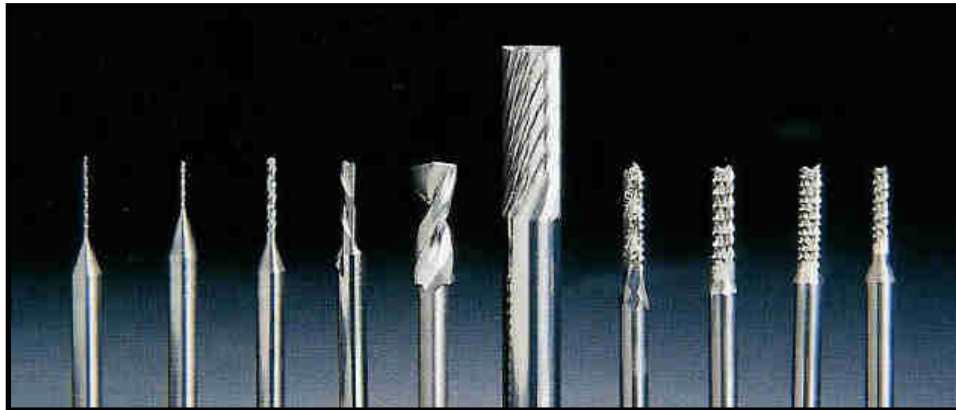




Carbide Drills & Routers for the PWB Industry



Product Manual for North America

Distributed Exclusively By



**MATRIX
USA INC**

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INTRODUCTION

Jinzhou Precision Technology Corp. was founded in 1986. The Company is Located in Shenzhen and is China's largest high-tech designer and manufacturer of PCB carbide drills, routers and other special high-precision tools.

By controlling and optimizing each manufacturing step from raw material procurement to the finishing inspection, Jinzhou produces the world's highest quality drills and routers. The Company sources the best quality raw-tungsten and ultra-fine carbide rods that are specifically engineered for manufacturing PCB cutting tools. Jinzhou is equipped with state-of-the-art CNC grinding machines from Germany and Switzerland and with strong in-house design and engineering capability, Jinzhou produces a wide spectrum of carbide drills and routers that meet the needs of the most challenging PCB drilling and routing applications. Our standard carbide drills cover diameter ranges from .0008" (less than 1 mil) to .2559" and routers between .0157" to 1/8". With our continuous improvement quality program, Jinzhou has earned its reputation of being a reliable global supplier of quality PCB drills and routers. Jinzhou became an ISO9001 certified company in 1999 and currently holds ISO9001: 2000 and ISO 14001: 2004 certifications.



In 2004, Jinzhou constructed a new 300,000 sqft manufacturing plant. This USD\$10MM investment has increased the Company's total production capacity to 60 million tools per year (2008).

Matrix USA is the exclusive North American distributor for Jinzhou, providing Sales and Service Support. Matrix will ensure 100% customer satisfaction, on-time delivery, and technical support. We guarantee to reduce the customers' costs and improve yields.

In this brochure, you will find detailed product information. Should you have any questions or are in need of an item not found in this brochure, please contact us. For additional information about Jinzhou and Matrix USA, please visit us at www.matrixusa.us and www.chinadrill.com.





Precision Carbide Drills & Routers

MANUFACTURING / RESEARCH & DEVELOPMENT EQUIPMENT



Rollomatic
Nanogrind 4000XD



CNC 2000XD



Smart Shape NP4



CNC 148P4



Rollomatic
CNC620XS



Hitachi 350Krpm
Drilling Machine



Hole AOI
Measurement



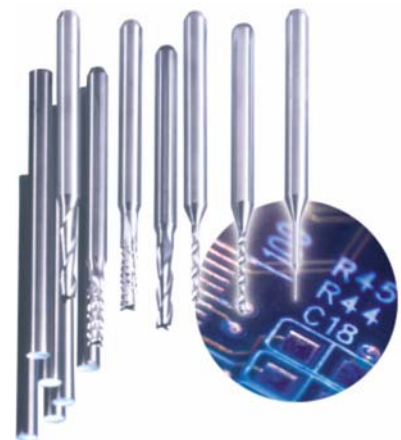
100% Point
verification and
Ring Setting





PRODUCT DESCRIPTIONS

- Series 129ST** Straight Drills: Standard drill series suitable for most PWB applications, including standard Tg PWBs and mid-layer count MBLs. **(pg. 7)**
- Series 129UCSN** Undercut Drills: This tool has a proprietary geometry with reduced undercut diameter which lowers drilling temperatures and minimizes hole wall abrasion. They were engineered specifically for phenolic-cured (“Lead-Free”) and higher technology PWBs. **(pg. 8)**
- Series 131LD** Large Diameter Drills: All of our LD series is fashioned from one-piece, solid carbide. Available diameter range is from .1260” through .2570”. **(pg. 9)**
- Series 125SD** Slot Drills: These tools have a high-strength design for drilling slots and nibbling circles. **(pg. 10)**
- Series 141HF** High Feed Diamond Cut Routers: Special design cutting tooth array allows high efficiency routing with good debris removal. These tools are suitable for general machining applications. **(pg. 11)**
- Series 141RN** Diamond Cut Routers: Engineered specifically for machining phenolic-cured and higher technology PWB-type products. These tools are designed to minimize fracturing, extend tool life and enhanced debris removal from the hole. **(pg. 12)**
- Series 151CB** Chipbreaker Routers: These routers are designed with small chipbreakers to provide smooth contours and prevent edge burrs. They are suitable for all peripheral routing applications with high precision requirements. **(pg. 12)**
- Series 111EM** Single Flute Endmills: These tools are designed with a large chip removal pocket for machining soft materials such as Teflon and flexible boards. **(pg. 13)**
- Series 161EM** Two Flute Endmills: Designed with sharp cutting edges suitable for machining non-ferrous metal-based materials, Teflon, and flexible boards. These tools are also good for routing smooth slots and contours. **(pg. 13)**
- Series 202CS** Single Flute Countersinks: These tools are available in .250” and .320” diameters with a 80°, 82°, 90°, or 100° point angle.





