For back-spotfacing and back- or front-chamfering operations — from one side, in one set-up.

Available from stock for inch hole sizes from .281 to 1.344, and metric hole sizes from 7.00 to 34.00mm.
Cutter flips open to machine back spotface or back chamfer; flips back to closed position for tool withdrawal. Can also be used for cutting front chamfers. No refixturing or repositioning of workpiece required.

- Right-hand rotation opens cutter; left-hand rotation (spindle reversal) closes cutter.
- Unique tool design: over-center cam action initiates positive mechanical closure of the cutter, aided by centrifugal force, for superior tool performance.
- Brazed carbide cutter construction. Cutter is rigidly supported for enhanced accuracy and long tool life.
- Both cutter and arbor are designed for rugged use and long life.
- Shear angle on cutter directs chips away from arbor pocket for controlled chip evacuation.
- Standard tools in the inch program are available in .031 inch increments, with nominal sizes from .281 to 1.344 inches. Standard tools in the metric program are available in 0.5mm increments for hole sizes from 7.00 to 10.00mm, and in 1mm increments in hole sizes from 10.00 to 34.00mm.
- Standard cutter options include a cutter designed for back-spotfacing and front-chamfering operations, and a cutter for back- and front-chamfering operations. Standard program is easily modified to suit other applications.
The Flipcut™ tool is designed to perform back-spotfacing or back-chamfering operations in one set-up. The cutter extends, with right-hand rotation of the tool, to cut the back spotface or back chamfer. Left-hand spindle rotation initiates positive mechanical closure of the cutter; the closing action is assisted by centrifugal force. When the cutter is fully enclosed within the arbor pocket, the tool can be easily withdrawn from the bore.

The Flipcut™ tool is designed for rugged use on all types of plant equipment and in all kinds of manufacturing environments. Tools for hole sizes from .312 inch and above (inch program) and tools for hole sizes from 8.00mm and above (metric program) have internal coolant capability.

Flipcut™ cutters are a brazed carbide design. Steel body absorbs shock. The brazed carbide Flipcut™ cutting edge dissipates heat, for outstanding cutting performance.

Two standard cutters are available from stock:

- Cutter designed for back-spotfacing and front-chamfering operations.
- Cutter designed for back- and front-chamfering operations.

Other cutter designs are available upon request to suit other applications; contact our sales department and request a quotation.
Specifications

**Flipcut™**

**Specifications**

* **Inch Holes:**
  - 0.3750 / 0.3745
* **Metric Holes:**
  - 10.000 / 9.991

**SHANK DIAMETER**

- **Coolant 45° Cutter**
- **Weldon Shank**

**Maximum Chamfer Diameter (B)**

- 2.00
- 5.00 [127.00]

**Minimum Spotface Diameter (A)**

- 0.710 [18.03]
- 0.541
- 13.36

**Maximum Spotface Diameter (C)**

- 0.568
- 0.684
- 14.43

**Spotface Diameter**

- 0.683
- 17.20
- 8.05

**HOLE DIAMETER**

<table>
<thead>
<tr>
<th>ARBOR DIA “A”</th>
<th>MAXIMUM SPOTFACE DIAMETER</th>
<th>MINIMUM SPOTFACE DIAMETER</th>
<th>45° CHAMFER CUTTER</th>
<th>MAXIMUM CHAMFER DIAMETER</th>
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**Ordering examples**

**90° BACK SPOTFACING**

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<th>F C</th>
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<th>* * *</th>
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**SPECIFY HOLE DIAMETER** [CHART SIZES ONLY] See Note 2

- **SPECIFY SPOTFACE DIAMETER** [CHART SIZES BETWEEN MAX & MIN ONLY] See Note 2

*IE: INCH 0.281 = 0281
*IE: METRIC 7.00mm = 070M

**45° CHAMFERING**

<table>
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<tr>
<th>F C</th>
<th>* * * *</th>
<th>4 5</th>
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</table>

**SPECIFY HOLE DIAMETER AS ABOVE** [CHART SIZES ONLY] See Note 2

**SPECIFY CHAMFER CUTTER SIZE** [CHART SIZE ONLY] See Note 2

*IE: FW2-45 = 2

**Note 1**

- Maximum front chamfer diameter is dimensionally the same as 45° cutter.

