



TOOL **FABRICATION** CORPORATION

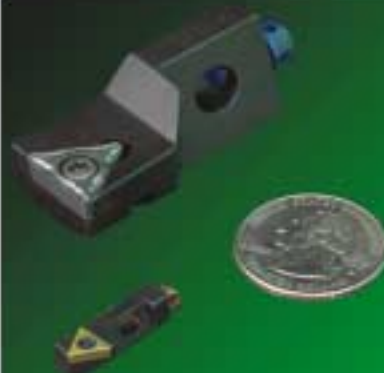
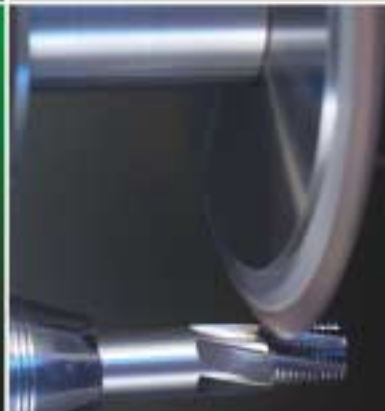
Product **Catalog**



Schmarje



McCrosky





McCrosky

Welcome to TOOL**FABRICATION**CORPORATION

HOME OF **SCHMARJE THREADMILLS** AND **MCCROSKY CUTTING TOOLS!**

To all of our customers,

We are honored that you have selected Tool Fab as your supplier of choice for custom-engineered special and standard cutting tools including our lines of Schmarje thread mills and McCrosky cutting tools. It is our pleasure to offer Tool Fab's product/service catalog to you as you pursue manufacturing excellence. Tool Fab's nationwide network of industrial distributors stand ready to serve your technical and tool application needs.

Tool Fab has manufactured high-performance, close-tolerance cutting tools since 1970. Every product or service listed in this catalog exists for one reason — to help you achieve your manufacturing/machining goals.

Tool Fab will help you successfully tackle the challenges involved in combining tight manufacturing schedules with high production output and close-tolerance part requirements. We do this by supplying our customers with:

1. The widest variety of custom-engineered cutting tools in the industry with quick lead-times at competitive prices.
2. Standard Tool Fab, Schmarje and McCrosky cutting tools that offer long-lasting value through high output and close-tolerance performance at competitive prices.

Tool Fab promises that you will get the most from every dollar you spend with us. Every member of the Tool Fab team is here to serve you with personal and courteous technical assistance. Let Tool Fab become part of, or an extension of, your engineering department—we will work hard to help you achieve your production goals!

At Tool Fab, we understand that our customers are the sole reason we exist. We take our responsibilities to serve you very seriously, and we want you to be successful using our tools. Thanks for honoring us with your order. We won't let you down!

Thankfully,

Jeffrey J. Hesse
President



TOOL**FABRICATION**CORPORATION

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Indexable**Special Tools**Carbide Tipped/Solid
Carbide**Specials**

TOOL FAB... FOR ALL OF YOUR SPECIAL TOOLING NEEDS!

- POCKETED OR "INDEXABLE" TOOLS
- CARBIDE-TIPPED ("TCT") OR "BRAZED" TOOLS
- SPECIAL THREAD MILLS
- GANG SETS/LARGE RADIUS - BLENDED MILLING CUTTERS
- MODIFIED STANDARDS
- SOLID CARBIDE ROUND TOOLS
- HIGH-SPEED STEEL ROUND TOOLS
- SPECIAL CARTRIDGES
- SPECIAL INSERTS - SPECIAL TCT OR HSS SERRATED BLADES



Tool Fab utilizes a fully integrated manufacturing system that is completely interactive with the latest 3D Solid Modeling software.

Custom-Engineered Special Tooling

Why deal with different tool manufacturers on different types of special tooling? With Tool Fab you can consolidate your suppliers and gain access to all of the major types of special tools under one roof! We manufacture everything you see in this catalog at our state-of-the-art facility in Milwaukee, Wisconsin.

Tool Fab is known as a premier manufacturer of the widest variety of custom-engineered or "special" cutting tools in the United States. We work closely with our manufacturing customers, and we often share approval prints digitally to maximize tool production speed, accuracy and consistency. Engineering software compatibility is an efficient and productive communication link between your engineering department and ours!

We will help our customers cut manufacturing costs, increase part production, improve quality, and increase profits. It is our mission to bring "Profitable Efficiency" to our metalworking customers.

"Profitable Efficiency" means different things to different companies. To Tool Fab, it means we will help metalworking companies successfully tackle the challenges involved in combining tight manufacturing schedules with high-production output and close-tolerance part requirements to maximize our customers' profit. We do this by supplying our customers with the widest variety of special cutting tools in the industry, with quick lead-times (usually 2-6 weeks) at competitive prices.

Quality is an over-used word in business today. Tool Fab invites you to closely inspect our cutting tools. You will see the quality of Tool Fab's tools immediately upon removing our tools from their packages. But wait until our tools are in the machine – this is where Tool Fab's tools really shine!

Tool Fab has earned a reputation for engineering and technical support that goes way beyond ordering from a catalog. Calling Tool Fab means that you will talk with a true cutting tool professional, and your manufacturing



Special **Cartridges**



Special Thread **Mills**



Modified Standard **Cutting Tools**

*Professional Engineering and
Technical Support*

questions/
challenges will
be met with
sound
technical
advice.

And if that
isn't enough,
Tool Fab stands
behind the
performance applications of our tools.
You determine what you want the tool
to accomplish and Tool Fab will
design/manufacture a tool that meets
agreed-upon specs to do
the job!



Quick Lead Times + High Production Output + Close-Tolerance Parts + Tight Manufacturing Schedules

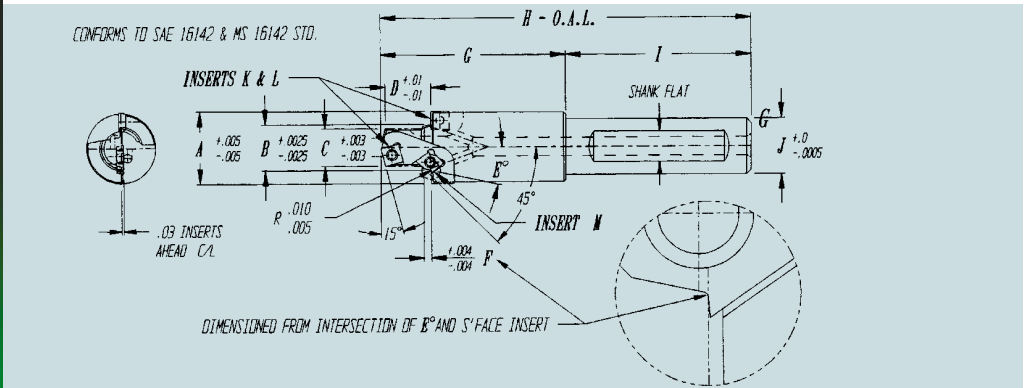
= **Profitable Efficiency!**

Tool Fab's quick lead times on custom-engineered (special) tools gets you machining the parts you need, when you need them... *yesterday!*

INDEXABLE
PortTools (inch)



4



TOOL FAB MANUFACTURES WORLD-CLASS INDEXABLE PORT TOOLS TO MEET HIGH-PERFORMANCE AND CONSISTENT PRODUCTION REQUIREMENTS.

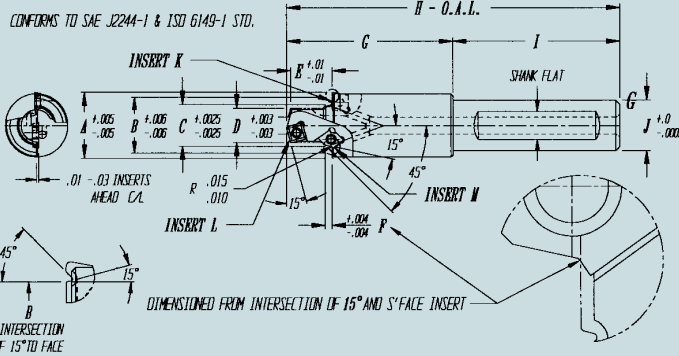
- PRECISION-GROUND CARBIDE INSERTS ENSURE A HIGH DEGREE OF REPEATABILITY FOR HIGH-VOLUME, CLOSE-TOLERANCE PART PRODUCTION.
- COOLANT-THROUGH DESIGN FOR EFFICIENT OPERATION.
- SPECIAL SIZES CAN BE DESIGNED AND MANUFACTURED UPON REQUEST.
- CONFORMS TO SAE 16142, SAE J514, SAE 1926/1, AND MS16142 SPECS.

| TOOL NO. | THREAD SIZE | TUBE SIZE | A DIAMETER | B DIAMETER | C DIAMETER | D LENGTH | E DEGREES | F LENGTH |
|----------|--------------|-----------------|------------|------------|------------|----------|-----------|----------|
| TF 04711 | 7/16" - 20 | #4 * 1/4" DD | .875 | .4895 | .390 | .555 | 12° | .1025 |
| TF 04712 | 1/2" - 20 | #5 * 5/16" DD | .940 | .5525 | .452 | .555 | 12° | .1025 |
| TF 04713 | 9/16" - 18 | #6 * 3/8" DD | .980 | .6185 | .508 | .620 | 12° | .1025 |
| TF 04714 | 3/4" - 16 | #8 * 1/2" DD | 1.200 | .8135 | .690 | .700 | 15° | .1075 |
| TF 04715 | 7/8" - 14 | #10 * 5/8" DD | 1.355 | .9445 | .808 | .790 | 15° | .1075 |
| TF 04716 | 1-1/16" - 12 | #12 * 3/4" DD | 1.640 | 1.1505 | .984 | .915 | 15° | .1385 |
| TF 04717 | 1-3/16" - 12 | #14 * 7/8" DD | 1.790 | 1.2755 | 1.108 | .915 | 15° | .1385 |
| TF 04718 | 1-5/16" - 12 | #16 * 1" DD | 1.930 | 1.4005 | 1.235 | .915 | 15° | .1385 |
| TF 04719 | 1-5/8" - 12 | #20 * 1-1/4" DD | 2.300 | 1.7155 | 1.545 | .915 | 15° | .1385 |
| TF 04720 | 1-7/8" - 12 | #24 * 1-1/2" DD | 2.575 | 1.9645 | 1.795 | .915 | 15° | .1385 |
| TF 04721 | 2-1/2" - 12 | #32 * 2" DD | 3.500 | 2.5895 | 2.420 | .915 | 15° | .1385 |

| TOOL NO. | G LENGTH | H LENGTH | I LENGTH | J DIAMETER | INSERT K & L | INSERT M | TORX SCREW | TORX WRENCH |
|----------|----------|----------|----------|------------|--------------|----------|------------|---------------|
| TF 04711 | 2-1/2" | 5" | 2-1/2" | .7499 | TF 04750 | TF 04722 | TF 04753 | TF 04753 T-7 |
| TF 04712 | 2-1/2" | 5" | 2-1/2" | .7499 | TF 04750 | TF 04722 | TF 04753 | TF 04753 T-7 |
| TF 04713 | 2-1/2" | 5" | 2-1/2" | .7499 | TF 04750 | TF 04722 | TF 04753 | TF 04753 T-7 |
| TF 04714 | 2-1/2" | 5" | 2-1/2" | .7499 | TF 04751 | TF 04723 | TF 04754 | TF 04754 T-15 |
| TF 04715 | 2-1/2" | 5" | 2-1/2" | .7499 | TF 04751 | TF 04723 | TF 04754 | TF 04754 T-15 |
| TF 04716 | 3" | 6" | 3" | .9999 | TF 04752 | TF 04724 | TF 04755 | TF 04755 T-20 |
| TF 04717 | 3" | 6" | 3" | .9999 | TF 04752 | TF 04724 | TF 04755 | TF 04755 T-20 |
| TF 04718 | 3" | 6" | 3" | .9999 | TF 04752 | TF 04724 | TF 04755 | TF 04755 T-20 |
| TF 04719 | 3" | 6" | 3" | 1.2499 | TF 04752 | TF 04724 | TF 04755 | TF 04755 T-20 |
| TF 04720 | 3" | 6" | 3" | 1.2499 | TF 04752 | TF 04724 | TF 04755 | TF 04755 T-20 |
| TF 04721 | 3" | 6" | 3" | 1.9999 | TF 04752 | TF 04724 | TF 04755 | TF 04755 T-20 |

Note: All inserts are TiN-coated.

INDEXABLE PortTools (metric)



THE PRECISION AND REPEATABILITY OF TOOL FAB'S INDEXABLE PORT TOOLS ARE ALSO AVAILABLE IN METRIC SIZES!

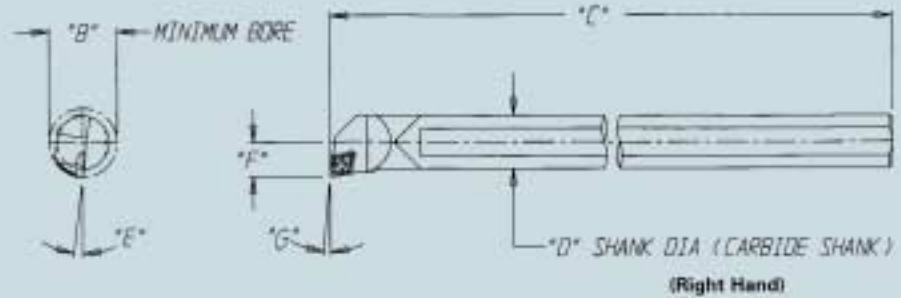
■ CONFORMS TO ISO 6149-1 AND SAE J2244/1 SPECS.

| TOOL NO. | THREAD SIZE | A DIAMETER | B DIAMETER | C DIAMETER | D DIAMETER | E LENGTH | 15° | F LENGTH | G LENGTH | H LENGTH | I LENGTH | J DIAMETER |
|----------|-------------|------------|--------------|----------------|---------------|--------------|-----|-------------|----------|----------|----------|------------|
| TF 07690 | M 14x1.5 | .984 (25) | .834 (21.2) | .6245 (15.86) | .493 (12.52) | .555 (14.1) | 15° | .102 (2.59) | 2-1/2" | 5" | 2-1/2" | .7499 |
| TF 07691 | M 16x1.5 | 1.102 (28) | .952 (24.2) | .7033 (17.86) | .570 (14.48) | .555 (14.1) | 15° | .102 (2.59) | 2 1/2" | 5" | 2 1/2" | .7499 |
| TF 07692 | M 18x1.5 | 1.181 (30) | 1.031 (26.2) | .7820 (19.86) | .650 (16.51) | .675 (17.1) | 15° | .102 (2.59) | 2 1/2" | 5" | 2 1/2" | .7499 |
| TF 07693 | M 20x1.5 | 1.220 (31) | 1.070 (27.2) | .8608 (21.86) | .730 (18.54) | .710 (18.1) | 15° | .102 (2.59) | 2 1/2" | 5" | 2 1/2" | .7499 |
| TF 07694 | M 22x1.5 | 1.378 (35) | 1.150 (29.2) | .9395 (23.86) | .805 (20.44) | .750 (19.1) | 15° | .102 (2.59) | 2 1/2" | 5" | 2 1/2" | .7499 |
| TF 07695 | M 27x2.0 | 1.575 (40) | 1.347 (34.2) | 1.1600 (29.46) | .985 (25.02) | .870 (22.1) | 15° | .130 (3.30) | 3" | 6" | 3" | .9999 |
| TF 07696 | M 30x2.0 | 1.732 (44) | 1.505 (38.2) | 1.2780 (32.46) | 1.100 (27.94) | .870 (22.1) | 15° | .130 (3.30) | 3" | 6" | 3" | .9999 |
| TF 07697 | M 33x2.0 | 1.929 (49) | 1.701 (43.2) | 1.3962 (35.46) | 1.220 (30.98) | .870 (22.1) | 15° | .130 (3.30) | 3" | 6" | 3" | .9999 |
| TF 07698 | M 42x2.0 | 2.401 (61) | 2.055 (52.2) | 1.7505 (44.46) | 1.575 (40.01) | .900 (22.9) | 15° | .130 (3.30) | 3" | 6" | 3" | 1.2499 |
| TF 07699 | M 48x2.0 | 2.599 (66) | 2.253 (57.2) | 1.9867 (50.46) | 1.810 (45.97) | .985 (25.0) | 15° | .130 (3.30) | 3" | 6" | 3" | 1.2499 |
| TF 07700 | M 60x2.0 | 2.993 (76) | 2.647 (67.2) | 2.4592 (62.46) | 2.285 (58.04) | 1.100 (27.9) | 15° | .130 (3.30) | 3" | 6" | 3" | 1.9999 |

| TOOL NO. | THREAD SIZE | INSERT K | INSERT L | INSERT M | TORX SCREW | QT. | TORX SCREW | QT. | TORX WRENCH | TORX WRENCH |
|----------|-------------|----------|----------|----------|------------|-----|------------|-----|---------------|---------------|
| TF 07690 | M 14x1.5 | TF 07703 | TF 04750 | TF 07701 | TF 04753 | 3 | — | — | TF 04753 T-7 | — |
| TF 07691 | M 16x1.5 | TF 07703 | TF 04750 | TF 07701 | TF 04753 | 3 | — | — | TF 04753 T-7 | — |
| TF 07692 | M 18x1.5 | TF 07703 | TF 04750 | TF 07701 | TF 04753 | 3 | — | — | TF 04753 T-7 | — |
| TF 07693 | M 20x1.5 | TF 07703 | TF 04750 | TF 07701 | TF 04753 | 3 | — | — | TF 04753 T-7 | — |
| TF 07694 | M 22x1.5 | TF 07704 | TF 04751 | TF 07701 | TF 04753 | 1 | TF 04754 | 2 | TF 04753 T-7 | TF 04753 T-15 |
| TF 07695 | M 27x2.0 | TF 07704 | TF 04751 | TF 07702 | TF 04754 | 3 | — | — | TF 04754 T-15 | — |
| TF 07696 | M 30x2.0 | TF 07704 | TF 04751 | TF 07702 | TF 04754 | 3 | — | — | TF 04754 T-15 | — |
| TF 07697 | M 33x2.0 | TF 07704 | TF 04751 | TF 07702 | TF 04754 | 3 | — | — | TF 0475W T-15 | — |
| TF 07698 | M 42x2.0 | TF 07705 | TF 04752 | TF 07702 | TF 04754 | 1 | TF 04755 | 2 | TF 04754 T-15 | TF 04755 T-20 |
| TF 07699 | M 48x2.0 | TF 07705 | TF 04752 | TF 07702 | TF 04754 | 1 | TF 04755 | 2 | TF 04754 T-15 | TF 04755 T-20 |
| TF 07700 | M 60x2.0 | TF 07705 | TF 04752 | TF 07702 | TF 04754 | 1 | TF 04755 | 2 | TF 0475W T-15 | TF 04755 T-20 |

Note: All inserts are TiN-coated.

INDEXABLE Carbide Shank Boring Bars



THE STRONGEST CARBIDE SHANK BORING BAR ON THE MARKET TODAY WITH THE BEST GUARANTEE IN THE INDUSTRY!