IDENTIFYING PART NUMBERS AND LABELS

Matrix Part No.	Series Description	Diameter	Flute Length (FL)
76232EL	SR129UCSN	.0100"	x .197"

#87	Extended Flute (Ring)	Ring / No Ring
Size	Flute Description	
#87	.0100" x .197"	Ring

www.chinadrill.com

Type.	SR129UCSN Ring
Part No.	76232EL
Lot No.	12345678
QC	Qty. 50

PRECISION CARBIDE DRILLS & ROUTERS
Distributed by Matrix USA
Tel: 800-668-5447 Fax: 905-670-8420

Part Number	Description
76021	Standard Flute Length
76021SL	Short Flute Length
76021EL	Extended Flute Length
76021SP	Special Flute Length

Series	Description
SR129QV	Standard Drill , High Helix Angle
SR129ST	Standard Drill , Standard Helix Angle
SR129UCSN	Undercut Drill, Advanced Design
SR131LD	Large Diameter Drill (Greater than 1/8")
SR125SD	Slot Drill
SR141HF	High Efficiency Diamond-Cut Router, Fishtail
SR142HF	High Efficiency Diamond-Cut Router, Drill Point
SR141RN	Super Finish Diamond-Cut Router, Fishtail
SR142RN	Super Finish Diamond-Cut Router, Drill Point
SR151CB	Chipbreaker Router, Fishtail
SR152CB	Chipbreaker Router, Drill Point
SR111EM	Single-Flute Endmill
SR161EM	Two-Flute Endmill
SR202CS	Single-Flute Countersink



DRILL SPECIFICATIONS AND TOLERANCES

DRILL ATTRIBUTES

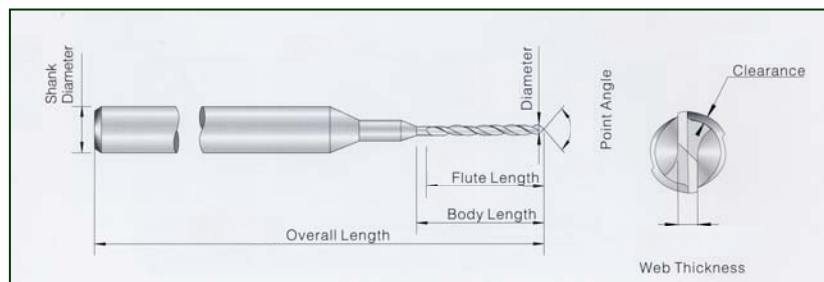
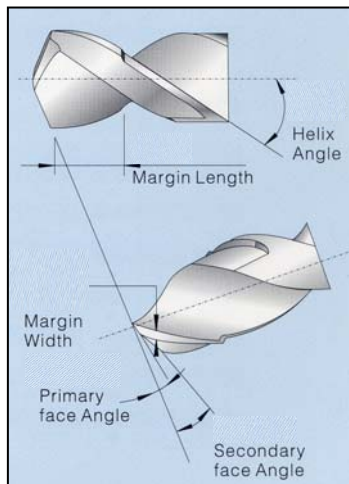
Attribute	Specification	
	d ≤ .1250"	d > .1250"
Drill Diameter (d)	+0 / -.0003"	+0 / -.0004"
Shank Diameter (D)	.1250" -.00004" / -.00024"	
Overall Length (OAL)	1.500" +.004" / -.008"	
Flute Length (FL)	+.012" / -.000"	
Point Angle*	130° +/- 2°	165° +/- 2°
Primary Relief Angle	15° +/- 2°	10° +/- 2°
Secondary Relief Angle	30° +/- 2°	



*Series 125SD Slot Drill Point Angle = 150° +/- 2°

POINT GEOMETRY

Diameter Range	Point Defect Tolerance						
	Flare	Taper	Overlap	Gap	Offset	Hook	Layback
.0020"-.0145"	2°	1°	.0003"	.0004"	.0003"	.0006"	0
.0157"-.0260"	2°	1°	.0004"	.0006"	.0004"	.0006"	0
.0276"-.0635"	2°	1°	.0004"	.0006"	.0004"	.0010"	0
.0650"-.1250"	2°	1°	.0006"	.0007"	.0006"	.0010"	0
.1260"-.2559"	3°	2°	.0004"	.0004"	.0004"	.0014"	0





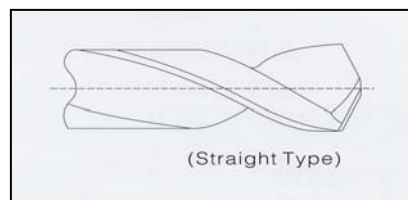
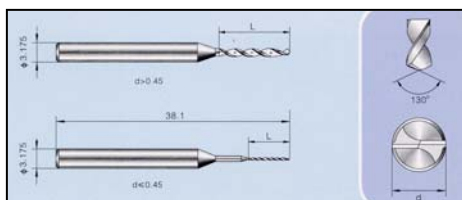
Precision Carbide Drills & Routers

