

McNaughton Caliper Guide for Use

Caution! Always turn the lathe off before using the caliper to prevent a catch that could destroy the caliper, the turning being measured and injure the user.

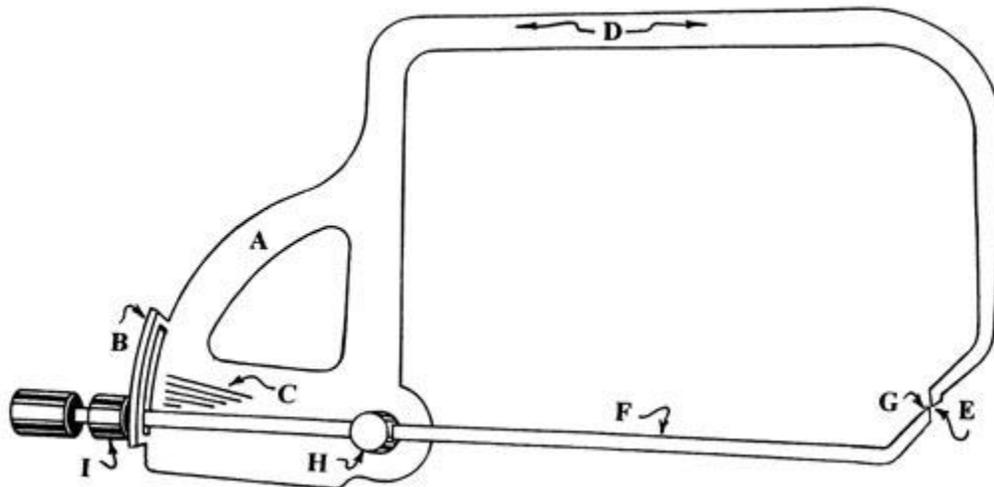
The Kel McNaughton Caliper is designed for use on hollow forms such as narrow neck vases, as well as with more open vessels like bowls. Its advantage over conventional woodturning calipers is that it gives wall thickness indication for more locations on vessels (bases, sides and, where required, necks). Its further advantage is that it is generally able to do this with less lateral error than figure 8 style calipers.

Structure of the Caliper

For the purpose of this instruction lay your calipers on a horizontal surface, such as a table or the bed of your lathe, in the same position shown in the illustration.

The static base of the calipers consists of:

- A. Support Handle - Designed to be in a balanced position making the calipers easy to maneuver for measurements.
- B. Capture Housing - Guides the inside arm and limits it's travel
- C. Calibration Marks - Reference marks for measuring wall thickness via inside arm travel distance. The length of each mark corresponds to the actual gap distance between the Inside Contact Tip (G) and the Outside Contact Tip (E).
- D. Outside Arm - Externally located on the vessel during use with the...
- E. Outside Contact Tip - touching the outside surface of the vessel.



The movable component consists of:

F. Inside Arm - Internally located in the vessel during use with the...

G. Inside Contact Tip - touching the inside surface to the vessel.

H. Pivot - Attached to the static base, it has a channel that the inside arm can freely slide through.

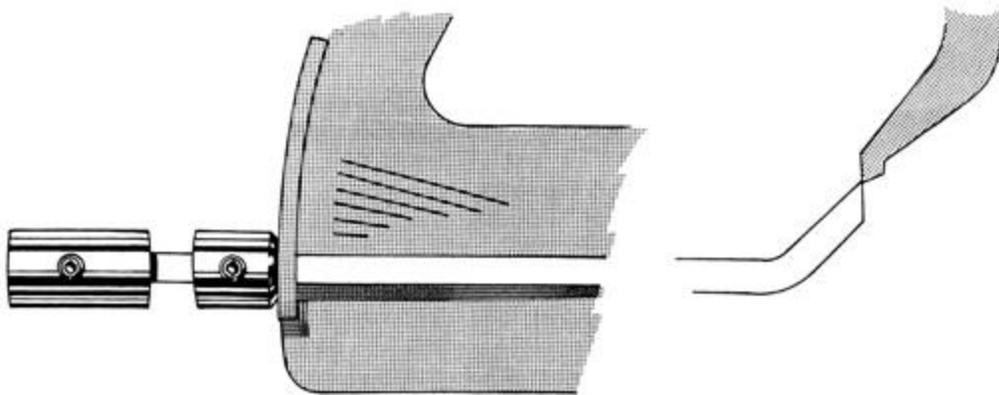
I. Inside Arm Boss - A stopping block for the inside arm. With the use a set screw, it can be moved and locked into position for a set thickness on the bottom of a vessel.