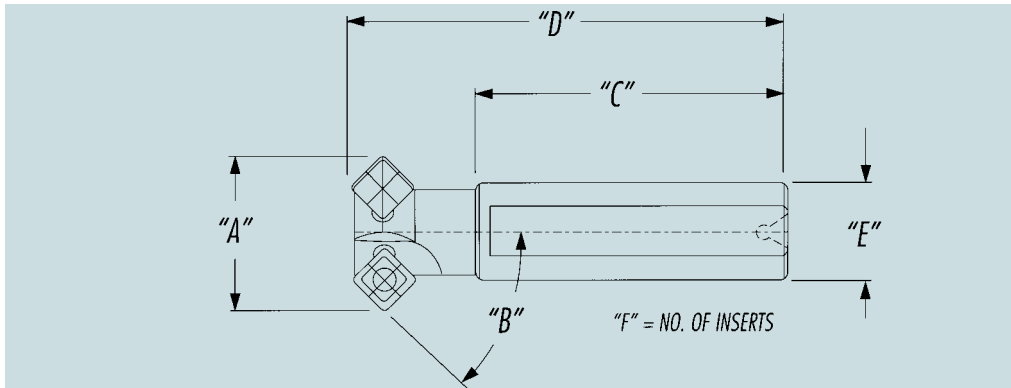
- THE BEST GUARANTEE ON THE MARKET TODAY. IF THE BRAZE BREAKS WE'LL REPLACE THE TOOL FOR FREE. (CALL TOOL FAB FOR WARRANTY DETAILS.)
- OFF-THE-SHELF DELIVERY IN BOTH RIGHT AND LEFT HAND BARS IN STANDARD SIZES.
- INSERT POCKET IS ROTATED 90° FROM THE BRAZE FOR MAXIMUM STRENGTH AND LONG-TERM DURABILITY RUN AFTER RUN.
- STANDARD ISO INSERTS ARE AVAILABLE FROM TOOL FAB AT VERY COMPETITIVE PRICES.
- SPECIAL BORING BARS AVAILABLE UPON REQUEST.
- EACH BAR COMES WITH TOOL FAB'S UNPARALLELED TECHNICAL SERVICE AND YEARS OF TOOLING EXPERIENCE.

| TOOL BODY PART NO.* | ISO CLASS | TOOL FAB INSERT PART NO.** | INSERT ISO NO. | TOOL FAB SCREW PART NO. | MIN BORE B | O.A.L. C | SHANK DIAMETER D | RAKE ANGLE E | CENTER LINE DIM. F | INSERT LEAD G |
|---------------------|-----------|----------------------------|----------------|-------------------------|------------|----------|------------------|--------------|--------------------|---------------|
| TF 06250R | E06 | TF 07223 | CCMT 21.51 | TF 26250 | 0.500 | 6.00 | 0.375 | -15° | 0.250 | 5° |
| TF 06250L | E06 | TF 07223 | CCMT 21.51 | TF 26250 | 0.500 | 6.00 | 0.375 | -15° | 0.250 | 5° |
| TTF 06250R0 | E06 | TTF 07223 | TCMT 21.51 | TF 26250 | 0.500 | 6.00 | 0.375 | -15° | 0.250 | 0° |
| TTF 06250R3 | E06 | TTF 07223 | TCMT 21.51 | TF 26250 | 0.500 | 6.00 | 0.375 | -15° | 0.250 | 3° |
| TF 06251R | E08 | TF 07223 | CCMT 21.51 | TF 26250 | 0.625 | 8.00 | 0.500 | -9° | 0.313 | 5° |
| TF 06251L | E08 | TF 07223 | CCMT 21.51 | TF 26250 | 0.625 | 8.00 | 0.500 | -9° | 0.313 | 5° |
| TTF 06251R0 | E08 | TTF 07223 | TCMT 21.51 | TF 26250 | 0.625 | 8.00 | 0.500 | -9° | 0.313 | 0° |
| TTF 06251L3 | E08 | TTF 07223 | TCMT 21.51 | TF 26250 | 0.625 | 8.00 | 0.500 | -9° | 0.313 | 3° |
| TTF 06251R5 | E08 | TTF 07223 | TCMT 21.51 | TF 26250 | 0.625 | 8.00 | 0.500 | -9° | 0.313 | 5° |
| TF 06252R | E10 | TF 07223 | CCMT 21.51 | TF 26250 | 0.812 | 10.00 | 0.625 | -7° | 0.406 | 5° |
| TF 06252L | E10 | TF 07223 | CCMT 21.51 | TF 26250 | 0.812 | 10.00 | 0.625 | -7° | 0.406 | 5° |
| TTF 06252R3 | E10 | TTF 07223 | TCMT 21.51 | TF 26250 | 0.812 | 10.00 | 0.625 | -7° | 0.406 | 3° |
| TTF 06252L3 | E10 | TTF 07223 | TCMT 21.51 | TF 26250 | 0.812 | 10.00 | 0.625 | -7° | 0.406 | 3° |
| TF 06253R | E12 | TF 07224 | CCMT 32.52 | TF 26253 | 1.000 | 10.00 | 0.750 | -10° | 0.500 | 5° |
| TF 06253L | E12 | TF 07224 | CCMT 32.52 | TF 26253 | 1.000 | 10.00 | 0.750 | -10° | 0.500 | 5° |
| TF 06254R | E16 | TF 07224 | CCMT 32.52 | TF 26253 | 1.250 | 10.00 | 1.000 | -5° | 0.625 | 5° |
| TF 06254L | E16 | TF 07224 | CCMT 32.52 | TF 26253 | 1.250 | 10.00 | 1.000 | -5° | 0.625 | 5° |

*Note: Please specify C-2 or C-5 Carbide Grade. **Note: Please specify S (solid) or C (coolant-through) to the Tool Body Part No. (i.e. TF06252RC)
 R=Right Hand
 L=Left Hand



INDEXABLE ChamferMills



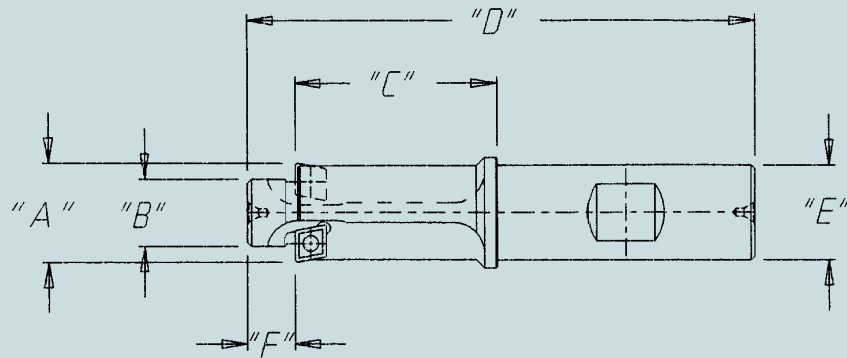
THESE PRECISION, INDEXABLE CHAMFERING TOOLS DELIVER PRECISE BEVELING CUTS IN STANDARD MILLING OPERATIONS. Special diameters are available upon request.

- PRECISION-GROUND INDEXABLE INSERTS
- ADAPTABLE TO ANY MACHINING OR TURNING CENTER
- RIGID ONE-PIECE CONSTRUCTION
- HIGH-STRENGTH DESIGN FOR DEPENDABLE PERFORMANCE

| TOOL NO. | INSERT NO. | SCREW NO. | A | B | C | D | E | F |
|----------|------------|-----------|-------|--------|-------|-------|-------|---|
| TF 06378 | SPGT 32.52 | TF 04754 | 1.000 | 45 DEG | 2.000 | 3.000 | .7495 | 1 |
| TF 06379 | SPGT 32.52 | TF 04754 | 1.250 | 45 DEG | 2.500 | 3.500 | .7495 | 2 |
| TF 06380 | SPGT 32.52 | TF 04754 | 1.500 | 45 DEG | 2.500 | 3.500 | .7495 | 3 |
| TF 06381 | SPGT 432 | TF 04755 | 2.000 | 45 DEG | 2.750 | 4.000 | .9995 | 3 |
| TF 06382 | SPGT 32.52 | TF 04754 | 1.250 | 15 DEG | 2.500 | 3.500 | .7495 | 2 |
| TF 06383 | SPGT 32.52 | TF 04754 | 1.250 | 30 DEG | 2.500 | 3.500 | .7495 | 2 |

Note: All inserts are TiN-coated.

INDEXABLE
Cap-Screw Counterbores



8

THE RIGID DESIGN OF THESE PRECISION, INDEXABLE, PILOTED TOOLS ALLOWS FOR MAXIMUM SPEEDS AND FEEDS IN A VARIETY OF MATERIALS. Special diameters are available upon request.

- PRECISION-GROUND INDEXABLE INSERTS
- ADAPTABLE TO ANY MACHINING OR TURNING CENTER
- RIGID ONE-PIECE CONSTRUCTION
- HIGH-STRENGTH DESIGN FOR DEPENDABLE PERFORMANCE

| CAP SCREW | TOOL NO. | INSERT NO. | SCREW NO. | NO. OF INSERTS | A | B | C | D | E | F |
|-----------|----------|-----------------|-----------|----------------|-------|------|-------|---------|------|------|
| 1/4 | TF 06260 | CPGT 1.81.51 2A | TF 26260 | 1 | .406 | .280 | 1.000 | 3 1/32 | .500 | .250 |
| 5/16 | TF 06261 | CPGT 1.81.51 2A | TF 26260 | 1 | .500 | .342 | 1.188 | 3 9/32 | .500 | .312 |
| 3/8 | TF 06262 | CPGT 1.81.51 2A | TF 26260 | 2 | .594 | .405 | 1.312 | 3 13/32 | .500 | .312 |
| 7/16 | TF 06263 | CPGT 1.81.51 2A | TF 26260 | 2 | .687 | .467 | 1.375 | 3 17/32 | .500 | .375 |
| 1/2 | TF 06264 | CPGH 21.51(A) | TF 26264 | 2 | .781 | .530 | 1.594 | 4 | .750 | .375 |
| 5/8 | TF 06265 | CPGH 21.51(A) | TF 26264 | 2 | 1.000 | .655 | 1.594 | 4 1/8 | .750 | .500 |
| 3/4 | TF 06266 | CPGH 21.51(A) | TF 26264 | 2 | 1.187 | .812 | 1.719 | 4 1/4 | .750 | .500 |

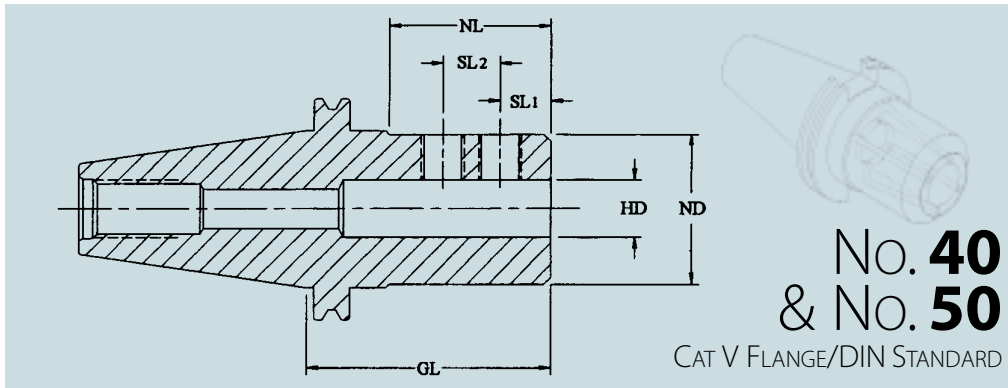
Note: All inserts are TiN-coated.

Please call Tool Fab for pricing and delivery of coolant-through cap-screw counterbores.



FlushCut™

COOLANT-THROUGH Milling Adapter



PATENTED INTERNAL PASSAGEWAYS, DELIVER HIGH-PRESSURE COOLANT TO THE CUTTING TOOL AND WORKPIECE WITH SUFFICIENT VELOCITY TO REMOVE CHIPS.

- INCREASE SURFACE SPEEDS
- IMPROVE OPERATOR SAFETY
- INCREASE DEPTH OF CUT
- REDUCE THERMAL DISTORTION
- INCREASE TOOL LIFE
- REDUCE CUTTER OVERHANG
- INCREASE FEED RATES
- FAIL-SAFE OPERATION IN UNATTENDED PRODUCTION AREAS
- LOWER CUTTER & INSERT COSTS

| No. 40 | | | | | | | No. 50 | | | | | | |
|--------------------------|------------------|----------------|------------------|----------------|-------------------|-------------------|--|------------------|----------------|------------------|----------------|-------------------|-------------------|
| TOOL NO. | HD HOLE DIAMETER | GL GAGE LENGTH | ND NOSE DIAMETER | NL NOSE LENGTH | S.L. ¹ | S.L. ² | TOOL NO. | HD HOLE DIAMETER | GL GAGE LENGTH | ND NOSE DIAMETER | NL NOSE LENGTH | S.L. ¹ | S.L. ² |
| STUB LENGTH | | | | | | | STUB LENGTH | | | | | | |
| 40CVTS0625SS | .625 | 2.375 | 1.750 | 1.625 | .938 | — | 50CVTS0875SS | .875 | 3.000 | 2.500 | 2.250 | 1.125 | — |
| 40CVTS0750SS | .750 | 2.375 | 1.750 | 1.625 | 1.000 | — | 50CVTS1000SS | 1.000 | 3.000 | 2.500 | 2.250 | 1.125 | — |
| 40CVTS0875SS* | .875 | 3.000 | 2.500 | 2.250 | 1.125 | — | 50CVTS1250SS | 1.250 | 3.000 | 2.500 | 2.250 | 1.125 | — |
| 40CVTS1000SS* | 1.000 | 3.000 | 2.500 | 2.250 | 1.125 | — | 50CVTS2000SS* | 2.000 | 4.000 | 3.875 | 3.250 | 1.375 | 1.500 |
| 40CVTS1250SS* | 1.250 | 3.000 | 2.500 | 2.250 | 1.125 | — | *Note: Does not conform to ANSI B5.50 (No under-cut next to flange.) Consult Tool Fabrication Corporation for details. | | | | | | |
| STANDARD LENGTH | | | | | | | STANDARD LENGTH | | | | | | |
| 40CVTS0250SL | .250 | 2.750 | 1.250 | 1.125 | .625 | — | 50CVTS0375SL | .375 | 3.000 | 1.500 | 1.500 | .750 | — |
| 40CVTS0375SL | .375 | 3.000 | 1.500 | 1.500 | .750 | — | 50CVTS0500SL | .500 | 3.000 | 1.500 | 1.500 | .875 | — |
| 40CVTS0500SL | .500 | 3.000 | 1.500 | 1.500 | .875 | — | 50CVTS0625SL | .625 | 3.375 | 1.750 | 2.625 | .938 | — |
| 40CVTS0625SL | .625 | 3.375 | 1.750 | 2.625 | .938 | — | 50CVTS0750SL | .750 | 3.750 | 1.750 | 2.625 | 1.000 | — |
| 40CVTS0750SL | .750 | 3.375 | 1.750 | 2.625 | 1.000 | — | 50CVTS0875SL | .875 | 4.000 | 2.500 | 3.250 | 1.125 | 1.000 |
| 40CVTS0875SL | .875 | 4.000 | 2.500 | 3.250 | 1.125 | 1.000 | 50CVTS1000SL | 1.000 | 4.000 | 2.500 | 3.250 | 1.125 | 1.000 |
| 40CVTS1000SL | 1.000 | 4.000 | 2.500 | 3.250 | 1.125 | 1.000 | 50CVTS1250SL | 1.250 | 4.750 | 3.375 | 3.250 | 1.250 | 1.000 |
| 40CVTS1250SL | 1.250 | 4.000 | 2.500 | 3.250 | 1.125 | 1.000 | 50CVTS2000SL | 2.000 | 5.625 | 3.875 | 4.875 | 1.375 | 1.500 |
| LONG LENGTH | | | | | | | LONG LENGTH | | | | | | |
| 40CVTS0250LS | .250 | 4.750 | 1.250 | 3.125 | .625 | — | 50CVTS0375LS | .375 | 5.000 | 1.500 | 3.500 | .750 | — |
| 40CVTS0375LS | .375 | 5.000 | 1.500 | 3.500 | .750 | — | 50CVTS0500LS | .500 | 5.000 | 1.500 | 3.500 | .875 | — |
| 40CVTS0500LS | .500 | 5.000 | 1.500 | 3.500 | .875 | — | 50CVTS0625LS | .625 | 5.375 | 1.750 | 4.625 | .938 | — |
| 40CVTS0625LS | .625 | 5.375 | 1.750 | 4.625 | .938 | — | 50CVTS0750LS | .750 | 5.375 | 1.750 | 4.625 | 1.000 | — |
| 40CVTS0750LS | .750 | 5.375 | 1.750 | 4.625 | 1.000 | — | 50CVTS0875LS | .875 | 6.000 | 2.500 | 5.250 | 1.125 | 1.000 |
| 40CVTS0875LS | .875 | 6.000 | 2.500 | 5.250 | 1.125 | 1.000 | 50CVTS1000LS | 1.000 | 6.000 | 2.500 | 5.250 | 1.125 | 1.000 |
| 40CVTS1000LS | 1.000 | 6.000 | 2.500 | 5.250 | 1.125 | 1.000 | 50CVTS1250LS | 1.250 | 6.000 | 2.500 | 5.250 | 1.125 | 1.000 |
| 40CVTS1250LS | 1.250 | 6.000 | 2.500 | 5.250 | 1.125 | 1.000 | 50CVTS2000LS | 2.000 | 7.625 | 3.875 | 6.875 | 1.375 | 1.500 |
| EXTRA-LONG LENGTH | | | | | | | EXTRA-LONG LENGTH | | | | | | |
| 50CVTS0375EL | .375 | 7.000 | 1.500 | 5.500 | .750 | — | 50CVTS0500EL | .500 | 7.000 | 1.500 | 5.500 | .875 | — |
| 50CVTS0500EL | .500 | 7.000 | 1.500 | 5.500 | .875 | — | 50CVTS0625EL | .625 | 7.375 | 1.750 | 6.625 | .938 | — |
| 50CVTS0625EL | .625 | 7.375 | 1.750 | 6.625 | .938 | — | 50CVTS0750EL | .750 | 7.375 | 1.750 | 6.625 | 1.000 | — |
| 50CVTS0750EL | .750 | 7.375 | 1.750 | 6.625 | 1.000 | — | 50CVTS0875EL | .875 | 8.000 | 2.500 | 7.250 | 1.125 | 1.000 |
| 50CVTS0875EL | .875 | 8.000 | 2.500 | 7.250 | 1.125 | 1.000 | 50CVTS1000EL | 1.000 | 8.000 | 2.500 | 7.250 | 1.125 | 1.000 |
| 50CVTS1000EL | 1.000 | 8.000 | 2.500 | 7.250 | 1.125 | 1.000 | 50CVTS1250EL | 1.250 | 8.000 | 2.500 | 7.250 | 1.125 | 1.000 |

Some Flush-Cuts™ may be a "non-stock" standard.

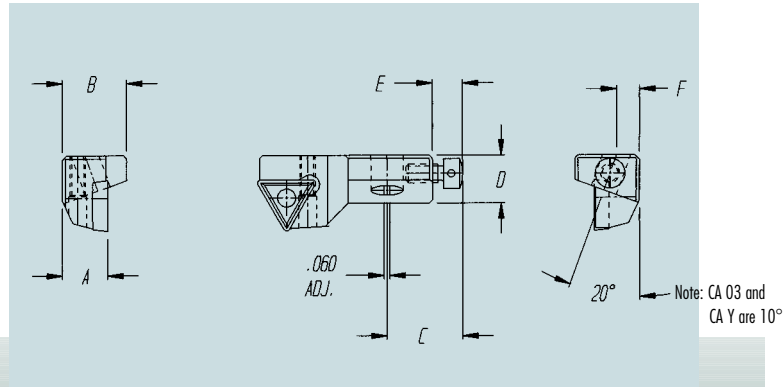
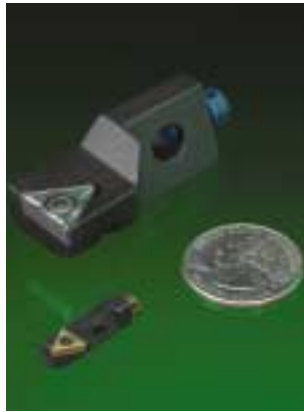
Flush-Cut™ Adapters are available in a wide variety of shanks, sizes and gage lengths. Consult Tool Fab or your distributor about Flush-Cut™ Products and your specific milling application.