**Note 2**

- For all other sizes please contact Cogsdill Tool Products.

For operating guidelines see pages 9-10.

For hardware see page 8.

*Tools for hole diameters from 0.281 to 0.295 in. and from 7.0 to 7.5mm do not have through-coolant capability.*
**45º Cutter**

**90º Cutter**

- **SHANK DIAMETER**
  - Inch Holes: 0.5000 / 0.4995
  - Metric Holes: 12.000 / 11.990

- **COOLANT**
  - Weldon Shank

**Series 3**

- Diameter
- Spotface Diameter
- Minimum Diameter
- Maximum Diameter

**Series 4**

- Diameter
- Spotface Diameter
- Minimum Diameter
- Maximum Diameter

**Ordering examples**

- **90º BACK SPOTFACING**
  - Specify hole diameter as above
  - Incremental specifications

- **45º CHAMFERING**
  - Specify hole diameter as above
  - Specify chamfer cutter size
### Specifications

**Flipcut™**

**SHANK DIAMETER**
- Inch Holes: 0.6250 / 0.6245
- Metric Holes: 16.00 / 15.99

**COOLANT**
- Weldon Shank

**HOLE DIAMETER**

#### Inch program
<table>
<thead>
<tr>
<th>HOLE DIAMETER</th>
<th>ARBOR DIA &quot;A&quot;</th>
<th>MAXIMUM SPOTFACE DIAMETER</th>
<th>MINIMUM SPOTFACE DIAMETER</th>
<th>45º CUTTER</th>
<th>MAXIMUM CHAMFER DIAMETER</th>
<th>FRONT CHAMFER &quot;B&quot; REF</th>
<th>REAR CHAMFER &quot;C&quot; REF</th>
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<tr>
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<td>0.589</td>
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<td>FW5-45</td>
<td>1.112</td>
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#### Metric program
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<th>MINIMUM SPOTFACE DIAMETER</th>
<th>FW5-45</th>
<th>MAXIMUM CHAMFER DIAMETER</th>
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#### Ordering examples

**90° BACK SPOTFACING**
- **F C**
- SPECIFY HOLE DIAMETER  
  [CHART SIZES ONLY] See Note 2
  - IE: INCH 0.594 = 0594
  - IE: METRIC 15.00mm = 150M
- SPECIFY SPOTFACE DIAMETER  
  [CHART SIZES BETWEEN MAX & MIN ONLY] See Note 2
  - IE: INCH 1.205 = 1205
  - IE: METRIC 30.00mm = 3000

**45° CHAMFERING**
- **F C**
- SPECIFY HOLE DIAMETER AS ABOVE  
  [CHART SIZES ONLY] See Note 2
  - IE: FW5-45 = 5
- SPECIFY CHAMFER CUTTER SIZE  
  [CHART SIZE ONLY] See Note 2

**Note 1**
- Maximum front chamfer diameter is dimensionally the same as 45º cutter.

**Note 2**
- For all other sizes please contact Cogsdill Tool Products.
  - For operating guidelines see pages 9-10.
  - For hardware see page 8.
### Metric Holes...

**Weldon Shank**

<table>
<thead>
<tr>
<th>SHANK DIAMETER</th>
<th>Inch Holes: 0.7000 / 0.7495</th>
<th>Metric Holes: 20.000 / 19.987</th>
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<td>8.00</td>
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### Inch Holes...

