



CUTTING RELATED TECHNOLOGY, INC.

ONE COMPANY...

TOTAL CUTTING TOOL SOLUTIONS

355 SACKETT POINT ROAD UNIT 5
NORTH HAVEN, CT 06473
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355 SACKETT POINT ROAD #5 NORTH HAVEN, CT 06473



CRT'S "STINGER" GEOMETRY

"STINGER" OFFERS
FOUR BASIC
ENHANCEMENTS:

- ◇ LONGER LIFE AND
INCREASED USES

- ◇ IMPROVED REGISTRATION
OVER LIFE OF TOOL

- ◇ INCREASED OPERATING
PARAMETERS

- ◇ INCREASED BREAKAGE
RESISTANCE

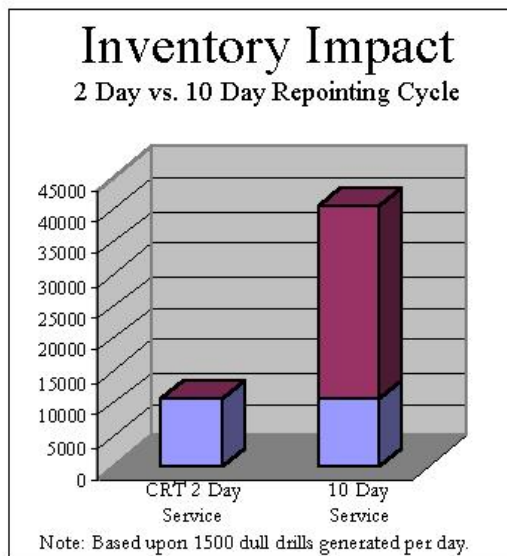
CALL FOR DETAILS



CRT'S REPOINTING SERVICE

CRT OFFERS A COMPLETE REPOINTING SERVICE

- ◇ STANDARD DRILLS
 - ◇ REVERSE SHANKS
 - ◇ SLOT DRILLS
 - ◇ MICRO DRILLS
 - ◇ 30+ POINTING MACHINES
 - ◇ LASER RING SETTING SYSTEMS
 - ◇ COMPETITIVE PRICES
 - ◇ EXPERIENCED STAFF
 - ◇ PROMPT REPOINTING CYCLES
- ⇒ SCHEDULED 2-DAY IN-HOUSE (STANDARD SERVICE)*



STANDARD REPOINT PROCESS:

- ◇ RESHARP
- ◇ INSPECT
- ◇ RING SET
- ◇ LAST USE INDICATOR

* SCHEDULED ORDERS RECEIVED BY NOON



ONE COMPANY... TOTAL CUTTING TOOL SOLUTIONS

SINCE 1987,
CUTTING RELATED
TECHNOLOGY HAS BEEN MEETING THE CUTTING TOOL NEEDS OF THE
CIRCUIT BOARD INDUSTRY.

WE ARE PLEASED TO PROVIDE YOU WITH THIS INFORMATIONAL CATALOG
FEATURING OUR PRIMARY PRODUCT LINE. THE CONTENTS HEREIN ARE NOT IN-
TENDED TO BE REFLECTIVE OF OUR TOTAL PRODUCT AVAILABILITY BUT RATHER ARE
PROVIDED TO GIVE YOU AN OVERVIEW OF THE MOST COMMONLY USED TOOLS. IF
YOU DON'T SEE WHAT YOU NEED, OR AREN'T SURE ABOUT WHAT YOU NEED, RE-
MEMBER, OUR SPECIALTY IS SPECIALTY TOOLS. IF YOU HAVE A SPECIAL APPLICA-
TION, NEW PROCESS OR CONSISTENT PROBLEM, GIVE US A CALL AND LET US HELP.

ALSO, WE ENCOURAGE YOU TO TAKE SPECIAL NOTE OF OUR "STINGER" LINE
(PAGES i AND 4). THE "STINGER" IS A SPECIAL
GEOMETRY WHICH CAN SIGNIFICANTLY REDUCE YOUR COST PER HOLE AND INCREASE
YOUR PRODUCTIVITY WITHOUT HOLE QUALITY COMPROMISE.

PLEASE NOTE THAT THE GENERAL APPLICATIONS HIGHLIGHTED
IN THIS BOOK ARE INTENDED FOR QUICK REFERENCE PURPOSES ONLY. THE TRUE
APPLICATIONS MAY VARY WITH BOARD CONSTRUCTION AND
MATERIALS. PLEASE CALL FOR INDIVIDUAL SPECIFIC APPLICATIONS OF ANY TOOLS.



