



How to Use a Vernier Caliper

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In this video, you will learn how to use a vernier caliper.

A Vernier Caliper is a device that allows you to take precise measurements of internal distances, external distances and depth.

The vernier caliper consists of a main scale and a vernier scale.

The main scale is a long, thin steel strip that is graduated by the metric system on one side and the imperial system on the other.

The fixed halves of both jaws are attached to the main scale on one end.

The secondary or vernier scale, is a movable strip with the adjustable halves of both jaws on one end and a depth gauge on the other end.

It can be locked onto the main scale by tightening the thumb screw.

The three key steps are: measuring an internal distance, measuring an external distance and measuring depth.

STEP 1: Measuring an Internal distance.

Clamp the mortise so that you can hold the vernier caliper with both hands.

Position the upper jaws that measure internal distances within the walls of the mortise, as shown.

Adjust the vernier scale until the blades of the upper jaws are flat against the walls of the mortise.

Tighten the thumb screw to fix the position and check if the tenon made for the mortise fits between the lower jaws.

To take the reading, look for the main scale gradation that the zero of the vernier scale aligns with or stops after.

You can see here that the zero of the vernier scale aligns to a point just past the 11 mm mark of the main scale.

The mortise measures 11 mm.

STEP 2: Measuring an External distance.

External distances can be measured using the lower jaws of the caliper.

Close the jaws around the length of the tenon, lock the position of the jaws and check again to make sure that you have an easy fit with no gaps.

Take a reading, as done before, where the vernier scale zero coincides with the main scale.

Here we have a reading of just over 30 mm.

You can see that the length of the tenon is compatible with the length of the mortise.

STEP 3: Measuring Depth.

To measure the depth of the mortise, extend the probe of the vernier caliper and place its tip against the end wall of the mortise, as shown.

Now, push the base of the main scale down to the mouth of the mortise.

Lock the vernier scale into its position and take the reading as before.

Here we have a reading of 24mm.

You now know how to use a vernier caliper.

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