

Verniers – What are they! How to use one!

What is a vernier?

The [vernier](#) caliper was invented by French mathematician Pierre Vernier. It was designed to measure linear distances very accurately.

The vernier is type of measuring device used to measure precise increments between two points.

Verniers work best when used between parallel points. Due to their precision they can be used across less stable points of reference to a high degree of accuracy.

The Vernier uses two scales. One scale is fixed and the other slides along this fixed scale to measure smaller fractions. Verniers can be in various sizes and in different measuring scales. Commonly, Verniers are found in metric and imperial scales and measure to .001 inch or .01 millimetres. Modern digital Verniers can read even more accurately and can be changed between metric to imperial with the touch of a button

A Vernier can be used in three different ways. (a) The larger, lower set of jaws are designed to measure outer points, such as the diameter of a rod. (b) The top jaws can be used to measure the inside points, such as the space between two blocks of steel or the size of a hole. (c) A rod typically extends from the rear of the vernier when it is opened and can be used to measure depth.

The vernier is an exceptional measuring device that is fairly simple to use and read.

[Here's a video to assist you.](#)

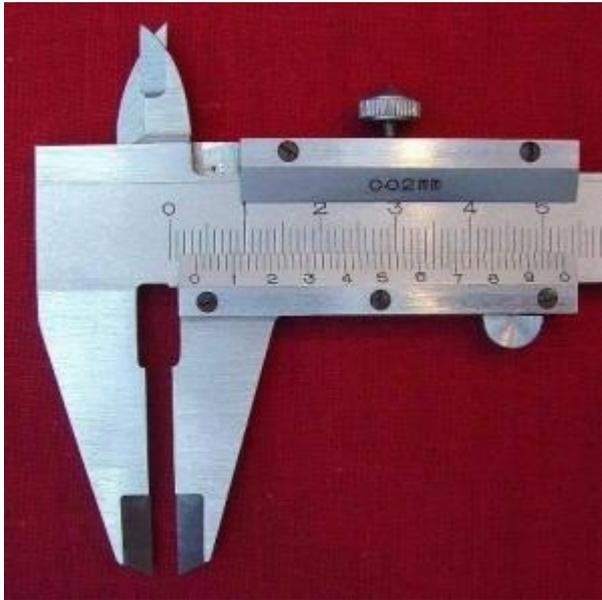
The ability to make very fine measurements is helpful in a variety of applications. Manufacturing is a great beneficiary of this tool.

The Vernier scale on caliper micrometres is the graduated scale that slides as you adjust the calipers. It is calibrated to represent subdivisions of the most precise division on the main scale. For instance, if the main scale is marked every 0.5 mm, the Vernier scale would be divided into sections from 0.0 to 0.5 mm. With a little practice, the Vernier scale is actually very easy to read, once you get used to the small differences as compared to traditional scale.

Once the measurement has been made and the calipers locked into place, the first thing to do is read the measurement from the fixed scale. This is done by locating the “0” on the sliding Vernier scale and reading the value from the fixed scale that it points to. If the zero points between two values, take the lower of the two.

The Vernier reading will take a little time to read properly. First, find the line on the sliding Vernier scale that is lined up exactly, or as close as possible, with a line on the fixed scale. At

this point, the values are irrelevant; you are just looking for the lines that match. Once you have identified the lines that match, read the value on the Vernier scale for that line.



Finally, you need to combine the two readings. In the photo, the fixed scale reading is between 3 and 4 mm, so since you take the lower, the reading is 3 mm. Because the fixed scale is divided into mm, the Vernier scale is divided into 0.1 mm increments, which are further divided into 0.02 mm increments on this particular micrometre. The Vernier scale aligns perfectly with 35 mm on the fixed scale. This corresponds with 0.58 mm on the Vernier scale, which is the Vernier reading. By combining the two readings, you get a total measurement of 3.58 mm.

A vernier is essential when measuring hydraulic seals and allied products