NOMENCLATURE SYSTEM

Tool	Digit 1	Digits 2 - 5	Digit 6	Digits 7 & 8	Digit 9	Digit 10	Digit 11
DRILL	D	DIAMETER	POINT A = STANDARD G = STINGER	FLUTE LENGTH 02=2.0-2.9 03=3.0-3.9	INTERNAL USE		
ROUTER	R	DIAMETER	TYPE C=CHIPBREAKER U/C D=DIAMOND U/C F=FLASH U/C G=GOLDFINGER U/C Q=CHIPBREAKER D/C R=DIAMOND D/C	FLUTE LENGTH 02=2.0-2.9 03=3.0-3.9 04=4.0-4.9*	END STYLE D=DRILL POINT G = G POINT F = FISHTAIL	CUT O = STANDARD F = FINE M = MEDIUM C = COARSE	INTERNAL USE
END MILL	E	DIAMETER	# OF FLUTES A = 1 FLUTE B = 2 FLUTES C = 3 FLUTES D = 4 FLUTES	FLUTE LENGTH 02=2.0-2.9 03=3.0-3.9 04=4.0-4.9*	CUT/SPIRAL U = UPCUT D=DOWNCUT	END STYLE D=DRILL POINT F = FISHTAIL S = SQUARE N = NONE	INTERNAL USE
SLOT DRILL	S	DIAMETER	END STYLE X = STANDARD Z = UNDERCUT	FLUTE LENGTH 02=2.0-2.9 03=3.0-3.9 04=4.0-4.9*	INTERNAL USE		

*DESCRIPTION WILL SHOW ACTUAL FLUTE LENGTH



MICRO, MINI

- ◆ SOLID CARBIDE
- ◆ STEP SHANK DESIGN
- ◆ MULTIPLE FLUTE LENGTHS FOR PROCESS SPECIFIC SELECTION
- ◆ EFFECTIVE ON MOST PWB MATERIALS AND CONSTRUCTIONS



Size	Dec Size	Flute Length	Part #	Flute Length	Part #	Flute Length	Part #
.10mm	.0039	1.5	D0039A01				
.13mm	.0051	1.5	D0051A01				
.15mm	.0059	2.0	D0059A02				
97	.0059	2.0	D0059A02				
96	.0063	2.0	D0063A02				
95	.0067	2.0	D0067A02				
94	.0071	2.0	D0071A02				
93	.0075	2.0	D0075A02				
92	.0079	2.3	D0079A02	3.5	D0079A03		
.20mm	.0079	2.3	D0079A02	3.5	D0079A03		
91	.0083	2.3	D0083A02	3.5	D0083A03		
90	.0087	2.3	D0087A02	3.5	D0087A03		
89	.0091	2.3	D0091A02	3.5	D0091A03		
88	.0095	2.3	D0095A02	3.5	D0095A03		
.25mm	.0098	3.5	D0098A03	4.8	D0098A04		
87	.0100	3.5	D0100A03	4.8	D0100A04		
86	.0105	3.5	D0105A03	4.8	D0105A04		
85	.0110	3.5	D0110A03	4.8	D0110A04		
84	.0115	3.5	D0115A03	4.8	D0115A04		
.30mm	.0118	5.5	D0118A05	7.0	D0118A07		
83	.0120	5.5	D0120A05	7.0	D0120A07		
82	.0125	5.5	D0125A05	7.0	D0125A07		
81	.0130	5.5	D0130A05	7.0	D0130A07		
80	.0135	5.5	D0135A05	7.0	D0135A07		
.35mm	.0138	5.5	D0138A05	7.0	D0138A07		
79	.0145	5.5	D0145A05	7.0	D0145A07		
1/64	.0156	5.5	D0156A05	7.0	D0156A07	8.5	D0156A08
.40mm	.0157	5.5	D0157A05	7.0	D0157A07	8.5	D0157A08
78	.0160	5.5	D0160A05	7.0	D0160A07	8.5	D0160A08
.45mm	.0177	5.5	D0177A05	7.0	D0177A07	8.5	D0177A08
77	.0180	5.5	D0180A05	7.0	D0180A07	8.5	D0180A08
.50mm	.0197	5.5	D0197A05	7.0	D0197A07	8.5	D0197A08
76	.0200	5.5	D0200A05	7.0	D0200A07	8.5	D0200A08
75	.0210	7.0	D0210A07	8.5	D0210A08		
.55mm	.0217	7.0	D0217A07	8.5	D0217A08		
74	.0225	7.0	D0225A07	8.5	D0225A08		
.60mm	.0236	7.0	D0236A07	8.5	D0236A08		
73	.0240	7.0	D0240A07	8.5	D0240A08		
72	.0250	7.0	D0250A07	8.5	D0250A08		
.65mm	.0256	7.0	D0256A07	8.5	D0256A08		
71	.0260	7.0	D0260A07	8.5	D0260A08		
.70mm	.0276	7.0	D0276A08	8.5	D0276A08		

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COMMON SHANKS

- ◆ SOLID CARBIDE
- ◆ HIGH STRENGTH WITHOUT COMPROMISING CHIP FLOW
- ◆ REPEATABLE AND PREDICTABLE HOLE QUALITY AND REGISTRATION
- ◆ EFFECTIVE ON MOST PWB MATERIALS AND CONSTRUCTIONS



