



PERFORMANCE
MICRO TOOL

INNOVATION RULES

PRODUCT CATALOG



Making the world's smallest tools.
5 μm and up.

INNOVATION RULES



Performance Micro Tool

www.pmtnow.com

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*For the latest part updates,
visit our online catalog.*

INNOVATION RULES

THE WORLD LEADER IN MICRO TOOLS



It's knowledge, technical skill and experience – magnified. Welcome to Performance Micro Tool – the leader in micro end mills and other micro tools. A true innovator, Performance Micro Tool's unique manufacturing ability has led to many firsts including the world's first 5 μm end mill.

Since the company was founded in 2000, PMT has been constantly extending the boundaries of micro end mills – with decreasing size and greater performance. Today, PMT end mills are approaching diameters and tolerances thought impossible just a few years ago.



At 5 μm in diameter, our micro end mills are now approaching the nano level.

PMT FEATURES

- End Mills from 5 μm diameter
- Drills from 0.002" diameter
- Extremely fast turnaround on special tools
- Proprietary SPC analysis tools
- Shortest lead times in the industry
- Competitive pricing
- Made in the USA

APPLICATIONS

- Electronics and prototyping
- Medical, aerospace and micro robotics
- Industrial micro-manufacturing
- Die molds
- Hobby and specialty
- Steel rule die
- Engraving



Customers around the world

The company provides micro end mills and drills to a diverse group of customers around the globe in industries including electronics, medical and aerospace. PMT is also a well-known and sought-after resource in academic circles – we have collaborated with over 140 university engineering departments in their micro tool research projects.

For an expanding micro industry

Custom and in-stock end mills are used in some amazing applications – from designing medical diagnostic tools for use inside the body to developing micro components for U.S. fighter jets. The PMT product line and unique quality controls assure customers of superior end mill performance and longevity. We also offer the shortest lead times in the industry.

Give us a call. Find out how we can assist you with your micro tool needs.

Contact Performance Micro Tool Today

866-PERFORM (1-866-737-3676)

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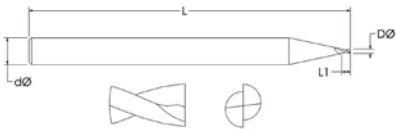
TS SERIES 2 FLUTE MICRO END MILLS



TS-2 STUB LENGTH

PART NUMBER	CUTTER DIAMETER DØ	FLUTE LENGTH L1	SHANK DIAMETER dØ	OVERALL LENGTH L
TS-2-0010-S	.0010	.002	1/8	1 1/2
TS-2-0020-S	.0020	.003	1/8	1 1/2
TS-2-0030-S	.0030	.005	1/8	1 1/2
TS-2-0040-S	.0040	.006	1/8	1 1/2
TS-2-0050-S	.0050	.008	1/8	1 1/2
TS-2-0060-S	.0060	.009	1/8	1 1/2
TS-2-0070-S	.0070	.011	1/8	1 1/2
TS-2-0080-S	.0080	.012	1/8	1 1/2
TS-2-0090-S	.0090	.014	1/8	1 1/2
TS-2-0100-S	.0100	.015	1/8	1 1/2
TS-2-0110-S	.0110	.017	1/8	1 1/2
TS-2-0120-S	.0120	.018	1/8	1 1/2
TS-2-0130-S	.0130	.020	1/8	1 1/2
TS-2-0140-S	.0140	.021	1/8	1 1/2
TS-2-0150-S	.0150	.023	1/8	1 1/2
TS-2-0160-S	.0160	.024	1/8	1 1/2
TS-2-0170-S	.0170	.026	1/8	1 1/2
TS-2-0180-S	.0180	.027	1/8	1 1/2
TS-2-0190-S	.0190	.029	1/8	1 1/2
TS-2-0200-S	.0200	.030	1/8	1 1/2
TS-2-0210-S	.0210	.032	1/8	1 1/2
TS-2-0220-S	.0220	.033	1/8	1 1/2
TS-2-0230-S	.0230	.035	1/8	1 1/2
TS-2-0240-S	.0240	.036	1/8	1 1/2
TS-2-0250-S	.0250	.038	1/8	1 1/2
TS-2-0260-S	.0260	.039	1/8	1 1/2
TS-2-0270-S	.0270	.041	1/8	1 1/2
TS-2-0280-S	.0280	.042	1/8	1 1/2
TS-2-0290-S	.0290	.044	1/8	1 1/2

TS AND TR SERIES



TOLERANCES

- DØ ± .0005"
- L1 + .007" - .000"
- dØ + .0000" - .0002"
- L ± .005"

FEATURES

- Micro and miniature
- Stub and standard cutting lengths
- Primary relief angles
- T.I.R. controlled to 1/3 industry standards
- Sorting to .0001" diameter available

APPLICATIONS

- Graphite electrodes
- Plastics for optical and medical
- Electronic components
- Engraving and sign making
- Small aluminum parts