ISO STANDARD

Cartridges



Call Us Today for special cartridges!

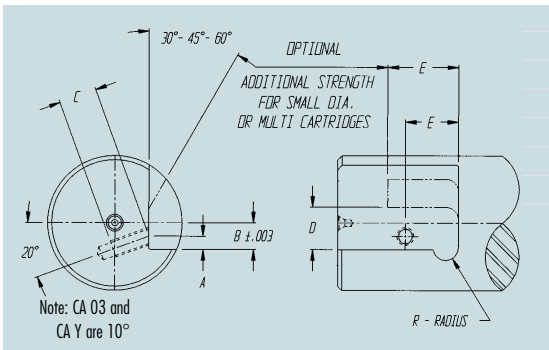


Cartridge Dimensions

| CARTRIDGE SIZE (CA) | A | B | C | D | E | F | MOUNTING SCREW |
|---------------------|------|------|------|------|------|------|-----------------------------|
| 03.5 | .135 | .200 | .385 | .145 | .155 | .084 | 3-48 X 1/4 LG B.H.S.C.S. |
| 04.5 | .185 | .250 | .400 | .175 | .155 | .110 | 4-40 X 3/8 LG B.H.S.C.S. |
| 06 X7 | .236 | .226 | .472 | .177 | .177 | .098 | 4-40 X .375 LG B.H.S.C.S. |
| 06 | .236 | .315 | .472 | .197 | .177 | .138 | 6-32 X .375 LG B.H.S.C.S. |
| 08 | .315 | .435 | .669 | .295 | .276 | .177 | 8-32 X .500 LG B.H.S.C.S. |
| 10 | .394 | .545 | .787 | .375 | .315 | .197 | 1/4"-20 X 3/4 LG L.H.S.C.S. |
| 12 | .472 | .670 | .787 | .500 | .315 | .236 | 1/4"-20 X 3/4 LG S.H.C.S. |

Mounting Requirements

| CARTRIDGE SIZE (CA) | A | B | MIN. C | D | E | F | RADIUS R | MOUNTING SCREW |
|---------------------|------|------|--------|------|------|------|----------|-----------------------------|
| 03.5 | .084 | .135 | .187 | .225 | .385 | .500 | .078 | 3-40 X 1/4 LG B.H.S.C.S. |
| 04.5 | .110 | .185 | .250 | .275 | .400 | .500 | .078 | 4-40 X 3/8 LG B.H.S.C.S. |
| 06 X7 | .098 | .236 | .250 | .250 | .472 | .675 | .156 | 4-40 X .375 LG B.H.S.C.S. |
| 06 | .138 | .236 | .250 | .375 | .472 | .625 | .156 | 6-32 X .375 LG B.H.S.C.S. |
| 08 | .177 | .315 | .281 | .500 | .669 | .850 | .188 | 8-32 X .500 LG B.H.S.C.S. |
| 10 | .197 | .394 | .562 | .625 | .787 | 1.05 | .312 | 1/4"-20 X 3/4 LG L.H.S.C.S. |
| 12 | .236 | .472 | .562 | .750 | .787 | 1.15 | .375 | 1/4"-20 X 3/4 LG S.H.C.S. |



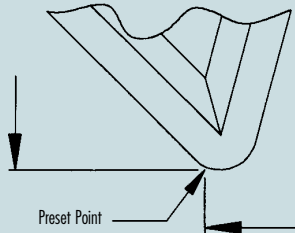
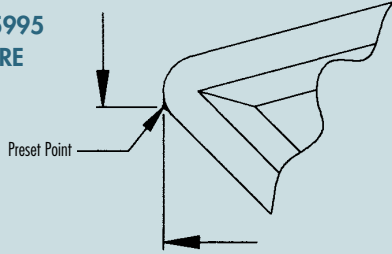
Spares/Accessories - Ordering Codes

| CARTRIDGE | INSERT SCREW (TORX) | TORX WRENCH | HEXAGON WRENCH (MOUNTING) | AXIAL ADJUSTING SCREW | RADIAL ADJUSTING SCREW | HEXAGON WRENCH (RAD ADJ) |
|------------|---------------------|-------------|---------------------------|-----------------------|------------------------|--------------------------|
| 03.5CA-03 | TF 05995 | T6 | 1/16 | TF 05999 | TF 25608 | .035 |
| 04.5CA-Y | TF 05996 | T6 | 1/16 | TF 05999 | TF 25608 | .035 |
| 06CA-06 X7 | TF 20456 | T6 | 1/16 | TF 35077 | TF 35005 | 1.5mm |
| 06CA-06 | TF 20456 | T6 | 5/64 | TF 35077 | TF 35005 | 1.5mm |
| 08CA-09 | TF 26260 | T7 | 3/32 | TF 47107 | TF 47006 | 2.0mm |
| 10CA-11 | TF 26264 | T7 | 1/8 | TF 47510 | TF 47010 | 2.0mm |
| 12CA-16 | TF 04754 | T15 | 3/16 | TF 47510 | TF 47010 | 2.0mm |



ISO STANDARD
Cartridges

INSERT CDCB 1.21.20.5
CDCB 03 01 02
TORX SCREW TF 05995
.394 MINIMUM BORE



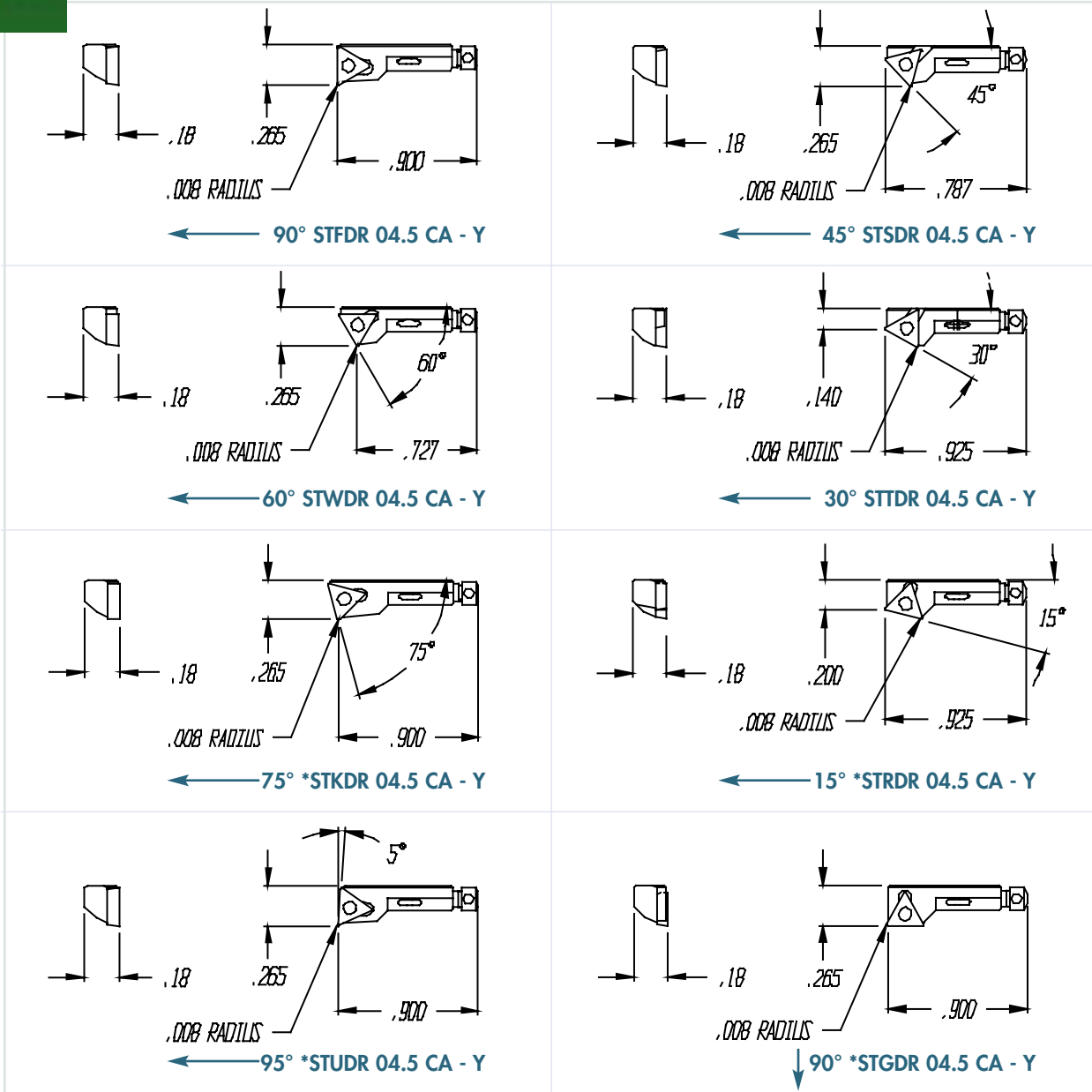
| | |
|---------------------------------------|---------------------------------------|
| <p>90° SCFDR 03.5 CA - 03</p> | <p>45° SCSDR 03.5 CA - 03</p> |
| <p>60° SCWDR 03.5 CA - 03</p> | <p>30° SCTDR 03.5 CA - 03</p> |
| <p>75° *SCKDR 03.5 CA - 03</p> | <p>15° *SCRDR 03.5 CA - 03</p> |
| <p>95° *SCUDR 03.5 CA - 03</p> | <p>90° *SCGDR 03.5 CA - 03</p> |

Cartridges



INSERT TDAB 1.21.50 TDAB 06 T0 02 TORX SCREW TF 05996 .551 MINIMUM BORE

12

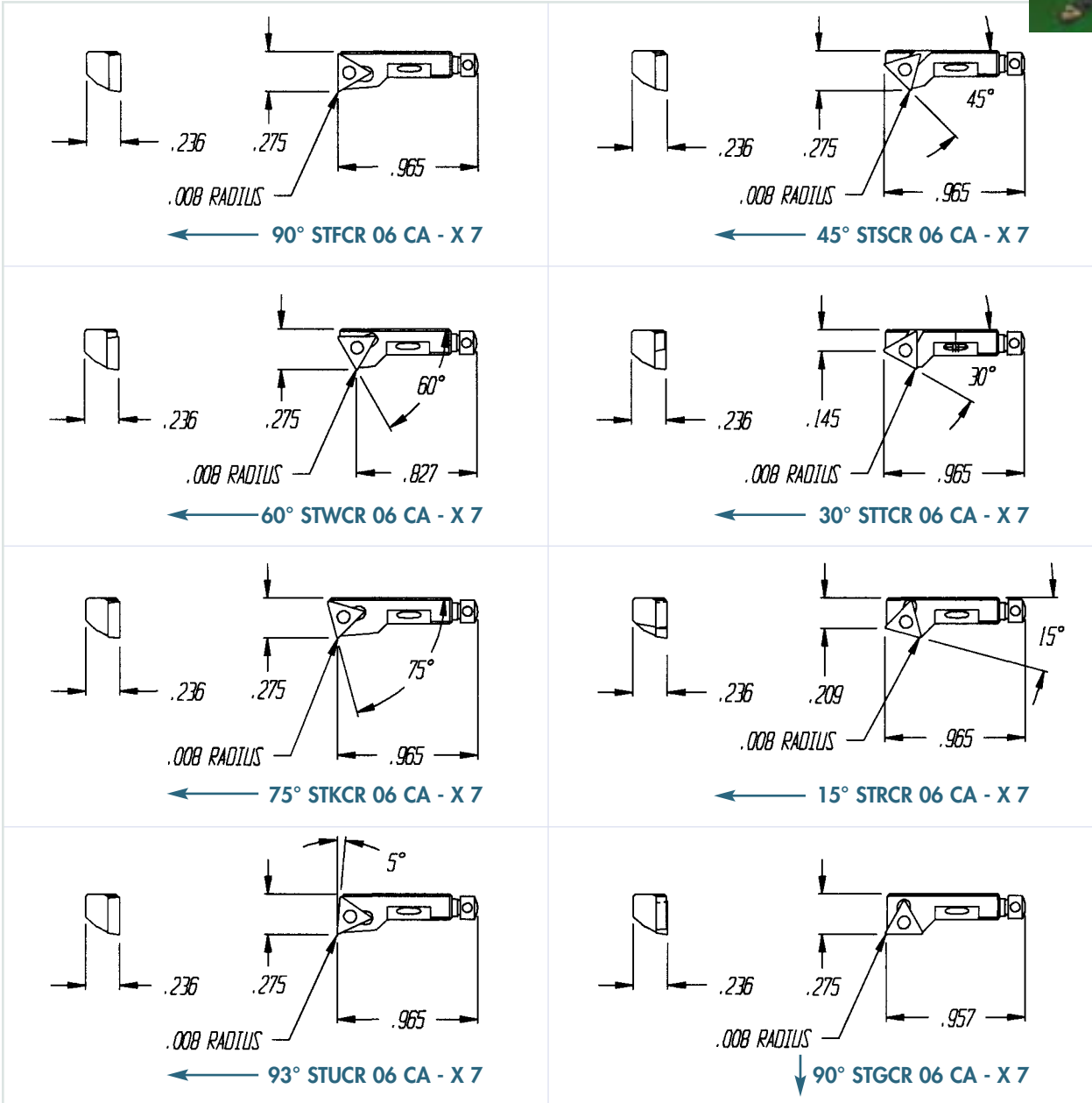




ISO STANDARD Cartridges



INSERT TCMT 1.21.21 TCMT 06 T1 04 TORX SCREW TF 20456 .6140 MINIMUM BORE



Cartridges



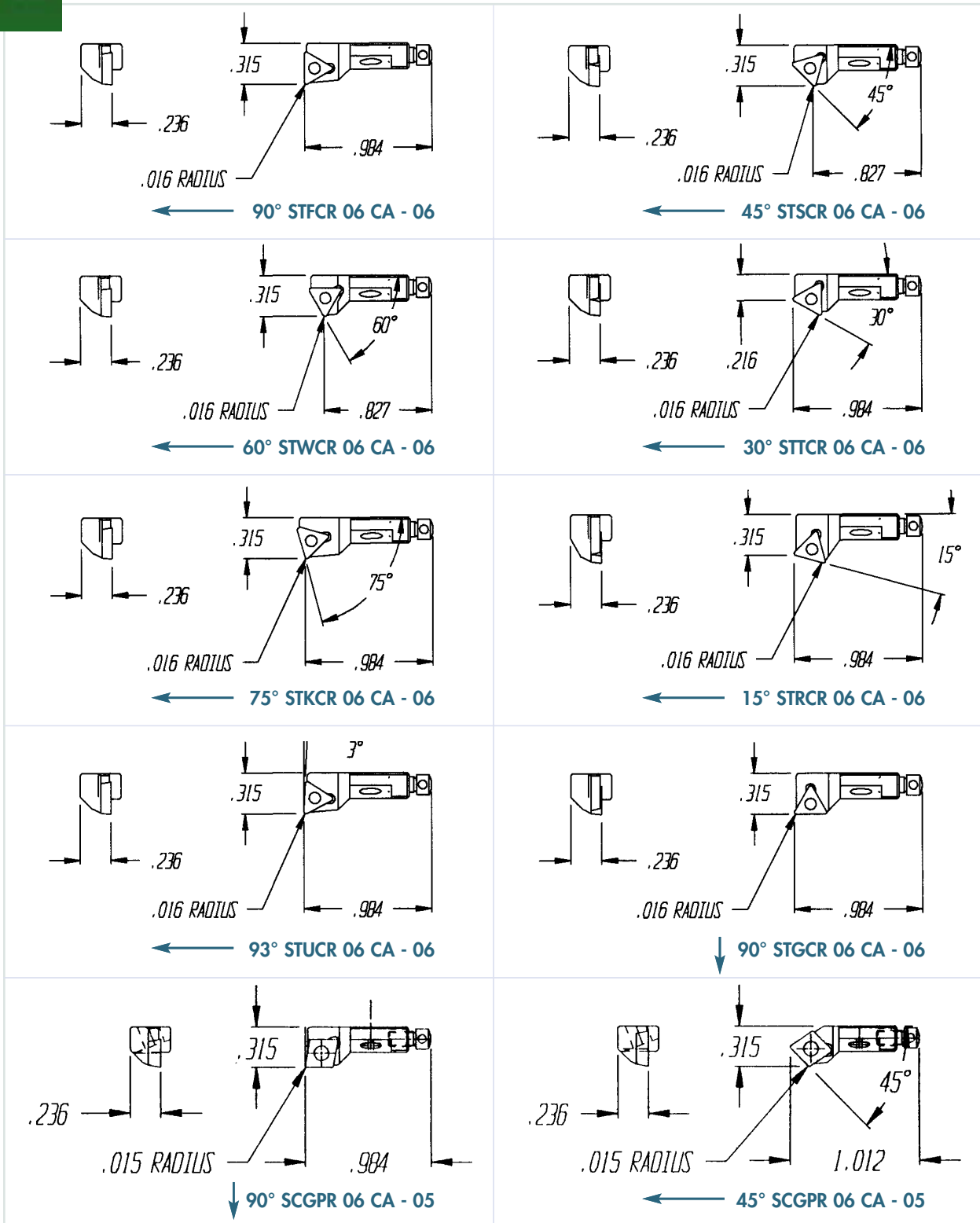
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TCMT 06 T1 04

