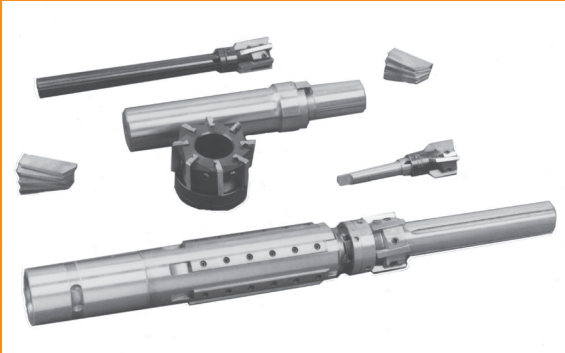




M-W
TOOL COMPANY



REAMERS

- Standard High Production Tools
- Special Tools - Medium to High Volume
- Replaceable Blades / Many Regrinds
- Arbors
- Engineering Assistance



RECESS TOOLS

- Recess / Groove / Backface
- Internal or External Forms
- Form-Relieved / Regrindable Cutters
- Indexable or Throwaway Insert Cutters
- Largest Specials Library in the Industry

INSERTED BLADE REAMERS AS STANDARD TOOLS

WHY A REAMER?

When close tolerances and dimensional accuracy of machined holes are a must, reamers are frequently the best tools for the job. Their advantage over other methods is speed. They simultaneously provide the exact geometrical size and bore finish necessary for the most demanding applications.

The new hole generated is more dimensionally accurate than that achieved with any other cutting tool. Bearings, pistons, or other parts that must fit within the hole can be inserted interchangeably... No other sizing is required.

Because the finish achieved in reamed holes is so smooth, fits of pressed or sliding parts can be made without additional machining.

WHY USE A WETMORE REAMER?

Since 1908, Wetmore has been designing and manufacturing the inserted blade style reamer. With its inherent advantages, Wetmore has further developed these tools to serve today's more demanding requirements for increased accuracy and improved tool life.

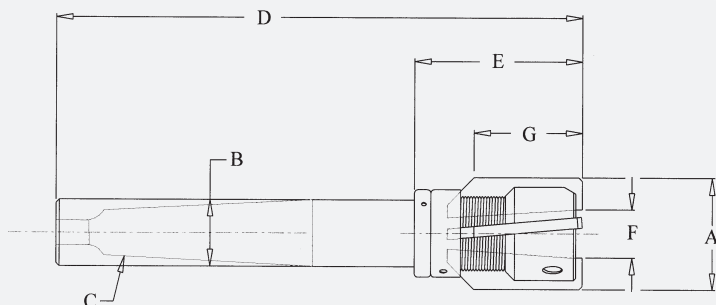
Using new materials, manufacturing techniques and geometries, the Wetmore Reamer is the industry leader in productivity and reliability.

We offer several styles from smaller sizes to heavy-duty reamers and, of course, we routinely furnish specials of all types.

WHY USE A TOOL WITH INSERTED BLADES?

- Lower Replacement Costs
Replacing only the blades saves money - cost savings increase dramatically as the hole diameter increases
- Advantageous Regrinding Costs
Maxwell-Wetmore has allowed for considerable expansion in each tool head to allow for regrinding the cutting blades
- Large Cutting Range
Each Wetmore model offers a wide cutting diameter range - greatly reducing the number of reamer bodies required for a given variety of jobs
- Interchangeable Blades
Use HSS, TCT, Nitride or TIN coated blades with the same reamer body
- Easily Adaptable to Special Designs
This design concept allows for more practical approaches to all types of specials