Size	Dec Size	Flute Length	Part #	Size	Dec Size	Flute Length	Part #	Size	Dec Size	Flute Length	Part #
70	.0280	10.5	D0280A10	1.40mm	.0551	10.5	D0551A10	2.35mm	.0925	10.5	D0925A10
69	.0292	10.5	D0292A10	1.45mm	.0571	10.5	D0571A10	42	.0935	10.5	D0935A10
.75mm	.0295	10.5	D0295A10	1.50mm	.0591	10.5	D0591A10	3/32	.0938	10.5	D0938A10
68	.0310	10.5	D0310A10	53	.0595	10.5	D0595A10	2.40mm	.0945	10.5	D0945A10
1/32	.0312	10.5	D0312A10	1.55mm	.0610	10.5	D0610A10	41	.0960	10.5	D0960A10
.80mm	.0315	10.5	D0315A10	1/16	.0625	10.5	D0625A10	2.45mm	.0965	10.5	D0965A10
67	.0320	10.5	D0320A10	1.60mm	.0630	10.5	D0630A10	40	.0980	10.5	D0980A10
66	.0330	10.5	D0330A10	52	.0635	10.5	D0635A10	2.50mm	.0984	10.5	D0984A10
.85mm	.0335	10.5	D0335A10	1.65mm	.0650	10.5	D0650A10	39	.0995	10.5	D0995A10
65	.0350	10.5	D0350A10	1.70mm	.0669	10.5	D0669A10	2.55mm	.1004	10.5	D1004A10
.90mm	.0354	10.5	D0354A10	51	.0670	10.5	D0670A10	38	.1015	10.5	D1015A10
64	.0360	10.5	D0360A10	1.75mm	.0689	10.5	D0689A10	2.60mm	.1024	10.5	D1024A10
63	.0370	10.5	D0370A10	50	.0700	10.5	D0700A10	37	.1040	10.5	D1040A10
.95mm	.0374	10.5	D0374A10	1.80mm	.0709	10.5	D0709A10	2.65mm	.1043	10.5	D1043A10
62	.0380	10.5	D0380A10	1.85mm	.0728	10.5	D0728A10	2.70mm	.1063	10.5	D1063A10
61	.0390	10.5	D0390A10	49	.0730	10.5	D0730A10	36	.1065	10.5	D1065A10
1.00mm	.0394	10.5	D0394A10	1.90mm	.0748	10.5	D0748A10	2.75mm	.1083	10.5	D1083A10
60	.0400	10.5	D0400A10	48	.0760	10.5	D0760A10	7/64	.1094	10.5	D1094A10
59	.0410	10.5	D0410A10	1.95mm	.0768	10.5	D0768A10	35	.1100	10.5	D1100A10
1.05mm	.0413	10.5	D0413A10	5/64	.0781	10.5	D0781A10	2.80mm	.1102	10.5	D1102A10
58	.0420	10.5	D0420A10	47	.0785	10.5	D0785A10	34	.1110	10.5	D1110A10
57	.0430	10.5	D0430A10	2.00mm	.0787	10.5	D0787A10	2.85mm	.1122	10.5	D1122A10
1.10mm	.0433	10.5	D0433A10	2.05mm	.0807	10.5	D0807A10	33	.1130	10.5	D1130A10
1.15mm	.0453	10.5	D0453A10	46	.0810	10.5	D0810A10	2.90mm	.1142	10.5	D1142A10
56	.0465	10.5	D0465A10	45	.0820	10.5	D0820A10	32	.1160	10.5	D1160A10
3/64	.0469	10.5	D0469A10	2.10mm	.0827	10.5	D0827A10	2.95mm	.1161	10.5	D1161A10
1.20mm	.0472	10.5	D0472A10	2.15mm	.0846	10.5	D0846A10	3.00mm	.1181	10.5	D1181A10
1.25mm	.0492	10.5	D0492A10	44	.0860	10.5	D0860A10	31	.1200	10.5	D1200A10
1.30mm	.0512	10.5	D0512A10	2.20mm	.0866	10.5	D0866A10	3.05mm	.1201	10.5	D1201A10
55	.0520	10.5	D0520A10	2.25mm	.0886	10.5	D0886A10	3.10mm	.1220	10.5	D1220A10
1.35mm	.0531	10.5	D0531A10	43	.0890	10.5	D0890A10	3.15mm	.1240	10.5	D1240A10
54	.0550	10.5	D0550A10	2.30mm	.0906	10.5	D0906A10	1/8	.1250	10.5	D1250A10



REVERSE SHANKS



- ◆ SOLID CARBIDE
- ◆ EFFICIENT IN PRODUCING HOLES LARGER THAN .125"
- ◆ EFFECTIVE ON MOST PWB MATERIALS AND CONSTRUCTIONS
- ◆ CAN BE RESHARPENED FOR MAXIMUM TOOL UTILIZATION

