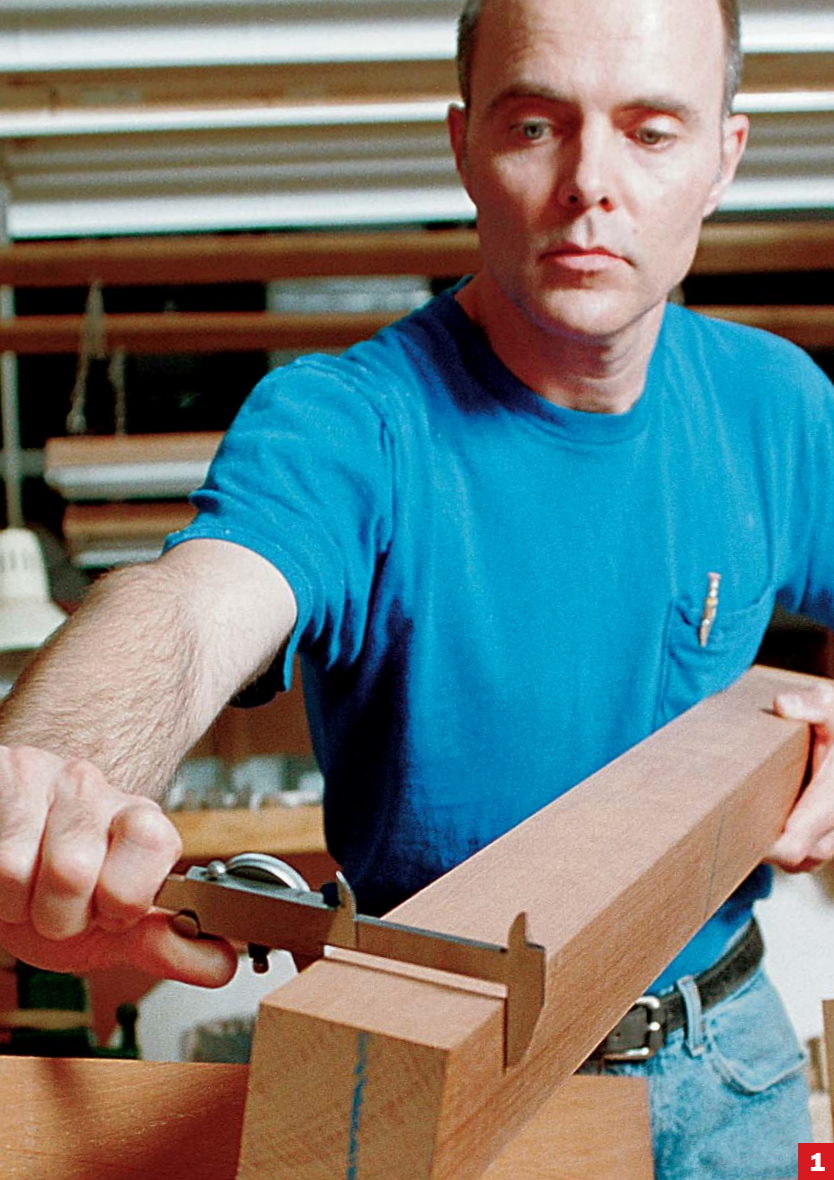




Dial Calipers

Bring a machinist's accuracy to your woodworking

BY J. K. McMURTRY

After spending 11 years as a machinist, the first day I showed up for work in a woodshop, I brought three full toolboxes with me, not knowing what I'd need. As it turned out, I didn't need most of them. But to this day, 12 years later, I'd be lost without my dial calipers because they remove the guesswork from taking measurements. My fellow workers, with their trusty tape

