Mounting Instructions for the Hardinge®

16C Precision Expanding Collet Assembly and Expanding Collets

6C Precision Collet Assembly
(expanding collet and
workstop sold separately)

Figure 1
Hardened & Ground Expanding Collet
with limit ring (included)

Figure 2
Emergency Expanding Collet

Description

16C Precision Expanding Collet Systems offer precision internal chucking of small diameter parts for all Hardinge machines equipped with 16C spindles. Hardened and ground expanding collets (Figure 1) are available in standard round sizes from .375 to 3.000 inches and metric equivalents. Emergency soft expanding collets (Figure 2) can be machined when an odd size is needed or when there is not time to order a hardened and ground collet. Emergency collets can be machined to the exact size required and then machined again for other jobs.

Precision internal chucking simplifies your tooling and machining operations. Precision results are assured when many operations are done in one chucking. Concentricity requirements, like all machining specifications, are very rigid. With the Hardinge expanding collet assembly, it is easy to obtain concentric and square shoulders, faces and diameters with a previously machined bore. The Hardinge expanding collet adjusts to meet your most exacting requirements by means of four concentricity adjusting screws. Exact lengths are easily obtained since both the stationary expanding collet and work locating stop have no end movement. The work locating stop is machined in place during machine set up, assuring an absolutely square locating surface. When the collet is in the released position, it is smaller in diameter than the bore of the part. The result is fast and easy loading and unloading.

Part No. BB -0009500-0054

Installing the Expanding Collet Assembly and mounting a ***Hardened and Ground*** Expanding Collet:

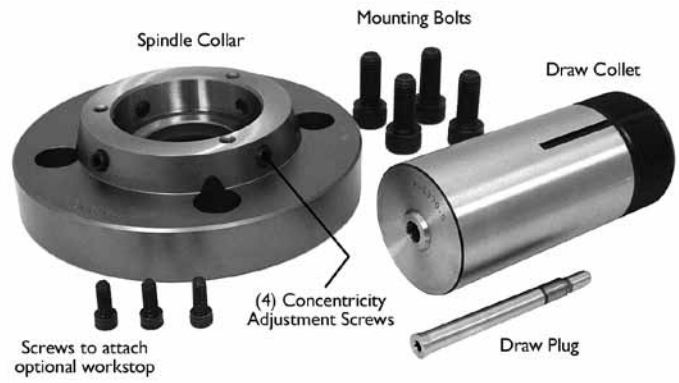

Figure 3
Model S Expanding Collet Assembly

Figure 4 – Hardinge machine's access door

1. Open the drawbar access door of the Hardinge machine and remove the locking bolts to loosen the machine's draw bar. (Figure 4)
2. Align the **Draw Collet** keyway to the spindle key and slide the **Draw Collet** into the spindle. (Figure 5)
3. Return to the drawbar access door to thread the drawbar onto the draw collet and tighten the locking bolts.
4. Mount the **Spindle Collar** to the spindle with the four mounting bolts. (Figure 6) Finish tightening the bolts in a crisscross pattern using a torque wrench.

NOTE: Work locating stops can be machined to any required diameter and length. If a work locating stop is to be used, proceed with step 5. If a work locating stop will not be used, go to step 8.

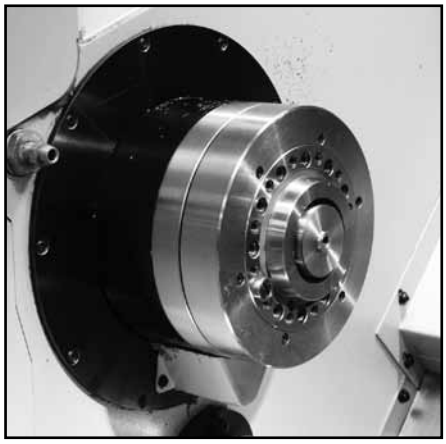

Figure 5 – Draw Collet

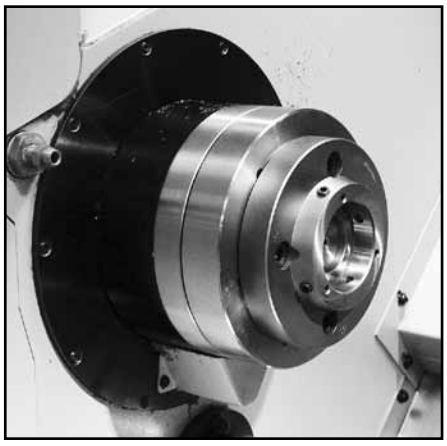

Figure 6 – Spindle Collar

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5. Mount the **Work Locating Stop** (Figure 7) to the spindle collar with the three screws provided.
6. Machine the Work Locating Stop to the required length and internal diameter.
7. Remove the Work Locating Stop.

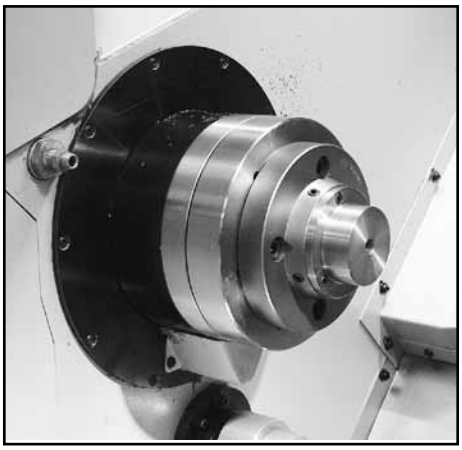

Figure 7 – Work Locating Stop

8. Install four concentricity **Adjustment Screws** (Figure 8) in the spindle collar.
9. Place the **Expanding Collet** in the spindle collar and tighten the adjustment screws until the collet is held securely. (Figure 8) If installing an emergency collet, skip to page 4 of the instructions.