Operation of the Caliper

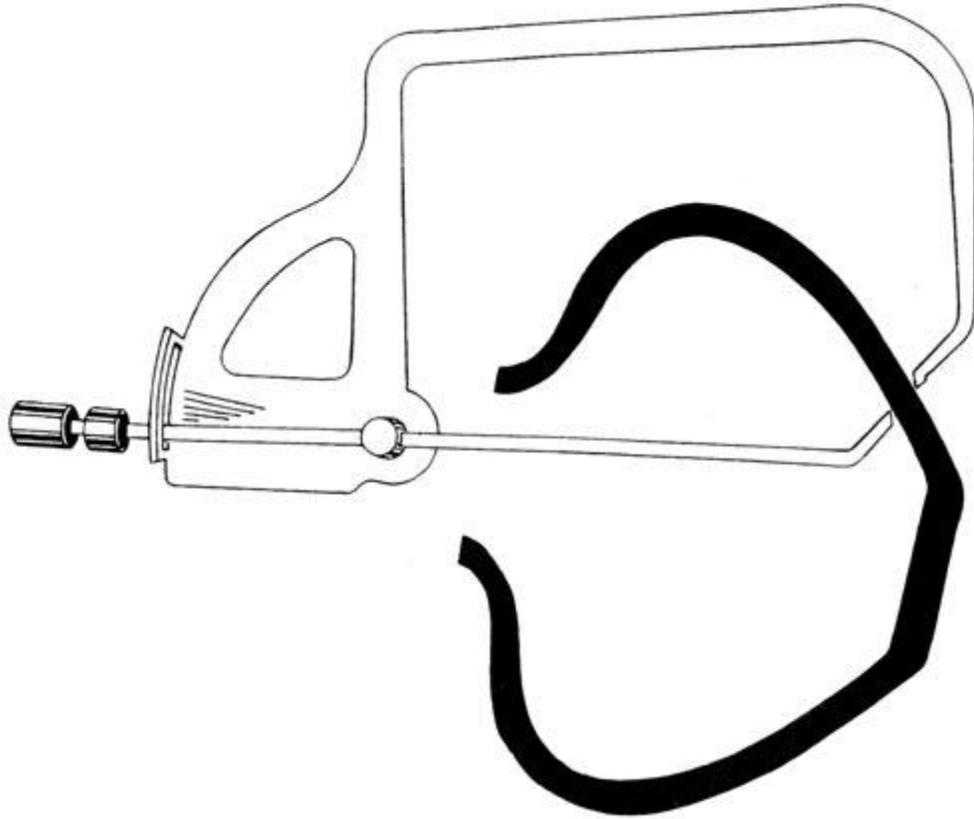
Wall Thickness

To set the calipers at zero, the Inside Contact Tip (G) and the Outside Contact Tip (E) should be in this position. To achieve this exact position, the inside Contact Tip (G) may need to be gently bent with a pair of pliers.

At the same time the Inside Arm Boss (I) should be touching the Capture Housing (B) and locked in position with the set screw.



Measuring wall thickness is done by positioning the Outside Contact Tip (E) on the outside of the vessel at the desired point, the Inside Contact Tip (G) on the inside of the vessel and noting where the Inside Arm (F) intersects the Calibration Marks (C). Remove the calipers from the vessel, reposition the Inside Arm (F) on the Calibration Marks (C) at the noted spot and measure the gap between the gap between the Inside Contact Tip (G) and the Outside Contact Tip (E).