TORX SCREW TF 20456

.7870 MINIMUM BORE

14





ISO STANDARD Cartridges

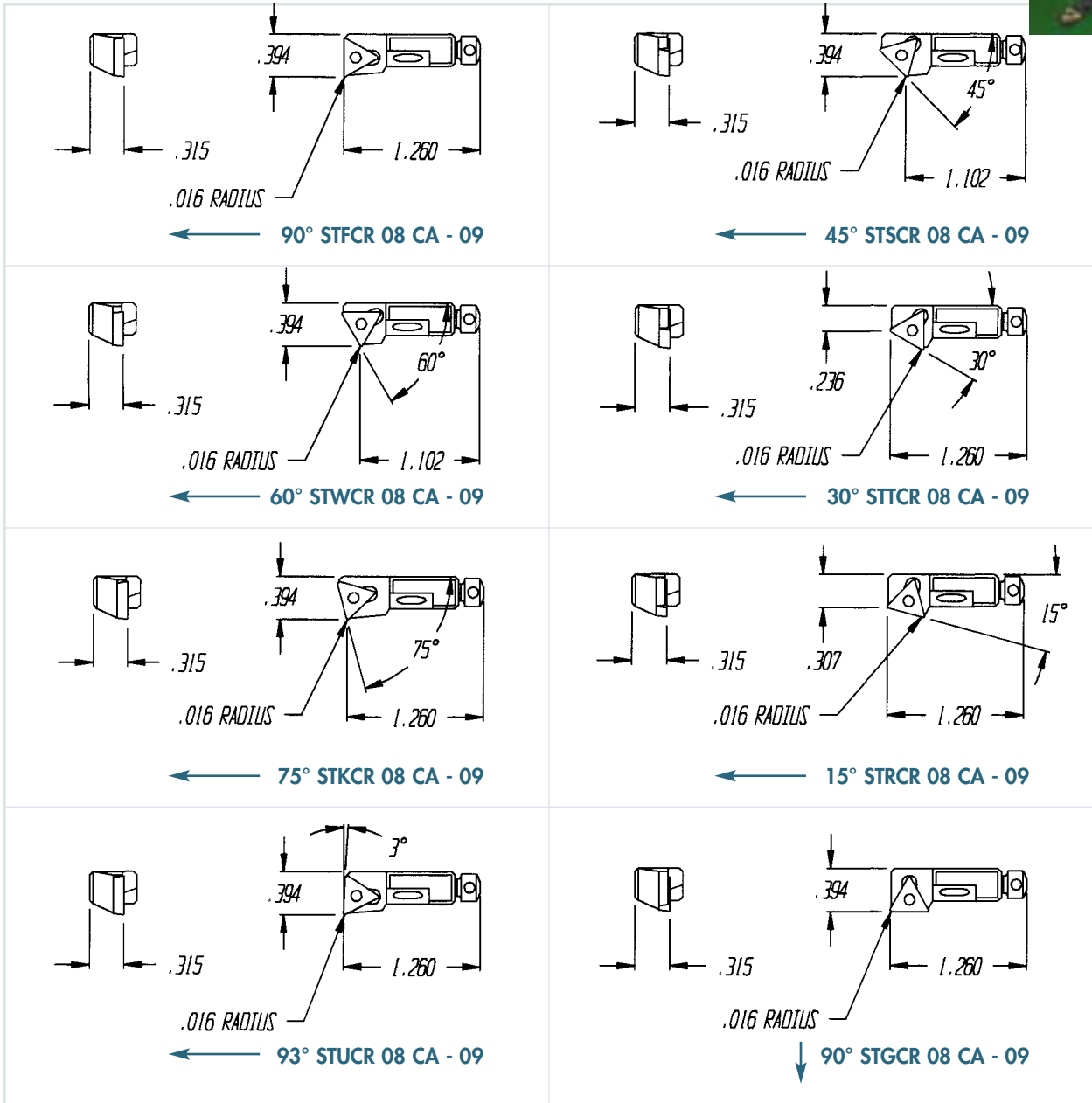


INSERT TCMT 1.81.51

TCMT 09 02 04

TORX SCREW TF 26260

.9840 MINIMUM BORE



15

TOOLFAB
ISO STANDARD CARTRIDGES

Cartridges



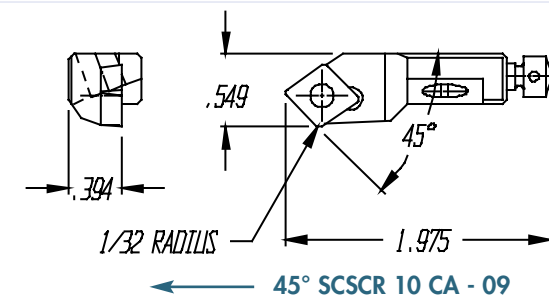
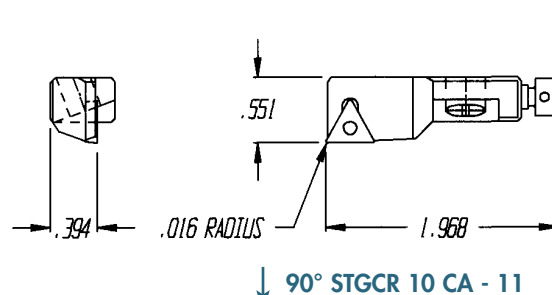
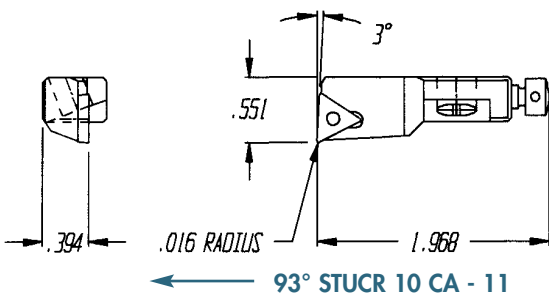
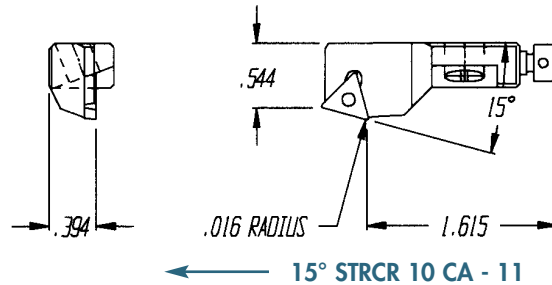
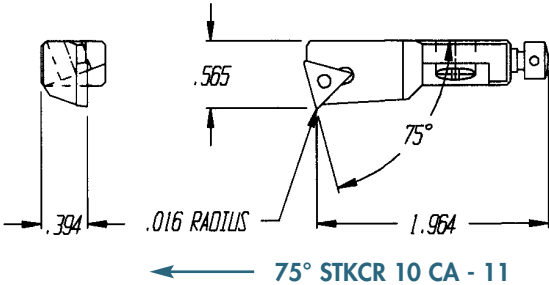
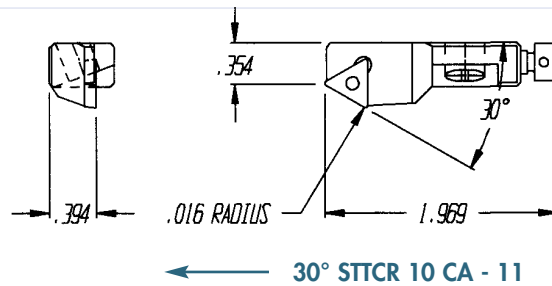
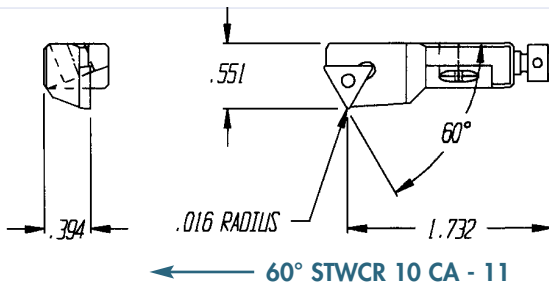
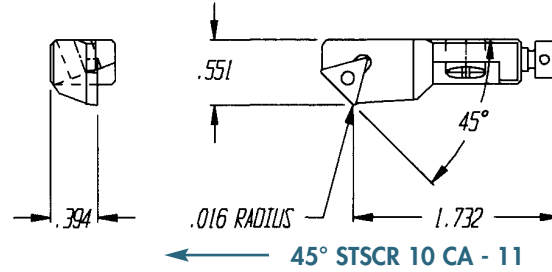
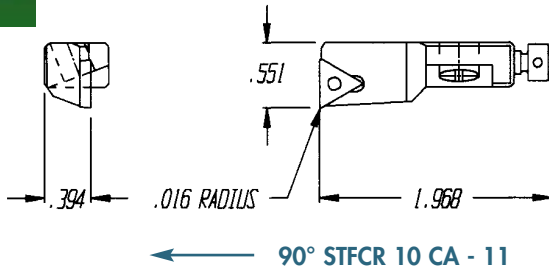
INSERT TCMT 21.51

TCMT 11 02 04

TORX SCREW TF 26264

1.5750 MINIMUM BORE

16



Insert #
CCMW - 32.52
CCMW 09T304

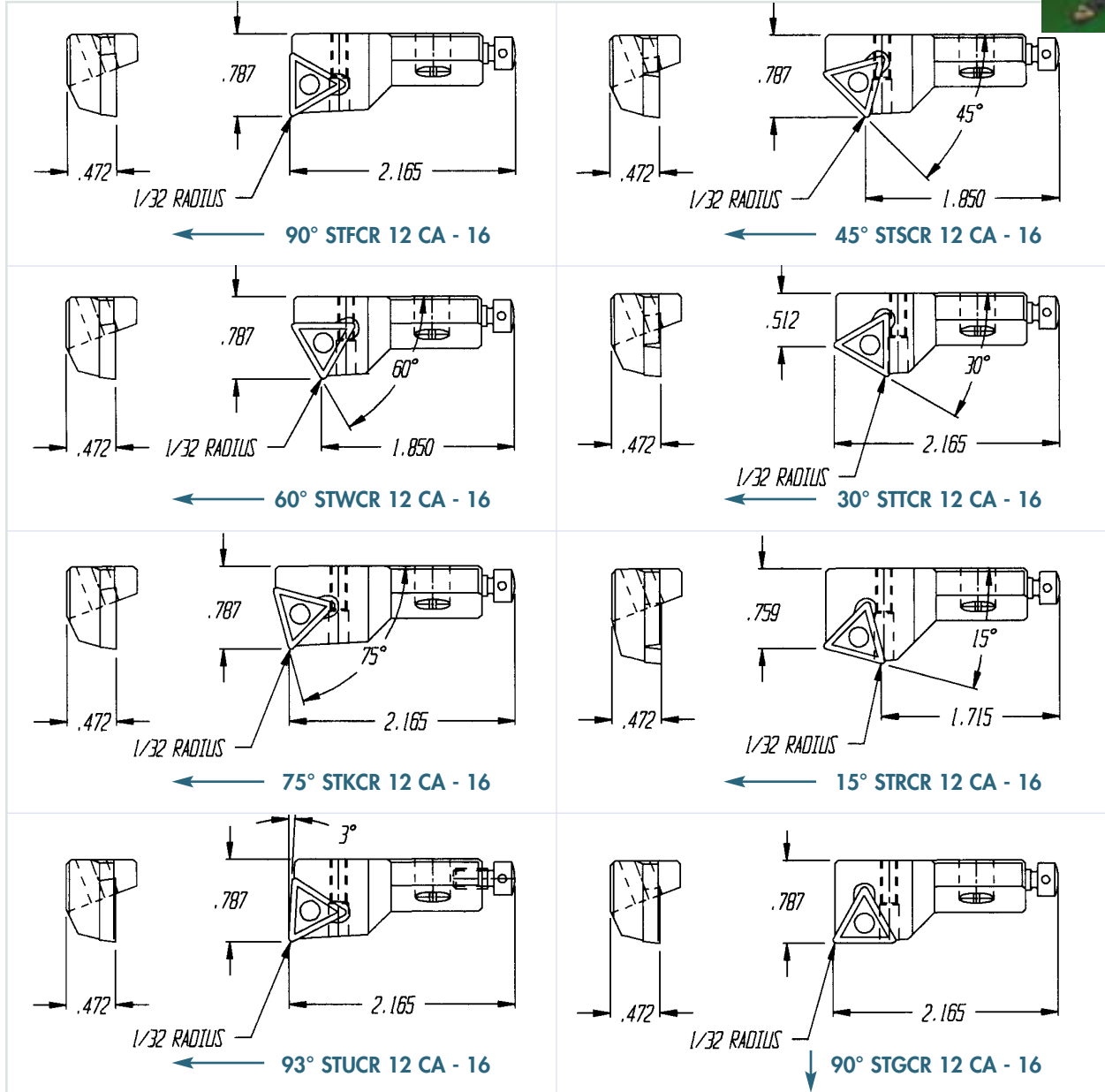
Torx Screw #
TF 04754



ISO STANDARD
Cartridges



INSERT TCMT 32.52 TCMT 16 T3 08 TORX SCREW TF 04754 1.9680 MINIMUM BORE



ThreadMilling

by the TOOLFAB/SCHMARJE Thread Mill Team

Advantages of Thread Milling

- Thread milling produces more consistent and accurate threads in comparison to conventional tapping.
- Thread mills are more versatile, allowing multiple diameter holes of the same pitch to be threaded with the same thread mill.
- Threads produced by thread mills offer superior thread quality and higher strength - 20-30% over tapped holes!
- Thread milling offers substantially reduced cycle times and less horsepower requirements.
- Thread milling means no broken taps and plugged holes which often leads to scrapping expensive parts.

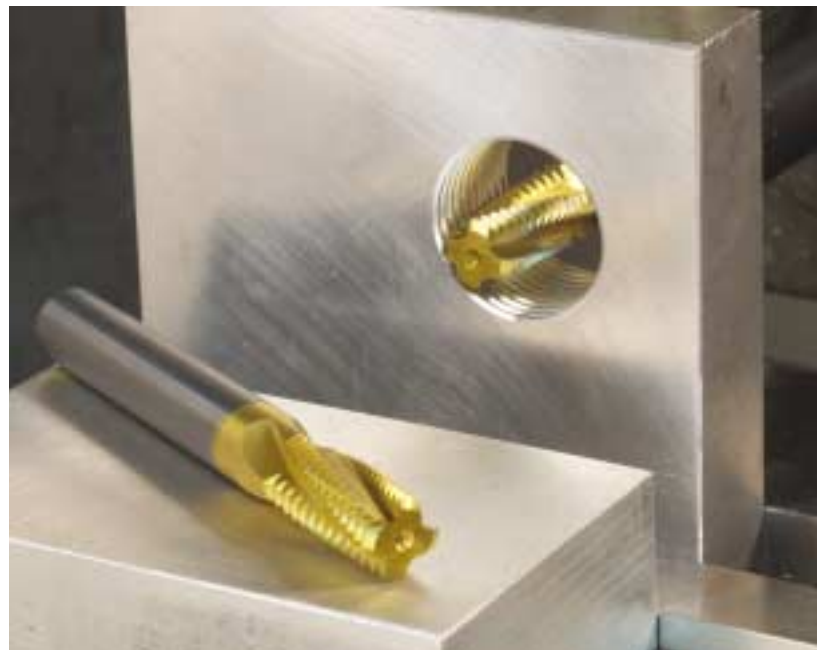
Tool Fab's line of Schmarje thread mills are 100% CNC ground out of superior grades of sub-micrograin carbide and are held to tight tolerances for accurate and precise results.

Tool Fab stocks a large selection of standard thread mills (both solid carbide and carbide-tipped) in both inch and metric sizes. Solid carbide thread mills are available in helical or straight flute designs. We manufacture special thread mills of all shapes, sizes and designs with lead times of 2 weeks or less! See Tool Fab's **Tool Refurbishment Programs** section in this catalog for the best, most competitively priced thread mill re-tipping and re-sharpening/re-grinding programs in the industry!



Craftsmanship = Quality + Performance + Delivery + Cost Savings
 = **Tool Fab!**

Programming/Application Support is FREE to all of our thread mill customers – Call or e-mail us at cncsupport@toolfab.com for courteous technical service and support that includes one-on-one interaction with our thread mill specialists and programming professionals.





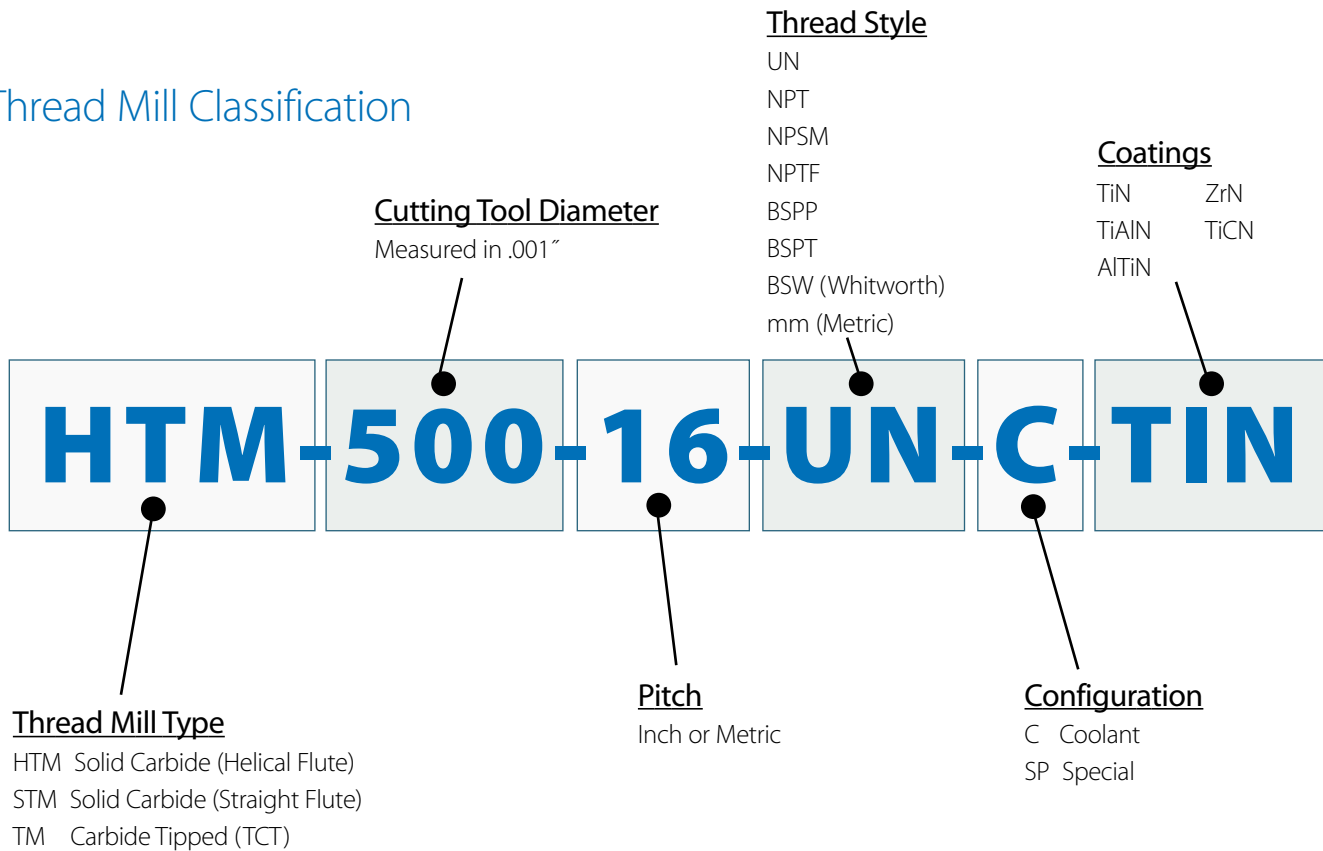
Thread Mill Data

Suggested Speeds and Feeds for Solid Carbide and Carbide Tipped Thread Mills

The following are starting points and assume ideal manufacturing conditions (please adjust for your circumstances):

| MATERIAL | SURFACE FEET PER MINUTE (SFM) | CUTTER DIAMETER (inches) | | | | |
|------------------------|-------------------------------|--------------------------|-----------|-----------|-----------|-----------|
| | | .250-.350 | 0.500 | 0.750 | 1.000 | 2.000 |
| | | FEEDS (inches per tooth) | | | | |
| Aluminum and Magnesium | 800-up | .002-.004 | .003-.006 | .004-.008 | .006-.009 | .007-.010 |
| Brass | 500-600 | .002-.003 | .003-.005 | .004-.008 | .005-.009 | .007-.010 |
| Bronze | 400-600 | .002-.003 | .003-.005 | .005-.007 | .005-.008 | .006-.009 |
| Hard Bronze | 220-280 | .001-.002 | .002-.003 | .004-.006 | .004-.007 | .005-.008 |
| Cast Iron - Soft | 200-280 | .001-.002 | .002-.004 | .003-.005 | .004-.007 | .005-.008 |
| Cast Iron - Hard | 180-250 | .001-.002 | .002-.003 | .003-.004 | .004-.005 | .005-.006 |
| Steel - Soft | 230-400 | .002-.003 | .002-.004 | .005-.005 | .003-.006 | .004-.007 |
| Steel - Medium | 200-350 | .001-.003 | .001-.003 | .002-.004 | .003-.005 | .004-.007 |
| Steel - Hard | 120-220 | .001-.002 | .001-.003 | .002-.004 | .002-.004 | .002-.005 |
| Stainless Steel | 120-220 | .001-.002 | .001-.003 | .002-.004 | .002-.004 | .002-.005 |