Size	Dec Size	Flute Length	Part #
3.20mm	.1260	12	D1260A12
3.25mm	.1280	12	D1280A12
30	.1285	12	D1285A12
3.30mm	.1299	12	D1299A12
3.35mm	.1319	12	D1319A12
3.40mm	.1339	12	D1339A12
3.45mm	.1358	12	D1358A12
29	.1360	12	D1360A12
3.50mm	.1378	12	D1378A12
3.55mm	.1398	12	D1398A12
28	.1405	12	D1405A12
9/64	.1406	12	D1406A12
3.60mm	.1417	12	D1417A12
3.65mm	.1437	12	D1437A12
27	.1440	12	D1440A12
3.70mm	.1457	12	D1457A12
26	.1470	12	D1470A12
3.75mm	.1476	12	D1476A12
25	.1495	12	D1495A12
3.80mm	.1496	12	D1496A12
3.85mm	.1516	12	D1516A12
24	.1520	12	D1520A12
3.90mm	.1535	12	D1535A12
23	.1540	12	D1540A12
3.95mm	.1555	12	D1555A12
5/32	.1562	12	D1562A12
22	.1570	12	D1570A12
4.00mm	.1575	12	D1575A12
21	.1590	12	D1590A12
4.05mm	.1594	12	D1594A12
20	.1610	12	D1610A12
4.10mm	.1614	12	D1614A12
4.15mm	.1634	12	D1634A12
4.20mm	.1654	12	D1654A12
19	.1660	12	D1660A12
4.25mm	.1673	12	D1673A12
4.30mm	.1693	12	D1693A12
18	.1695	12	D1695A12
4.35mm	.1713	12	D1713A12
11/64	.1719	12	D1719A12

Size	Dec Size	Flute Length	Part #
17	.1730	12	D1730A12
4.40mm	.1732	12	D1732A12
4.45mm	.1752	12	D1752A12
16	.1770	12	D1770A12
4.50mm	.1772	12	D1772A12
4.55mm	.1791	12	D1791A12
15	.1800	12	D1800A12
4.60mm	.1811	12	D1811A12
14	.1820	12	D1820A12
4.65mm	.1831	12	D1831A12
13	.1850	12	D1850A12
4.70mm	.1850	12	D1850A12
4.75mm	.1870	12	D1870A12
3/16	.1875	12	D1875A12
4.80mm	.1890	12	D1890A12
12	.1890	12	D1890A12
4.85mm	.1909	12	D1909A12
11	.1910	12	D1910A12
4.90mm	.1929	12	D1929A12
10	.1935	12	D1935A12
4.95mm	.1949	12	D1949A12
9	.1960	12	D1960A12
5.00mm	.1969	12	D1969A12
5.05mm	.1988	12	D1988A12
8	.1990	12	D1990A12
5.10mm	.2008	12	D2008A12
7	.2010	12	D2010A12
5.15mm	.2028	12	D2028A12
13/64	.2031	12	D2031A12
6	.2040	12	D2040A12
5.20mm	.2047	12	D2047A12
5	.2055	12	D2055A12
5.25mm	.2067	12	D2067A12
5.30mm	.2087	12	D2087A12
4	.2090	12	D2090A12
5.35mm	.2106	12	D2106A12
5.40mm	.2126	12	D2126A12
3	.2130	12	D2130A12
5.45mm	.2146	12	D2146A12
5.50mm	.2165	12	D2165A12
5.55mm	.2185	12	D2185A12

Size	Dec Size	Flute Length	Part #
7/32	.2188	12	D2188A12
5.60mm	.2205	12	D2205A12
2	.2210	12	D2210A12
5.65mm	.2224	12	D2224A12
5.70mm	.2244	12	D2244A12
5.75mm	.2264	12	D2264A12
1	.2280	12	D2280A12
5.80mm	.2283	12	D2283A12
5.85mm	.2303	12	D2303A12
5.90mm	.2323	12	D2323A12
A	.2340	12	D2340A12
5.95mm	.2343	12	D2343A12
15/64	.2344	12	D2344A12
6.00mm	.2362	12	D2362A12
B	.2380	12	D2380A12
6.05mm	.2382	12	D2382A12
6.10mm	.2402	12	D2402A12
C	.2420	12	D2420A12
6.15mm	.2421	12	D2421A12
6.20mm	.2441	12	D2441A12
D	.2460	12	D2460A12
6.25mm	.2461	12	D2461A12
6.30mm	.2480	12	D2480A12
E	.2500	12	D2500A12
6.35mm	.2500	12	D2500A12
1/4	.2500	12	D2500A12
6.40mm	.2520	12	D2520A12
6.50mm	.2559	12	D2559A12
F	.2570	12	D2570A12
6.60mm	.2598	12	D2598A12
G	.2610	12	D2610A12
6.70mm	.2638	12	D2638A12
17/64	.2656	12	D2656A12
6.75mm	.2657	12	D2657A12
H	.2660	12	D2660A12
6.80mm	.2677	12	D2677A12
6.90mm	.2717	12	D2717A12
I	.2720	12	D2720A12
7.00mm	.2756	12	D2756A12
J	.2770	12	D2770A12

note: additional sizes available



STINGER



- ◆ SOLID CARBIDE
- ◆ ROBUST GEOMETRY
- ◆ LONG LIFE, HIGH PRODUCTIVITY, HIGH PRECISION
- ◆ EFFECTIVE ON MOST PWB MATERIALS AND CONSTRUCTIONS
- ◆ CAN BE RESHARPENED MORE TIMES THAT STANDARD DESIGNS