**SHANK DIAMETER**

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<th>Diameter</th>
<th>Minimum Spotface Diameter</th>
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**Metric Holes...**

**SHANK DIAMETER**

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### Coolant

- **Coolant**
- **Weldon Shank**

### Ordering examples

**90° BACK SPOTFACING**

**F C**

**SPECIFY HOLE DIAMETER**

[CHART SIZES ONLY] See Note 2

IE: INCH 0.719 = 0719
IE: METRIC 18.00mm = 180M

**SPECIFY SPOTFACE DIAMETER**

[CHART SIZES BETWEEN MAX & MIN ONLY] See Note 2

IE: INCH 1.505 = 1505
IE: METRIC 37.44mm = 3744

**45° CHAMFERING**

**F C**

**SPECIFY HOLE DIAMETER AS ABOVE**

[CHART SIZES ONLY] See Note 2

IE: FW6-45 = 6

**SPECIFY CHAMFER CUTTER SIZE**

[CHART SIZE ONLY] See Note 2

Note 1: Maximum front chamfer diameter is dimensionally the same as 45° cutter.

Note 2: For all other sizes please contact Cogsdill Tool Products.

For operating guidelines see pages 9-10.

For hardware see page 8.
Specifications

<table>
<thead>
<tr>
<th>HOLE DIAMETER</th>
<th>ARBOR DIA &quot;A&quot;</th>
<th>MAXIMUM SPOTFACE DIAMETER</th>
<th>MINIMUM SPOTFACE DIAMETER</th>
<th>45° CHAMFER CUTTER</th>
<th>MAXIMUM CHAMFER DIAMETER</th>
<th>FRONT CHAMFER &quot;B&quot; REF</th>
<th>REAR CHAMFER &quot;C&quot; REF</th>
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</tbody>
</table>

**Ordering examples**

**90° BACK SPOTFACING**

- **SPECIFY HOLE DIAMETER**
  - **[CHART SIZES ONLY]** See Note 2
  - **IE:** INCH \(1.000\) = \(1000\)
  - **IE:** METRIC \(26.00\)mm = \(260M\)

**45° CHAMFERING**

- **SPECIFY CHAMFER CUTTER SIZE**
  - **[CHART SIZE ONLY]** See Note 2
  - **IE:** FW7-45

**Note 1** Maximum front chamfer diameter is dimensionally the same as 45° cutter.

**Note 2** For all other sizes please contact Cogsdill Tool Products.

For operating guidelines see pages 9-10.

For hardware see page 8.
### Flipcut™ Hardware

<table>
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<tr>
<th>HOLE SIZE IN (mm)</th>
<th>RETAINING SCREW</th>
<th>LOCKING SCREW*</th>
<th>PAD</th>
<th>SPACER</th>
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<tbody>
<tr>
<td>0.281 - 0.344</td>
<td>FRS-2</td>
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</tr>
<tr>
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*Standard metric flat point socket set screw

### Operation

#### How it works

**NOTE:** The tool operation sequence shown depicts the tool with a standard cutter machining a **back spotface** and a **front chamfer** in one set-up. Tool operation is similar when using a standard cutter to machine **back and front chamfers**.

1. The front chamfer is machined upon entry into the bore, using right hand rotation (clockwise) of the machine spindle at the appropriate speed (refer to chart on page 10), and .002 IPR (0.05mm/rev).

2. Left hand rotation (counterclockwise) at a maximum of .008 IPR (0.20mm/rev) will effect mechanical closure of the cutter (aided by centrifugal force) so that the tool can feed through the bore.

3. The back spotface is machined, using right hand rotation (clockwise) at the appropriate speed (refer to chart on page 10), and .002 IPR (0.05 mm/rev).

4. Left hand rotation (counterclockwise) at a maximum of .008 IPR (0.20mm/rev) will close the cutter so that the tool can be retracted from the bore.

**NOTE:** Coolant should be shut off when retracting cutter to ensure cutter closure.
## Operating guidelines

- Always ensure that the cutter rotates freely in the arbor and that no end float can be detected. This can be accomplished by adjusting the retaining screw (see photo below) until the cutter binds, then backing off approximately 5 degrees. Using the locking screw, lock the retaining screw at this position.

- Ensure that the spindle speed is sufficient to allow the cutter to open.