STANDARD DRILL SERIES 129ST

Drill Size	Diameter (d)	Flute Length	
		STD	EL
.02mm	0.0008	0.020	
.05mm	0.0020	0.024	
.08mm	0.0031	0.031	
.10mm	0.0039	0.047	
#97	0.0059	0.079	
.15mm	0.0059	0.079	
#96	0.0063	0.079	
#95	0.0067	0.079	
#94	0.0071	0.079	
#93	0.0075	0.079	
#92	0.0079	0.138	
.20mm	0.0079	0.138	
#91	0.0083	0.138	
#90	0.0087	0.138	
#89	0.0091	0.138	
#88	0.0095	0.138	
.25mm	0.0098	0.157	
#87	0.0100	0.157	
#86	0.0105	0.157	
#85	0.0110	0.157	
#84	0.0115	0.157	
.30mm	0.0118	0.217	0.256
#83	0.0120	0.217	0.256
#82	0.0125	0.217	0.256
#81	0.0130	0.217	0.256
#80	0.0135	0.217	0.256
.35mm	0.0138	0.217	0.256
#79	0.0145	0.217	0.256
.40mm	0.0157	0.276	
#78	0.0160	0.276	
.45mm	0.0177	0.276	
#77	0.0180	0.276	
.50mm	0.0197	0.335	
#76	0.0200	0.335	
#75	0.0210	0.335	
.55mm	0.0217	0.335	
#74	0.0225	0.335	
.60mm	0.0236	0.374	
#73	0.0240	0.374	
#72	0.0250	0.374	
.65mm	0.0256	0.374	
#71	0.0260	0.374	
.70mm	0.0276	0.374	
#70	0.0280	0.374	
#69	0.0292	0.374	

Drill Size	Diameter (d)	Flute Length	
		STD	EL
.75mm	0.0295	0.374	0.413
#68	0.0310	0.374	0.413
1/32	0.0313	0.374	0.413
.80mm	0.0315	0.374	0.413
#67	0.0320	0.374	0.413
#66	0.0330	0.374	0.413
.85mm	0.0335	0.374	0.413
#65	0.0350	0.374	0.413
.90mm	0.0354	0.374	0.413
#64	0.0360	0.374	0.413
#63	0.0370	0.374	0.413
.95mm	0.0374	0.374	0.413
#62	0.0380	0.374	0.413
#61	0.0390	0.374	0.413
1.00mm	0.0394	0.413	
#60	0.0400	0.413	
#59	0.0410	0.413	
1.05mm	0.0413	0.413	
#58	0.0420	0.413	
#57	0.0430	0.413	
1.10mm	0.0433	0.413	
1.15mm	0.0453	0.413	
#56	0.0465	0.413	
3/64	0.0469	0.413	
1.20mm	0.0472	0.413	
1.25mm	0.0492	0.413	
1.30mm	0.0512	0.472	
#55	0.0520	0.472	
1.35mm	0.0531	0.472	
#54	0.0550	0.472	
1.45mm	0.0571	0.472	
1.50mm	0.0591	0.472	
#53	0.0595	0.472	
1.55mm	0.0610	0.472	
1/16	0.0625	0.472	
1.60mm	0.0630	0.472	
#52	0.0635	0.472	
1.65mm	0.0650	0.472	
#51	0.0670	0.472	
1.75mm	0.0689	0.472	
#50	0.0700	0.472	
1.80mm	0.0709	0.472	
#49	0.0730	0.472	
1.90mm	0.0748	0.472	
#48	0.0760	0.472	

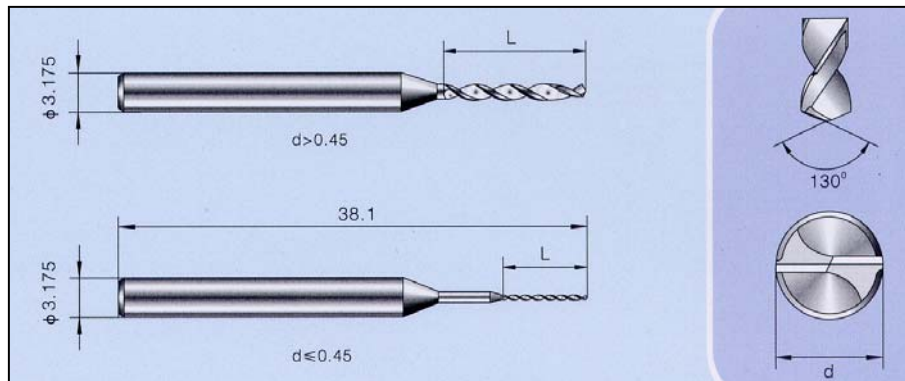
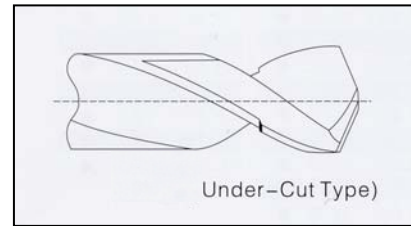
Drill Size	Diameter (d)	FL
		STD
1.95mm	0.0768	0.472
5/64	0.0781	0.472
#47	0.0785	0.472
2.00mm	0.0787	0.472
2.05mm	0.0807	0.472
#46	0.0810	0.472
#45	0.0820	0.472
2.10mm	0.0827	0.472
2.15mm	0.0846	0.472
#44	0.0860	0.472
2.20mm	0.0866	0.472
2.25mm	0.0886	0.472
#43	0.0890	0.472
2.30mm	0.0906	0.472
2.35mm	0.0925	0.472
#42	0.0935	0.472
3/32	0.0938	0.472
2.40mm	0.0945	0.472
#41	0.0960	0.472
2.45mm	0.0965	0.472
#40	0.0980	0.472
2.50mm	0.0984	0.472
#39	0.0995	0.472
2.55mm	0.1004	0.472
#38	0.1015	0.472
2.60mm	0.1024	0.472
#37	0.1040	0.472
2.65mm	0.1043	0.472
2.70mm	0.1063	0.472
#36	0.1065	0.472
2.75mm	0.1083	0.472
7/64	0.1094	0.472
#35	0.1100	0.472
2.80mm	0.1102	0.472
#34	0.1110	0.472
2.85mm	0.1122	0.472
#33	0.1130	0.472
2.90mm	0.1142	0.472
#32	0.1160	0.472
2.95mm	0.1161	0.472
3.00mm	0.1181	0.472
#31	0.1200	0.472
3.10mm	0.1220	0.472
3.15mm	0.1240	0.472
1/8	0.1250	0.472