SERIES 11 CHUCKING REAMERS



TYPE OF REAMER	TYPE OF REAMER	CUTTING RANGE A	BLADES IN BODY & THICKNESS	OVER SIZE ADJUST.	DIA. OF SHANK B	NO. OF M.T.S. C	11S R11S D	11 R11 D	HEAD LENGTH E	DISTNCE. BETWEEN BLADES "11" F	DISTNCE. BETWEEN BLADES "R11" F	G	SIZE OF T.C.T.
11-B-6 11S-B-6	R11-B-6 R11S-B-6	1.000-1.156	6 .120	.120	11/16	No. 2	5 3/4	10 1/2	2 1/8	.544	.506	1 5/16	1/32 x 3/16 x 3/4
11-C-6 11S-C-6	R11-C-6 R11S-C-6	1.187-1.406	6 .135/.120	.120	3/4	No. 2	6	11	2 7/16	.641	.641	1 1/2	1/32 x 3/16 x 3/4
11-D-6 11S-D-6	R11-D-6 R11S-D-6	1.437-1.718	6 .200/.120	.140	15/16	No. 3	7 1/4	12	2 13/16	.832	.832	1 3/4	1/16 x 1/4 x 1
11-E-6 11S-E-6	R11-E-6 R11S-E-6	1.750-2.093	6 .200	.140	1 1/4	No. 4	8 1/2	14	3 1/8	.902	.772	2 1/16	1/16 x 1/4 x 1
11-F-6 11S-F-6	R11-F-6 R11S-F-6	2.125-2.531	6 .250/.200	.155	1 1/4	No. 4	8 5/8	15	3 1/4	1.180	1.180	2 3/16	1/16 x 1/4 x 1
11-G-6 11S-G-6	R11-G-6 R11S-G-6	2.562-3.000	6 .250/.200	.155	1 3/4	No. 5	10 1/2	16	3 13/16	1.518	1.518	2 1/2	1/16 x 1/4 x 1

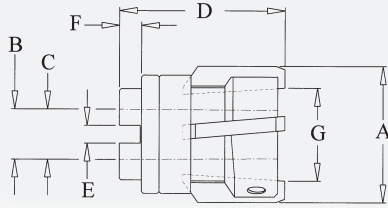
DIMENSIONS ARE IN INCHES



M-W TOOL COMPANY



SERIES 7 SHELL REAMERS



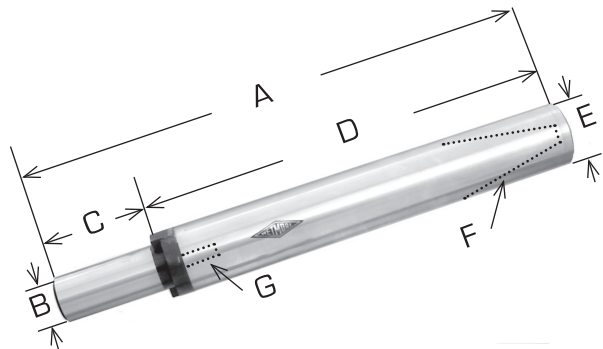
TYPE OF REAMER	TYPE OF REAMER	SIZE OF REAMER A	SIZE OF HOLE LARGE END B	LARGEST SIZE STRAIGHT HOLE C	LENGTH OVERALL D	WIDTH LENGHT KEYWAY E & F	DIST. BETWEEN BLADES G	DIST. BETWEEN BLADES G	ADJUSTM. OVER SIZE	ADJUSTM. OVER SIZE	BLADES PER REAMER & THICK- NESS	BLADES PER REAMER & THICK- NESS	DIMEN- SION OF CARBIDE TIP
7-B-6	R7-B-6	1.250-1.343	3/8	7/16	2 15/16	3/16	.832	.772	.120	.120	6-.120	6-.100	1/32 x 3/16 x 3/4
7-C-6	R7-C-6	1.375-1.593	1/2	9/16	2 15/16	1/4	.926	.834	.120	.120	6-.120	6-.100	1/32 x 3/16 x 3/4
7-D-6	R7-D-6	1.625-1.843	5/8	11/16	2 15/16	1/4	1.082	1.084	.120	.120	6-.120	6-.120	1/32 x 3/16 x 3/4
7-E-6	R7-E-6	1.875-2.093	3/4	13/16	2 15/16	5/16	1.207	1.209	.130	.130	6-.200	6-.120	1/16 x 1/4 x 1
7-F-6	R7-F-6	2.125-2.406	7/8	1	2 15/16	5/16	1.395	1.397	.130	.130	6-.200	6-.200	1/16 x 1/4 x 1
7-G-6	R7-G-6	2.437-2.718	1	1 1/8	3 1/16	3/8	1.520	1.522	.130	.130	6-.250	6-.200	1/16 x 1/4 x 1
7-H-6	R7-H-6	2.750-3.031	1 1/4	1 3/8	3 1/16	3/8	1.770	1.772	.130	.130	6-.250	6-.250	1/16 x 1/4 x 1
7-I-8	R7-I-8	3.062-3.531	1 3/8	1 9/16	3 1/16	3/8	1.956	1.958	.130	.130	8-.250	8-.250	1/16 x 1/4 x 1
7-J-8	R7-J-8	3.562-4.031	1 3/4	1 7/8	3 1/16	1/2	2.270	2.272	.130	.130	8-.250	8-.250	1/16 x 1/4 x 1
7-K-10	R7-K-10	4.062-4.531	2	2 1/8	3 1/16	1/2	2.784	2.785	.230	.230	10-.250	10-.250	1/16 x 1/4 x 1
7-L-10	R7-L-10	4.562-5.031	2 1/4	2 5/8	3 1/16	1/2	3.284	3.285	.230	.230	10-.250	10-.250	1/16 x 1/4 x 1
7-M-12	R7-M-12	5.062-5.531	2 1/2	3 1/8	3 1/16	5/8	3.784	3.785	.230	.230	12-.250	12-.250	1/16 x 1/4 x 1
7-N-12	R7-N-12	5.562-6.000	2 3/4	3 5/8	3 1/16	5/8	4.284	4.285	.230	.230	12-.250	12-.250	1/16 x 1/4 x 1