TS SERIES 2 FLUTE MICRO END MILLS



TS-2 STUB LENGTH

PART NUMBER	CUTTER DIAMETER D \varnothing	FLUTE LENGTH L1	SHANK DIAMETER d \varnothing	OVERALL LENGTH L
TS-2-0300-S	.0300	.045	1/8	1 1/2
TS-2-0312-S	.0312	.047	1/8	1 1/2
TS-2-0320-S	.0320	.048	1/8	1 1/2
TS-2-0330-S	.0330	.050	1/8	1 1/2
TS-2-0340-S	.0340	.051	1/8	1 1/2
TS-2-0350-S	.0350	.053	1/8	1 1/2
TS-2-0360-S	.0360	.054	1/8	1 1/2
TS-2-0370-S	.0370	.056	1/8	1 1/2
TS-2-0380-S	.0380	.058	1/8	1 1/2
TS-2-0390-S	.0390	.059	1/8	1 1/2
TS-2-0400-S	.0400	.060	1/8	1 1/2
TS-2-0410-S	.0410	.062	1/8	1 1/2
TS-2-0420-S	.0420	.063	1/8	1 1/2
TS-2-0430-S	.0430	.065	1/8	1 1/2
TS-2-0440-S	.0440	.066	1/8	1 1/2
TS-2-0450-S	.0450	.068	1/8	1 1/2
TS-2-0470-S	.0470	.071	1/8	1 1/2
TS-2-0500-S	.0500	.075	1/8	1 1/2
TS-2-0550-S	.0550	.083	1/8	1 1/2
TS-2-0600-S	.0600	.090	1/8	1 1/2
TS-2-0625-S	.0625	.094	1/8	1 1/2
TS-2-0650-S	.0650	.098	1/8	1 1/2
TS-2-0700-S	.0700	.105	1/8	1 1/2
TS-2-0750-S	.0750	.113	1/8	1 1/2
TS-2-0781-S	.0781	.117	1/8	1 1/2
TS-2-0800-S	.0800	.120	1/8	1 1/2
TS-2-0850-S	.0850	.128	1/8	1 1/2
TS-2-0900-S	.0900	.135	1/8	1 1/2
TS-2-0938-S	.0938	.141	1/8	1 1/2

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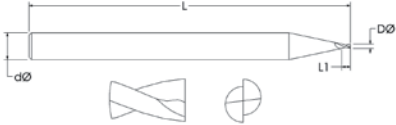
TR SERIES 2 FLUTE MICRO END MILLS



TR-2 STANDARD LENGTH

PART NUMBER	CUTTER DIAMETER DØ	FLUTE LENGTH L1	SHANK DIAMETER dØ	OVERALL LENGTH L
TR-2-0010-S	.0010	.003	1/8	1 1/2
TR-2-0020-S	.0020	.006	1/8	1 1/2
TR-2-0030-S	.0030	.009	1/8	1 1/2
TR-2-0040-S	.0040	.012	1/8	1 1/2
TR-2-0050-S	.0050	.015	1/8	1 1/2
TR-2-0060-S	.0060	.018	1/8	1 1/2
TR-2-0070-S	.0070	.021	1/8	1 1/2
TR-2-0080-S	.0080	.024	1/8	1 1/2
TR-2-0090-S	.0090	.027	1/8	1 1/2
TR-2-0100-S	.0100	.030	1/8	1 1/2
TR-2-0110-S	.0110	.033	1/8	1 1/2
TR-2-0120-S	.0120	.036	1/8	1 1/2
TR-2-0130-S	.0130	.039	1/8	1 1/2
TR-2-0140-S	.0140	.042	1/8	1 1/2
TR-2-0150-S	.0150	.045	1/8	1 1/2
TR-2-0160-S	.0160	.048	1/8	1 1/2
TR-2-0170-S	.0170	.051	1/8	1 1/2
TR-2-0180-S	.0180	.054	1/8	1 1/2
TR-2-0190-S	.0190	.057	1/8	1 1/2
TR-2-0200-S	.0200	.060	1/8	1 1/2
TR-2-0210-S	.0210	.063	1/8	1 1/2
TR-2-0220-S	.0220	.066	1/8	1 1/2
TR-2-0230-S	.0230	.069	1/8	1 1/2
TR-2-0240-S	.0240	.072	1/8	1 1/2
TR-2-0250-S	.0250	.075	1/8	1 1/2
TR-2-0260-S	.0260	.078	1/8	1 1/2
TR-2-0270-S	.0270	.081	1/8	1 1/2
TR-2-0280-S	.0280	.084	1/8	1 1/2
TR-2-0290-S	.0290	.087	1/8	1 1/2

TS AND TR SERIES



TOLERANCES

- DØ ± .0005"
- L1 + .007" - .000"
- dØ + .0000" - .0002"
- L ± .005"

FEATURES

- Micro and miniature
- Stub and standard cutting lengths
- Primary relief angles
- T.I.R. controlled to 1/3 industry standards
- Sorting to .0001" diameter available

APPLICATIONS

- Graphite electrodes
- Plastics for optical and medical
- Electronic components
- Engraving and sign making
- Small aluminum parts

TR SERIES 2 FLUTE MICRO END MILLS



TR-2 STANDARD LENGTH

PART NUMBER	CUTTER DIAMETER DØ	FLUTE LENGTH L1	SHANK DIAMETER dØ	OVERALL LENGTH L
TR-2-0300-S	.0300	.090	1/8	1 1/2
TR-2-0312-S	.0312	.094	1/8	1 1/2
TR-2-0320-S	.0320	.096	1/8	1 1/2
TR-2-0330-S	.0330	.099	1/8	1 1/2
TR-2-0340-S	.0340	.102	1/8	1 1/2
TR-2-0350-S	.0350	.105	1/8	1 1/2
TR-2-0360-S	.0360	.108	1/8	1 1/2
TR-2-0370-S	.0370	.111	1/8	1 1/2
TR-2-0380-S	.0380	.114	1/8	1 1/2
TR-2-0390-S	.0390	.117	1/8	1 1/2
TR-2-0400-S	.0400	.120	1/8	1 1/2
TR-2-0410-S	.0410	.123	1/8	1 1/2
TR-2-0420-S	.0420	.126	1/8	1 1/2
TR-2-0430-S	.0430	.129	1/8	1 1/2
TR-2-0440-S	.0440	.132	1/8	1 1/2
TR-2-0450-S	.0450	.135	1/8	1 1/2
TR-2-0470-S	.0470	.141	1/8	1 1/2
TR-2-0500-S	.0500	.150	1/8	1 1/2
TR-2-0550-S	.0550	.165	1/8	1 1/2
TR-2-0600-S	.0600	.180	1/8	1 1/2
TR-2-0625-S	.0625	.188	1/8	1 1/2
TR-2-0650-S	.0650	.195	1/8	1 1/2
TR-2-0700-S	.0700	.210	1/8	1 1/2
TR-2-0750-S	.0750	.225	1/8	1 1/2
TR-2-0781-S	.0781	.234	1/8	1 1/2
TR-2-0800-S	.0800	.240	1/8	1 1/2
TR-2-0850-S	.0850	.255	1/8	1 1/2
TR-2-0900-S	.0900	.270	1/8	1 1/2
TR-2-0938-S	.0938	.281	1/8	1 1/2