Thread Mill Classification





ThreadMills by TOOLFAB



SOLID CARBIDE THREAD MILLS - HELICAL FLUTE (HTM)

| Standard | | | | | | Metric | | | | | | |
|------------------|-----------------|----------------|----------------|---------------|-------------|---------------|-----------------|----------------|----------------|---------------|-------------|-------------|
| TOOL NO. | CUTTER DIAMETER | SHANK DIAMETER | OVERALL LENGTH | LENGTH OF CUT | # OF FLUTES | TOOL NO. | CUTTER DIAMETER | SHANK DIAMETER | OVERALL LENGTH | LENGTH OF CUT | # OF FLUTES | MIN. THREAD |
| HTM225-18 | 0.225 | 0.25 | 2.5 | 0.75 | 3 | HTM250-75mm | 0.25 | 0.25 | 2.5 | 0.75 | 3 | M10 |
| HTM250-18 | 0.25 | 0.25 | 2.5 | 0.75 | 3 | HTM250-1.0mm | | | | | | |
| HTM250-20 | | | | | | HTM250-1.25mm | | | | | | |
| HTM250-24 | | | | | | HTM250-1.75mm | | | | | | |
| HTM250-28 | | | | | | | | | | | | |
| HTM250-32 | | | | | | | | | | | | |
| HTM350-16 | 0.35 | 0.375 | 3.5 | 0.75 | 4 | HTM350-1.0mm | 0.35 | 0.375 | 3.5 | 0.75 | 4 | M14 |
| HTM350-18 | | | | | | HTM350-1.5mm | | | | | | |
| HTM350-20 | | | | | | HTM350-2.0mm | | | | | | |
| HTM350-24 | | | | | | | | | | | | |
| HTM500-12 | 0.5 | 0.5 | 4.0 | 1.0 | 4 | HTM500-1.0mm | 0.5 | 0.5 | 4.0 | 1.0 | 4 | M20 |
| HTM500-14 | | | | | | HTM500-1.5mm | | | | | | |
| HTM500-16 | | | | | | HTM500-2.0mm | | | | | | |
| HTM500-18 | | | | | | | | | | | | |
| HTM500-20 | | | | | | | | | | | | |
| HTM750-8 | 0.75 | 0.75 | 4.0 | 1.0 | 6 | HTM750-1.5mm | 0.75 | 0.75 | 4.0 | 1.0 | 6 | M30 |
| HTM750-12 | | | | | | HTM750-2.0mm | | | | | | |
| HTM750-12C | | | | | | HTM750-3.5mm | | | | | | |
| HTM750-14 | | | | | | | | | | | | |
| HTM750-16 | | | | | | | | | | | | |
| HTM750-18 | | | | | | | | | | | | |
| HTM750-20 | | | | | | | | | | | | |
| *HTM312-27 NPT | | | | | | 0.312 | 0.375 | 3.5 | 0.7 | 3 | | |
| *HTM370-18 NPT | 0.37 | 0.375 | 3.5 | 0.7 | 4 | | | | | | | |
| *HTM370-18 NPTF | 0.37 | 0.375 | 3.5 | 0.7 | 4 | | | | | | | |
| *HTM490-14 NPT | 0.49 | 0.5 | 4.0 | 1.0 | 4 | | | | | | | |
| *HTM490-14 NPTF | 0.49 | 0.5 | 4.0 | 1.0 | 4 | | | | | | | |
| *HTM750-11.5 NPT | 0.75 | 0.75 | 4.0 | 1.0 | 6 | | | | | | | |

*Tapered Pipe Thread



ThreadMills by TOOLFAB

SOLID CARBIDE THREAD MILLS - STRAIGHT FLUTE (STM)



| Standard | | | | | | Metric | | | | | | |
|--|--|--|---|---|---|--|----------------------|----------------------|-------------------|-------------------|-------------|-------------------|
| TOOL NO. | CUTTER DIAMETER | SHANK DIAMETER | OVERALL LENGTH | LENGTH OF CUT | # OF FLUTES | TOOL NO. | CUTTER DIAMETER | SHANK DIAMETER | OVERALL LENGTH | LENGTH OF CUT | # OF FLUTES | MIN. THREAD |
| STM110-32 STM110-36 | 0.11 | 0.25 | 2.5 | 0.312 | 3 | STM110-7mm | 0.11 | 0.25 | 2.5 | 0.312 | 3 | M4 |
| STM125-24 STM125-28 STM125-32 | 0.125 | 0.25 | 2.5 | 0.312 | 3 | STM125-8mm STM125-1.0mm | 0.125 | 0.25 | 2.5 | 0.312 | 3 | M5 |
| STM187-20 STM187-24 STM187-28 STM187-32 STM187-36 | 0.187 | 0.25 | 2.5 | 0.5 | 3 | STM187-1.0mm STM187-1.25mm | 0.187 | 0.25 | 2.5 | 0.5 | 3 | M7 |
| STM225-18 | 0.225 | 0.250 | 2.5 | 0.75 | 3 | | | | | | | |
| STM250-16 STM250-18 STM250-20 STM250-24 STM250-28 STM250-32 STM250-36 | 0.25 | 0.25 | 2.5 | 0.75 | 4 | STM250-7.5mm STM250-1.0mm STM250-1.25mm STM250-1.5mm | 0.25 | 0.25 | 2.5 | 0.75 | 4 | M10 |
| STM350-12 STM350-13 STM350-16 STM350-18 STM350-20 | 0.35 | 0.375 | 3.5 | 0.75 | 4 | STM350-1.0mm STM350-1.5mm STM350-2.0mm | 0.35 | 0.375 | 3.5 | 0.75 | 4 | M14 |
| STM375-12 STM375-13 STM375-16 STM375-18 STM375-20 STM375-24 STM375-28 | | | | | 4 | | | | | | | |
| STM500-11 STM500-12 STM500-14 STM500-16 STM500-18 STM500-20 | 0.5 | 0.5 | 4.0 | 1.0 | 4 | STM500-1.0mm STM500-1.5mm STM500-2.0mm STM500-2.5mm STM500-3.0mm STM500-3.5mm | 0.5 | 0.5 | 4.0 | 1.0 | 4 | M20 |
| STM750-8 STM750-12 STM750-14 STM750-18 STM750-20 | 0.75 | 0.75 | 4.0 | 1.0 | 4 6 6 6 6 | STM750-1.5mm STM750-2.0mm STM750-3.5mm | 0.75 0.75 0.75 | 0.75 0.75 0.75 | 4.0 4.0 4.0 | 1.0 1.0 1.0 | 6 6 4 | M30 M30 M30 |
| *STM250-27 NPT *STM250-27 NPTF *STM312-27 NPT *STM312-27 NPTF *STM370-18 NPT *STM370-18 NPTF *STM490-14 NPT *STM490-14 NPTF *STM750-11.5 NPT | 0.25 0.25 0.312 0.312 0.37 0.37 0.49 0.49 0.75 | 0.375 0.375 0.375 0.375 0.375 0.375 0.5 0.5 0.75 | 3.5 3.5 3.5 3.5 3.5 3.5 4.0 4.0 4.0 | 0.7 0.7 0.7 0.7 0.7 0.7 1.0 1.0 1.0 | 4 4 4 4 4 4 4 4 6 | | | | | | | |

*Tapered Pipe Thread

21
SCHMARJE
THREAD MILLS



ThreadMills by TOOLFAB



CARBIDE-TIPPED THREAD MILLS (TM)

| Standard | | | | | | Metric | | | | | | |
|--|--------------------|--------------------|-------------------|-------------------|-------------|--|-----------------|----------------|----------------|---------------|-------------|-------------|
| TOOL NO. | CUTTER DIAMETER | SHANK DIAMETER | OVERALL LENGTH | LENGTH OF CUT | # OF FLUTES | TOOL NO. | CUTTER DIAMETER | SHANK DIAMETER | OVERALL LENGTH | LENGTH OF CUT | # OF FLUTES | MIN. THREAD |
| TM350-13 TM350-16 TM350-18 TM350-20 TM350-24 TM350-28 TM350-32 | 0.35 | 0.75 | 6.0 | 0.75 | 4 | TM350-1.0mm TM350-1.25mm TM350-1.5mm | 0.35 8.89 | 0.75 19 | 6.0 152.4 | 0.75 19 | 4 | M14 |
| TM500-10 TM500-11 TM500-12 TM500-14 TM500-16 TM500-18 TM500-20 TM500-24 TM500-28 TM500-32 | 0.5 | 0.75 | 6.0 | 1.0 | 4 | TM500-1.0mm TM500-1.25mm TM500-1.5mm TM500-1.75mm TM500-2.0mm TM500-2.5mm | 0.5 12.7 | 0.75 19 | 6.0 152.4 | 1.0 25.4 | 4 | M20 |
| TM750-9 TM750-12 TM750-14 TM750-16 TM750-18 TM750-20 TM750-24 TM750-28 TM750-32 | 0.75 | 0.75 | 6.0 | 1.0 | 4 | TM750-1.0mm TM750-1.25mm TM750-1.5mm TM750-1.75mm TM750-2.0mm TM750-2.5mm | 0.75 19 | 0.75 19 | 6.0 152.4 | 1.0 25.4 | 4 | M30 |
| TM875-12 | 0.875 | 1.0 | 6.0 | 1.0 | 4 | | | | | | | |
| TM1000-7.5 TM1000-8 TM1000-9 TM1000-12 TM1000-14 TM1000-16 TM1000-18 | 1.0 | 1.0 | 7.5 | 1.3 | 4 | TM1000-1.0mm TM1000-2.0mm TM1000-3.0mm | 1.0 25.4 | 1.0 25.4 | 7.5 190.5 | 1.0 25.4 | 6 | M40 |
| TM1250-12 TM1250-16 | 1.25 | 1.0 | 7.5 | 1.25 | 6 | | | | | | | |
| TM1500-8 TM1500-12 TM1500-14 TM1500-16 | 1.5 | 1.0 | 8.0 | 2.0 | 6 | | | | | | | |
| *TM750-11.5 NPT *TM750-11.5 NPTF *TM750-11.5 NPTFC *TM910-11.5 NPT | 1.5 | 1.0 | 8.0 | 2.0 | 4 | | | | | | | |
| *TM11.5 NPT-1 *TM11.5 NPT *TM 8 NPT | 1.0 1.0 1.87 | 1.0 1.0 1.25 | 6.0 7.5 8.0 | 1.0 2.0 2.5 | 4 4 4 | | | | | | | |

*Tapered Pipe Thread. For coolant-through add C to end of #.



CHATTER-FREE
NobursinkTools
 by TOOLFAB

**UNEQUALLED PERFORMANCE IN DEBURRING,
 CHAMFERING AND COUNTERSINKING OPERATIONS**

Quality Performance

Precision engineered to cut most metals and plastics without chatter (not recommended for aluminum-bronze applications).

Self-piloting, self-centering action for free-cutting, low-torque deburring and consistently concentric chamfers and countersinks.

Uniform smooth surface finishes with no secondary burr.

Controlled radial relief for positive, chatter-free engagement even in light deburring/chamfering operations.

Constructed from high speed steel, heat-treated and precision ground for dependable operation.

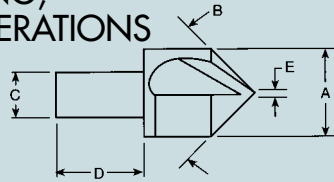
Versatile Application

Compatible with lightweight machine tools and portable drill motors.

Easily re-ground (cylindrically) without special grinding equipment; no cam grinding or hand relieving necessary.

Carbide-tipped tools available for highly abrasive or difficult-to-machine applications.

Wide range of configurations for specific needs.



Efficient Operation

Two cutting edges for double life in tools up to 1" capacity; a single cutter in larger tools, 1-1/2" and 2-1/2" capacity to meet low torque requirements.

High-rake shear angles for minimal cutting pressure.

Circular clearance provides controlled entry, eliminates snagging or seizing.

For special angles or sizes,
Call Us Today!

| PART NO. | BODY DIAMETER A | INCLUDED ANGLE DEGREE B | CUTTER TYPE | TOOL NUMBER | STYLE | SHANK DIAMETER C | SHANK LENGTH D | MINIMUM DIAMETER E |
|----------|--------------------|-------------------------------|-------------|-------------|-------|------------------------|-------------------|--------------------------|
| 470061 | 0.5 | 82 | HSS | NS2-82A | 1 | 1/4 | 1 | 1/32 |
| 470062 | 0.5 | 82 | HSS | NS2-82 | 1 | 3/8 | 1 | 1/32 |
| 470071 | 0.5 | 90 | HSS | NS2-90A | 1 | 1/4 | 1 | 1/32 |
| 470072 | 0.5 | 90 | HSS | NS2-90 | 1 | 3/8 | 1 | 1/32 |
| 471061 | 0.75 | 82 | HSS | NS3-82A | 1 | 1/4 | 1-1/8 | 1/32 |
| 471062 | 0.75 | 82 | HSS | NS3-82 | 1 | 3/8 | 1-1/8 | 1/32 |
| 471071 | 0.75 | 90 | HSS | NS3-90A | 1 | 1/4 | 1-1/8 | 1/32 |
| 471072 | 0.75 | 90 | HSS | NS3-90 | 1 | 3/8 | 1-1/8 | 1/32 |
| 471031 | 0.75 | 100 | HSS | NS3-100A | 1 | 1/4 | 1-1/8 | 1/32 |
| 471032 | 0.75 | 100 | HSS | NS3-100 | 1 | 3/8 | 1-1/8 | 1/32 |
| 472061 | 1 | 82 | HSS | NS4-82 | 1 | 1/2 | 1 | 1/32 |
| 472071 | 1 | 90 | HSS | NS4-90 | 1 | 1/2 | 1 | 1/32 |
| 472081 | 1 | 100 | HSS | NS4-100 | 1 | 1/2 | 1 | 1/32 |
| 473113 | 1.5 | 82 | HSS | NS6-82 | 2 | 1/2 | 1-3/8 | 1/2 |
| 473115 | 1.5 | 82 | Carbide | CNS6-82 | 2 | 1/2 | 1-3/8 | 1/2 |
| 473123 | 1.5 | 90 | HSS | NS6-90 | 2 | 1/2 | 1-3/8 | 1/2 |
| 473125 | 1.5 | 90 | Carbide | CNS6-90 | 2 | 1/2 | 1-3/8 | 1/2 |
| 473133 | 1.5 | 100 | HSS | NS6-100 | 2 | 1/2 | 1-3/8 | 1/2 |
| 473135 | 1.5 | 100 | Carbide | CNS6-100 | 2 | 1/2 | 1-3/8 | 1/2 |
| 474025 | 2.5 | 90 | HSS | NS10-90 | 3 | 1/2 | 2-1/2 | 1 |
| 474035 | 2.5 | 90 | Carbide | CNS10-90 | 3 | 1/2 | 2-1/2 | 1 |
| 474030 | 2.5 | 90 | HSS | NS10-90 | 3 | 3/4 | 2-1/2 | 1 |
| 474040 | 2.5 | 90 | Carbide | CNS10-90 | 3 | 3/4 | 2-1/2 | 1 |

Grind instructions available upon request.



Adjustable Reamers

by TOOLFAB

Advantages of McCrosky Reamers

McCrosky adjustable reamers are the practical, shop-proven tools for accurate and economical reaming. McCrosky reamers have a nationally recognized pin and screw blade locking device, left hand spiral mounting of the blades, and many other distinctive features.

They cut freely without chatter, avoid any tendency to “dig in,” and produce absolutely round, concentric holes with high finish. McCrosky reamers produce more pieces—of better quality, in shorter time—at lower cost.

McCrosky reamers are furnished:

- in chucking, shell, hand, and special designs
- in a wide range of stock sizes
- with carbide-tipped and high-speed steel blades
- individually engineered to meet the requirements of unusual jobs.

Time-tested pin-and-screw blade-locking device

The pin-and-screw locking design, available only in McCrosky reamers, holds the blades firmly against the bottom and back of the blade slot ensuring rigidity, easy adjustment and maximum performance under all conditions of operation. The pin is embedded partly in a groove in the blade and partly in the body.

Tightening the screw distributes the locking pressure along the entire length of the blade, forcing the blade to the bottom and back of the blade slot. Since the pin-and-screw lock is located in front rather than behind the cutting edge, the locking pressure works with—not against—the cutting thrust. That is, the action of cutting increases the pressure of the lock and the rigidity with which the blades are held—producing the effect of reaming with a solid reamer. This desirable effect is achieved even when the blade is in a fully extended position, thus permitting the blades of these reamers to be re-ground and used many times over before re-blading is necessary, keeping purchases of new blades to a minimum.

Strong alloy-steel bodies

Bodies of McCrosky adjustable reamers are made of alloy steel. Blade slots in chucking and shell reamers are milled on a left hand spiral angle and located slightly behind center. This design gives the blades positive rake and makes them free cutting, producing the round, accurate, concentric holes and high finish that characterize McCrosky reaming.

Powerful back-up support is provided for each blade. Protrusion of the blade beyond the body is held to a minimum, thus permitting these reamers to perform equally well on through holes and blind holes or against a shoulder. Each slot is paired with an opposite slot, but is spaced unevenly in relation to adjacent slots to avoid “chatter.”

Threads on the body and all contacting surfaces are ground. Use of specially designed fixtures and frequent checking with close-limit gauges during production ensures absolute uniformity, the complete interchangeability of all parts, and easy, quick replacement of new blades.

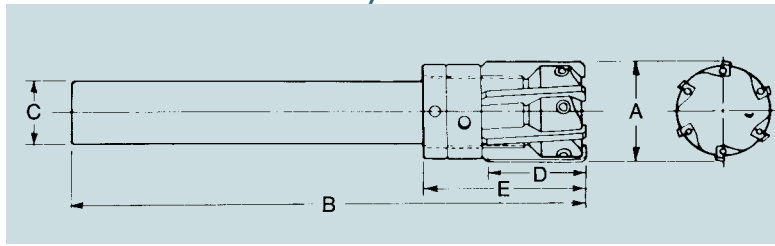
Quick, accurate uniform blade adjustment

Easy, quick and accurate adjustment of the blades for regrinding is another outstanding advantage of the McCrosky design. A minimum amount of blade stock is lost when regrinding, a particular advantage when carbide-tipped blades are used. Complete instructions about blade adjustment, regrinding, grinds best suited for different work conditions, and other helpful suggestions are described later in this catalog.



Adjustable Reamers

by TOOLFAB



No. 90 REAMERS ARE STOCKED IN SIZES TO 3-INCH DIAMETER. LARGER SIZES CAN BE FURNISHED ALTHOUGH USUALLY A No. 94 SHELL REAMER IS RECOMMENDED FOR LARGER DIAMETERS.

ONLY SEVEN SIZES OF BLADES ARE NEEDED TO FIT ALL SIZES OF No. 90, No. 91 AND No. 94 REAMERS.

