

**SHERLINE**  
**PRODUCTS**  
INCORPORATED 1974

## End Mill Holders

P/N 3075, 3079, 6079, 6080, 6081, 6082, 6083, 6086 (Inch)

P/N 3076, 3077, 3078 (Metric)

## Milling Collets

Collet Sets P/N 3060 (Inch)

P/N 3090 (Metric)

### End Mill Holders for the Sherline Mill

Most of the work accomplished on the Sherline milling machine can be accomplished with one of the miniature series cutters. These cutters have standard shank diameters of 3/16" (4.8 mm) or 1/4" (6.4 mm) and are normally held using Sherline's Milling Collets, P/N 3060. (See page 2.) However, there may be times when you will want to use a standard end mill with a 3/8" (9.5 mm) diameter shank. These cutters are more readily available than the miniature series of cutters and are actually less expensive in many cases. Also, special purpose cutters such as those designed for cutting key slots, dovetails and corner radii usually have 3/8" diameter shanks. The Sherline 3/8" end mill holder will increase the versatility of your milling machine by enabling you to hold these popular cutters. (CAUTION! Always consider the power and size limitations of your equipment when using larger size cutters. You may want to reduce cutter speed.)

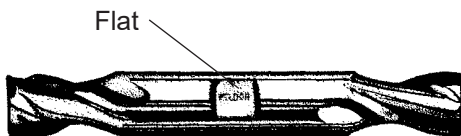


FIGURE 1—The flat area on a commercial double-ended end mill is for the set screw on the end mill holder to tighten against.

**NOTE:** All end mills have a downward pulling force when they are cutting material. Because of this, we recommend that you just snug down the set screw and then pull down on the end mill. This forces the tapered side of the Weldon flat up against the side of the set screw. Then tighten the set screw all the way. This method works well in preventing your end mills from creeping.

In addition to the 3/8" holder, this same type of end mill holder is now also available to hold 5/16" (P/N 3075), 1/4" (P/N 6079), 3/16" (P/N 6080), 1/8" (P/N 6081), 5/32" (P/N 6082), 1/2" x 1.2" (P/N 6083), and 1/2" x 2" (P/N 6086) end mills. The advantage of this type of holder is that it allows you to use smaller size double ended mills or tools with longer shanks which could not be held in a milling collet. An end mill holder is a better choice compared to a collet for holding end mills because:

1. An end mill can spin in a collet during heavy cuts while the set screw against a flat on the end mill prevents this with an end mill holder.

2. The end mill is supported over a longer distance in an end mill holder than in a collet. We actually decided to produce this type of holder in the smaller sizes after many requests from Sherline users who simply prefer its ease of use even when using regular miniature end mills.

The 6081 1/8" end mill holder uses two 4-40 set screws that take a 5/64" hex key (included). All the larger end mill holders take a single 10-32 set screw. It uses a 3/32" hex key, which is not included but comes with each lathe and mill, as it is the same hex key used to tighten the handwheel set screws.

For those who use metric size cutting tools, the 10.0 mm (P/N 3078) is the most common size, but we also offer 6.0 mm (P/N 3076) and 8.0 mm (P/N 3077) sizes.

One of our Sherline machinists also pointed out that these holders make an excellent "quick-change" tool system for milling. Keep your favorite cutters chucked up in their own holders and simply swap holders to change tools. Since they just screw onto the spindle thread, changeover is a quick operation.

**NOTE:** The thread "pitch diameter" on both the end mill holder and the headstock spindle are held to a tolerance that is almost an interference fit. We do this to keep the runout as low as possible. Some of the end mill holders may fit tight when you first use them. We highly recommend that you wipe a drop of light oil onto the threads of the end mill holder before you thread them onto the spindle.

### Using an Edge Finder with an End Mill Holder

We design our end mill holders specifically to hold end mills. The bore on each end mill holder is .0002"-.0003" oversize to allow for a clearance fit that will still maintain the best possible run out.

The edge finder that you purchase may not fit in our end mill holder due to several reasons.

1. It is not ground to the correct size.
2. It is not ground round.
3. It has a sharp edge which is digging into the end mill holder (see Figure 2).

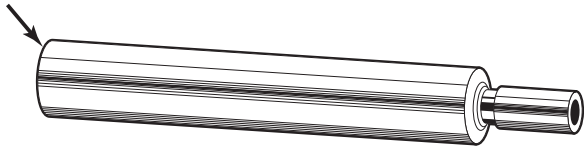


FIGURE 2—The arrow in the diagram above shows where the sharp edge is on the edge finder that may need to be buffed, sanded, or filed, so it doesn't dig into the end mill holder.