PMT's quality and process controls ensure superior performance and durability.

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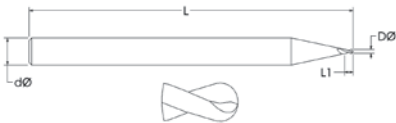
TS SERIES 2 FLUTE MICRO BALL END MILLS



TS-2BN STUB LENGTH

PART NUMBER	CUTTER DIAMETER DØ	FLUTE LENGTH L1	SHANK DIAMETER dØ	OVERALL LENGTH L
TS-2-0030-BN	.0030	.005	1/8	1 1/2
TS-2-0040-BN	.0040	.006	1/8	1 1/2
TS-2-0050-BN	.0050	.008	1/8	1 1/2
TS-2-0060-BN	.0060	.009	1/8	1 1/2
TS-2-0070-BN	.0070	.011	1/8	1 1/2
TS-2-0080-BN	.0080	.012	1/8	1 1/2
TS-2-0090-BN	.0090	.014	1/8	1 1/2
TS-2-0100-BN	.0100	.015	1/8	1 1/2
TS-2-0110-BN	.0110	.017	1/8	1 1/2
TS-2-0120-BN	.0120	.018	1/8	1 1/2
TS-2-0130-BN	.0130	.020	1/8	1 1/2
TS-2-0140-BN	.0140	.021	1/8	1 1/2
TS-2-0150-BN	.0150	.023	1/8	1 1/2
TS-2-0160-BN	.0160	.024	1/8	1 1/2
TS-2-0170-BN	.0170	.026	1/8	1 1/2
TS-2-0180-BN	.0180	.027	1/8	1 1/2
TS-2-0190-BN	.0190	.029	1/8	1 1/2
TS-2-0200-BN	.0200	.030	1/8	1 1/2
TS-2-0210-BN	.0210	.032	1/8	1 1/2
TS-2-0220-BN	.0220	.033	1/8	1 1/2
TS-2-0230-BN	.0230	.035	1/8	1 1/2
TS-2-0240-BN	.0240	.036	1/8	1 1/2
TS-2-0250-BN	.0250	.038	1/8	1 1/2
TS-2-0260-BN	.0260	.039	1/8	1 1/2
TS-2-0270-BN	.0270	.041	1/8	1 1/2
TS-2-0280-BN	.0280	.042	1/8	1 1/2
TS-2-0290-BN	.0290	.044	1/8	1 1/2
TS-2-0300-BN	.0300	.045	1/8	1 1/2
TS-2-0312-BN	.0312	.047	1/8	1 1/2
TS-2-0350-BN	.0350	.053	1/8	1 1/2
TS-2-0400-BN	.0400	.060	1/8	1 1/2
TS-2-0450-BN	.0450	.068	1/8	1 1/2
TS-2-0470-BN	.0470	.071	1/8	1 1/2
TS-2-0500-BN	.0500	.075	1/8	1 1/2
TS-2-0550-BN	.0550	.083	1/8	1 1/2
TS-2-0600-BN	.0600	.090	1/8	1 1/2

TS AND TR/BN SERIES



TOLERANCES

$D\varnothing \pm .0005"$
 $L1 + .007" - .000"$
 $d\varnothing + .0000" - .0002"$
 $L \pm .005"$

FEATURES

- Miniature and sub miniature
- Stub and standard cutting lengths
- Nominal plus/minus diameter tolerances
- Primary relief angles
- Sorting to .0001" diameter available

APPLICATIONS

- Graphite electrodes
- Plastics for optical and medical
- Electronic components
- Engraving and sign making
- Small aluminum parts
- Small mold applications
- Small "O" ring groves