DIMENSIONS ARE IN INCHES

SERIES SP7 ARBORS

ARBOR NUMBER	TO FIT REAMER	A	B	C	D	E	F	G
SP-7-50	R-B-6 R7-B-6	9	.501	2 13/16	6 7/16	3/4	No. 2 No. 3	5/32
SP-7-51	7-C-6 R7-C-6	10	.501	2 13/16	7 3/16	1	No. 3 No. 4	7/32
SP-7-52	7-D-6 R7-D-6	11	.626	2 13/16	8 3/16	1	No. 3 No. 4	7/32
SP-7-53	7-E-6 R7-E-6	12	.751	2 13/16	9 3/16	1 1/4	No. 3 No. 4	9/32
SP-7-54	7-F-6 R7-F-6	13	.876	2 13/16	10 3/16	1 1/4	No. 3 No. 4	9/32
SP-7-55	7-G-6 R7-G-6	13	1.001	2 15/16	10 1/16	1 3/8	No. 3 No. 4	11/32
SP-7-56	7-H-6 R7-H-6	14	1.251	2 15/16	11 1/16	1 3/8	No. 4 No. 5	11/32
SP-7-57	7-I-6 R7-I-6	15	1.376	2 15/16	12 1/16	1 3/4	No. 4 No. 5	11/32
SP-7-58	7-J-8 R7-J-8	16	1.751	3 1/16	12 15/16	2 1/8	No. 5	15/32
SP-7-59	7-K-10 R7-K-10	16	2.001	3 1/16	12 15/16	2 1/4	No. 5	15/32
SP-7-60	7-L-10 R7-L-10	16	2.251	3 1/16	12 15/16	2 1/2	No. 5	15/32
SP-7-61	7-M-12 R7-M-12	16	2.501	3 1/16	13 13/16	2 3/4	No. 5	19/32
SP-7-62	7-N-12 R7-N-12	17	2.751	3 1/16	13 13/16	3	No. 5	19/32

DIMENSIONS ARE IN INCHES



M-W TOOL COMPANY



MAXWELL AUTOMATIC RECESSING TOOLS

WHY AN AUTOMATIC RECESSING TOOL?

Since the 1940's, Maxwell has designed and developed an un-matched range of actuated tooling, called Recess Tools to produce a wide variety of internal and external forms on any make of machine.

Shown below are typical examples of automatic recessing tools. In many cases our automatic recessing tool is found to be the quickest, most accurate, most versatile way, and many times the **ONLY** way, to accomplish the job.

An example of this is today's penchant for using an NC machine's circular interpolation program to produce an internal, circular form. Most times the use of our automatic recessing tool will be much faster, more concentric and provide superior cutting tool support.

WHY DIFFERENT STYLES?

Specific job requirements are so varied, and today's equipment options are so great, that we have developed several types of Recessing Tools.

Regardless of the job, we select the design based on how the toolholder is to be actuated.