The only way to compensate for #'s 1 and 2 is to bore the end mill holder to a larger diameter. This will result in excessive run out when you use the holder for your end mills. We don't make oversized end mill holders. You can use a piece of emery paper to deburr the shaft of the edge finder, so it doesn't dig into the end mill holder. In other words, you are creating a beveled surface so the edge finder can slide easily into the holder.

### Maintenance

When the end mill holder is not in use, make sure it is treated with a light surface coat of oil to prevent rust. If

the end mill holder does rust, it can be cleaned using a ScotchBrite® or similar abrasive pad. Store wrapped in the original waxed paper if possible.

### End Mill Holders are Available in the Following Sizes:

P/N 3075	5/16" End Mill Holder
P/N 3076	6.0 mm End Mill Holder
P/N 3077	8.0 mm End Mill Holder
P/N 3078	10.0 mm End Mill Holder
P/N 3079	3/8" End Mill Holder
P/N 6079	1/4" End Mill Holder
P/N 6080	3/16" End Mill Holder
P/N 6081	1/8" End Mill Holder
P/N 6082	5/32" End Mill Holder
P/N 6083	1/2" x 1.2" End Mill Holder*
P/N 6086	1/2" x 2" End Mill Holder*

\*Please note that when using the 1/2" x 1.2" end mill holder (6083) or the 1/2" x 2" end mill holder (6086), be aware of the length of the shaft of your cutter. The hole through the spindle is .405" so a long end mill would not be able to go through the spindle.

## Milling Collets

The milling collets (P/N 3060) used with the Sherline vertical mill or vertical milling column are designed to be used with the Morse #1 taper common to all headstock spindles manufactured by Sherline. The collets are held into the spindle with a drawbolt. The set includes 3 collets and a drawbolt with collar.

These collets have a shallow angle that gives them high clamping pressure making them ideal for holding cutters. The shallow angle makes the collet "stick" after the collet drawbolt is loosened. Back the bolt off a few turns (do not disengage completely) and lightly tap the head of the bolt with a hammer or mallet until the collet can be easily removed.

### End Mill Holders

Because the hole through the spindle is only a little over 3/8" (10mm), a collet that would accept a 3/8" shank end mill is impossible to make. End mills with 3/8" shank are

very common and in many cases cost less than the miniature series. They are available in many sizes and shapes. To take advantage of this fact, Sherline offers the 3/8" end mill holder (P/N 3079). (See page 1.)

### Milling Collets are Available in the Following Sizes:

P/N 3087	3/32" Mill Collet
P/N 3089	5/32" Mill Collet
P/N 3091	7/32" Mill Collet
P/N 3092	3.0mm Mill Collet*
P/N 3093	4.0mm Mill Collet*
P/N 3094	6.0mm Mill Collet*
P/N 3095	1/8" Mill Collet**
P/N 3096	3/16" Mill Collet**
P/N 3097	1/4" Mill Collet**

\*Included with set P/N 3090

\*\*Included with set P/N 3060

## Removing Rust Preventive Coatings

### Removing Factory Applied Rust Preventives

To prevent rust between manufacturing and the time you receive your machine, raw steel parts are coated at the factory with Corfilm® or an equivalent rust preventive. It is a little sticky and may have a light brownish color that looks like surface rust. It's not rust and is easily removed with a brush or cloth and some kerosene or odorless paint thinner. Once the coating is removed, the steel surfaces should be protected by wiping on a thin coating of light machine oil, sewing machine oil or "3-in-1" oil. Each time you are done with a job and before the machine or accessory is put away for storage, steel parts should again be coated with a rust preventive or a thin application of light machine oil to keep surfaces from rusting. This is particularly important if you live in a humid climate.

### Applying and Removing WD40®

If you apply WD40 or an equivalent rust preventive during storage, it should be removed by wiping down with kerosene or thinner before the machine is used again. Once the coating of WD40 is removed, the parts should re-coated with light machine oil before use. **WD40 is NOT recommended for use as a lubricant!**

### PTFE (Teflon) Based Grease

Slides and leadscrews can be lubricated with a PTFE (Teflon) based grease for reduced friction. This clear, non-staining grease is applied to lubricated surfaces at the factory. It is available from Sherline in a 3-oz tube as P/N 7550 or it can be found at most auto or home supply stores under the "SuperLube" or other brand names.