WHEN ORDERING, PLEASE SPECIFY:

- REAMER BODY PART NUMBER (SEE TABLE BELOW)
- DIAMETER
- QUANTITY DESIRED
- WHETHER REAMERS ARE TO BE FITTED WITH HIGH-SPEED STEEL OR CARBIDE-TIPPED BLADES

No. 90

STRAIGHT SHANK (ONE-PIECE CONSTRUCTION)

| REAMER BODY PART NO. | REAMER SIZE (inches) | BLADE SIZE NO. | NO. OF BLADES/SET | DIMENSIONS (INCHES) | | | | | TOTAL ADJUSTMENT FOR REGRINDING (inches) | BLADE & JAM COLLARS (Top Size in inches) | SCREW SIZE NO. | PIN SIZE NO. |
|----------------------|----------------------|----------------|-------------------|---------------------|--------|-------|--------|---------|--|--|----------------|--------------|
| | | | | A | B | C | D | E | | | | |
| 200158 | 5/8 | 0 | 4 | 5/8 | 7-1/2 | 7/16 | 1-3/8 | 1-15/16 | 0.040 | 1/2 | 0 | None |
| 200158 | 11/16 | 0 | 4 | 11/16 | 7-1/2 | 7/16 | 1-3/8 | 1-15/16 | 0.040 | 1/2 | 0 | None |
| 200159 | 3/4 | 0 | 6 | 3/4 | 8-1/2 | 1/2 | 1-3/8 | 1-15/16 | 0.040 | 9/16 | 0 | None |
| 200159 | 13/16 | 0 | 6 | 13/16 | 8-1/2 | 1/2 | 1-3/8 | 1-15/16 | 0.040 | 9/16 | 0 | None |
| 200159 | 7/8 | 0 | 6 | 7/8 | 8-1/2 | 1/2 | 1-3/8 | 1-15/16 | 0.040 | 9/16 | 0 | None |
| 200160 | 15/16 | 1 | 6 | 15/16 | 10 | 5/8 | 1-3/8 | 2-7/16 | 0.110 | 3/4 | 1 | 1 |
| 200161 | 1 | 1 | 6 | 1 | 10 | 5/8 | 1-3/8 | 2-7/16 | 0.110 | 25/32 | 1 | 1 |
| 200162 | 1-1/16 | 2 | 6 | 1-1/16 | 10 | 3/4 | 1-7/16 | 2-9/16 | 0.120 | 27/32 | 1 | 2 |
| 200163 | 1-1/8 | 2 | 6 | 1-1/8 | 10 | 3/4 | 1-7/16 | 2-9/16 | 0.120 | 29/32 | 1A | 1 |
| 200164 | 1-3/16 | 2 | 6 | 1-3/16 | 11 | 7/8 | 1-7/16 | 2-9/16 | 0.120 | 31/32 | 1A | 2 |
| 200165 | 1-1/4 | 2 | 6 | 1-1/4 | 11 | 7/8 | 1-7/16 | 2-1/2 | 0.120 | 1 | 1 | 2 |
| 200166 | 1-5/16 | 3 | 6 | 1-5/16 | 12 | 7/8 | 1-9/16 | 2-5/8 | 0.130 | 1 | 1 | 3 |
| 200166 | 1-3/8 | 3 | 6 | 1-3/8 | 12 | 7/8 | 1-9/16 | 2-5/8 | 0.130 | 1 | 2 | 3 |
| 200167 | 1-7/16 | 3 | 6 | 1-7/16 | 12 | 7/8 | 1-9/16 | 2-5/8 | 0.130 | 1-1/16 | 2 | 3 |
| 200167 | 1-1/2 | 3 | 6 | 1-1/2 | 12 | 7/8 | 1-9/16 | 2-5/8 | 0.130 | 1-1/16 | 2 | 3 |
| 200168 | 1-9/16 | 4 | 6 | 1-9/16 | 13 | 1 | 1-7/8 | 3 | 0.150 | 1-3/16 | 3 | 3 |
| 200168 | 1-5/8 | 4 | 6 | 1-5/8 | 13 | 1 | 1-7/8 | 3 | 0.150 | 1-3/16 | 3 | 3 |
| 200169 | 1-11/16 | 4 | 6 | 1-11/16 | 14 | 1-1/8 | 1-7/8 | 3 | 0.150 | 1-5/16 | 3 | 3 |
| 200169 | 1-3/4 | 4 | 6 | 1-3/4 | 14 | 1-1/8 | 1-7/8 | 3 | 0.150 | 1-5/16 | 3B | 3 |
| 200170 | 1-13/16 | 4 | 6 | 1-13/16 | 14 | 1-1/8 | 1-7/8 | 3 | 0.150 | 1-5/16 | 3B | 3 |
| 200170 | 1-7/8 | 4 | 6 | 1-7/8 | 14 | 1-1/8 | 1-7/8 | 3 | 0.150 | 1-5/16 | 3B | 3 |
| 200171 | 1-15/16 | 4 | 6 | 1-15/16 | 14-1/2 | 1-1/4 | 1-7/8 | 3-1/16 | 0.150 | 1-7/16 | 3B | 3 |
| 200171 | 2 | 4 | 6 | 2 | 14-1/2 | 1-1/4 | 1-7/8 | 3-1/16 | 0.150 | 1-7/16 | 3B | 3 |
| 200172 | 2-1/16 | 5 | 6 | 2-1/16 | 15 | 1-1/4 | 2-3/16 | 3-1/2 | 0.165 | 1-7/16 | 4A | 4 |
| 200172 | 2-1/8 | 5 | 6 | 2-1/8 | 15 | 1-1/4 | 2-3/16 | 3-1/2 | 0.165 | 1-7/16 | 4A | 4 |
| 200173 | 2-3/16 | 5 | 6 | 2-3/16 | 15 | 1-1/2 | 2-3/16 | 3-1/2 | 0.165 | 1-11/16 | 4A | 4 |
| 200173 | 2-1/4 | 5 | 6 | 2-1/4 | 15 | 1-1/2 | 2-3/16 | 3-1/2 | 0.165 | 1-11/16 | 4A | 4 |
| 200174 | 2-5/16 | 5 | 6 | 2-5/16 | 15 | 1-1/2 | 2-3/16 | 3-1/2 | 0.165 | 1-11/16 | 4A | 4 |
| 200174 | 2-3/8 | 5 | 6 | 2-3/8 | 15 | 1-1/2 | 2-3/16 | 3-1/2 | 0.165 | 1-11/16 | 4A | 4 |
| 200175 | 2-7/16 | 6 | 6 | 2-7/16 | 15-1/2 | 1-3/4 | 2-7/16 | 3-3/4 | 0.180 | 1-7/8 | 4A | 5 |
| 200175 | 2-1/2 | 6 | 6 | 2-1/2 | 15-1/2 | 1-3/4 | 2-7/16 | 3-3/4 | 0.180 | 1-7/8 | 5A | 5 |
| 200176 | 2-9/16 | 6 | 6 | 2-9/16 | 15-1/2 | 1-3/4 | 2-7/16 | 3-13/16 | 0.180 | 1-7/8 | 5A | 5 |
| 200176 | 2-5/8 | 6 | 6 | 2-5/8 | 15-1/2 | 1-3/4 | 2-7/16 | 3-13/16 | 0.180 | 1-7/8 | 5A | 5 |
| 200177 | 2-11/16 | 6 | 6 | 2-11/16 | 15-1/2 | 2 | 2-7/16 | 3-3/4 | 0.180 | 2-1/8 | 5A | 5 |
| 200177 | 2-3/4 | 6 | 6 | 2-3/4 | 15-1/2 | 2 | 2-7/16 | 3-3/4 | 0.180 | 2-1/8 | 5A | 5 |
| 200178 | 2-13/16 | 6 | 6 | 2-13/16 | 16 | 2 | 2-7/16 | 3-3/4 | 0.180 | 2-1/4 | 5A | 5 |
| 200178 | 2-7/8 | 6 | 6 | 2-7/8 | 16 | 2 | 2-7/16 | 3-3/4 | 0.180 | 2-1/4 | 5A | 5 |
| 200179 | 2-15/16 | 6 | 6 | 2-15/16 | 16 | 2 | 2-7/16 | 3-13/16 | 0.180 | 2-1/4 | 5A | 5 |
| 200179 | 3 | 6 | 6 | 3 | 16 | 2 | 2-7/16 | 3-13/16 | 0.180 | 2-1/4 | 5A | 5 |

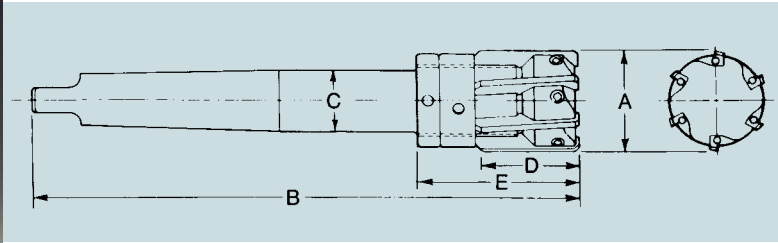
(Note: All new reamers ordered come complete with one set of blades -- please specify which blade style/part no. is required)

1 800 790 TOOL



Adjustable Reamers

by TOOLFAB



No. 91 TAPERED SHANK (ONE-PIECE CONSTRUCTION)

No. 91 REAMERS ARE STOCKED IN SIZES TO 3-INCH DIAMETER. LARGER SIZES CAN BE FURNISHED ALTHOUGH USUALLY A No. 94 SHELL REAMER IS RECOMMENDED FOR LARGER DIAMETERS.

ONLY SEVEN SIZES OF BLADES ARE NEEDED TO FIT ALL SIZES OF No. 90, No. 91 AND No. 94 REAMERS.

WHEN ORDERING, PLEASE SPECIFY:

- REAMER BODY PART NUMBER (SEE TABLE BELOW)
- DIAMETER
- QUANTITY DESIRED
- WHETHER REAMERS ARE TO BE FITTED WITH HIGH-SPEED STEEL OR CARBIDE-TIPPED BLADES

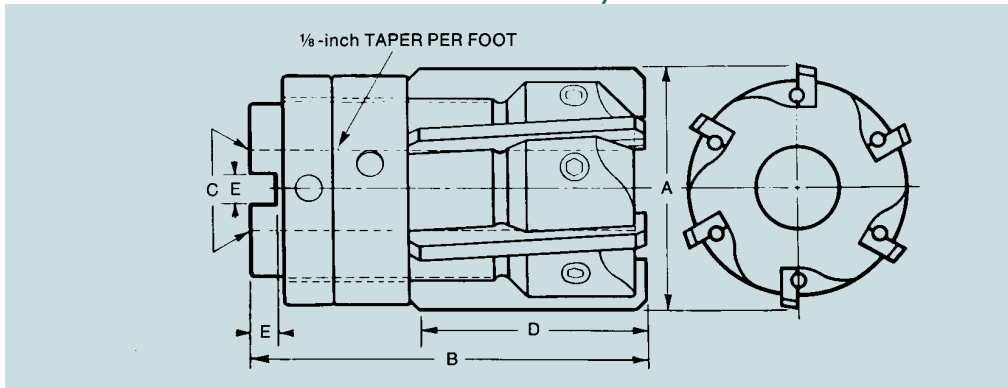
| REAMER BODY PART NO. | REAMER SIZE (inches) | BLADE SIZE NO. | NO. OF BLADES /SET | DIMENSIONS (INCHES) | | | | | MORSE TAPER SHANK NO. | TOTAL ADJUSTMENT FOR REGRINDING (inches) | BLADE & JAM COLLARS (Top Size in inches) | SCREW SIZE NO. | PIN SIZE NO. |
|----------------------|----------------------|----------------|--------------------|---------------------|--------|--------|--------|---------|-----------------------|--|--|----------------|--------------|
| | | | | A | B | C | D | E | | | | | |
| 200183 | 5/8 | 0 | 4 | 5/8 | 7-1/2 | 7/16 | 1-3/8 | 1-15/16 | 1 | 0.040 | 1/2 | 0 | None |
| 200183 | 11/16 | 0 | 4 | 11/16 | 7-1/2 | 7/16 | 1-3/8 | 1-15/16 | 1 | 0.040 | 1/2 | 0 | None |
| 200184 | 3/4 | 0 | 6 | 3/4 | 8-1/2 | 7/16 | 1-3/8 | 1-15/16 | 1 | 0.040 | 9/16 | 0 | None |
| 200184 | 13/16 | 0 | 6 | 13/16 | 8-1/2 | 7/16 | 1-3/8 | 1-15/16 | 1 | 0.040 | 9/16 | 0 | None |
| 200184 | 7/8 | 0 | 6 | 7/8 | 8-1/2 | 7/16 | 1-3/8 | 1-15/16 | 1 | 0.040 | 9/16 | 0 | None |
| 200185 | 15/16 | 1 | 6 | 15/16 | 10 | 11/16 | 1-3/8 | 2-7/16 | 2 | 0.110 | 3/4 | 1 | 1 |
| 200186 | 1 | 1 | 6 | 1 | 10 | 11/16 | 1-3/8 | 2-7/16 | 2 | 0.110 | 25/32 | 1 | 1 |
| 200187 | 1-1/16 | 2 | 6 | 1-1/16 | 10 | 3/4 | 1-7/16 | 2-9/16 | 2 | 0.120 | 27/32 | 1 | 2 |
| 200188 | 1-1/8 | 2 | 6 | 1-1/8 | 10 | 3/4 | 1-7/16 | 2-9/16 | 2 | 0.120 | 29/32 | 1A | 1 |
| 200189 | 1-3/16 | 2 | 6 | 1-3/16 | 11 | 7/8 | 1-7/16 | 2-9/16 | 2 | 0.120 | 31/32 | 1A | 2 |
| 200190 | 1-1/4 | 2 | 6 | 1-1/4 | 11 | 15/16 | 1-7/16 | 2-1/2 | 3 | 0.120 | 1 | 1 | 2 |
| 200191 | 1-5/16 | 3 | 6 | 1-5/16 | 12 | 15/16 | 1-9/16 | 2-5/8 | 3 | 0.130 | 1 | 1 | 3 |
| 200191 | 1-3/8 | 3 | 6 | 1-3/8 | 12 | 15/16 | 1-9/16 | 2-5/8 | 3 | 0.130 | 1 | 2 | 3 |
| 200192 | 1-7/16 | 3 | 6 | 1-7/16 | 12 | 15/16 | 1-9/16 | 2-5/8 | 3 | 0.130 | 1-1/16 | 2 | 3 |
| 200192 | 1-1/2 | 3 | 6 | 1-1/2 | 12 | 15/16 | 1-9/16 | 2-5/8 | 3 | 0.130 | 1-1/16 | 2 | 3 |
| 200193 | 1-9/16 | 4 | 6 | 1-9/16 | 13 | 1 | 1-7/8 | 3 | 3 | 0.150 | 1-3/16 | 3 | 3 |
| 200193 | 1-5/8 | 4 | 6 | 1-5/8 | 13 | 1 | 1-7/8 | 3 | 3 | 0.150 | 1-3/16 | 3 | 3 |
| 200194 | 1-11/16 | 4 | 6 | 1-11/16 | 14 | 1-3/16 | 1-7/8 | 3 | 3 | 0.150 | 1-5/16 | 3 | 3 |
| 200194 | 1-3/4 | 4 | 6 | 1-3/4 | 14 | 1-3/16 | 1-7/8 | 3 | 3 | 0.150 | 1-5/16 | 3B | 3 |
| 200195 | 1-13/16 | 4 | 6 | 1-13/16 | 14 | 1-3/16 | 1-7/8 | 3 | 3 | 0.150 | 1-5/16 | 3B | 3 |
| 200195 | 1-7/8 | 4 | 6 | 1-7/8 | 14 | 1-3/16 | 1-7/8 | 3 | 3 | 0.150 | 1-5/16 | 3B | 3 |
| 200196 | 1-15/16 | 4 | 6 | 1-15/16 | 14-1/2 | 1-5/16 | 1-7/8 | 3-1/16 | 4 | 0.150 | 1-7/16 | 3B | 3 |
| 200196 | 2 | 4 | 6 | 2 | 14-1/2 | 1-5/16 | 1-7/8 | 3-1/16 | 4 | 0.150 | 1-7/16 | 3B | 3 |
| 200197 | 2-1/16 | 5 | 6 | 2-1/16 | 15 | 1-5/16 | 2-3/16 | 3-1/2 | 4 | 0.165 | 1-7/16 | 4A | 4 |
| 200197 | 2-1/8 | 5 | 6 | 2-1/8 | 15 | 1-5/16 | 2-3/16 | 3-1/2 | 4 | 0.165 | 1-7/16 | 4A | 4 |
| 200198 | 2-3/16 | 5 | 6 | 2-3/16 | 15 | 1-9/16 | 2-3/16 | 3-1/2 | 4 | 0.165 | 1-11/16 | 4A | 4 |
| 200198 | 2-1/4 | 5 | 6 | 2-1/4 | 15 | 1-9/16 | 2-3/16 | 3-1/2 | 4 | 0.165 | 1-11/16 | 4A | 4 |
| 200199 | 2-5/16 | 5 | 6 | 2-5/16 | 15 | 1-9/16 | 2-3/16 | 3-1/2 | 4 | 0.165 | 1-11/16 | 4A | 4 |
| 200199 | 2-3/8 | 5 | 6 | 2-3/8 | 15 | 1-9/16 | 2-3/16 | 3-1/2 | 4 | 0.165 | 1-11/16 | 4A | 4 |
| 200200 | 2-7/16 | 6 | 6 | 2-7/16 | 15-1/2 | 1-3/4 | 2-7/16 | 3-3/4 | 5 | 0.180 | 1-7/8 | 4A | 5 |
| 200200 | 2-1/2 | 6 | 6 | 2-1/2 | 15-1/2 | 1-3/4 | 2-7/16 | 3-3/4 | 5 | 0.180 | 1-7/8 | 5A | 5 |
| 200201 | 2-9/16 | 6 | 6 | 2-9/16 | 15-1/2 | 1-3/4 | 2-7/16 | 3-13/16 | 5 | 0.180 | 1-7/8 | 5A | 5 |
| 200201 | 2-5/8 | 6 | 6 | 2-5/8 | 15-1/2 | 1-3/4 | 2-7/16 | 3-13/16 | 5 | 0.180 | 1-7/8 | 5A | 5 |
| 200202 | 2-11/16 | 6 | 6 | 2-11/16 | 15-1/2 | 2 | 2-7/16 | 3-3/4 | 5 | 0.180 | 2-1/8 | 5A | 5 |
| 200202 | 2-3/4 | 6 | 6 | 2-3/4 | 15-1/2 | 2 | 2-7/16 | 3-3/4 | 5 | 0.180 | 2-1/8 | 5A | 5 |
| 200203 | 2-13/16 | 6 | 6 | 2-13/16 | 16 | 2 | 2-7/16 | 3-3/4 | 5 | 0.180 | 2-1/4 | 5A | 5 |
| 200203 | 2-7/8 | 6 | 6 | 2-7/8 | 16 | 2 | 2-7/16 | 3-3/4 | 5 | 0.180 | 2-1/4 | 5A | 5 |
| 200204 | 2-15/16 | 6 | 6 | 2-15/16 | 16 | 2 | 2-7/16 | 3-13/16 | 5 | 0.180 | 2-1/4 | 5A | 5 |
| 200204 | 3 | 6 | 6 | 3 | 16 | 2 | 2-7/16 | 3-13/16 | 5 | 0.180 | 2-1/4 | 5A | 5 |

(Note: All new reamers ordered come complete with one set of blades -- please specify which blade style/part no. is required)



Adjustable Reamers

by TOOLFAB



No. 94

SHELL REAMERS WITH TAPERED HOLES

McCrosky No. 94 SHELL REAMERS ARE MADE IN STANDARD SIZES FROM 1 3/16 INCHES TO 6 INCHES IN DIAMETER (SIZES VARY BY 1/16-INCH INCREMENTS). ALTHOUGH SOME ENGINEERS PREFER TO USE No. 90 OR No. 91 CHUCKING REAMERS FOR SMALL-DIAMETER WORK, No. 94 SHELL REAMERS ARE UNEXCELLED FOR REAMING HOLES 3 INCHES IN DIAMETER AND LARGER.

BODIES ARE OF ALLOY STEEL AND FEATURE THE PIN-AND SCREW BLADE LOCKING DEVICE, AND ALL OTHER TIME-PROVED ADVANTAGES OF McCrosky DESIGN AND MANUFACTURE. HOLES ARE TAPERED 1/8-INCH TO A FOOT TO FIT McCrosky M-40 STRAIGHT SHANK OR M-41 TAPERED SHANK ARBORS.

ONLY SEVEN SIZES OF BLADES ARE NEEDED TO FIT ALL SIZES OF No. 94, No. 90 AND No. 91 REAMERS, THUS KEEPING BLADE INVENTORIES AT A MINIMUM.

WHEN ORDERING, PLEASE SPECIFY:

- REAMER BODY PART NUMBER
(SEE TABLE ON NEXT PAGE)
- DIAMETER
- QUANTITY DESIRED
- WHETHER REAMERS ARE TO BE FITTED WITH HIGH-SPEED-STEEL OR CARBIDE-TIPPED BLADES.

McCrosky reamers combine the **strength** of solid reamers with the **longer life, greater accuracy, and lower cost** of replaceable-blade reamers.