- Through a fixture, using a drill or rotary bushing
- From the workpiece itself
- Using a flange or tool slide mount, and a draw bar or cylinder actuator

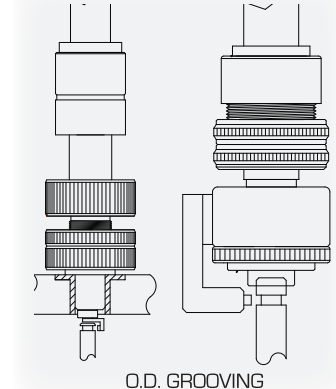
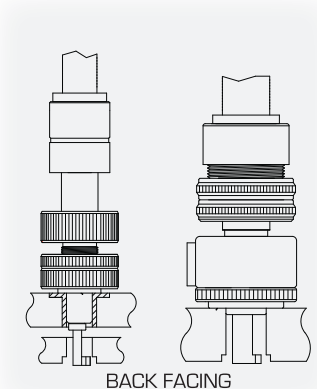
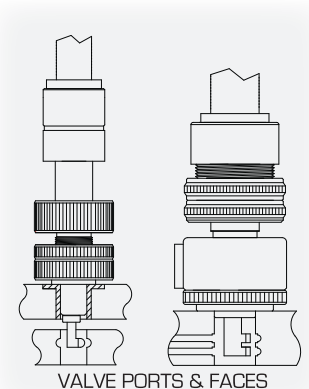
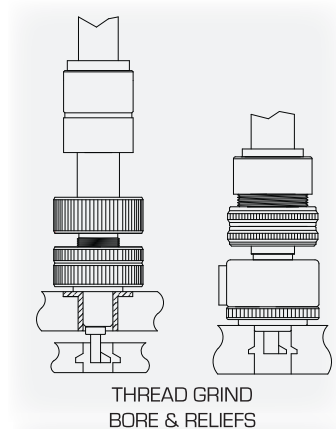
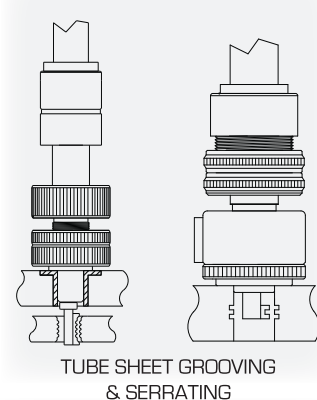
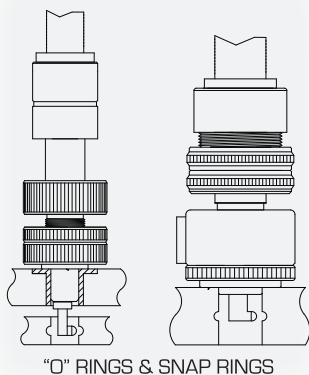
This will account for every type of machine currently in use and allow for the optimum positioning and actuation of the cutting tool.

WHY CHOOSE A MAXWELL AUTOMATIC RECESSING TOOL?

When choosing a recessing tool you should first determine if a standard tool can be used. Maxwell-Wetmore has designed a standard for almost every job. Our specials are often an extension of a standard so that the cost of our specials is very economical and because of this, the majority of spare parts will be standard, interchangeable parts.

You may standardize on Maxwell with confidence that you will be able to choose from the greatest range of tools along with:

- Our exclusive GEAR & RACK mechanism provides the most rugged, accurate and long lasting drive train in the industry.
- Maxwell offers the most travel or stroke [size for size] found anywhere.
- Interchangeable shanks to fit any machine.
- Over 55 years of experience on specials and our background, in and engineering library of, special applications is unmatched.



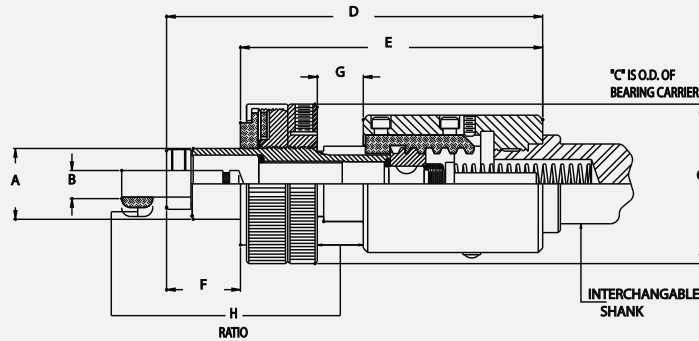
MODEL "JF" HOLDER AND TOOL

The "JF" holder is designed to be used in conjunction with standard or special jigs or fixtures, with either fixed or rotary bushings. They are easily set up and the changeover from one job to another usually requires only a new form cutter. The high ratio of axial motion provides a fine finish with close tolerances.