UNDERCUT DRILL SERIES 129UCSN

Drill Size	Diameter (d)	Flute Length (FL)	
		STD	EL
.15mm	0.0059	0.079	
.20mm	0.0079	0.138	
#87	0.0100	0.157	0.197
.30mm	0.0118	0.217	0.256
.35mm	0.0138	0.217	0.256
#79	0.0145	0.217	0.256
.40mm	0.0157	0.276	
.45mm	0.0177	0.276	
.50mm	0.0197	0.335	
.55mm	0.0217	0.335	
.60mm	0.0236	0.374	
.65mm	0.0256	0.374	
.70mm	0.0276	0.374	
.75mm	0.0295	0.374	
.80mm	0.0315	0.374	
.85mm	0.0335	0.374	
.90mm	0.0354	0.374	
.95mm	0.0374	0.374	
1.00mm	0.0394	0.413	



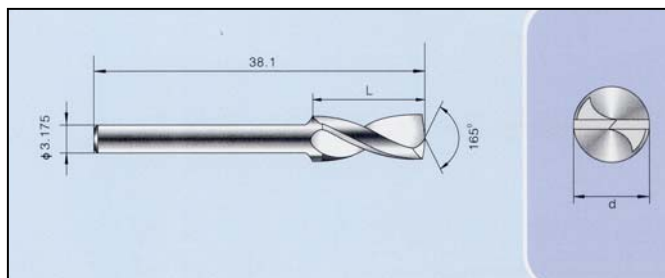


LARGE DRILL SERIES 131LD

Drill Size	Diameter (d)	Flute Length
3.20mm	0.1260	0.512
3.25mm	0.1280	0.512
#30	0.1285	0.512
3.30mm	0.1299	0.512
3.35mm	0.1319	0.512
3.40mm	0.1339	0.512
3.45mm	0.1358	0.512
#29	0.1360	0.512
3.50mm	0.1378	0.512
3.55mm	0.1398	0.512
#28	0.1405	0.512
9/64	0.1406	0.512
3.60mm	0.1417	0.512
3.65mm	0.1437	0.512
#27	0.1440	0.512
3.70mm	0.1457	0.512
#26	0.1470	0.512
3.75mm	0.1476	0.512
#25	0.1495	0.512
3.80mm	0.1496	0.512
3.85mm	0.1516	0.512
#24	0.1520	0.512
3.90mm	0.1535	0.512
#23	0.1540	0.512
3.95mm	0.1555	0.512
5/32	0.1563	0.512
#22	0.1570	0.512
4.00mm	0.1575	0.512
#21	0.1590	0.512
4.05mm	0.1594	0.512
#20	0.1610	0.512
4.10mm	0.1614	0.512
4.15mm	0.1634	0.512
4.20mm	0.1654	0.512
#19	0.1660	0.512
4.25mm	0.1673	0.512
4.30mm	0.1693	0.512

Drill Size	Diameter (d)	Flute Length
#18	0.1695	0.512
4.35mm	0.1713	0.512
11/64	0.1719	0.512
#17	0.1730	0.512
4.40mm	0.1732	0.512
4.45mm	0.1752	0.512
#16	0.1770	0.512
4.50mm	0.1772	0.512
4.55mm	0.1791	0.512
#15	0.1800	0.512
4.60mm	0.1811	0.512
#14	0.1820	0.512
4.65mm	0.1831	0.512
#13	0.1850	0.512
4.70mm	0.1850	0.512
4.75mm	0.1870	0.512
3/16	0.1875	0.512
4.80mm	0.1890	0.512
#12	0.1890	0.512
4.85mm	0.1909	0.512
#11	0.1910	0.512
4.90mm	0.1929	0.512
#10	0.1935	0.512
4.95mm	0.1949	0.512
#9	0.1960	0.512
5.00mm	0.1969	0.512
5.05mm	0.1988	0.512
#8	0.1990	0.512
5.10mm	0.2008	0.512
#7	0.2010	0.512
5.15mm	0.2028	0.512
13/64	0.2031	0.512
#6	0.2040	0.512
5.20mm	0.2047	0.512
#5	0.2055	0.512
5.25mm	0.2067	0.512
5.30mm	0.2087	0.512