(Note: All new reamers ordered come complete with one set of blades -- please specify which blade style/part no. is required)

| REAMER BODY PART NO. | REAMER SIZE (inches) | BLADE SIZE NO. | NO. OF BLADES /SET | DIMENSIONS (INCHES) | | | | | ARBOR SIZE | TOTAL ADJUSTMENT FOR REGRINDING (inches) | BLADE & JAM COLLARS (Top Size in inches) | SCREW SIZE NO. | PIN SIZE NO. |
|----------------------|----------------------|----------------|--------------------|---------------------|---------|-------|--------|------|------------|--|--|----------------|--------------|
| | | | | A | B | C | D | E | | | | | |
| 200210 | 1-3/16 | 1 | 6 | 1-3/16 | 2-3/4 | 3/8 | 1-3/8 | 1/4 | 70 | 0.110 | 7/8 | 1 | 1 |
| 200211 | 1-1/4 | 1 | 6 | 1-1/4 | 2-13/16 | 3/8 | 1-3/8 | 1/4 | 70 | 0.110 | 7/8 | 1 | 1 |
| 200212 | 1-5/16 | 2 | 6 | 1-5/16 | 2-15/16 | 1/2 | 1-7/16 | 1/4 | 71 | 0.120 | 1 | 1 | 2 |
| 200213 | 1-3/8 | 2 | 6 | 1-3/8 | 2-15/16 | 1/2 | 1-7/16 | 1/4 | 71 | 0.120 | 1 | 1 | 2 |
| 200214 | 1-7/16 | 3 | 6 | 1-7/16 | 3-1/16 | 1/2 | 1-9/16 | 1/4 | 71 | 0.130 | 1-1/16 | 2 | 3 |
| 200214 | 1-1/2 | 3 | 6 | 1-1/2 | 3-1/16 | 1/2 | 1-9/16 | 1/4 | 71 | 0.130 | 1-1/16 | 2 | 3 |
| 200215 | 1-9/16 | 3 | 6 | 1-9/16 | 3-1/8 | 5/8 | 1-9/16 | 1/4 | 72 | 0.130 | 1-3/16 | 2 | 3 |
| 200215 | 1-5/8 | 3 | 6 | 1-5/8 | 3-1/8 | 5/8 | 1-9/16 | 1/4 | 72 | 0.130 | 1-3/16 | 2 | 3 |
| 200216 | 1-11/16 | 3 | 6 | 1-11/16 | 3-1/8 | 5/8 | 1-9/16 | 1/4 | 72 | 0.130 | 1-5/16 | 2 | 3 |
| 200216 | 1-3/4 | 3 | 6 | 1-3/4 | 3-1/8 | 5/8 | 1-9/16 | 1/4 | 72 | 0.130 | 1-5/16 | 2 | 3 |
| 200217 | 1-13/16 | 4 | 6 | 1-13/16 | 3-1/2 | 5/8 | 1-7/8 | 1/4 | 72 | 0.150 | 1-5/16 | 3 | 3 |
| 200217 | 1-7/8 | 4 | 6 | 1-7/8 | 3-1/2 | 5/8 | 1-7/8 | 1/4 | 72 | 0.150 | 1-5/16 | 3 | 3 |
| 200218 | 1-15/16 | 4 | 6 | 1-15/16 | 3-5/8 | 3/4 | 1-7/8 | 1/4 | 73 | 0.150 | 1-7/16 | 3 | 3 |
| 200218 | 2 | 4 | 6 | 2 | 3-5/8 | 3/4 | 1-7/8 | 1/4 | 73 | 0.150 | 1-7/16 | 3 | 3 |
| 200219 | 2-1/16 | 5 | 6 | 2-1/16 | 4-1/16 | 3/4 | 2-3/16 | 1/4 | 73 | 0.165 | 1-7/16 | 4 | 4 |
| 200219 | 2-1/8 | 5 | 6 | 2-1/8 | 4-1/16 | 3/4 | 2-3/16 | 1/4 | 73 | 0.165 | 1-7/16 | 4 | 4 |
| 200220 | 2-3/16 | 5 | 6 | 2-3/16 | 4 | 3/4 | 2-3/16 | 1/4 | 73 | 0.165 | 1-11/16 | 4 | 4 |
| 200220 | 2-1/4 | 5 | 6 | 2-1/4 | 4 | 3/4 | 2-3/16 | 1/4 | 73 | 0.165 | 1-11/16 | 4 | 4 |
| 200221 | 2-5/16 | 5 | 6 | 2-5/16 | 4-1/16 | 7/8 | 2-3/16 | 1/4 | 74 | 0.165 | 1-11/16 | 4 | 4 |
| 200221 | 2-3/8 | 5 | 6 | 2-3/8 | 4-1/16 | 7/8 | 2-3/16 | 1/4 | 74 | 0.165 | 1-11/16 | 4 | 4 |
| 200222 | 2-7/16 | 5 | 6 | 2-7/16 | 4-1/8 | 1 | 2-3/16 | 5/16 | 75 | 0.165 | 1-7/8 | 4 | 4 |
| 200222 | 2-1/2 | 5 | 6 | 2-1/2 | 4-1/8 | 1 | 2-3/16 | 5/16 | 75 | 0.165 | 1-7/8 | 4 | 4 |
| 200223 | 2-9/16 | 6 | 6 | 2-9/16 | 4-7/16 | 1 | 2-7/16 | 5/16 | 75 | 0.180 | 1-7/8 | 5 | 5 |
| 200223 | 2-5/8 | 6 | 6 | 2-5/8 | 4-7/16 | 1 | 2-7/16 | 5/16 | 75 | 0.180 | 1-7/8 | 5 | 5 |
| 200224 | 2-11/16 | 6 | 6 | 2-11/16 | 4-7/16 | 1-1/8 | 2-7/16 | 3/8 | 76 | 0.180 | 2-1/8 | 5 | 5 |
| 200224 | 2-3/4 | 6 | 6 | 2-3/4 | 4-7/16 | 1-1/8 | 2-7/16 | 3/8 | 76 | 0.180 | 2-1/8 | 5 | 5 |
| 200225 | 2-13/16 | 6 | 6 | 2-13/16 | 4-1/2 | 1-1/4 | 2-1/2 | 3/8 | 77 | 0.180 | 2-1/4 | 5 | 5 |
| 200225 | 2-7/8 | 6 | 6 | 2-7/8 | 4-1/2 | 1-1/4 | 2-1/2 | 3/8 | 77 | 0.180 | 2-1/4 | 5 | 5 |
| 200226 | 2-15/16 | 6 | 6 | 2-15/16 | 4-9/16 | 1-3/8 | 2-1/2 | 3/8 | 78 | 0.180 | 2-1/4 | 5 | 5 |
| 200226 | 3 | 6 | 6 | 3 | 4-9/16 | 1-3/8 | 2-1/2 | 3/8 | 78 | 0.180 | 2-1/4 | 5 | 5 |
| 200227 | 3-1/16 | 6 | 6 | 3-1/16 | 4-1/2 | 1-3/8 | 2-1/2 | 3/8 | 78 | 0.180 | 2-1/2 | 5 | 5 |
| 200227 | 3-1/8 | 6 | 6 | 3-1/8 | 4-1/2 | 1-3/8 | 2-1/2 | 3/8 | 78 | 0.180 | 2-1/2 | 5 | 5 |
| 200228 | 3-3/16 | 6 | 8 | 3-3/16 | 4-9/16 | 1-3/8 | 2-1/2 | 3/8 | 78 | 0.180 | 2-1/2 | 5 | 5 |
| 200228 | 3-1/4 | 6 | 8 | 3-1/4 | 4-9/16 | 1-3/8 | 2-1/2 | 3/8 | 78 | 0.180 | 2-1/2 | 5 | 5 |
| 200229 | 3-5/16 | 6 | 8 | 3-5/16 | 4-11/16 | 1-1/2 | 2-1/2 | 7/16 | 79 | 0.180 | 2-1/2 | 5 | 5 |
| 200229 | 3-3/8 | 6 | 8 | 3-3/8 | 4-11/16 | 1-1/2 | 2-1/2 | 7/16 | 79 | 0.180 | 2-1/2 | 5 | 5 |
| 200230 | 3-7/16 | 6 | 8 | 3-7/16 | 4-9/16 | 1-1/2 | 2-1/2 | 7/16 | 79 | 0.180 | 2-7/8 | 5 | 5 |
| 200230 | 3-1/2 | 6 | 8 | 3-1/2 | 4-9/16 | 1-1/2 | 2-1/2 | 7/16 | 79 | 0.180 | 2-7/8 | 5 | 5 |
| 200231 | 3-9/16 | 6 | 8 | 3-9/16 | 4-5/8 | 1-1/2 | 2-1/2 | 7/16 | 79 | 0.180 | 2-7/8 | 5 | 5 |
| 200231 | 3-5/8 | 6 | 8 | 3-5/8 | 4-5/8 | 1-1/2 | 2-1/2 | 7/16 | 79 | 0.180 | 2-7/8 | 5 | 5 |
| 200232 | 3-11/16 | 6 | 8 | 3-11/16 | 4-3/16 | 1-5/8 | 2-1/2 | 1/2 | 80 | 0.180 | 2-7/8 | 5 | 5 |
| 200232 | 3-3/4 | 6 | 8 | 3-3/4 | 4-3/16 | 1-5/8 | 2-1/2 | 1/2 | 80 | 0.180 | 2-7/8 | 5 | 5 |
| 200233 | 3-13/16 | 6 | 8 | 3-13/16 | 4-1/16 | 1-7/8 | 2-1/2 | 1/2 | 81 | 0.180 | 3-1/4 | 5 | 5 |
| 200233 | 3-7/8 | 6 | 8 | 3-7/8 | 4-1/16 | 1-7/8 | 2-1/2 | 1/2 | 81 | 0.180 | 3-1/4 | 5 | 5 |
| 200234 | 3-15/16 | 6 | 8 | 3-15/16 | 4-1/8 | 1-7/8 | 2-1/2 | 1/2 | 81 | 0.180 | 3-1/4 | 5 | 5 |
| 200234 | 4 | 6 | 8 | 4 | 4-1/8 | 1-7/8 | 2-1/2 | 1/2 | 81 | 0.180 | 3-1/4 | 5 | 5 |
| 200235 | 4-1/16 | 6 | 8 | 4-1/16 | 4-3/16 | 2 | 2-1/2 | 5/8 | 82 | 0.180 | 3-1/4 | 5 | 5 |
| 200235 | 4-1/8 | 6 | 8 | 4-1/8 | 4-3/16 | 2 | 2-1/2 | 5/8 | 82 | 0.180 | 3-1/4 | 5 | 5 |
| 200236 | 4-3/16 | 6 | 10 | 4-3/16 | 4-1/8 | 2 | 2-1/2 | 5/8 | 82 | 0.180 | 3-9/16 | 5 | 5 |
| 200236 | 4-1/4 | 6 | 10 | 4-1/4 | 4-1/8 | 2 | 2-1/2 | 5/8 | 82 | 0.180 | 3-9/16 | 5 | 5 |
| 200237 | 4-5/16 | 6 | 10 | 4-5/16 | 4-3/16 | 2 | 2-1/2 | 5/8 | 82 | 0.180 | 3-9/16 | 5 | 5 |
| 200237 | 4-3/8 | 6 | 10 | 4-3/8 | 4-3/16 | 2 | 2-1/2 | 5/8 | 82 | 0.180 | 3-9/16 | 5 | 5 |
| 200238 | 4-7/16 | 6 | 10 | 4-7/16 | 4-1/4 | 2 | 2-1/2 | 5/8 | 82 | 0.180 | 3-9/16 | 5 | 5 |
| 200238 | 4-1/2 | 6 | 10 | 4-1/2 | 4-1/4 | 2 | 2-1/2 | 5/8 | 82 | 0.180 | 3-9/16 | 5 | 5 |
| 200239 | 4-9/16 | 6 | 10 | 4-9/16 | 4-3/16 | 2 | 2-1/2 | 5/8 | 82 | 0.180 | 4 | 5 | 5 |
| 200239 | 4-5/8 | 6 | 10 | 4-5/8 | 4-3/16 | 2 | 2-1/2 | 5/8 | 82 | 0.180 | 4 | 5 | 5 |
| 200240 | 4-11/16 | 6 | 10 | 4-11/16 | 4-1/4 | 2-1/4 | 2-1/2 | 3/4 | 83 | 0.180 | 4 | 5 | 5 |
| 200240 | 4-3/4 | 6 | 10 | 4-3/4 | 4-1/4 | 2-1/4 | 2-1/2 | 3/4 | 83 | 0.180 | 4 | 5 | 5 |
| 200241 | 4-13/16 | 6 | 10 | 4-13/16 | 4-5/16 | 2-1/4 | 2-1/2 | 3/4 | 83 | 0.180 | 4 | 5 | 5 |
| 200241 | 4-7/8 | 6 | 10 | 4-7/8 | 4-5/16 | 2-1/4 | 2-1/2 | 3/4 | 83 | 0.180 | 4 | 5 | 5 |
| 200242 | 4-15/16 | 6 | 10 | 4-15/16 | 4-1/4 | 2-1/4 | 2-1/2 | 3/4 | 83 | 0.180 | 4-1/4 | 5 | 5 |
| 200242 | 5 | 6 | 10 | 5 | 4-1/4 | 2-1/4 | 2-1/2 | 3/4 | 83 | 0.180 | 4-1/4 | 5 | 5 |
| 200243 | 5-1/16 | 6 | 10 | 5-1/16 | 4-5/16 | 2-1/4 | 2-1/2 | 3/4 | 83 | 0.180 | 4-1/4 | 5 | 5 |
| 200243 | 5-1/8 | 6 | 10 | 5-1/8 | 4-5/16 | 2-1/4 | 2-1/2 | 3/4 | 83 | 0.180 | 4-1/4 | 5 | 5 |
| 200244 | 5-3/16 | 6 | 10 | 5-3/16 | 4-3/8 | 2-1/4 | 2-1/2 | 3/4 | 83 | 0.180 | 4-1/4 | 5 | 5 |
| 200244 | 5-1/4 | 6 | 10 | 5-1/4 | 4-3/8 | 2-1/4 | 2-1/2 | 3/4 | 83 | 0.180 | 4-1/4 | 5 | 5 |
| 200245 | 5-5/16 | 6 | 12 | 5-5/16 | 4-1/4 | 2-1/2 | 2-1/2 | 3/4 | 84 | 0.180 | 4-5/8 | 5 | 5 |
| 200245 | 5-3/8 | 6 | 12 | 5-3/8 | 4-1/4 | 2-1/2 | 2-1/2 | 3/4 | 84 | 0.180 | 4-5/8 | 5 | 5 |
| 200246 | 5-7/16 | 6 | 12 | 5-7/16 | 4-5/16 | 2-1/2 | 2-1/2 | 3/4 | 84 | 0.180 | 4-5/8 | 5 | 5 |
| 200246 | 5-1/2 | 6 | 12 | 5-1/2 | 4-5/16 | 2-1/2 | 2-1/2 | 3/4 | 84 | 0.180 | 4-5/8 | 5 | 5 |
| 200247 | 5-9/16 | 6 | 12 | 5-9/16 | 4-3/8 | 2-1/2 | 2-1/2 | 3/4 | 84 | 0.180 | 4-5/8 | 5 | 5 |
| 200247 | 5-5/8 | 6 | 12 | 5-5/8 | 4-3/8 | 2-1/2 | 2-1/2 | 3/4 | 84 | 0.180 | 4-5/8 | 5 | 5 |
| 200249 | 5-11/16 | 6 | 12 | 5-11/16 | 4-1/4 | 2-1/2 | 2-1/2 | 3/4 | 84 | 0.180 | 5 | 5 | 5 |
| 200249 | 5-3/4 | 6 | 12 | 5-3/4 | 4-1/4 | 2-1/2 | 2-1/2 | 3/4 | 84 | 0.180 | 5 | 5 | 5 |
| 200249 | 5-13/16 | 6 | 12 | 5-13/16 | 4-5/16 | 2-1/2 | 2-1/2 | 3/4 | 84 | 0.180 | 5 | 5 | 5 |
| 200249 | 5-7/8 | 6 | 12 | 5-7/8 | 4-5/16 | 2-1/2 | 2-1/2 | 3/4 | 84 | 0.180 | 5 | 5 | 5 |
| 200250 | 5-15/16 | 6 | 12 | 5-15/16 | 4-3/8 | 2-1/2 | 2-1/2 | 3/4 | 84 | 0.180 | 5 | 5 | 5 |
| 200250 | 6 | 6 | 12 | 6 | 4-3/8 | 2-1/2 | 2-1/2 | 3/4 | 84 | 0.180 | 5 | 5 | 5 |



Adjustable Reamers

by TOOLFAB

REPLACEMENT PARTS & ACCESSORIES

Replaceable Blades

WHEN ORDERING BLADES, BE SURE TO SPECIFY:

- HOW MANY BLADES ARE DESIRED
- BLADE SIZE NUMBER
- REAMER PART NUMBER WITH WHICH THE BLADES ARE TO BE USED
- SPECIFY HIGH-SPEED STEEL OR CARBIDE-TIPPED

| BLADE SIZE NUMBER | REAMER NO. 90 & 91 DIAMETER (inches) | REAMER NO. 94 DIAMETER (inches) | NO. OF BLADES/SET |
|-------------------|--------------------------------------|---------------------------------|-------------------|
| 0 | 5/8 to 3/4 | - | 4 |
| 0 | 3/4 to 15/16 | - | 6 |
| 1 | 15/16 to 1 | 1-3/16 to 1-1/4 | 6 |
| 2 | 1-1/16 to 1-1/4 | 1-5/16 to 1-3/8 | 6 |
| 3 | 1-5/16 to 1-1/2 | 1-7/16 to 1-3/4 | 6 |
| 4 | 1-9/16 to 2 | 1-13/16 to 2 | 6 |
| 5 | 2-1/16 to 2-3/8 | 2-1/16 to 2-1/2 | 6 |
| 6 | 2-7/16 to 3 | 2-9/16 to 3-1/8 | 6 |
| 6 | - | 3-3/16 to 4-1/8 | 8 |
| 6 | - | 4-3/16 to 5-1/4 | 10 |
| 6 | - | 5-5/16 to 6 | 12 |



Reamer Screws

WHEN ORDERING SCREWS BE SURE TO SPECIFY:

- SCREW PART NUMBER (SEE TABLE BELOW)
- HOW MANY SCREWS ARE DESIRED

| SCREW PART NO. | SCREW SIZE NUMBER |
|----------------|-------------------|
| 600020 | 0 |
| 600025 | 1 |
| 600026 | 1A |
| 600027 | 2 |
| 600028 | 3 |
| 600029 | 3B |
| 600030 | 3C |
| 600031 | 3D |
| 600032 | 4 |
| 600033 | 4A |
| 600034 | 4B |
| 600035 | 4C |
| 600036 | 5 |
| 600037 | 5A |



Reamer Pins

WHEN ORDERING PINS, BE SURE TO SPECIFY:

- PIN PART NUMBER (SEE TABLE BELOW)
- HOW MANY PINS ARE DESIRED

| PART NO. | PIN SIZE NUMBER | DIAMETER OF PIN (inches) | REAMER NO. 90 & 91 DIAMETER (inches) | REAMER NO. 94 DIAMETER (inches) |
|----------|-----------------|--------------------------|--------------------------------------|---------------------------------|
| 600040 | 1 | 5/64 | 15/16 to 1 | 1-3/16 to 1-1/4 |
| 600041 | 2 | 3/32 | 1-1/16 to 1-1/4 | 1-5/16 to 1-3/8 |
| 600042 | 3 | 1/8 | 1-5/16 to 2 | 1-7/16 to 2 |
| 600043 | 4 | 5/32 | 2-1/16 to 2-3/8 | 2-1/16 to 2-1/2 |
| 600044 | 5 | 3/16 | 2-7/16 to 3 | 2-9/16 to 6 |