The model "JF" Recess Tool is ideal for dedicated, transfer line, rotary or index types of set-ups, where fixturing is most commonly used. However, these tools can be used to pilot directly in the workpiece. They are ideal for deep hole grooving, backfacing and back chamfering operations.

The toolholder nose (see drawing below) pilots into the drill bushing and stops on the head of the bushing. The Stop Bearing permits free rotation of the tool and prevents scoring or wear.

For hand feed operations, the diameter of the groove is controlled by the adjusting collars on the toolholder. For automatic feed operations, machine stops may be utilized. Groove location is governed by the adjustable stop bearing.

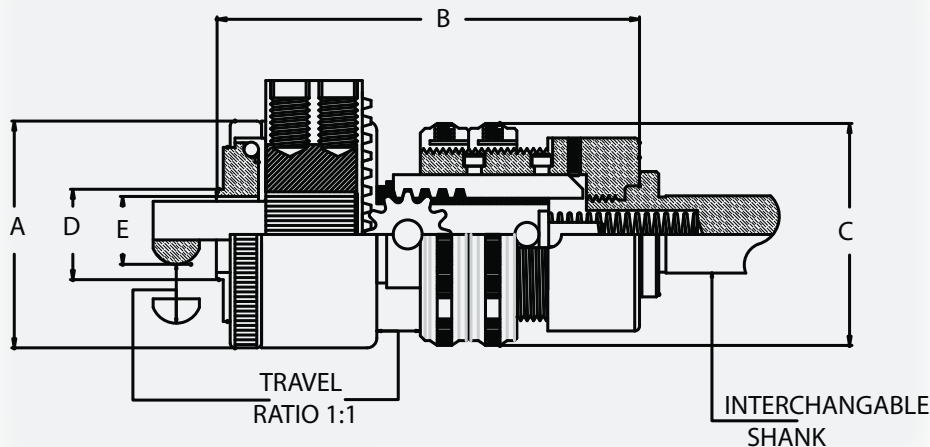


DIMENSIONS

TOOL MODEL	A	B	C	D	E	F	G MIN.	H MAX	RATIO	WT.
O JF	1	3/8	2 1/4	6 1/2	5 1/16	1 7/16	3/4	.083	8.885	3
1 JF	1 1/4	1/2	2 1/2	6 53/64	4 61/64	1 7/8	57/64	.125	7.089	4
1 1/2 JF	1 1/2	5/8	2 3/4	8 5/16	6 3/16	2 1/8	1 1/8	.166	6.666	6
2 JF	1 3/4	3/4	3 1/4	8 5/8	6 3/8	2 1/4	1 11/32	.166	7.996	8
2 1/4 JF	2 1/4	1	3 5/8	11 13/16	8 15/16	2 7/8	1 5/8	.250	6.516	15

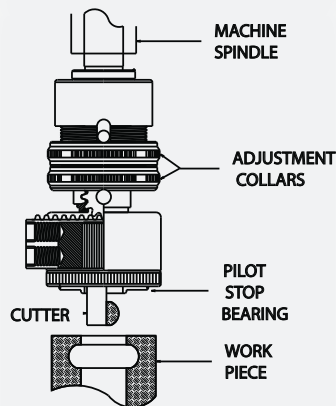
DIMENSIONS ARE IN INCHES - WEIGHTS ARE IN POUNDS

MODEL "R" HOLDER AND TOOL



The Model "R" holder is probably the most versatile and extensively used recess toolholder on the market. It is used for such a great variety of work because it has the greatest range and the longest travel of any available holder. These features, along with its simplicity of design, contribute to fast set-up and low cost operation.

The Model "R" recess tool pilots directly into and stops on the workpiece by means of a ballbearing pilot and is usable on most any machine from small manual machines to fully automatic equipment. It is particularly adaptable to program-controlled and full NC machines - whether in a dedicated transfer line, part of a Flexible Machining System (FMS), or a stand alone machine tool.