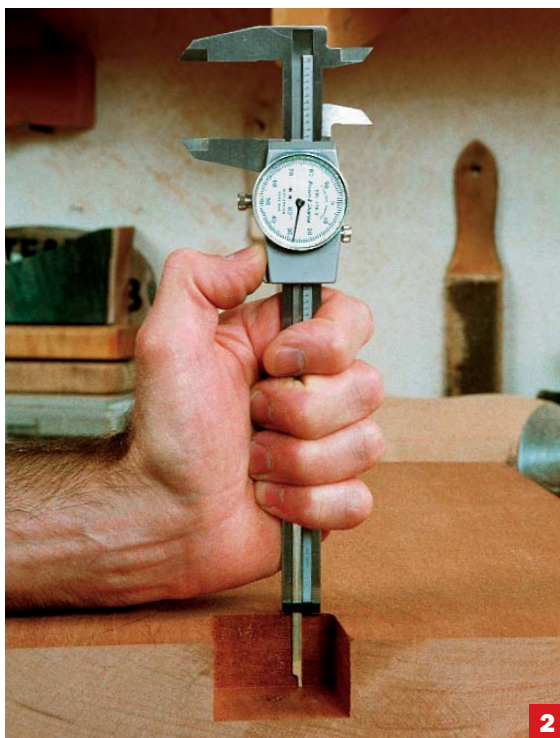
measures clipped to their belts, were doubtful, but once they saw what dial calipers could do, they were won over.

You can use calipers the same way that some people use a combination square—for laying out joinery. You can also use this tool to measure the inside diameter of a hole or the outside diameter of a dowel or a round tenon. You can measure the width and depth of a dado

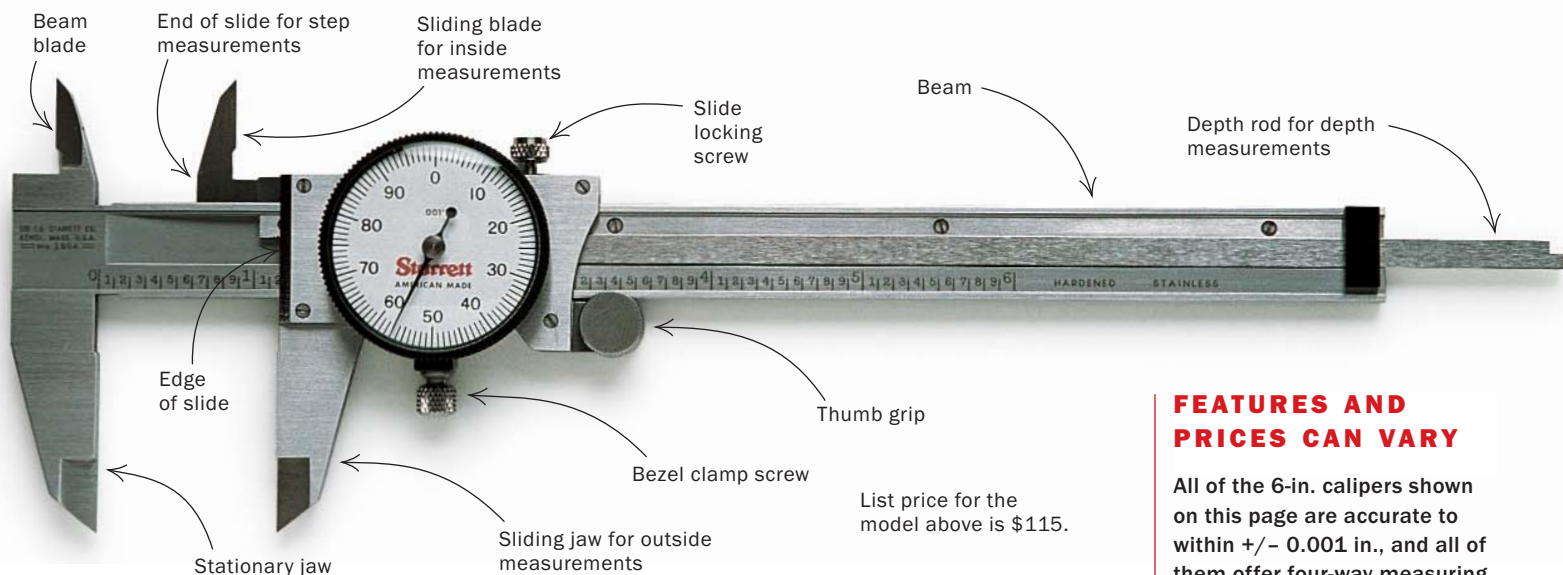
A VERSATILE TOOL

Four basic caliper functions. These photos illustrate the most common uses for dial calipers.

- (1) Outside measurements are found between the stationary and sliding jaws.
- (2) The depth rod shows the depth of an open mortise.
- (3) The calipers can be used to find the inside diameter of a drilled hole.
- (4) Step measurements are taken with the end of the slide.