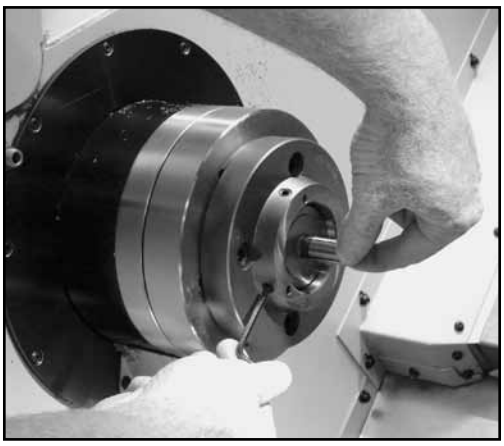

Figure 8 – Expanding Collet

10. Place the expanding collet **Draw Plug** (Figure 9) through the nose of the expanding collet and screw it into the draw collet until it is flush with the face of the collet.

    NOTE: If a master part or a workpiece with a concentric surface is available, it can be placed on the collet before proceeding with step 12.

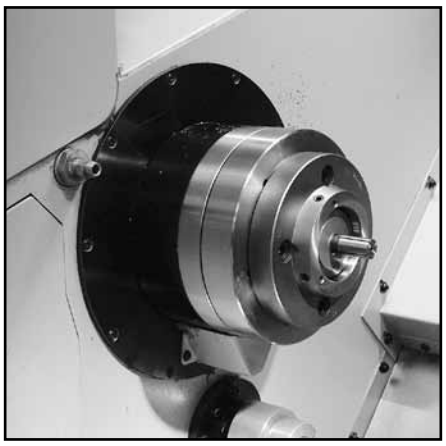

Figure 9 – Draw Plug

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11. Set up a dial indicator (Figure 10) and adjust the screws (Figure 8) until concentricity is obtained.

    NOTE: It may be necessary to open the collet to relieve the pressure and allow the adjusting screws to move the collet.

12. Install the **Work Locating Stop** if it is to be used.

13. Remove the dial indicator, place a workpiece on the expanding collet, and check to see that the part is being gripped securely.

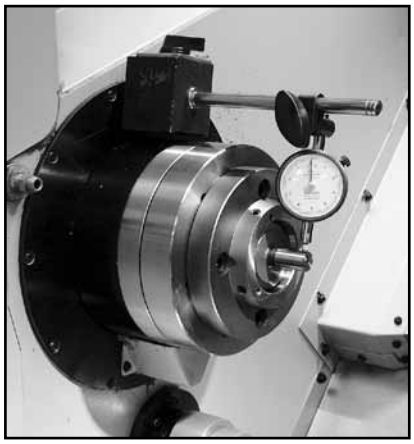

Figure 10 – Dial Indicator

To Mount An ***Emergency*** Expanding Collet

1. Mount the **Emergency Expanding Collet** following steps 1 through 9 on the previous pages.
2. Place the expanding collet **Draw Plug** through the emergency collet and screw it into the draw collet until it is flush with the lip on the front of the emergency collet.

   CAUTION: Do not expand the emergency collet unless the limit ring is in place or a part of the correct size is being gripped.

   CAUTION: When using the limit ring for machining Models S and M emergency collets, DO NOT EXCEED a drawbar pull of 2000 pounds. .

3. If your machine is equipped with a hydraulic collet closer, adjust the pressure to the applicable gauge pressure indicated above. If your machine does not have a hydraulic collet closer, go to step 4.
4. Place the **Limit Ring** on the lip of the emergency collet (Figure 11) and press the CLOSE COLLET push-button.
5. Set up a dial indicator as shown in Figure 10, and adjust the screws (Figure 8) until concentricity is achieved.

   NOTE: It may be necessary to open the collet to relieve the pressure and allow the adjusting screws to move the collet. After completing step 5, be sure that the limit ring is in place and the collet is closed (expanded) before proceeding with step 6.

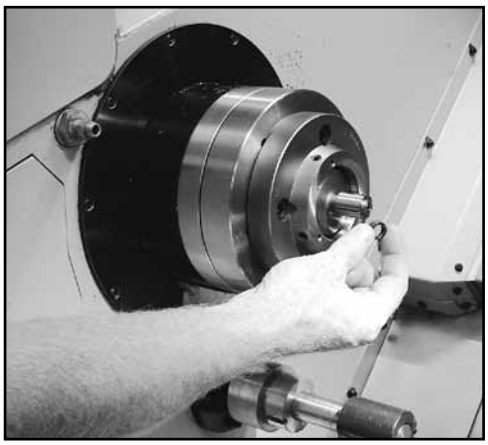

Figure 11 – Emergency Collet Limit Ring

6. Remove the dial indicator and machine the emergency collet to the required diameter. Remove any burrs generated.
7. Press the COLLET OPEN push-button and remove the **Limit Ring** (Figure 11).
8. Place a workpiece on the expanding collet, press the CLOSE COLLET push-button, and adjust the collet pressure to the desired pressure setting.

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