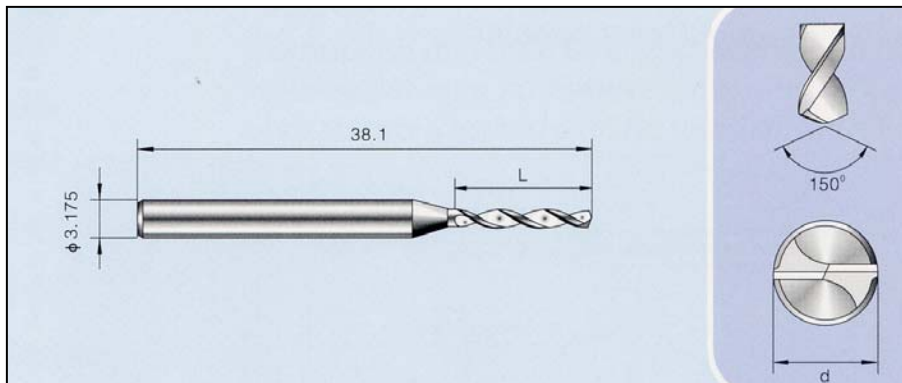
Drill Size	Diameter (d)	Flute Length
#4	0.2090	0.512
5.35mm	0.2106	0.512
5.40mm	0.2126	0.512
#3	0.2130	0.512
5.45mm	0.2146	0.512
5.50mm	0.2165	0.512
5.55mm	0.2185	0.512
7/32	0.2188	0.512
5.60mm	0.2205	0.512
#2	0.2210	0.512
5.65mm	0.2224	0.512
5.70mm	0.2244	0.512
5.75mm	0.2264	0.512
#1	0.2280	0.512
5.80mm	0.2283	0.512
5.85mm	0.2303	0.512
5.90mm	0.2323	0.512
Ltr A	0.2340	0.512
5.95mm	0.2343	0.512
15/64	0.2344	0.512
6.00mm	0.2362	0.512
Ltr B	0.2380	0.512
6.05mm	0.2382	0.512
6.10mm	0.2402	0.512
Ltr C	0.2420	0.512
6.15mm	0.2421	0.512
6.20mm	0.2441	0.512
Ltr D	0.2460	0.512
6.25mm	0.2461	0.512
6.30mm	0.2480	0.512
6.35mm	0.2500	0.512
Ltr E	0.2500	0.512
1/4	0.2500	0.512
6.40mm	0.2520	0.512
6.45mm	0.2539	0.512
6.50mm	0.2559	0.512
Ltr F	0.2570	0.512





SLOT DRILL SERIES 125SD

Drill Size	Diameter (d)	Flute Length	Drill Size	Diameter (d)	Flute Length
.50mm	0.0197	0.197	#58	0.0420	0.335
#76	0.0200	0.197	#57	0.0430	0.335
#75	0.0210	0.197	1.10mm	0.0433	0.335
.55mm	0.0217	0.197	1.15mm	0.0453	0.335
#74	0.0225	0.197	#56	0.0465	0.335
.60mm	0.0236	0.276	3/64	0.0469	0.335
#73	0.0240	0.276	1.20mm	0.0472	0.335
#72	0.0250	0.276	1.25mm	0.0492	0.335
.65mm	0.0256	0.276	1.30mm	0.0512	0.335
#71	0.0260	0.276	#55	0.0520	0.335
.70mm	0.0276	0.335	1.35mm	0.0531	0.335
#70	0.0280	0.335	#54	0.0550	0.335
#69	0.0292	0.335	1.45mm	0.0571	0.335
.75mm	0.0295	0.335	1.50mm	0.0591	0.335
#68	0.0310	0.335	#53	0.0595	0.335
1/32	0.0313	0.335	1.55mm	0.0610	0.335
.80mm	0.0315	0.335	1/16	0.0625	0.335
#67	0.0320	0.335	1.60mm	0.0630	0.335
#66	0.0330	0.335	#52	0.0635	0.335
.85mm	0.0335	0.335	1.65mm	0.0650	0.335
#65	0.0350	0.335	#51	0.0670	0.335
.90mm	0.0354	0.335	1.75mm	0.0689	0.335
#64	0.0360	0.335	#50	0.0700	0.335
#63	0.0370	0.335	1.80mm	0.0709	0.335
.95mm	0.0374	0.335	#49	0.0730	0.335
#62	0.0380	0.335	1.90mm	0.0748	0.335
#61	0.0390	0.335	#48	0.0760	0.335
1.00mm	0.0394	0.335	1.95mm	0.0768	0.335
#60	0.0400	0.335	5/64	0.0781	0.335
#59	0.0410	0.335	#47	0.0785	0.335
1.05mm	0.0413	0.335	2.00mm	0.0787	0.335