PARTS OF THE TOOL



or a rabbet. You can check for variations in thickness along the length of a workpiece or among similar pieces. You can read the exact size of a mortise so you can make the right size tenon. You can measure the root diameter of a screw to select the right drill bit for a pilot hole. Not sure what size bit you have in your hands? The dial calipers will tell you in an instant, with an accuracy unmatched by any other woodworking tool.

How to read them

Learning how to read dial calipers is easy—the hard part is training your mind to think in the language of decimals rather than of fractions. Conversion charts that show the decimal equivalent of fractions are a big help. Many of these charts (often available for free in hardware stores) also show the decimal sizes of numbered and lettered drill bits.

Other versions exist, but a good pair of dial calipers breaks the inch down into 1,000 divisions. Each mark on the dial represents one thousandth ($\frac{1}{1,000}$ or 0.001) of an inch. There are 100 marks on the dial—one hundred thousandths ($\frac{100}{1,000}$ or 0.100). If you start at zero on the

dial and rotate the sliding jaw until the pointer completes one full turn, the edge of the sliding jaw will align with the line for the number 1 on the beam. This indicates that you've moved the calipers $\frac{1}{1,000}$ in. Those of you who remember eighth-grade math might say that's the same as $\frac{1}{10}$ in. True, but when you use calipers, you don't care about tenths or hundredths: All measurements are expressed in thousandths for simplicity and consistency. For example, $\frac{1}{4}$ in. (0.250) is $\frac{250}{1,000}$ in.

To take a reading, first look at the location of the sliding jaw on the beam, then read the pointer on the dial. The most common error made when reading dial calipers is to misinterpret the position of the sliding jaw on the beam. The numbers (representing hundreds of thousandths) are between the lines, so you see the number before you see the line marking its position.

Calibrate your calipers before you use them

Calibrate the tool first by closing the jaws. In other words, move the sliding jaw toward the stationary jaw until they touch. The pointer on the dial should

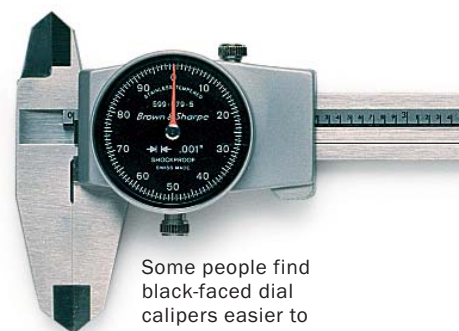
read zero, and the edge of the slide should line up with the zero mark on the beam. If not, open the jaws, wipe them off with your fingers to remove any dust or debris and close them again. If they're still not "zeroed," then loosen the bezel clamp screw (usually located at the bottom of the dial) and move the dial until the pointer reads zero. Lock it in place by tightening the bezel clamp screw. Your calipers are now ready to take measurements.

Survey any catalog that sells different types and brands, and you'll notice that some calipers feature three-way measurements, and others have a four-way capacity, which means the tool can take outside, inside, depth and step measurements. For a standard 6-in. measuring range, you can buy a good-quality tool for \$75 to \$100. Some of the newer digital or electronic calipers that include a liquid-crystal display for the readout can cost twice as much. You can also buy a plastic version for less than \$25. Even the least expensive set of calipers is better than none at all. □

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FEATURES AND PRICES CAN VARY

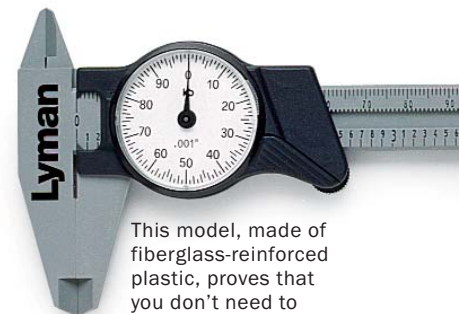
All of the 6-in. calipers shown on this page are accurate to within ± 0.001 in., and all of them offer four-way measuring capacity.



Some people find black-faced dial calipers easier to read. This hardened stainless-steel model sells for \$125.



A digital readout solves the problem of misreading a dial setting. This model retails for \$161.50.



This model, made of fiberglass-reinforced plastic, proves that you don't need to spend a lot of money on dial calipers. It sells for \$24.