Size	Dec Size	Flute Length	Part #	Flute Length	Part #	
92	.0079	2.3	D0079G02	3.5	D0079G03	Green
.20mm	.0079	2.3	D0079G02	3.5	D0079G03	Green
91	.0083	2.3	D0083G02	3.5	D0083G03	Purple
90	.0087	2.3	D0087G02	3.5	D0087G03	Yellow
89	.0091	2.3	D0091G02	3.5	D0091G03	Grey
88	.0095	2.3	D0095G02	3.5	D0095G03	Blue
.25mm	.0098	3.5	D0098G03	4.8	D0098G04	Pink
87	.0100	3.5	D0100G03	4.8	D0100G04	Red
86	.0105	3.5	D0105G03	4.8	D0105G04	Brown
85	.0110	3.5	D0110G03	4.8	D0110G04	Orange
84	.0115	3.5	D0115G03	4.8	D0115G04	Dark Green
.30mm	.0118	5.5	D0118G05			Light Green
83	.0120	5.5	D0120G05			Purple
82	.0125	5.5	D0125G05			Yellow
81	.0130	5.5	D0130G05			Grey
80	.0135	5.5	D0135G05			Blue
.35mm	.0138	5.5	D0138G05			Pink
79	.0145	5.5	D0145G05			Red
1/64	.0156	5.5	D0156G05			Brown
.40mm	.0157	5.5	D0157G05			Orange
78	.0160	7.0	D0160G07			Dark Green
.45mm	.0177	7.0	D0177G07			Light Green
77	.0180	7.0	D0180G07			Purple
.50mm	.0197	7.0	D0197G07			Yellow
76	.0200	7.0	D0200G07			Grey
75	.0210	7.0	D0210G07	8.5	D0210G08	Blue
.55mm	.0217	7.0	D0217G07	8.5	D0217G08	Pink
74	.0225	7.0	D0225G07	8.5	D0225G08	Red
.60mm	.0236	7.0	D0236G07	8.5	D0236G08	Brown
73	.0240	7.0	D0240G07	8.5	D0240G08	Orange
72	.0250	7.0	D0250G07	8.5	D0250G08	Dark Green
.65mm	.0256	7.0	D0256G07	8.5	D0256G08	Light Green
71	.0260	7.0	D0260G07	8.5	D0260G08	Purple
.70mm	.0276	7.0	D0276G07	8.5	D0276G08	Yellow



UNDERCUT DRILLS



- ◆ SOLID CARBIDE
- ◆ PRODUCES OPTIMUM HOLE QUALITY IN HIGH LAYER COUNT
- ◆ CAN BE RESHARPENED FOR MAXIMUM TOOL UTILIZATION

Size	Dec Size	Flute Length	Part #	Flute Length	Part #	
83	.0120	5.5	D0120L05	7.0	D0120L07	Purple
82	.0125	5.5	D0125L05	7.0	D0125L07	Yellow
81	.0130	5.5	D0130L05	7.0	D0130L07	Grey
80	.0135	5.5	D0135L05	7.0	D0135L07	Blue
.35mm	.0138	5.5	D0138L05	7.0	D0138L07	Pink
79	.0145	5.5	D0145L05	7.0	D0145L07	Red
1/64	.0156	5.5	D0156L05	7.0	D0156L07	Brown
.40mm	.0157	5.5	D0157L05	7.0	D0157L07	Orange
78	.0160	5.5	D0160L05	7.0	D0160L07	Green
.45mm	.0177	5.5	D0177L05	7.0	D0177L07	Light Green
77	.0180	5.5	D0180L05	7.0	D0180L07	Purple
.50mm	.0197	5.5	D0197L05	7.0	D0197L07	Yellow
76	.0200	5.5	D0200L05	7.0	D0200L07	Grey
75	.0210	7.0	D0210L07	8.5	D0210L08	Blue
.55mm	.0217	7.0	D0217L07	8.5	D0217L08	Pink
74	.0225	7.0	D0225L07	8.5	D0225L08	Red
.60mm	.0236	7.0	D0236L07	8.5	D0236L08	Brown
73	.0240	7.0	D0240L07	8.5	D0240L08	Orange
72	.0250	7.0	D0250L07	8.5	D0250L08	Green

NOTE: ADDITIONAL SIZES AVAILABLE

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SLOT DRILLS



- ◆ SOLID CARBIDE
- ◆ ROBUST GEOMETRY
- ◆ BREAK RESISTANT
- ◆ PRODUCES STRAIGHT SLOTS
- ◆ FREQUENTLY RUNS AT HIGHER FEED RATES