TR SERIES 2 FLUTE MICRO BALL END MILLS

TR-2BN STANDARD LENGTH



PART NUMBER	CUTTER DIAMETER DØ	FLUTE LENGTH L1	SHANK DIAMETER dØ	OVERALL LENGTH L
TR-2-0030-BN	.0030	.009	1/8	1 1/2
TR-2-0040-BN	.0040	.012	1/8	1 1/2
TR-2-0050-BN	.0050	.015	1/8	1 1/2
TR-2-0060-BN	.0060	.018	1/8	1 1/2
TR-2-0070-BN	.0070	.021	1/8	1 1/2
TR-2-0080-BN	.0080	.024	1/8	1 1/2
TR-2-0090-BN	.0090	.027	1/8	1 1/2
TR-2-0100-BN	.0100	.030	1/8	1 1/2
TR-2-0110-BN	.0110	.033	1/8	1 1/2
TR-2-0120-BN	.0120	.036	1/8	1 1/2
TR-2-0130-BN	.0130	.039	1/8	1 1/2
TR-2-0140-BN	.0140	.042	1/8	1 1/2
TR-2-0150-BN	.0150	.045	1/8	1 1/2
TR-2-0160-BN	.0160	.048	1/8	1 1/2
TR-2-0170-BN	.0170	.051	1/8	1 1/2
TR-2-0180-BN	.0180	.054	1/8	1 1/2
TR-2-0190-BN	.0190	.057	1/8	1 1/2
TR-2-0200-BN	.0200	.060	1/8	1 1/2
TR-2-0210-BN	.0210	.063	1/8	1 1/2
TR-2-0220-BN	.0220	.066	1/8	1 1/2
TR-2-0230-BN	.0230	.069	1/8	1 1/2
TR-2-0240-BN	.0240	.072	1/8	1 1/2
TR-2-0250-BN	.0250	.075	1/8	1 1/2
TR-2-0260-BN	.0260	.078	1/8	1 1/2
TR-2-0270-BN	.0270	.081	1/8	1 1/2
TR-2-0280-BN	.0280	.084	1/8	1 1/2
TR-2-0290-BN	.0290	.087	1/8	1 1/2
TR-2-0300-BN	.0300	.090	1/8	1 1/2
TR-2-0312-BN	.0312	.094	1/8	1 1/2
TR-2-0350-BN	.0350	.105	1/8	1 1/2
TR-2-0400-BN	.0400	.120	1/8	1 1/2
TR-2-0450-BN	.0450	.135	1/8	1 1/2
TR-2-0470-BN	.0470	.141	1/8	1 1/2
TR-2-0500-BN	.0500	.150	1/8	1 1/2
TR-2-0550-BN	.0550	.165	1/8	1 1/2
TR-2-0600-BN	.0600	.180	1/8	1 1/2



PMT has the production capacity to fill large quantity orders for customers worldwide.





With manufacturing and quality assurance just steps away, Performance Micro Tool is able to provide superior performing tools.



**PERFORMANCE
MICRO TOOL**

SUPERIOR MANUFACTURING AND SERVICE



No one in the world offers smaller end mills than Performance Micro Tool. Our tools range in size from .1250" down to .0002" in standard or stub length.



The PMT Team – experience and a can-do attitude.

24-HOUR FAST-TURN SERVICE

Performance Micro Tool offers 24-hour fast-turn service on standard and special tools. If you need tools tomorrow – either our in-stock tools or custom design – give us a call.

CUSTOM TOOL DESIGN FOR ANY PROCESS OR MATERIAL

Performance Micro Tool can design tools to fit your process or special cutting requirements. We have designed tools to cut everything from very hard abrasive temperature-sensitive material to very soft material. We can modify a standard design to fit your specific needs in length, diameter, drill point, etc. Custom coatings are also available on any of our tools.



Collaborating with Universities

In 2004, Performance Micro Tool received a call from a university professor. He was asking for what seemed to be the impossible. The university had a milling machine with a 1 million rpm spindle. What they needed were two flute spiral end mills to produce 5 μm slots in stainless steel. 5 μm was 25 times smaller than anyone except PMT had ever offered and 5 times smaller than anything our company offered at the time. Despite initial reservations, PMT accepted the challenge. Six weeks later, we delivered the world's first 5 μm end mills to the university. They performed even better than expected. The rest, as they say, is history. To date, PMT has worked with over 140 universities on a broad range of research projects. We currently have a close collaboration with 40 of these universities.



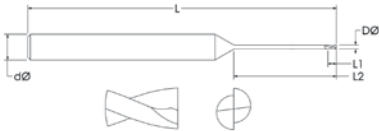
Our packaging has a patented hole lock designed just for the handling and shipping of delicate precision tools.

TS SERIES EXTENDED REACH 2 FLUTE MICRO END MILLS



TS-2-SR EXTENDED REACH SQUARE

TS AND TR SERIES



TOLERANCES

$D\varnothing \pm .0005"$
 $L1 + .007" - .000"$
 $d\varnothing + .0000" - .0002"$
 $L \pm .005"$

FEATURES

- Micro and miniature
- Stub and standard cutting lengths
- Primary relief angles
- T.I.R. controlled to 1/3 industry standards
- Sorting to .0001" diameter available

APPLICATIONS

- Graphite electrodes
- Plastics for optical and medical
- Electronic components
- Engraving and sign making
- Small aluminum parts

Reach available up to 10x diameter.

PART NUMBER	CUTTER DIAMETER DØ	FLUTE LENGTH L1	REACH DEPTH L2	SHANK DIAMETER dØ	OVERALL LENGTH L
TS-2-0040-SR6	.0040	.006	.024	1/8	1 1/2
TS-2-0050-SR6	.0050	.008	.030	1/8	1 1/2
TS-2-0060-SR6	.0060	.009	.036	1/8	1 1/2
TS-2-0070-SR6	.0070	.011	.042	1/8	1 1/2
TS-2-0080-SR6	.0080	.012	.048	1/8	1 1/2
TS-2-0090-SR6	.0090	.014	.054	1/8	1 1/2
TS-2-0100-SR6	.0100	.015	.060	1/8	1 1/2
TS-2-0110-SR6	.0110	.017	.066	1/8	1 1/2
TS-2-0120-SR6	.0120	.018	.072	1/8	1 1/2
TS-2-0130-SR6	.0130	.020	.078	1/8	1 1/2
TS-2-0140-SR6	.0140	.021	.084	1/8	1 1/2
TS-2-0150-SR6	.0150	.023	.090	1/8	1 1/2
TS-2-0160-SR6	.0160	.024	.096	1/8	1 1/2
TS-2-0170-SR6	.0170	.026	.102	1/8	1 1/2
TS-2-0180-SR6	.0180	.027	.108	1/8	1 1/2
TS-2-0190-SR6	.0190	.029	.114	1/8	1 1/2
TS-2-0200-SR6	.0200	.030	.120	1/8	1 1/2
TS-2-0250-SR6	.0250	.038	.150	1/8	1 1/2
TS-2-0300-SR6	.0300	.045	.180	1/8	1 1/2
TS-2-0350-SR6	.0350	.053	.210	1/8	1 1/2
TS-2-0400-SR6	.0400	.060	.240	1/8	1 1/2
TS-2-0450-SR6	.0450	.068	.270	1/8	1 1/2
TS-2-0500-SR6	.0500	.075	.300	1/8	1 1/2
TS-2-0550-SR6	.0550	.083	.330	1/8	1 1/2
TS-2-0600-SR6	.0600	.090	.360	1/8	1 1/2
TS-2-0650-SR6	.0650	.098	.390	1/8	1 1/2
TS-2-0700-SR6	.0700	.105	.420	1/8	1 1/2
TS-2-0750-SR6	.0750	.113	.450	1/8	1 1/2
TS-2-0800-SR6	.0800	.120	.480	1/8	1 1/2
TS-2-0850-SR6	.0850	.128	.510	1/8	1 1/2
TS-2-0900-SR6	.0900	.135	.540	1/8	1 1/2