DIMENSIONS

TOOL MODEL	A	B MIN	B MAX	C	D MAX	E	WT.	RANGE	THROW
1 R	2 1/4	4 3/4	5 3/16	2 3/8	1	1/2	3	3/8 - 1	7/16
2 R	3 1/4	4 3/4	5 5/16	2 7/8	2	3/4	4	1 - 2	7/16
3 R	4 1/4	5 23/32	6 15/32	3 9/16	3	1	11	2 - 3	3/4
4 R	5 5/16	5 23/32	6 15/32	3 9/16	4	1 1/4	15	3 - 4	3/4

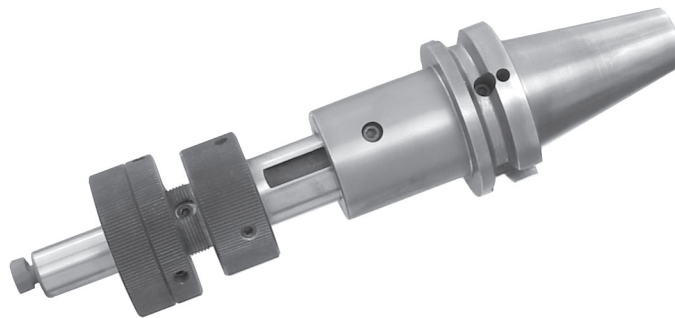
DIMENSIONS ARE IN INCHES - WEIGHTS ARE IN POUNDS

MAXWELL AUTOMATIC BACKFACE TOOL - SERIES 180

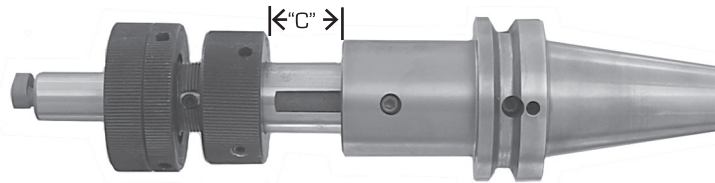
- **BACK FACING**
- **BACK SPOTFACING**

- **BACK COUNTERBORES**
- **BACK CHAMFERING**

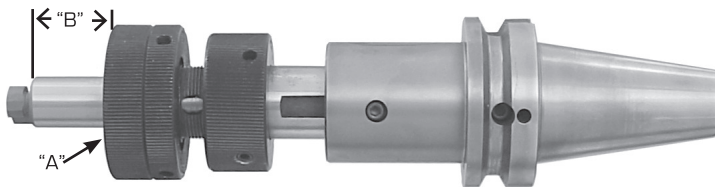
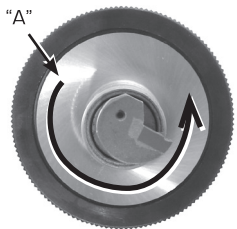
- Generate the backface instead of a plunge cut
- Tools pilot in the bore to ensure perpendicularity/concentric backface
- Designed close to the cut for maximum support
- Less cycle time / improved surface finish / longer tool life



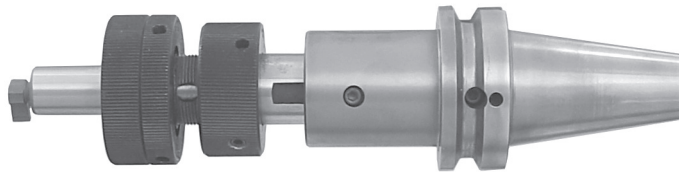
HOW THE BACKFACE TOOL WORKS



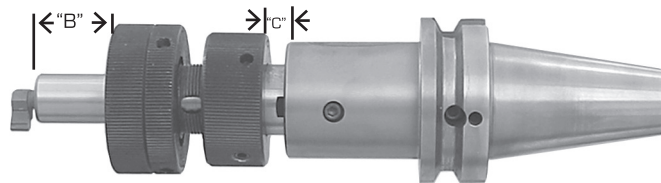
With the spindle rotating, the backfacing tool is inserted into the bore - at this time the cutting tool is retracted and will fit down the bore.



When the required tool depth "B" is reached, the stop bearing "A" on the tool contacts the work surface. As the spindle (and tool) rotate, the shank continues to feed forward.



This action forces the cutting tool to rotate out, exceeding the bore diameter, and cutting to begin. Feeding forward continues until the desired backface diameter is reached.



Adjusting the stop bearing/tool depth "B" allows the cut location to vary. Adjusting the shank/actuation assembly movement "C" allows the cut depth to vary as well. The depth and diameter can vary almost infinitely.