Size	Dec Size	Flute Length (mm's)	Part #
.50mm	.0197	7.0	S0197X07
76	.0200	7.0	S0200X07
75	.0210	7.0	S0210X07
.55mm	.0217	7.0	S0217X07
74	.0225	7.0	S0225X07
.60mm	.0236	7.0	S0236X07
73	.0240	7.0	S0240X07
72	.0250	7.0	S0250X07
.65mm	.0256	7.0	S0256X07
71	.0260	7.0	S0260X07
.70mm	.0276	7.0	S0276X07
70	.0280	9.0	S0280X09
69	.0292	9.0	S0292X09
.75mm	.0295	9.0	S0295X09
68	.0310	9.0	S0310X09
1/32	.0312	9.0	S0312X09
.80mm	.0315	9.0	S0315X09
67	.0320	9.0	S0320X09
66	.0330	9.0	S0330X09
.85mm	.0335	9.0	S0335X09
65	.0350	9.0	S0350X09
.90mm	.0354	9.0	S0354X09
64	.0360	9.0	S0360X09
63	.0370	9.0	S0370X09
.95mm	.0374	9.0	S0374X09

Size	Dec Size	Flute Length (mm's)	Part #
62	.0380	9.0	S0380X09
61	.0390	9.0	S0390X09
1.00mm	.0394	9.0	S0394X09
60	.0400	9.0	S0400X09
59	.0410	9.0	S0140X09
1.05mm	.0413	9.0	S0413X09
58	.0420	9.0	S0420X09
57	.0430	9.0	S0430X09
1.10mm	.0433	9.0	S0433X09
1.15mm	.0453	9.0	S0453X09
56	.0465	9.0	S0465X09
3/64	.0469	9.0	S0469X09
1.20mm	.0472	9.0	S0472X09
1.25mm	.0492	9.0	S0492X09
1.30mm	.0512	10.0	S0512X10
55	.0520	10.0	S0520X10
1.35mm	.0531	10.0	S0531X10
54	.0550	10.0	S0550X10
1.40mm	.0551	10.0	S0551X10
1.45mm	.0571	10.0	S0571X10
1.50mm	.0591	10.0	S0591X10
53	.0595	10.0	S0595X10
1.55mm	.0610	10.0	S0610X10
1/16	.0625	10.0	S0625X10
1.60mm	.0630	10.0	S0630X10
52	.0635	10.0	S0635X10

NOTE: ADDITIONAL SIZES AVAILABLE



DIAMOND CUT ROUTERS



- ◆ SOLID CARBIDE
- ◆ LONG LIFE
- ◆ EFFECTIVE ON MOST PWB MATERIALS AND CONSTRUCTIONS

Size	Dec Size	Flute Length	Drill Point Part #	Fishtail Part #	Flute Length	Drill Point Part #	Fishtail Part #
1/32	.0312	5.0	R0312D05D	R0312D05F	7.0	R0312D07D	R0312D07F
.80mm	.0315	5.0	R0315D05D	R0315D05F	7.0	R0315D07D	R0315D07F
.90mm	.0354	5.0	R0354D05D	R0354D05F	7.0	R0354D07D	R0354D07F
1.00mm	.0394	5.0	R0394D05D	R0394D05F	7.0	R0394D07D	R0394D07F
3/64	.0469	5.0	R0469D05D	R0469D05F	7.0	R0469D07D	R0469D07F
1.20mm	.0472	5.0	R0472D05D	R0472D05F	7.0	R0472D07D	R0472D07F
.050	.0500	5.0	R0500D05D	R0500D05F	7.0	R0500D07D	R0500D07F
1.30mm	.0512	5.0	R0512D05D	R0512D05F	7.0	R0512D07D	R0512D07F
.055	.0550	6.0	R0550D06D	R0550D06F	8.0	R0550D08D	R0550D08F
1.40mm	.0551	6.0	R0551D06D	R0551D06F	8.0	R0551D08D	R0551D08F
1.50mm	.0591	6.0	R0591D06D	R0591D06F	8.0	R0591D08D	R0591D08F
1/16	.0625	8.0	R0625D08D	R0625D08F			
1.60mm	.0630	8.0	R0630D08D	R0630D08F			
1.70mm	.0669	8.0	R0669D08D	R0669D08F			
.070	.0700	8.0	R0700D08D	R0700D08F			
1.80mm	.0709	8.0	R0709D08D	R0709D08F			
1.90mm	.0748	8.0	R0748D08D	R0748D08F			
5/64	.0781	9.0	R0781D09D	R0781D09F			
2.00mm	.0787	9.0	R0787D09D	R0787D09F			
2.10mm	.0827	9.0	R0827D09D	R0827D09F			
2.20mm	.0866	9.0	R0866D09D	R0866D09F			
2.30mm	.0906	9.0	R0906D09D	R0906D09F			
3/32	.0938	10.0	R0938D10D	R0938D10F			
2.40mm	.0945	10.0	R0945D10D	R0945D10F			
2.50mm	.0984	10.0	R0984D10D	R0984D10F			
.1000	.1000	10.0	R1000D10D	R1000D10F			
2.60mm	.1024	10.0	R1024D10D	R1024D10F			
2.70mm	.1063	10.0	R1063D10D	R1063D10F			
2.80mm	.1102	10.0	R1102D10D	R1102D10F			
2.90mm	.1142	12.0	R1142D12D	R1142D12F			
3.00mm	.1181	12.0	R1181D12D	R1181D12F			
3.10mm	.1220	12.0	R1220D12D	R1220D12F			
1/8	.1250	12.0	R1250D12D	R1250D12F			