TS SERIES EXTENDED REACH 2 FLUTE MICRO END MILLS



TS-2-BNR EXTENDED REACH BALL NOSE

PART NUMBER	CUTTER DIAMETER ØO	FLUTE LENGTH L1	REACH DEPTH L2	SHANK DIAMETER dØ	OVERALL LENGTH L
TS-2-0040-BNR6	.0040	.006	.024	1/8	1 1/2
TS-2-0050-BNR6	.0050	.008	.030	1/8	1 1/2
TS-2-0060-BNR6	.0060	.009	.036	1/8	1 1/2
TS-2-0070-BNR6	.0070	.011	.042	1/8	1 1/2
TS-2-0080-BNR6	.0080	.012	.048	1/8	1 1/2
TS-2-0090-BNR6	.0090	.014	.054	1/8	1 1/2
TS-2-0100-BNR6	.0100	.015	.060	1/8	1 1/2
TS-2-0110-BNR6	.0110	.017	.066	1/8	1 1/2
TS-2-0120-BNR6	.0120	.018	.072	1/8	1 1/2
TS-2-0130-BNR6	.0130	.020	.078	1/8	1 1/2
TS-2-0140-BNR6	.0140	.021	.084	1/8	1 1/2
TS-2-0150-BNR6	.0150	.023	.090	1/8	1 1/2
TS-2-0160-BNR6	.0160	.024	.096	1/8	1 1/2
TS-2-0170-BNR6	.0170	.026	.102	1/8	1 1/2
TS-2-0180-BNR6	.0180	.027	.108	1/8	1 1/2
TS-2-0190-BNR6	.0190	.029	.114	1/8	1 1/2
TS-2-0200-BNR6	.0200	.030	.120	1/8	1 1/2
TS-2-0250-BNR6	.0250	.038	.150	1/8	1 1/2
TS-2-0300-BNR6	.0300	.045	.180	1/8	1 1/2
TS-2-0350-BNR6	.0350	.053	.210	1/8	1 1/2
TS-2-0400-BNR6	.0400	.060	.240	1/8	1 1/2
TS-2-0450-BNR6	.0450	.068	.270	1/8	1 1/2
TS-2-0500-BNR6	.0500	.075	.300	1/8	1 1/2
TS-2-0550-BNR6	.0550	.083	.330	1/8	1 1/2
TS-2-0600-BNR6	.0600	.090	.360	1/8	1 1/2
TS-2-0650-BNR6	.0650	.098	.390	1/8	1 1/2
TS-2-0700-BNR6	.0700	.105	.420	1/8	1 1/2
TS-2-0750-BNR6	.0750	.113	.450	1/8	1 1/2
TS-2-0800-BNR6	.0800	.120	.480	1/8	1 1/2
TS-2-0850-BNR6	.0850	.128	.510	1/8	1 1/2
TS-2-0900-BNR6	.0900	.135	.540	1/8	1 1/2

Reach available up to 10x diameter



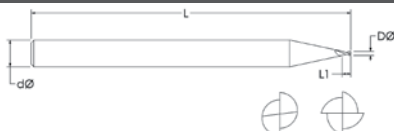
SS SERIES 2 & 4 FLUTE INDUSTRIAL END MILLS



FRACTIONAL SS-2 STUB LENGTH

PART NUMBER	CUTTER DIAMETER DØ	FLUTE LENGTH L1	SHANK DIAMETER dØ	OVERALL LENGTH L
SS-2-0156-S	.0156	.031	1/8	1 1/2
SS-2-0312-S	.0312	.063	1/8	1 1/2
SS-2-0394-S	.0394	.079	1/8	1 1/2
SS-2-0469-S	.0469	.094	1/8	1 1/2
SS-2-0591-S	.0591	.119	1/8	1 1/2
SS-2-0625-S	.0625	.125	1/8	1 1/2
SS-2-0781-S	.0781	.188	1/8	1 1/2
SS-2-0787-S	.0787	.157	1/8	1 1/2
SS-2-0938-S	.0938	.188	1/8	1 1/2
SS-2-0984-S	.0984	.197	1/8	1 1/2
SS-2-1094-S	.1094	.250	1/8	1 1/2
SS-2-1181-S	.1181	.236	1/8	1 1/2
SS-2-1250-S	.1250	.250	1/8	1 1/2

