

## Hardinge® Sure-Grip® Expanding System Frequently Asked Questions

### Can I machine a workpiece without using a work stop?

**Yes & No.** The collet draws back as it grips the bore of the workpiece. Any variation in the gripping diameter will cause the part to pull back farther or less than the setup piece.

If you are only machining the OD of the part then a work stop is not necessary. Unfortunately 99% of the time this is not the case. Usually you will be machining a face or shoulder which has a length dimension that has to be held to a locating surface. This requires a work stop.

### Do I have to buy a different collet for each different bore size?

**No.** The collets will handle a variation in size of  $-.001"$  to  $+.015"$  (.025 mm to .381 mm). If you have a 1-3/4" (6.35 mm) Collet, it can grip workpieces that have bores from 1.749" to 1.765" (6.1 mm to 6.969 mm) in diameter.

### Will I destroy the expansion collet if I close the collet without a part on it?

**No.** The Hardinge® Sure-Grip® System is designed to eliminate this problem. The draw bar will contact the face of the arbor before the collet can be overexpanded.

### Can I buy Emergency Expanding Collets?

**No.** Because the collets come in 1/64" (.3968 mm) sizes and each collet can handle a variation of  $-.001"$  to  $+.015"$  (.025 mm to .381 mm) there is no need for emergency collets.

### Can I grip on a Hex hole?

**Yes.** Hex and Square collets are available. The delivery is 21 working days.

### Can I damage my Hardinge Sure-Grip System if I use too much draw bar force?

**Yes:** The maximum draw bar forces are listed on page 1. If you exceed these forces you may damage the arbor assembly.

### I plan on taking 1/8" off a part while holding on a small bore. Can I use the Model #100?

**No:** The #100 collet is for light machining operations such as taking a few thousandths off the face or OD of a workpiece. We recommend that you use the Model "S" Precision style expanding collet for heavier stock removal on parts with small bores (less than 1/2" [12.7 mm]).

### How do I machine the Work Stop.

**This is usually done by gripping the work stop in a step chuck or 3 Jaw Chuck:** When the full length of the collet grips the bore of the part, the I.D. of the work stop should be bored to 1/64" (.3968mm) above the maximum part I.D. When short gripping, the bore of the work stop should be .002" to .003" (.0508 mm to .0762 mm) larger than the **maximum bore** of workpiece. This practice will ensure the best gripping of workpieces whose bore is less than the length of the collet (this is called short-gripping). The remainder of the machining on the work stop relates to the workpiece and its locating surface.

After mounting the work stop onto the arbor, take a very light facing cut on the locating surface to make it perpendicular to the centerline of the spindle.

The 5C work stop mounts to a spindle adapter and the 16C work stop bolts directly to the spindle. When machining the work stop do not mount the collet arbor, mount the spindle adapter and work stop to the 5C spindle adapter or bolt the 16C work stop to the A2-5 spindle and machine the bore and work stop according to the workpiece specifications. **Caution: Do not bore the work stop any deeper than 1/8" beyond the length of the collet otherwise you may run into the face of the spindle.** After machining remove the work stop, clean the spindle, mount the spindle arbor, replace the work stop and adjust the collet closer. You must take a very light facing cut on the locating surface of the work stop to make it run perpendicular to the centerline of the spindle.

### After mounting my Expanding Collet Assembly the TIR is a couple thousandths. How can I correct this condition?

**Did you take a very light facing cut on the locating surface of the work stop.** Many people forget to do this operation and it must be done each time the assembly is mounted on/into the spindle. Not doing this operation can cause your workpiece to run out many thousandths.

**If you have taken a facing cut on the locating surface:** Remove the Hardinge Sure-Grip Assembly, clean the spindle and the assembly. Look for small nicks and stone them down with a hard Arkansas stone (white stone). Use a lint free cloth when cleaning the part.

Before remounting the Hardinge Sure-Grip assembly check the spindle TIR of your machine tool with an electronic indicator. For the collet style assembly check the collet seat. For the spindle mounted style check the spindle nose and the locating face. If these areas run out the only solution is to have your machine's spindle rebuilt.

Remount the Hardinge Sure-Grip assembly, without the collet and check the TIR of the arbor angles. If these run within the arbor specifications mount the collet, take a very light facing cut on the work stop locating surface and then check the TIR with a gauge piece. A gauge piece is made by boring a hole in a blank to the exact size of the part bore, facing the end and turning the OD all in one chucking. This piece is then mounted on the Hardinge Sure-Grip expanding collet with the machined face located against the work stop. Don't forget, the work stop must be lightly faced to make certain that it is perpendicular to the centerline of the spindle.