NOTE: ADDITIONAL SIZES AVAILABLE

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CHIPBREAKER ROUTERS



- ◆ SOLID CARBIDE
- ◆ CUT DESIGN REDUCES DUST DURING CYCLE
- ◆ EFFECTIVE ON MOST PWB MATERIALS AND CONSTRUCTIONS

Size	Dec Size	Flute Length	Drill Point Part #	Fishtail Part #	Flute Length	Drill Point Part #	Fishtail Part #
1/32	.0312	5.0	R0312C05D	R0312C05F	7.0	R0312C07D	R0312C07F
.80mm	.0315	5.0	R0315C05D	R0315C05F	7.0	R0315C07D	R0315C07F
.90mm	.0354	5.0	R0354C05D	R0354C05F	7.0	R0354C07D	R0354C07F
1.00mm	.0394	5.0	R0394C05D	R0394C05F	7.0	R0394C07D	R0394C07F
3/64	.0469	5.0	R0469C05D	R0469C05F	7.0	R0469C07D	R0469C07F
1.20mm	.0472	5.0	R0472C05D	R0472C05F	7.0	R0472C07D	R0472C07F
.050	.0500	5.0	R0500C05D	R0500C05F	7.0	R0500C07D	R0500C07F
1.30mm	.0512	5.0	R0512C05D	R0512C05F	7.0	R0512C07D	R0512C07F
.055	.0550	6.0	R0550C06D	R0550C06F	8.0	R0550C08D	R0550C08F
1.40mm	.0551	6.0	R0551C06D	R0551C06F	8.0	R0551C08D	R0551C08F
1.50mm	.0591	6.0	R0591C06D	R0591C06F	8.0	R0591C08D	R0591C08F
1/16	.0625	8.0	R0625C08D	R0625C08F			
1.60mm	.0630	8.0	R0630C08D	R0630C08F			
1.70mm	.0669	8.0	R0669C08D	R0669C08F			
.070	.0700	8.0	R0700C08D	R0700C08F			
1.80mm	.0709	8.0	R0709C08D	R0709C08F			
1.90mm	.0748	8.0	R0748C08D	R0748C08F			
5/64	.0781	9.0	R0781C09D	R0781C09F			
2.00mm	.0787	9.0	R0787C09D	R0787C09F			
2.10mm	.0827	9.0	R0827C09D	R0827C09F			
2.20mm	.0866	9.0	R0866C09D	R0866C09F			
2.30mm	.0906	9.0	R0906C09D	R0906C09F			
3/32	.0938	10.0	R0938C10D	R0938C10F			
2.40mm	.0945	10.0	R0945C10D	R0945C10F			
2.50mm	.0984	10.0	R0984C10D	R0984C10F			
.1000	.1000	10.0	R1000C10D	R1000C10F			
2.60mm	.1024	10.0	R1024C10D	R1024C10F			
2.70mm	.1063	10.0	R1063C10D	R1063C10F			
2.80mm	.1102	10.0	R1102C10D	R1102C10F			
2.90mm	.1142	12.0	R1142C12D	R1142C12F			
3.00mm	.1181	12.0	R1181C12D	R1181C12F			
3.10mm	.1220	12.0	R1220C12D	R1220C12F			
1/8	.1250	12.0	R1250C12D	R1250C12F			

NOTE: ADDITIONAL SIZES AVAILABLE



TWO FLUTE END MILLS



- ◆ EFFECTIVE IN SOFT MATERIALS
- ◆ METAL BACK AND HEAT SINK APPLICATIONS

Cutter Diameter	Cutting Length	Standard Part # *	1x Diameter Cutting	1x Diameter Part # *	2x Diameter Cutting	2x Diameter Part # *	3x Diameter Cutting	3x Diameter Part # *
.0100	.075	E0100B01U						
.0150	.100	E0150B02U						
.0200	.125	E0200B03U						
.0250	.150	E0250B03U						
.0312	.188	E0312B04U	.031	E0312B01U	.062	E0312B02U	.093	E0312B03U
.0360	.200	E0360B05U						
.0394	.200	E0394B05U						
.0400	.200	E0400B05U						
.0469	.250	E0469B06U						
.0500	.250	E0500B06U						
.0550	.250	E0550B06U						
.0625	.300	E0625B07U	.062	E0625B02U	.125	E0625B03U	.188	E0625B05U
.0781	.375	E0781B09U						
.0787	.375	E0787B09U						
.0938	.375	E0938B09U	.093	E0938B02U	.188	E0938B04U	.281	E0938B06U
.1000	.375	E1000B09U						
.1181	.375	E1181B09U						
.1250	.500	E1250B12U	.125	E1250B03U	.250	E1250B06U	.375	E1250B10U