SS AND SR SERIES



TOLERANCES

- DØ + .000" - .002"
- L1 + .015" - .000"
- dØ + .0000" - .0002"
- L ± .005"

FEATURES

- Fractional and metric available
- Stub and standard cutting lengths
- 2 and 4 flute configurations
- Primary relief angles

METRIC SS-2 STUB LENGTH

PART NUMBER	CUTTER DIAMETER DØ	FLUTE LENGTH L1	SHANK DIAMETER dØ	OVERALL LENGTH L
SS-2-0394-S	1.00mm	.079	1/8	1 1/2
SS-2-0591-S	1.50mm	.119	1/8	1 1/2
SS-2-0787-S	2.00mm	.157	1/8	1 1/2
SS-2-0984-S	2.50mm	.197	1/8	1 1/2
SS-2-1181-S	3.00mm	.236	1/8	1 1/2

4 FLUTE INDUSTRIAL END MILLS



SS-4 STUB LENGTH

PART NUMBER	CUTTER DIAMETER DØ	FLUTE LENGTH L1	SHANK DIAMETER dØ	OVERALL LENGTH L
SS-4-0312-S	.0312	.063	1/8	1 1/2
SS-4-0469-S	.0469	.094	1/8	1 1/2
SS-4-0625-S	.0625	.125	1/8	1 1/2
SS-4-0781-S	.0781	.188	1/8	1 1/2
SS-4-0938-S	.0938	.188	1/8	1 1/2
SS-4-1094-S	.1094	.250	1/8	1 1/2
SS-4-1250-S	.1250	.250	1/8	1 1/2

SR SERIES 2 & 4 FLUTE INDUSTRIAL END MILLS

FRACTIONAL SR-2 STANDARD LENGTH



PART NUMBER	CUTTER DIAMETER DØ	FLUTE LENGTH L1	SHANK DIAMETER dØ	OVERALL LENGTH L
SR-2-0156-S	.0156	.047	1/8	1 1/2
SR-2-0312-S	.0312	.125	1/8	1 1/2
SR-2-0394-S	.0394	.118	1/8	1 1/2
SR-2-0469-S	.0469	.125	1/8	1 1/2
SR-2-0591-S	.0591	.236	1/8	1 1/2
SR-2-0625-S	.0625	.250	1/8	1 1/2
SR-2-0781-S	.0781	.375	1/8	1 1/2
SR-2-0787-S	.0787	.394	1/8	1 1/2
SR-2-0938-S	.0938	.375	1/8	1 1/2
SR-2-0984-S	.0984	.394	1/8	1 1/2
SR-2-1094-S	.1094	.500	1/8	1 1/2
SR-2-1181-S	.1181	.477	1/8	1 1/2
SR-2-1250-S	.1250	.500	1/8	1 1/2

METRIC SR-2 STANDARD LENGTH

PART NUMBER	CUTTER DIAMETER DØ	FLUTE LENGTH L1	SHANK DIAMETER dØ	OVERALL LENGTH L
SR-2-0394-S	1.00mm	.118	1/8	1 1/2
SR-2-0591-S	1.50mm	.236	1/8	1 1/2
SR-2-0787-S	2.00mm	.394	1/8	1 1/2
SR-2-0984-S	2.50mm	.394	1/8	1 1/2
SR-2-1181-S	3.00mm	.447	1/8	1 1/2

4 FLUTE INDUSTRIAL END MILLS

SR-4 STANDARD LENGTH



PART NUMBER	CUTTER DIAMETER DØ	FLUTE LENGTH L1	SHANK DIAMETER dØ	OVERALL LENGTH L
SR-4-0312-S	.0312	.125	1/8	1 1/2
SR-4-0469-S	.0469	.125	1/8	1 1/2
SR-4-0625-S	.0625	.250	1/8	1 1/2
SR-4-0781-S	.0781	.375	1/8	1 1/2
SR-4-0938-S	.0938	.375	1/8	1 1/2
SR-4-1094-S	.1094	.500	1/8	1 1/2
SR-4-1250-S	.1250	.500	1/8	1 1/2

SS AND SR SERIES

APPLICATIONS

Recommended for ferrous and non ferrous applications

Electronic components and fiberglass

Pocketing and slotting operations

Graphite electrodes

Plastics for optical and medical

Electronic components

Engraving and sign making



CIRCUIT BOARD END MILLS

1 FLUTE TEFLON



ET-1 STANDARD LENGTH

PART NUMBER	CUTTER DIAMETER DØ	FLUTE LENGTH L1	SHANK DIAMETER dØ	OVERALL LENGTH L
ET-1-0156-S	.0156	.047	1/8	1 1/2
ET-1-0250-S	.0250	.075	1/8	1 1/2
ET-1-0312-S	.0312	.094	1/8	1 1/2
ET-1-0469-S	.0469	.125	1/8	1 1/2
ET-1-0625-S	.0625	.188	1/8	1 1/2
ET-1-0781-S	.0781	.250	1/8	1 1/2
ET-1-0938-S	.0938	.375	1/8	1 1/2
ET-1-1250-S	.1250	.400	1/8	1 1/2

2 FLUTE PCB



ET-2 STANDARD LENGTH

PART NUMBER	CUTTER DIAMETER DØ	FLUTE LENGTH L1	SHANK DIAMETER dØ	OVERALL LENGTH L
ET-2-0312-F	.0312	.125	1/8	1 1/2
ET-2-0469-F	.0469	.156	1/8	1 1/2
ET-2-0625-F	.0625	.250	1/8	1 1/2
ET-2-0781-F	.0781	.250	1/8	1 1/2
ET-2-0938-F	.0938	.375	1/8	1 1/2
ET-2-1250-F	.1250	.400	1/8	1 1/2