Production operation is exceedingly simple - After inserting the toolholder start the spindle rotation. then:

- 1) Feed the entire unit into the work at a rapid approach rate.
- 2) Reduce the spindle speed to the recommended feed for cutting and with the spindle still rotating, feed the spindle forward until the desired backface diameter is reached.
- 3) Retract the spindle (with the spindle still rotating) at either a high speed facing rate or a full rapid return rate.

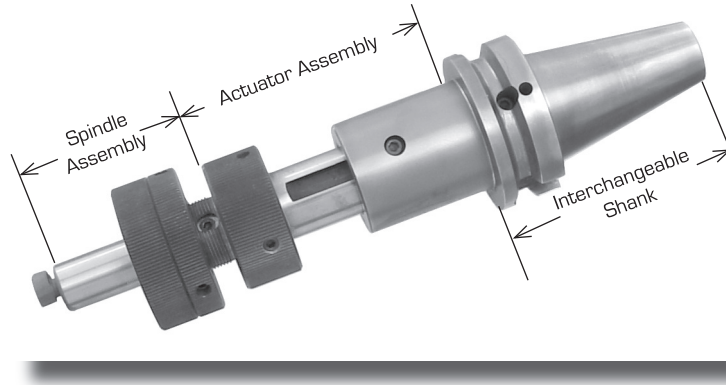
This tool requires only three distinct motions - rapid approach - cutting feed - and rapid retract . At no time do you have to stop or reverse the spindle.



M-W TOOL COMPANY



SERIES 180 MAXWELL AUTOMATIC BACKFACE TOOL



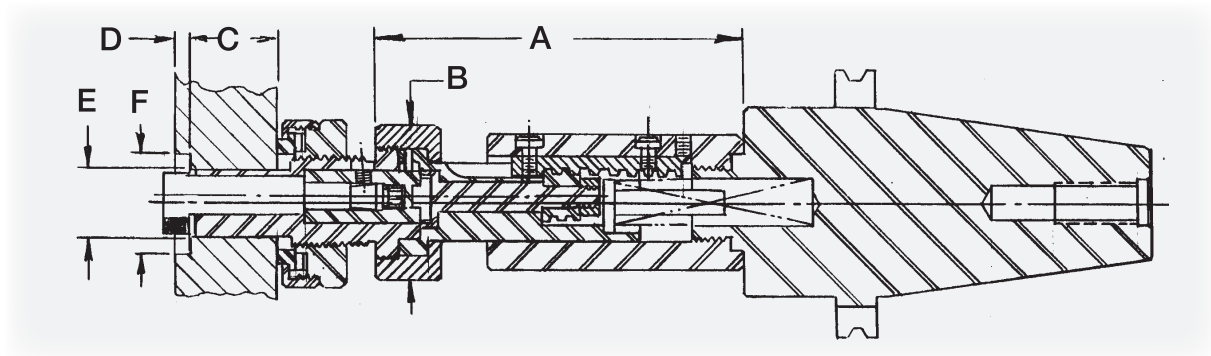
SERIES 180 SHANK OPTIONS

The Shank configuration depends on the machine (or machines) to be used. Series 180 Actuation Assemblies are available with either a removable, interchangeable or fixed shank.

CHOOSING THE CORRECT SPINDLE ASSEMBLY

To match a 180 Series Tool package to your job (or jobs) match the Actuator Assembly from the chart below based on the bore diameter of each application.

As shown in the drawing below, the C, D, E & F dimensions are determined by each application - The ultimate backface cut "F" cannot exceed twice the "E" dimension. The "C" dimension (either bore depth or backface depth) has no practical limit.



TOOL	APPROXIMATE RANGE / BORE DIAMETER	A	B	C	D	E	F
187	1/4 - 3/4	5 9/16	1 3/4	TO SUIT	TO SUIT	TO SUIT	TO SUIT
188	3/4 - 1 3/4	7 3/16	2 3/4	TO SUIT	TO SUIT	TO SUIT	TO SUIT
189	1 3/4 - 5	11 3/4	3 3/8	TO SUIT	TO SUIT	TO SUIT	TO SUIT

DIMENSIONS ARE IN INCHES



M-W
TOOL COMPANY

**Designers
and
Manufacturers
of
Quality Tooling
Since 1936**

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- Dependable Performance
- An "Old" Name in Cutting Tools
With the "Newest" Designs
- Largest "Specials" Library in the Industry

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