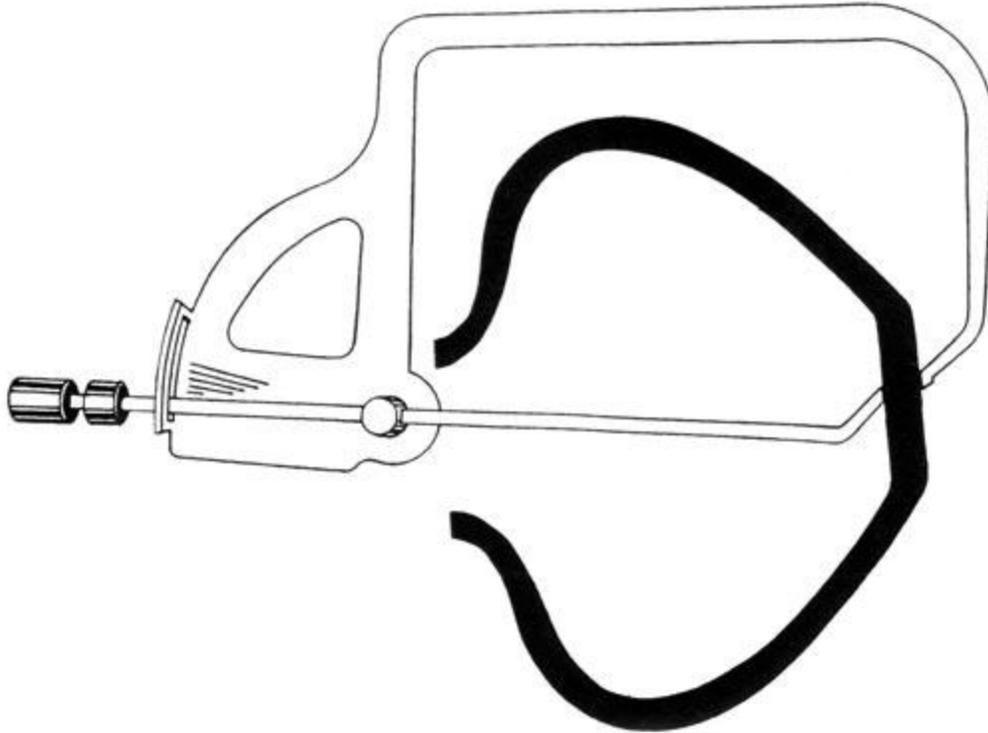


Base Thickness

Setting the calipers at zero is the same process as above.

Measuring base thickness is done by positioning the Outside Contact Tip (E) on the outside bottom of the vessel at the desired point, the Inside Contact Tip (G) on the inside of the vessel and noting the distance between the Inside Arm Boss (I) and the Capture Housing (B).

To set the caliper to monitor material removal in order to achieve a desired thickness, loosen the set screw on the Inside Arm Boss (I) and set the gap between it and the Capture Housing (B) to the desired thickness. Tighten the set screw. Mark the point where the Capture Housing (B) crosses the Inside Arm (F) with a piece of tape or a felt pen. When the bottom of the vessel is measured, the distance between the Capture Housing (B) and the tape or mark on the Inside Arm (F) will indicate the amount of material left to remove to achieve the desired thickness.



*Note: The Calibration Marks (C) on the caliper are not numbered. The length of the lines corresponds directly to the gap distance between the Inside Contact Tip (G) and the Outside Contact Tip (E). They are there to provide a reference scale for the variation of the vessel wall thickness from point to point and the progression of material removal. Since the static base is black, a good recommendation would be to fill the Calibration Marks (C) with white paint to make them easier to see.

*Note: The Inside Contact Tip (G) and Outside Contact Tip (E) have been made relatively sharp for precise positioning. For those using the caliper on finished vessels, it may be desirable to grind a more rounded tip and re-calibrate to zero. Alternatively, slip a small piece of malleable plastic tubing over the tips and form to a desired shape. Yet another is to coat the tips with a non-marring material such as liquid handle dip or glue.