ET SERIES



TOLERANCES

- DØ + .000" - .002"
- L1 + .015" - .000"
- dØ + .0000" - .0002"
- L + .005"

FEATURES

- Stub and standard cutting lengths
- Primary relief angles on most tools
- Rake designed specifically for electronic applications
- Designed for excellent swarf evaluation

ET SERIES

APPLICATIONS

- Teflon and pre-preg operations
- Flexible circuit board routing
- High finish slotting and profiling

CIRCUIT BOARD ROUTERS

4 FLUTE SLOT MILLS

ET-4 STANDARD LENGTH



PART NUMBER	CUTTER DIAMETER D \varnothing	FLUTE LENGTH L1	SHANK DIAMETER d \varnothing	OVERALL LENGTH L
ET-4-0312-C	.0312	.215	1/8	1 1/2
ET-4-0469-C	.0469	.215	1/8	1 1/2
ET-4-0625-C	.0625	.315	1/8	1 1/2
ET-4-0781-C	.0781	.315	1/8	1 1/2
ET-4-0938-C	.0938	.375	1/8	1 1/2
ET-4-1250-C	.1250	.400	1/8	1 1/2

DIAMOND CUT ROUTERS

ET-5 STANDARD LENGTH



PART NUMBER	CUTTER DIAMETER D \varnothing	FLUTE LENGTH L1	SHANK DIAMETER d \varnothing	OVERALL LENGTH L
ET-5-0312-F	.0312	.255	1/8	1 1/2
ET-5-0469-F	.0469	.255	1/8	1 1/2
ET-5-0625-F	.0625	.255	1/8	1 1/2
ET-5-0938-F	.0938	.395	1/8	1 1/2
ET-5-1250-F	.1250	.500	1/8	1 1/2

CHIP BREAKER ROUTERS

ET-6 STANDARD LENGTH



PART NUMBER	CUTTER DIAMETER D \varnothing	FLUTE LENGTH L1	SHANK DIAMETER d \varnothing	OVERALL LENGTH L
ET-6-0312-F	.0312	.255	1/8	1 1/2
ET-6-0469-F	.0469	.255	1/8	1 1/2
ET-6-0625-F	.0625	.255	1/8	1 1/2
ET-6-0938-F	.0938	.395	1/8	1 1/2
ET-6-1250-F	.1250	.500	1/8	1 1/2



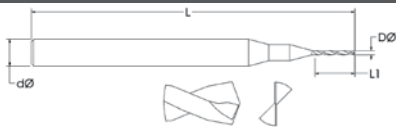
KT-S SERIES 2 FLUTE MINIATURE DRILLS



KT-S STANDARD LENGTH

PART NUMBER	CUTTER DIAMETER DØ	FLUTE LENGTH L1	SHANK DIAMETER dØ	OVERALL LENGTH L
KT-0040-S	.0040	.040	1/8	1 1/2
KT-0050-S	.0050	.060	1/8	1 1/2
KT-0059-S	.0059	.080	1/8	1 1/2
KT-0067-S	.0067	.080	1/8	1 1/2
KT-0071-S	.0071	.100	1/8	1 1/2
KT-0079-S	.0079	.100	1/8	1 1/2
KT-0087-S	.0087	.100	1/8	1 1/2
KT-0091-S	.0091	.150	1/8	1 1/2
KT-0098-S	.0098	.150	1/8	1 1/2
KT-0100-S	.0100	.150	1/8	1 1/2
KT-0105-S	.0105	.150	1/8	1 1/2
KT-0110-S	.0110	.150	1/8	1 1/2
KT-0115-S	.0115	.150	1/8	1 1/2
KT-0118-S	.0118	.225	1/8	1 1/2
KT-0120-S	.0120	.225	1/8	1 1/2
KT-0125-S	.0125	.225	1/8	1 1/2
KT-0130-S	.0130	.225	1/8	1 1/2
KT-0135-S	.0135	.225	1/8	1 1/2
KT-0138-S	.0138	.225	1/8	1 1/2
KT-0145-S	.0145	.225	1/8	1 1/2
KT-0156-S	.0156	.250	1/8	1 1/2
KT-0157-S	.0157	.250	1/8	1 1/2
KT-0160-S	.0160	.250	1/8	1 1/2
KT-0177-S	.0177	.250	1/8	1 1/2
KT-0180-S	.0180	.250	1/8	1 1/2
KT-0197-S	.0197	.260	1/8	1 1/2
KT-0200-S	.0200	.260	1/8	1 1/2
KT-0217-S	.0217	.260	1/8	1 1/2
KT-0236-S	.0236	.280	1/8	1 1/2
KT-0256-S	.0256	.280	1/8	1 1/2
KT-0276-S	.0276	.280	1/8	1 1/2

KT SERIES



TOLERANCES

$D\varnothing + .0000" - .0003"$
 $L1 + .007" - .000"$
 $d\varnothing + .0000" - .0002"$
 $L \pm .005"$

FEATURES

- Micro and miniature
- Standard and extended cutting lengths
- Nominal minus diameter tolerances

APPLICATIONS

- Printed circuit board
- Plastics for optical and medical
- Electronic components
- Specialty machining
- Hobby and crafts

