2	0.400	130°
105-1100.400	●	105-1100L400	●	#35	0.1100	1/8	1 1/2	0.400	130°
105-1102.400	●	105-1102L400	●	2.80mm	0.1102	1/8	1 1/2	0.400	130°
105-1110.400	●	105-1110L400	●	#34	0.1110	1/8	1 1/2	0.400	130°
105-1122.400	●	105-1122L400	●	2.85mm	0.1122	1/8	1 1/2	0.400	130°
105-1130.400	●	105-1130L400	●	#33	0.1130	1/8	1 1/2	0.400	130°
105-1142.400	●	105-1142L400	●	2.90mm	0.1142	1/8	1 1/2	0.400	130°
105-1160.400	●	105-1160L400	●	#32	0.1160	1/8	1 1/2	0.400	130°
105-1161.400	●	105-1161L400	●	2.95mm	0.1161	1/8	1 1/2	0.400	130°
105-1181.400	●	105-1181L400	●	3.00mm	0.1181	1/8	1 1/2	0.400	130°
105-1200.400	●	105-1200L400	●	#31	0.1200	1/8	1 1/2	0.400	130°
105-1201.400	●	105-1201L400	●	3.05mm	0.1201	1/8	1 1/2	0.400	130°
105-1220.400	●	105-1220L400	●	3.10mm	0.1220	1/8	1 1/2	0.400	130°
105-1240.400	●	105-1240L400	●	3.15mm	0.1240	1/8	1 1/2	0.400	130°
105-1250.400	●	105-1250L400	●	1/8"	0.1250	1/8	1 1/2	0.400	130°

- L SOLID TOOLS
- DRILLS
- END MILLS
- ROUTERS
- THREAD MILLS
- ENGRAVERS
- BORING BARS
- REAMERS
- TECHNICAL

SERIES 105 WORKPIECE MATERIAL																
Coating	P	P	H	H	M	K	N	N	N	N	N	N	N	S	S	
	Steel ~30HRC	Steel 30-40HRC	Hardened Steel ~55HRC	Hardened Steel ~68HRC	Stainless Steel	Cast Iron	Aluminum	Graphite	Copper Alloy	Brass	CFRP	Plastic	Thermoset Plastic	High Density Plastic	Nickel / Cobalt	Titanium Alloy
AlTiN	★	★	★	★	★	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆
Uncoated						☆	☆	★	★	☆	★	★	★			☆

★ : Priority ☆ : Applicable Materials

Recommended Cutting Conditions Page L193-L194

Symbol Descriptions Page L3

Material Icon Glossary

This glossary will provide you with the material icons shown throughout the catalog. Each product will have applicable materials listed for coated and uncoated tools along with a black star to indicate the material priority.

P	H	M	K	N	S
Carbon Steel & Alloy Steel	Hardened Steel & Chilled Cast Iron	Stainless Steel & Cast Steel	Gray Cast Iron & Nodular Cast Iron	Non-Ferrous Metals & Non-Metals	Heat-Resistant Alloys

Tool Attributes Icon Glossary

Below is a list of icons used to describe specific tool characterizations throughout the catalog for a quick understanding of the tool's attributes or advantages. Icons will vary based on the tool that is represented. Below are examples.

Sub Micron Grain Carbide	Number of Flutes (2)	8 Times Tool Diameter	Right-Hand Tool	Left-Hand Tool
30° Helix Angle	45° Tip Chamfer Angle	130° Included Point Angle	Corner Radius Tool	Ball Nose Radius Tool
Variable Helix Angle				

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
SOLID TOOLS	L
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T