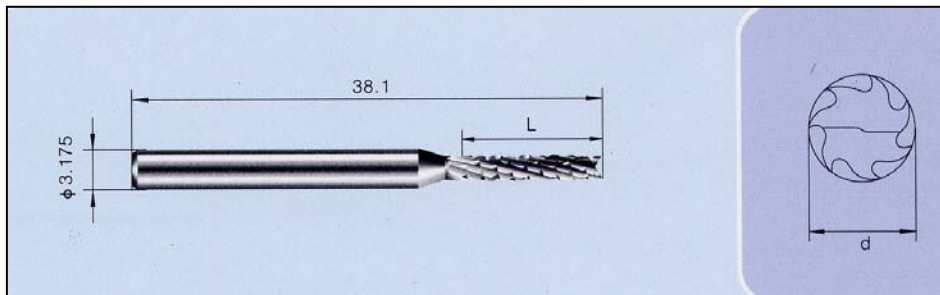




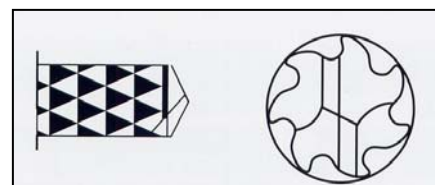
DIAMOND CUT ROUTER SERIES 141HF & 142HF

Router Size	Diameter (d)	Flute Length
1/32	0.0313	0.197
.80mm	0.0315	0.197
.90mm	0.0354	0.197
1.00mm	0.0394	0.236
1.10mm	0.0433	0.236
3/64	0.0469	0.236
1.20mm	0.0472	0.236
1.30mm	0.0512	0.236
1.40mm	0.0551	0.236
1.50mm	0.0591	0.335
1/16	0.0625	0.335
1.60mm	0.0630	0.335
1.70mm	0.0669	0.335
1.80mm	0.0709	0.335
1.90mm	0.0748	0.335

Router Size	Diameter (d)	Flute Length
5/64	0.0781	0.413
2.00mm	0.0787	0.413
2.10mm	0.0827	0.413
2.20mm	0.0866	0.413
2.30mm	0.0906	0.413
3/32	0.0938	0.413
2.40mm	0.0945	0.413
2.50mm	0.0984	0.413
2.60mm	0.1024	0.413
2.70mm	0.1063	0.413
7/64	0.1094	0.413
2.80mm	0.1102	0.413
2.90mm	0.1142	0.413
3.00mm	0.1181	0.492
1/8	0.1250	0.492



FISHTAIL



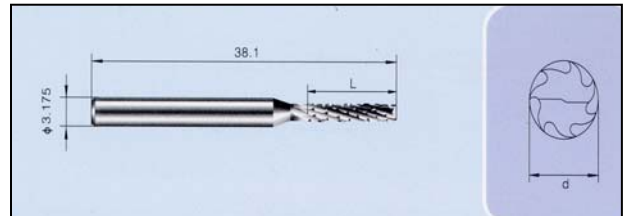
DRILL POINT



DIAMOND CUT ROUTER SERIES 141RN & 142RN

Router Size	Dia. (d)	Flute Length
.50mm	0.0197	0.138
.60mm	0.0236	0.157
.70mm	0.0276	0.197
1/32	0.0313	0.197
.80mm	0.0315	0.197
.90mm	0.0354	0.197
1.00mm	0.0394	0.236
1.10mm	0.0433	0.236
1.20mm	0.0472	0.236
1.30mm	0.0512	0.236
1.40mm	0.0551	0.236
1.50mm	0.0591	0.335
1/16	0.0625	0.335
1.60mm	0.0630	0.335
1.70mm	0.0669	0.335
1.80mm	0.0709	0.335

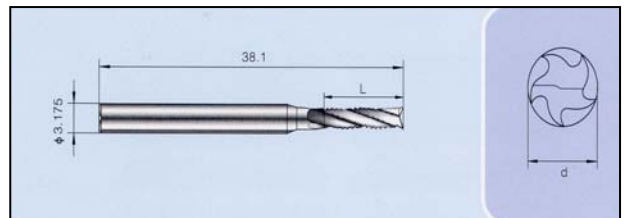
Router Size	Dia. (d)	Flute Length
1.90mm	0.0748	0.335
5/64	0.0781	0.413
2.00mm	0.0787	0.413
2.10mm	0.0827	0.413
2.20mm	0.0866	0.413
2.30mm	0.0906	0.413
3/32	0.0938	0.413
2.40mm	0.0945	0.413
2.50mm	0.0984	0.413
2.60mm	0.1024	0.413
2.70mm	0.1063	0.413
7/64	0.1094	0.413
2.80mm	0.1102	0.413
2.90mm	0.1142	0.413
3.00mm	0.1181	0.492
1/8	0.1250	0.492



CHIPBREAKER ROUTER SERIES 151 & 152

Router Size	Dia. (d)	Flute Length
.50mm	0.0197	0.138
.60mm	0.0236	0.157
.70mm	0.0276	0.197
1/32	0.0313	0.197
.80mm	0.0315	0.197
.90mm	0.0354	0.197
1.00mm	0.0394	0.236
1.10mm	0.0433	0.236
1.20mm	0.0472	0.236
1.30mm	0.0512	0.236
1.40mm	0.0551	0.236
1.50mm	0.0591	0.335
1/16	0.0625	0.335
1.60mm	0.0630	0.335
1.70mm	0.0669	0.335
1.80mm	0.0709	0.335