NOTE: THESE TWO FLUTE END MILLS ARE UPCUT – DOWNCUTS ARE ALSO AVAILABLE

*TO SPECIFY END CUT STYLE, LAST DIGIT OF PART # SHOULD BE:
 "D" = DRILL POINT "S" = SQUARE END "F" = FISHTAIL



END MILLS

- SINGLE FLUTE
- FOUR FLUTE

SINGLE FLUTE

◆ EFFECTIVE IN

SOFT MATERIALS AND FLEX MATERIALS

Size	Dec Size	Flute Length	Square End Part #
1/32	.0312	3.0	E0312A03US
.80mm	.0315	3.0	E0315A03US
1.00mm	.0394	3.0	E0394A03US
1.20mm	.0472	4.0	E0472A04US
1.40mm	.0551	4.0	E0551A04US
1.50mm	.0591	4.0	E0591A04US
1/16	.0625	5.0	E0625A05US
1.60mm	.0630	5.0	E0630A05US
1.80mm	.0709	5.0	E0709A05US
2.00mm	.0787	8.0	E0787A08US
3/32	.0938	8.0	E0938A08US
2.40mm	.0945	8.0	E0645A08US
2.50mm	.0984	9.0	E0984A09US
3.00mm	.1181	9.0	E1181A09US
1/8	.1250	9.0	E1250A09US



Four Flute

◆ EFFECTIVE IN MILLING APPLICATIONS
AND IN ABRASIVE MATERIALS

Size	Dec	Cutting	Square End
1/32	.0312	.188	E0312D04US
1/16	.0625	.300	E0625D07US
3/32	.0938	.375	E0938D09US
1/8	.1250	.500	E1250D12US



NOTE: ADDITIONAL SIZES AVAILABLE



COUNTERSINKS



- ◆ SOLID CARBIDE
- ◆ EFFECTIVE IN LOW AND HIGH DEMAND APPLICATIONS
- ◆ EFFECTIVE ON MOST PWB MATERIALS AND CONSTRUCTIONS
- ◆ CAN BE RESHARPENED FOR MAXIMUM TOOL LIFE

Diameter	Angle	Flute	Part #	Flute	Part #
1/8	60	2	C1250S060-2	4	C1250S060-4
	82	2	C1250S082-2	4	C1250S082-4
	90	2	C1250S090-2	4	C1250S090-4
	100	2	C1250S100-2	4	C1250S100-4
	110	2	C1250S110-2	4	C1250S110-4
	120	2	C1250S120-2	4	C1250S120-4
1/4	60	2	C2500S060-2	4	C2500S060-4
	82	2	C2500S082-2	4	C2500S082-4
	90	2	C2500S090-2	4	C2500S090-4
	100	2	C2500S100-2	4	C2500S100-4
	110	2	C2500S110-2	4	C2500S110-4
	120	2	C2500S120-2	4	C2500S120-4
5/16	60	2	C3125S060-2	4	C3125S060-4
	82	2	C3125S082-2	4	C3125S082-4
	90	2	C3125S090-2	4	C3125S090-4
	100	2	C3125S100-2	4	C3125S100-4
	110	2	C3125S110-2	4	C3125S110-4
	120	2	C3125S120-2	4	C3125S120-4

**NOTE: THIS COUNTERSINK HAS 1/8" SHANK
FOR USE WITH CNC EQUIPMENT**



SCORING TOOLS



- ◆ SOLID CARBIDE
- ◆ EFFECTIVE IN LOW DEMAND APPLICATIONS
- ◆ EFFECTIVE ON MOST PWB MATERIALS AND CONSTRUCTIONS



Size	Diameter	Angle	<u>Spade</u> End Cut	<u>Spiral</u> End Cut
1/32	.0312"	30	SC0312D30	SC0312P30
		45	SC0312D45	SC0312P45
		60	SC0312D60	SC0312P60
		90	SC0312D90	SC0312P90
1/16	.0625"	30	SC0625D30	SC0625P30
		45	SC0625D45	SC0625P45
		60	SC0625D60	SC0625P60
		90	SC0625D90	SC0625P90
3/32	.0938"	30	SC0938D30	SC0938P30
		45	SC0938D45	SC0938P45
		60	SC0938D60	SC0938P60
		90	SC0938D90	SC0938P90
1/8	.1250"	30	SC1250D30	SC1250P30
		45	SC1250D45	SC1250P45
		60	SC1250D60	SC1250P60
		90	SC1250D90	SC1250P90

NOTE: ADDITIONAL SIZES AND DESIGNS AVAILABLE



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TOOLING PLUG DRILLS
STINGER GEOMETRY

ROUTERS

CHIPBREAKER
DIAMOND CUT
FLASH ROUTER
DOWN CUT DESIGN
UP CUT DESIGN
EXTENDED FLUTE LENGTHS
REDUCED FLUTE LENGTHS
VARYING END STYLES

END MILLS

SINGLE FLUTE
TWO FLUTE

COUNTERSINKS

ONE FLUTE
TWO FLUTE
FOUR FLUTE
MULTI-FACET
NON-STANDARD
REQUIREMENTS
ORDER RESPONSIVE
MANUFACTURING

COUNTERBORES

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ORDER RESPONSIVE
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