KT-R SERIES 2 FLUTE MINIATURE DRILLS



KT-R EXTENDED LENGTH

PART NUMBER	CUTTER DIAMETER DØ	FLUTE LENGTH L1	SHANK DIAMETER dØ	OVERALL LENGTH L
KT-0040-R	.0040	.070	1/8	1 1/2
KT-0050-R	.0050	.090	1/8	1 1/2
KT-0059-R	.0059	.120	1/8	1 1/2
KT-0067-R	.0067	.120	1/8	1 1/2
KT-0071-R	.0071	.150	1/8	1 1/2
KT-0079-R	.0079	.150	1/8	1 1/2
KT-0087-R	.0087	.150	1/8	1 1/2
KT-0091-R	.0091	.220	1/8	1 1/2
KT-0098-R	.0098	.220	1/8	1 1/2
KT-0100-R	.0100	.220	1/8	1 1/2
KT-0105-R	.0105	.220	1/8	1 1/2
KT-0110-R	.0110	.220	1/8	1 1/2
KT-0115-R	.0115	.220	1/8	1 1/2
KT-0118-R	.0118	.280	1/8	1 1/2
KT-0120-R	.0120	.280	1/8	1 1/2
KT-0125-R	.0125	.280	1/8	1 1/2
KT-0130-R	.0130	.280	1/8	1 1/2
KT-0135-R	.0135	.280	1/8	1 1/2
KT-0138-R	.0138	.280	1/8	1 1/2
KT-0145-R	.0145	.280	1/8	1 1/2
KT-0156-R	.0156	.280	1/8	1 1/2
KT-0157-R	.0157	.295	1/8	1 1/2
KT-0160-R	.0160	.295	1/8	1 1/2
KT-0177-R	.0177	.295	1/8	1 1/2
KT-0180-R	.0180	.295	1/8	1 1/2
KT-0197-R	.0197	.310	1/8	1 1/2
KT-0200-R	.0200	.310	1/8	1 1/2
KT-0210-R	.0210	.310	1/8	1 1/2
KT-0217-R	.0217	.340	1/8	1 1/2
KT-0225-R	.0225	.340	1/8	1 1/2
KT-0236-R	.0236	.340	1/8	1 1/2

Chart continued on page 22



KT-R SERIES 2 FLUTE MINIATURE DRILLS



Continued from page 21

KT-R EXTENDED LENGTH

PART NUMBER	CUTTER DIAMETER DØ	FLUTE LENGTH L1	SHANK DIAMETER dØ	OVERALL LENGTH L
KT-0240-R	.0240	.340	1/8	1 1/2
KT-0250-R	.0250	.340	1/8	1 1/2
KT-0256-R	.0256	.340	1/8	1 1/2
KT-0260-R	.0260	.340	1/8	1 1/2
KT-0276-R	.0276	.394	1/8	1 1/2
KT-0295-R	.0295	.394	1/8	1 1/2
KT-0315-R	.0315	.394	1/8	1 1/2
KT-0354-R	.0354	.394	1/8	1 1/2

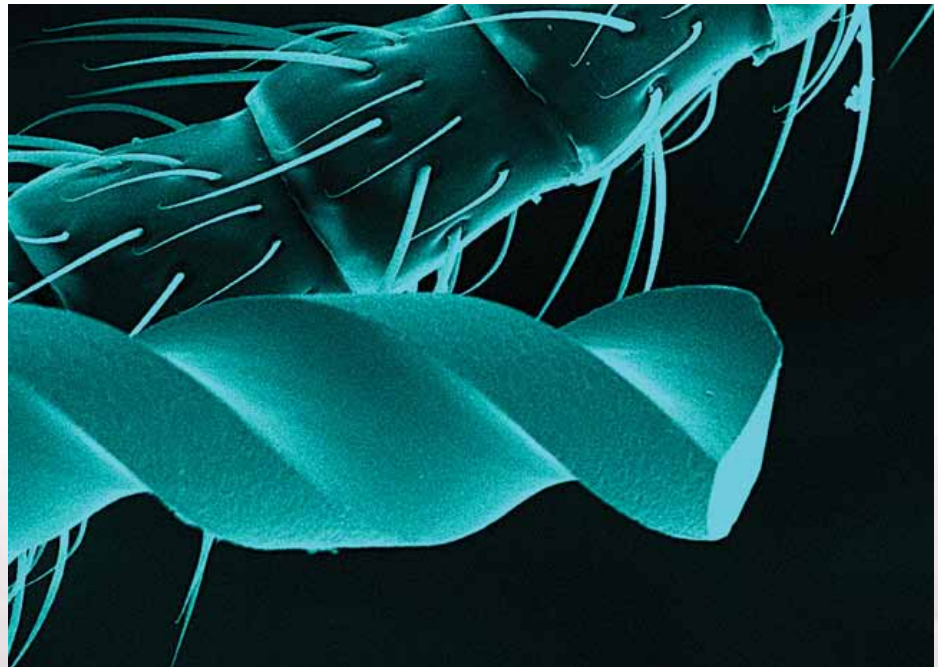


Photo courtesy of Texas A&M University.

50 µm drill shown next to ant leg.

MICRON END MILLS



MICRON

PART NUMBER	DIAMETER MICRONS	LENGTH ASPECT RATIO	LENGTH MICRONS
5M2X15S	5	3:1	15
10M2X30S	10	3:1	30
15M2X45S	15	3:1	45
20M2X60S	20	3:1	60
25M2X75S	25	3:1	75
50M2X150S	50	3:1	150
75M2X225S	75	3:1	225
100M2X300S	100	3:1	300
125M2X375S	125	3:1	375
150M2X450S	150	3:1	450
175M2X525S	175	3:1	525
200M2X600S	200	3:1	600
250M2X750S	250	3:1	750
300M2X900S	300	3:1	900
350M2X1050S	350	3:1	1050
400M2X1200S	400	3:1	1200

MICRON SERIES

FEATURES

- Measured in microns
- Tightest diameter tolerance available ± 3 microns
- Sub-micron grain carbide
- Square end style



Photo courtesy of Texas A&M University.

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