Router Size	Diameter (d)	Flute Length
1.90mm	0.0748	0.335
5/64	0.0781	0.413
2.00mm	0.0787	0.413
2.10mm	0.0827	0.413
2.20mm	0.0866	0.413
2.30mm	0.0906	0.413
3/32	0.0938	0.413
2.40mm	0.0945	0.413
2.50mm	0.0984	0.413
2.60mm	0.1024	0.413
2.70mm	0.1063	0.413
7/64	0.1094	0.413
2.80mm	0.1102	0.413
2.90mm	0.1142	0.413
3.00mm	0.1181	0.492
1/8	0.1250	0.492

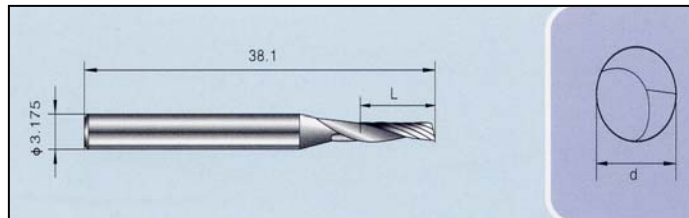




SINGLE FLUTE ENDMILL SERIES 111EM

Endmill Size	Diameter (d)	Flute Length
.80mm	0.0315	0.157
.90mm	0.0354	0.157
1.00mm	0.0394	0.197
1.10mm	0.0433	0.197
1.20mm	0.0472	0.197
1.30mm	0.0512	0.197
1.40mm	0.0551	0.197
1.50mm	0.0591	0.197
1.60mm	0.0630	0.236
1.70mm	0.0669	0.236

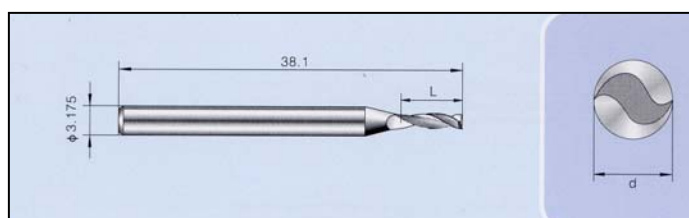
Endmill Size	Diameter (d)	Flute Length
1.80mm	0.0709	0.236
1.90mm	0.0748	0.236
2.00mm	0.0787	0.354
2.10mm	0.0827	0.354
2.20mm	0.0866	0.354
2.30mm	0.0906	0.354
2.40mm	0.0945	0.394
2.50mm	0.0984	0.394
3.00mm	0.1181	0.472
1/8	0.1250	0.472



TWO FLUTE ENDMILL SERIES 161EM

Endmill Size	Diameter (d)	Flute Length
.30mm	0.0118	0.045
.40mm	0.0157	0.079
.50mm	0.0197	0.079
.60mm	0.0236	0.079
.70mm	0.0276	0.118
.80mm	0.0315	0.118
.90mm	0.0354	0.118
1.00mm	0.0394	0.118
1.10mm	0.0433	0.118
1.20mm	0.0472	0.197
1.30mm	0.0512	0.197
1.40mm	0.0551	0.197
1.50mm	0.0591	0.197
1/16	0.0625	0.197
1.60mm	0.0630	0.236

Endmill Size	Diameter (d)	Flute Length
1.70mm	0.0669	0.236
1.80mm	0.0709	0.236
1.90mm	0.0748	0.236
2.00mm	0.0787	0.354
2.10mm	0.0827	0.354
2.20mm	0.0866	0.354
2.30mm	0.0906	0.354
2.40mm	0.0945	0.354
2.50mm	0.0984	0.354
2.60mm	0.1024	0.354
2.70mm	0.1063	0.354
2.80mm	0.1102	0.354
2.90mm	0.1142	0.354
3.00mm	0.1181	0.472
1/8	0.1250	0.472





Sizing Table and Colors

Size	Inches
0.05 mm	0.0020
0.10 mm	0.0039
0.13 mm	0.0051
0.15 mm	0.0059
#97	0.0059
#96	0.0063
#95	0.0067
#94	0.0071
#93	0.0075
0.20 mm	0.0079
#92	0.0079
#91	0.0083
#90	0.0087
#89	0.0091
#88	0.0095
0.25 mm	0.0098
#87	0.0100
#86	0.0105
#85	0.0110
#84	0.0115
0.30 mm	0.0118
#83	0.0120
#82	0.0125
#81	0.0130
#80	0.0135
0.35 mm	0.0138
#79	0.0145
0.40 mm	0.0157
#78	0.0160
0.45 mm	0.0177
#77	0.0180
0.50 mm	0.0197
#76	0.0200
#75	0.0210
0.55 mm	0.0217
#74	0.0225
0.60 mm	0.0236
#73	0.0240
#72	0.0250
0.65 mm	0.0256
#71	0.0260
0.70 mm	0.0276
#70	0.0280
#69	0.0292
0.75 mm	0.0295
#68	0.0310
1/32	0.0313
0.80 mm	0.0315
#67	0.0320
#66	0.0330
0.85 mm	0.0335
#65	0.0350
0.90 mm	0.0354
#64	0.0360
#63	0.0370
0.95 mm	0.0374
#62	0.0380
#61	0.0390
1.00 mm	0.0394
#60	0.0400