Adjustable Reamers

by TOOLFAB

REPLACEMENT PARTS & ACCESSORIES (cont'd)

Reamer Arbors

WHEN ORDERING ARBORS, BE SURE TO SPECIFY:

- HOW MANY ARBORS ARE DESIRED
- ARBOR PART NUMBER (SEE TABLE BELOW)

| M-40/STRAIGHT SHANK PART NO. | M-41/TAPER SHANK PART NO. | ARBOR SIZE NUMBER | REAMER NO. 94 DIAMETER (inches) | OVERALL LENGTH (inches) | REAMER HOLE DIAMETER -LARGE END (inches) | WIDTH OF DRIVING KEY (inches) | M-40 SHANK DIAMETER (inches) | M-41 MORSE TAPER NUMBER | ARBOR KEYS PART NO. |
|------------------------------|---------------------------|-------------------|---------------------------------|-------------------------|--|-------------------------------|------------------------------|-------------------------|---------------------|
| 422725 | 422740 | 70 | 1-3/16 to 1-1/4 | 10 | .375 | .240 | 3/4 | 2 | 200445 |
| 422726 | 422741 | 71 | 1-5/16 to 1-1/2 | 10 | .500 | .240 | 1 | 3 | 200445 |
| 422727 | 422742 | 72 | 1-9/16 to 1-7/8 | 11 | .625 | .240 | 1 | 3 | 200446 |
| 422728 | 422743 | 73 | 1-15/16 to 2-1/4 | 12 | .750 | .240 | 1-1/4 | 4 | 200446 |
| 422729 | 422744 | 74 | 2-5/16 to 2-3/8 | 13 | .875 | .240 | 1-1/4 | 4 | 200446 |
| 422730 | 422745 | 75 | 2-7/16 to 2-5/8 | 13.5 | 1.000 | .300 | 1-1/4 | 4 | 200447 |
| 422731 | 422746 | 76 | 2-11/16 to 2-3/4 | 14 | 1.125 | .360 | 1-3/8 | 4 | 200448 |
| 422732 | 422747 | 77 | 2-13/16 to 2-7/8 | 14.5 | 1.250 | .360 | 1-3/4 | 5 | 200448 |
| 422733 | 422748 | 78 | 2-15/16 to 3-1/4 | 15 | 1.375 | .360 | 1-3/4 | 5 | 200448 |
| 422734 | 422749 | 79 | 3-5/16 to 3-5/8 | 15.5 | 1.500 | .415 | 1-3/4 | 5 | 200449 |
| 422735 | 422750 | 80 | 3-11/16 to 3-3/4 | 16 | 1.625 | .480 | 2 | 5 | 200450 |
| 422736 | 422751 | 81 | 3-13/16 to 4 | 16.5 | 1.875 | .480 | 2 | 5 | 200450 |
| 422737 | 422752 | 82 | 4-1/16 to 4-5/8 | 17 | 2.000 | .605 | 2-1/4 | 5 | 200451 |
| 422738 | 422753 | 83 | 4-11/16 to 5-1/4 | 17.5 | 2.250 | .730 | 2-1/2 | 5 | 200452 |
| 422739 | 422754 | 84 | 5-5/16 to 6 | 18 | 2.500 | .730 | 2-3/4 | 5 | 200452 |

| BLADE COLLAR PART NO. | JAM COLLAR PART NO. | TAP SIZE | REAMER NO. 90 & 91 DIAMETER (inches) | REAMER NO. 94 DIAMETER (inches) |
|-----------------------|---------------------|----------|--------------------------------------|---------------------------------|
| 200298 | N/A | 1/2 | 5/8 | - |
| 200299 | N/A | 9/16 | 3/4 | - |
| 200301 | 200328 | 3/4 | 15/16 | - |
| 200302 | 200329 | 25/32 | 1 | - |
| 200303 | 200330 | 13/16 | - | - |
| 200304 | 200331 | 27/32 | 1-1/16 | - |
| 200305 | 200332 | 7/8 | - | 1-3/16 - 1-1/4 |
| 200306 | 200333 | 29/32 | 1-1/8 | - |
| 200307 | 200334 | 31/32 | 1-3/16 | - |
| 200308 | 200335 | 1 | 1-1/4 | - |
| 200309 | 200336 | 1 | 1-5/16 - 1-3/8 | 1-5/16 - 1-3/8 |
| 200310 | 200337 | 1-1/16 | 1-7/16 - 1-1/2 | 1-7/16 - 1-1/2 |
| 200311 | 200338 | 1-1/8 | - | - |
| 200312 | 200339 | 1-3/16 | 1-9/16 - 1-5/8 | 1-9/16 - 1-5/8 |
| 200313 | 200340 | 1-5/16 | 1-11/16 - 1-7/8 | 1-11/16 - 1-7/8 |
| 200314 | 200341 | 1-7/16 | 1-15/16 - 2-1/8 | 1-15/16 - 2-1/8 |
| 200315 | 200342 | 1-11/16 | 2-3/16 - 2-3/8 | 2-3/16 - 2-3/8 |
| 200316 | 200343 | 1-7/8 | 2-7/16 - 2-5/8 | 2-7/16 - 2-5/8 |
| 200317 | 200344 | 2-1/8 | 2-11/16 - 2-3/4 | 2-11/16 - 2-3/4 |
| 200318 | 200345 | 2-1/4 | 2-13/16 - 3 | 2-13/16 - 3 |
| 200319 | 200346 | 2-1/2 | - | 3-1/16 - 3-3/8 |
| 200320 | 200347 | 2-7/8 | - | 3-7/16 - 3-3/4 |
| 200321 | 200348 | 3-1/4 | - | 3-13/16 - 4-1/8 |
| 200322 | 200349 | 3-9/16 | - | 4-3/16 - 4-1/2 |
| 200323 | 200350 | 4 | - | 4-9/16 - 4-7/8 |
| 200324 | 200351 | 4-1/4 | - | 4-15/16 - 5-1/4 |
| 200325 | 200352 | 4-5/8 | - | 5-5/16 - 5-5/8 |
| 200326 | 200353 | 5 | - | 5-11/16 - 6 |

Reamer Blade Collars and Jam Collars

WHEN ORDERING BLADE AND JAM COLLARS, BE SURE TO SPECIFY:

- HOW MANY COLLARS ARE DESIRED
- COLLAR PART NUMBER (SEE TABLE)





Adjustable Reamers

by TOOLFAB

PROPER USE, ADJUSTMENT, SHARPENING & GRINDING INSTRUCTIONS

Proper Use

A reamer is primarily an end-cutting tool for finishing holes within close limits. It is designed to remove only a small amount of stock. Never use a reamer as stock-removing tool.

The hole should be prepared for reaming by previous drilling or boring operations that have removed all but a few thousandths of an inch of the stock.

The stock left in the hole for finish reaming should not exceed .012 inch on the diameter. When heavy feeds are used, removal of only .003 inch to .004 inch on the diameter is preferable.

Reaming is a sizing or scraping operation. Consequently, a reamer cuts slightly larger than its diameter in direct proportion to the amount of stock removed. Attempts to remove too much stock will result in over-sized or rough holes.

Reaming speeds should be kept relatively low. Low speed gives the chips a chance to curl away and permits the reamer to cut freely, instead of tearing the metal. Excessively high reaming speeds cause chatter. When necessary, to obtain high production rates, the feed can be stepped up more safely than the speed.

Most of the stock left for reaming is removed by the lead. The hole is sized by the full diameter at the cutting point. From this point back, and the blade is tapered for clearance.

Adjustment

Adjustment of McCrosky Adjustable Reamers is quick and simple. Just follow the six steps below:

1. Grip the reamer in a vise. Loosen the screws just enough to take the extreme locking tension off the blades (1/8-turn is sufficient). Tap the blades ahead with a hammer and soft punch.
2. With a spanner wrench, turn the blade collar so that it moves toward the blades (3/4-turn = .003" expansion on the diameter; one turn = .005"; 1-1/2 turn = .008").
3. With a spanner wrench, advance the locking collar until it bears firmly against the blade collar.
4. Tap the blades back against the blade collar with a soft hammer.
5. Loosen the screws a half-turn and then re-tighten them by tightening one screw after another only a slight amount at a time so as to distribute the locking pressure evenly. After the screws have been completely set, tighten the locking collar again and tap all blades lightly against the blade collar with a soft hammer. The adjusted reamer is now ready to be sharpened (see sharpening instructions below).
6. After sharpening the reamer to the correct diameter, grind off the ends of the blades until they extend only half the thickness of a blade beyond the reamer body.

Sharpening

Sharpening of a reamer consists of three distinct grinding operations: circular grinding, backing-off, and putting on

the lead. All sharpening should be done on precision grinding machines to keep the cutting edges concentric, thus ensuring that all the blades cut evenly. Tool Fab offers this service to you – see the **Tool Refurbishment Services** section of this catalog.

The reamer should be circular ground in a cylindrical grinder. This operation gives the blades a slight back taper for clearance in the hole.

Backing off and putting on the lead should be done on a cutter grinder. A cup or dish wheel should be used and the reamer should be mounted so that the wheel will turn against the cutting edge.

Grinding for general-purpose use

In most shops handling short runs on a variety of work, the reamer must be a general-purpose tool, sharpened with a simple grind so that the reamer can pass from job to job without regrinding.

This grind can be used when the nature of the work does not justify developing a special grind to suit a particular job. It is also suitable for rough reaming steel and tough bronze.

The back-taper diameter is less than the cutting diameter by .001" for each 1" of blade length. Blades are backed off close to an edge and the lead angle must also be relieved to permit the lead to cut freely. The diameter across the heel of the blades is .003" to .005" less than the cutting diameter.

The lead angle is 45°. This angle is suitable for removing varying amounts of stock, permits reaming close to a shoulder, and makes starting the reamer

Reaming speeds for various materials

TABLE A

Surface speed, surface feet per minute (SFM)

| MATERIAL TO BE REAMED | HIGH-SPEED STEEL | CARBIDE |
|-----------------------|------------------|---------|
| Aluminum | 750 | 1500 |
| Brass, soft | 125 | 475 |
| Bronze, hard | 100 | 325 |
| Bronze, very hard | 40 | 170 |
| Cast Iron, soft | 65 | 200 |
| Cast Iron, hard | 40 | 175 |
| Cast Iron, chilled | N/A | 150 |
| Malleable Iron | 85 | 310 |
| Steel, soft | 75 | 200 |
| Steel, medium | 65 | 165 |
| Steel, hard | 40 | 125 |

TABLE B

Constants for converting surface speed (SFM) to spindle speed (RPM)

| REAMER DIAMETER (inches) | CONSTANT | REAMER DIAMETER (inches) | CONSTANT |
|--------------------------|----------|--------------------------|----------|
| 3/4 | 5.08 | 4 | 0.95 |
| 7/8 | 4.38 | 4-1/4 | 0.89 |
| 1 | 3.82 | 4-1/2 | 0.84 |
| 1-1/8 | 3.40 | 4-3/4 | 0.80 |
| 1-1/4 | 3.06 | 5 | 0.76 |
| 1-1/2 | 2.54 | 5-1/4 | 0.72 |
| 1-3/4 | 2.18 | 5-1/2 | 0.69 |
| 2 | 1.91 | 5-3/4 | 0.66 |
| 2-1/4 | 1.70 | 6 | 0.63 |
| 2-1/2 | 1.53 | 6-1/4 | 0.61 |
| 2-3/4 | 1.39 | 6-1/2 | 0.58 |
| 3 | 1.27 | 6-3/4 | 0.56 |
| 3-1/4 | 1.17 | 7 | 0.54 |
| 3-1/2 | 1.09 | 7-1/4 | 0.52 |
| 3-3/4 | 1.02 | 7-1/2 | 0.50 |

HOW TO USE ABOVE TABLES

Problem: Determine the RPM for reaming a 2-inch hole in hard cast iron using a reamer fitted with carbide-tipped blades.

Solution: From Table A, hard cast iron using carbide-tipped blades, SFM=175. From Table B, a reamer 2 inches in diameter has a constant of 1.91.

Calculation: $175 \times 1.91 = 334$ RPM



in the hole easier. Length of the lead is 1/16", which is just enough to let the reamer start cutting easily.

Basic grind with two leads, with variations for different metals. When reamers have a slight second lead angle (behind the stock-removing 45° lead) they produce a smoother finish and can cut at heavier feeds than a reamer ground with a 45° lead only. The slight angle of the second lead causes the blade to cut a very thin chip at the point where the lead breaks into the full diameter of the reamer, eliminating tear marks and producing a smooth finish.

The grind has a second lead angle behind the main lead angle. Varying this angle makes the grind suitable for reaming various metals. An angle of 3° produces the proper cutting action for reaming cast iron, soft bronze, aluminum, and most of the nonferrous metals. An angle of 5° or more produces the proper cutting action for reaming steel, malleable iron or semi-steel, and prolongs tool life without seriously affecting the finish.

The 45° lead should not be longer than is necessary to allow the reamer to start easily in the hole. A length of 1/32" to 1/16" is usually sufficient.

The length of the second lead angle must also vary for different metals. For steel it should be kept short, approximately 1/16". This short length is necessary to prevent formation of a wide chip. For cast iron, soft bronze and aluminum, length can be increased to as much as 1/4". Both lead angles should be relieved to permit the reamer to cut freely.

The back-taper diameter should be .001" less than the cutting diameter depending on the size of the reamer and the kind of metal. Soft, stringy metals require maximum clearance on the heel.

The land helps guide and steady the reamer in the hole and aids in eliminating chatter. For cast iron and bronze, a land width from .005" to .015" is recommended; for steel and copper, .020" to .030". For aluminum, the blades should be backed off to an edge, with practically no land.

When a relatively wide land is used, the maximum back-taper should be used to definitely provide clearance in the hole. Any adhering of the chips to the land—producing a rough hole—indicates that the land is too wide and should be reduced.

Lipping blades for reaming soft, stringy metals

Lipping the blade to produce a chip rake improves the reaming of soft, stringy metals such as in steel tubing, steel forgings, copper, aluminum, and other non-ferrous alloys.

The rake may follow a straight line, but it should meet a radius at the bottom to curl the chip. The rake angle increases with the softness of the metal being reamed. For steel tubing and steel forgings the rake angle should be about 5°; for copper and aluminum workpieces, it can be as much as 10°. If the reamer "picks up" on the cutting edge or produces a torn surface or rough hole, the lip should be increased. Careful experimentation by the user will develop the degree of lip best suited to an individual job.



Wizard® Quick-Change

CHUCKS, COLLETS & TAP DRIVERS

by TOOLFAB

“...MULTIPLE TOOL JOBS ON MANUAL MACHINES BECOME CONTINUOUS PROCESSES WHICH INCREASE PRODUCTION AND CUT COSTS.”

McCrosky's Wizard quick-change chucks enable an operator to insert a new tool into a chuck, disengage that tool when desired, and insert the next tool, easily and quickly. Thus multiple-tool jobs on manual machines become continuous processes which increase production and cut costs.

Exclusive
shop-proven design

The chuck portion of a wizard quick-change assembly consists of the body and the spring-operated locking collar. Both are hardened and ground to ensure extreme accuracy and efficient service.

The bottom of the bore in the chuck body is beveled to correspond with the bevel on the end of the collet, and two slots are provided to

engage the driving lugs on the collet, permitting the driving force to be transmitted directly from the chuck to the collet.

The locking collar, which serves simply to lock the collet into the chuck and permit easy disengagement, is spring operated. It is knurled on the outside and has two inside latches.

When the operator pushes the Wizard collet with the new tool into the chuck, the driving lugs on the

collet press against the underside of these latches forcing the collar backward against the spring. As the collet passes completely into the chuck body, the spring closes the collar and locks the collet securely in the chuck.



Call ToolFab for more information regarding its line of **McCrosky Wizard® Quick-Change Chucks, Collets & Tap Drivers.**



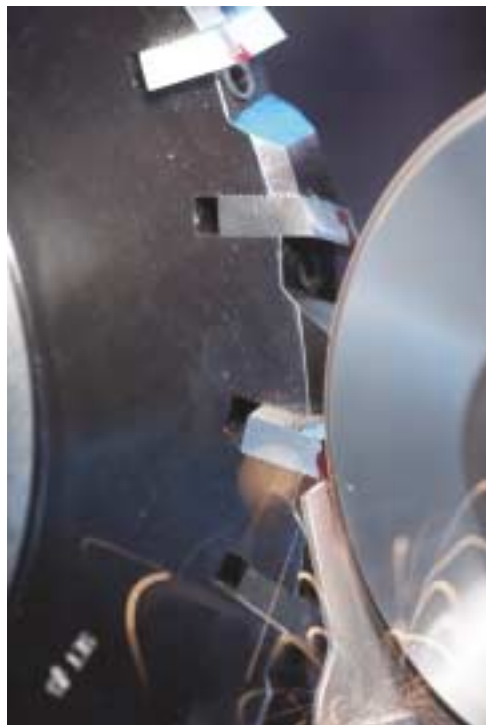
Tool Refurbishment Services

- RESHARPENING • REGRINDING • RE-TIPPING • TOOL REPAIR

Whether you purchase carbide-tipped specials, our standard Schmarje Thread Mills (TCT or Solid Carbide) or our McCrosky Adjustable Reamers, you can take comfort in knowing that Tool Fab offers the fastest, most competitive refurbishment programs in the industry.

Thread Mills

Schmarje Thread Mills are manufactured/CNC ground using a unique "cam-grind" process. Besides enhancing the performance of the tool when new, this process allows for quick and inexpensive resharpens/regrinds without sacrificing significant cutter diameter reductions. On TCT thread mills, we offer a re-tipping service on thread mills that are damaged too much to re-sharpen. This re-tipping service is fast, convenient and saves you money - what you get is a tool that performs as good as new - without the new tool price!

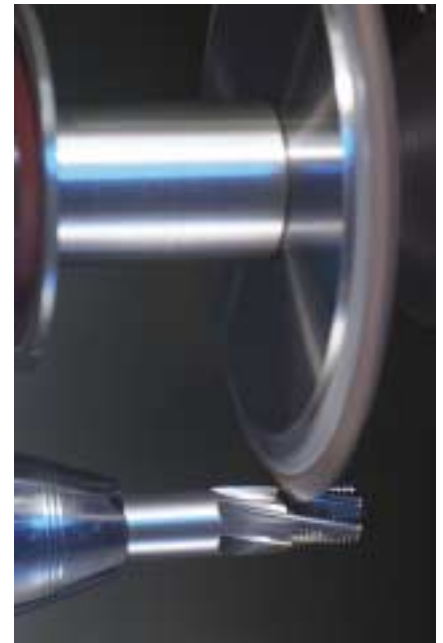


Adjustable Reamers & Serrated Milling Cutters

McCrosky Reamers and Milling Cutters are manufactured to your application's specifications. Once dull, return the tools to Tool Fab for re-blading and/or resharpening. We will completely check the tools' components and/or accessories (blades, pins, screws, wedges, collars, etc.) and replace only if necessary while regrinding the tools to your spec for maximum performance.

Specials (Re-tips & Re-grinds)

Since we know that Tool Fab's carbide-tipped specials are made from only the best, most stable tool steels, we offer re-tipping services on special tools that we've manufactured. Tool Fab offers resharpening services on its solid carbide and high-speed steel tools along with the re-grinding of high-performance drills. Call us today for a quote!



Indexable Tool Repair

Tool Fab will also repair any indexable tools (standards or specials) that we manufacture. Simply ship the tools you want repaired to Tool Fab with a request for quote. We take pride in refurbishing our tools to help you maximize the return on your investment in our product.

We can repair most indexable tools made by other tool manufacturers. Simply send us an RFQ and the tool and we'll take it from there!

ToolFab is all about saving you **time...**
and money!



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