- After the cut has been completed, and the tool withdrawn from the hole, make sure that enough coolant is supplied to the end of the tool to flush away any remaining chips that might prevent the tool from opening and closing freely in subsequent operations.

- NEVER run the tool without coolant.

- The tool cannot be used in a lathe with a static turret, since it must be rotated in order for the cutter to extend and retract. The tool may only be used in a live spindle in lathe applications.

- After completing the cut, always feed the tool off the part before stopping the spindle and reversing for withdrawal.

  NOTE: In some cases, the cutter may not close fully into the arbor when the spindle is reversed. This should be considered as normal; the cutter will close fully as it passes back through the bore on the return stroke. The retraction feed should be the same as the machining feed until the cutter is fully closed and sheltered by the arbor; then rapid feed may be introduced.

  **NOTE:** Coolant should be shut off when retracting cutter to ensure cutter closure.

To ensure that the cutter rotates freely in the arbor, with no end float, adjust the retaining screw until the cutter binds, then back off approximately 5 degrees. Use the locking screw to lock the retaining screw at this position.
Coolant flow is necessary and should be directed to the arbor pocket and cutting edge to lubricate and flush chips away. Straight cutting oil, water soluble, or synthetic coolant can be used. The coolant should be clean and have good lubricity.

**NOTE:** Coolant should be shut off when retracting cutter to ensure cutter closure.

### Cycle

The tool must be able to rotate in both clockwise and counterclockwise directions. The tool should run in counterclockwise rotation at the recommended speed and should feed in and out of the bore at .008 IPR (0.20 mm/rev) maximum.

The cutter should be clear of the part when changing the direction of rotation.

### Maintenance

The Flipcut™ tool should be inspected periodically for cutter axial movement, and the retaining screw adjusted accordingly. The tool should also be inspected periodically for wear, and the cutter changed or sharpened when necessary. The retaining screw should be inspected closely for wear or damage and replaced if necessary.
Cutters installation and setting

When the cutter is worn, loosen the locking screw (refer to the drawing below). Remove both locking screw and pad. Loosen the retaining screw and remove the worn cutter. The cutter may be reground (see page 12, “Cutter Regrinding”) or replaced.

Clean all components thoroughly and apply light lubricating oil to each part for assembly.

Referring to diagram below...

1. Place and hold (2) spacers at the front and rear barrel diameter of the cutter while assembling into the slot on the arbor.

2. With cutter and spacers in place, insert retaining screw through the threaded hole in the end of the arbor and then through the first spacer, the hole through the cutter, the second spacer, and into the hole at the furthest end of the arbor slot.

3. When all components are aligned and positioned correctly thread the retaining screw into the threaded hole in the end of the arbor until it makes contact with the spacer and the cutter goes tight. The cutter should NOT pivot freely at this point.

4. Assemble the pad and locking screw into the threaded hole in the front outside diameter of the arbor.

5. Tighten the locking screw lightly.

6. Unscrew the retaining screw very slightly until the cutter freely hinges between the fully open and fully closed positions.

7. Check that the axial movement in the cutter is at the minimum but still allowing free hinging movement of the cutter. Measured axial gap should be 0.005 to 0.010 inches, (0.013 to 0.025mm).

8. When satisfied that the cutter assembly is correct, tighten the locking screw.
Cutter regrinding

Regrind procedure for standard cutter for machining back spotface and front chamfer

Inch [Metric]

Regrind procedure for standard cutter for machining back and front chamfers

Inch [Metric]
To order a Flipcut™ tool, determine your tool number as shown under each tool specification chart (pages 3-7). The tools shown in the charts are standard, and available on a quick delivery basis.

Tools other than shown in the specification charts are special (e.g., intermediate sizes, longer or shorter work lengths, or special cutter geometries). Please contact Cogsdill Tool Products and request a quotation.
Deburring
TOOLS

Burnishing
TOOLS & MACHINES

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& BACK-CHAMFERING TOOLS

Shefcut Precision Reamers
& PRECISION BORING TOOLS

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