Size	Inches
#59	0.0410
1.05 mm	0.0413
#58	0.0420
#57	0.0430
1.10 mm	0.0433
1.15 mm	0.0453
#56	0.0465
3/64	0.0469
1.20 mm	0.0472
1.25 mm	0.0492
1.30 mm	0.0512
#55	0.0520
1.35 mm	0.0531
#54	0.0550
1.40 mm	0.0551
1.45 mm	0.0571
1.50 mm	0.0591
#53	0.0595
1.55 mm	0.0610
1/16"	0.0625
1.60 mm	0.0630
#52	0.0635
1.65 mm	0.0650
1.70 mm	0.0669
#51	0.0670
1.75 mm	0.0689
#50	0.0700
1.80 mm	0.0709
1.85 mm	0.0728
#49	0.0730
1.90 mm	0.0748
#48	0.0760
1.95 mm	0.0768
5/64	0.0781
#47	0.0785
2.00 mm	0.0787
2.05 mm	0.0807
#46	0.0810
#45	0.0820
2.10 mm	0.0827
2.15 mm	0.0846
#44	0.0860
2.20 mm	0.0866
2.25 mm	0.0886
#43	0.0890
2.30 mm	0.0906
2.35 mm	0.0925
#42	0.0935
3/32	0.0938
2.40 mm	0.0945
#41	0.0960
2.45 mm	0.0965
#40	0.0980
2.50 mm	0.0984
#39	0.0995
2.55 mm	0.1004
#38	0.1015
2.60 mm	0.1024
#37	0.1040
2.65 mm	0.1043

Size	Inches
2.70 mm	0.1063
#36	0.1065
2.75 mm	0.1083
7/64	0.1094
#35	0.1100
2.80 mm	0.1102
#34	0.1110
2.85 mm	0.1122
#33	0.1130
2.90 mm	0.1142
#32	0.1160
2.95 mm	0.1161
3.00 mm	0.1181
#31	0.1200
3.05 mm	0.1201
3.10 mm	0.1220
3.15 mm	0.1240
1/8"	0.1250
3.20 mm	0.1260
3.25 mm	0.1280
#30	0.1285
3.30 mm	0.1299
3.35 mm	0.1319
3.40 mm	0.1339
3.45 mm	0.1358
#29	0.1360
3.50 mm	0.1378
3.55 mm	0.1398
#28	0.1405
3.60 mm	0.1417
3.65 mm	0.1437
#27	0.1440
3.70 mm	0.1457
#26	0.1470
3.75 mm	0.1476
#25	0.1495
3.80 mm	0.1496
3.85 mm	0.1516
#24	0.1520
3.90 mm	0.1535
#23	0.1540
3.95 mm	0.1555
5/32	0.1563
#22	0.1570
4.00 mm	0.1575
#21	0.1590
4.05 mm	0.1594
#20	0.1610
4.10 mm	0.1614
4.15 mm	0.1634
4.20 mm	0.1654
#19	0.1660
4.25 mm	0.1673
4.30 mm	0.1693
#18	0.1695
4.35 mm	0.1713
11/64	0.1719
#17	0.1730
4.40 mm	0.1732
4.45 mm	0.1752

Size	Inches
#16	0.1770
4.50 mm	0.1772
4.55 mm	0.1791
#15	0.1800
4.60 mm	0.1811
#14	0.1820
4.65 mm	0.1831
4.70 mm	0.1850
#13	0.1850
4.75 mm	0.1870
3/16	0.1875
4.80 mm	0.1890
#12	0.1890
4.85 mm	0.1909
#11	0.1910
4.90 mm	0.1929
#10	0.1935
4.95 mm	0.1949
#9	0.1960
5.00 mm	0.1969
5.05 mm	0.1988
#8	0.1990
5.10 mm	0.2008
#7	0.2010
5.15 mm	0.2028
#6	0.2040
5.20 mm	0.2047
#5	0.2055
5.25 mm	0.2067
5.30 mm	0.2087
#4	0.2090
5.35 mm	0.2106
5.40 mm	0.2126
#3	0.2130
5.45 mm	0.2146
5.50 mm	0.2165
5.55 mm	0.2185
5.60 mm	0.2205
#2	0.2210
5.65 mm	0.2224
5.70 mm	0.2244
5.75 mm	0.2264
#1	0.2280
5.80 mm	0.2283
5.85 mm	0.2303
5.90 mm	0.2323
5.95 mm	0.2343
6.00 mm	0.2362
6.05 mm	0.2382
6.10 mm	0.2402
6.15 mm	0.2421
6.20 mm	0.2441
6.25 mm	0.2461
6.30 mm	0.2480
6.35 mm	0.2500
1/4	0.2500
6.40 mm	0.2520
6.45 mm	0.2539
6.50 mm	0.2559
Ltr. F	0.2570



ISO 9001:2000




CERTIFICATE OF REGISTRATION

Quality Management System

This is to certify that:
Shenzhen Jinzhou Cemented Carbide Co., Ltd.
No. 3, 1st Street
2nd Road, Shuibe
Shenzhen
Guangdong Province 518020
P. R. China

Hold Certificate No: FM 51495
and operate a Quality Management System which complies with the requirements of BS EN ISO 9001:2000
for the following scope:

The design and manufacture of solid tungsten carbide mini-drills, routers for printed circuit board (PCB), solid tungsten carbide cutters, moulds and its components.

For and on behalf of BSI:

Jon Broome.

Certification Manager

Originally registered: 26 Jul 1999

Latest issue: 05 Jan 2004

Page: 1 of 2




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 Further clarifications regarding the scope of this certificate and the applicability of ISO 9001:2000 requirements may be obtained by consulting the organization. The British Standards Institution is incorporated by Royal Charter.
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Precision Carbide Drills & Routers

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