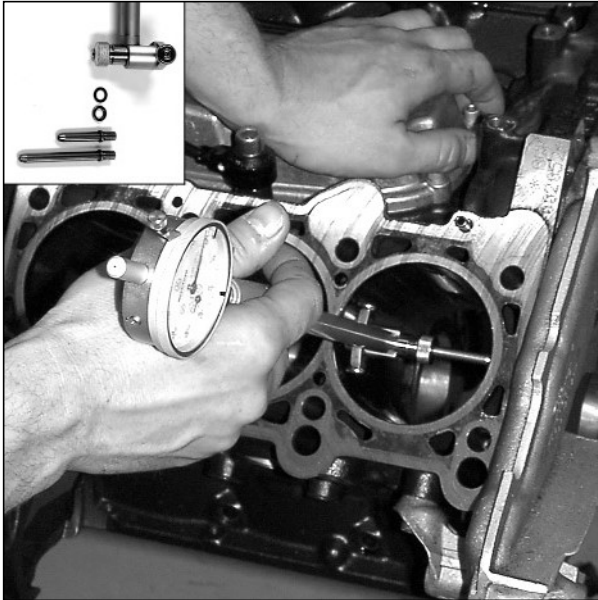
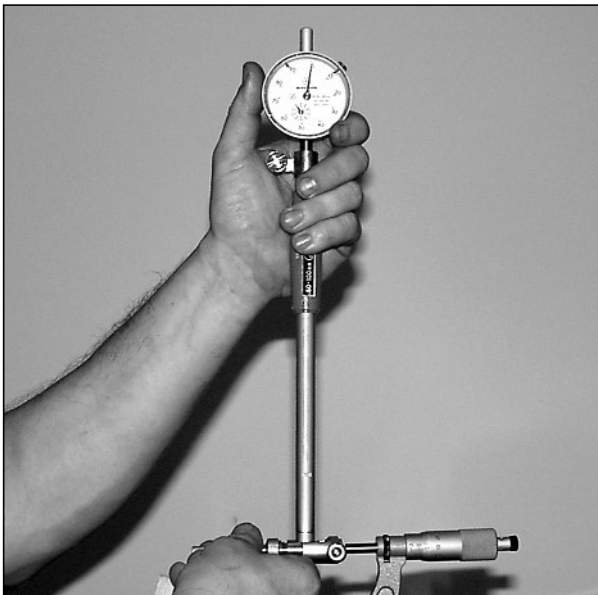


Dial Bore Gauge



Dial bore gauge being used to measure cylinder bore diameter. This particular gauge uses precise shims and extensions to adapt to required measuring range (inset).



This outside micrometer clamped in a vise is pre-set to the nominal bore diameter, and the dial bore gauge is being set to read zero at that dimension. Any reading greater than zero translates directly into a measurement of increased cylinder diameter.

Dial Bore Gauge

A dial bore gauge is a special type of dial indicator, with a mechanism designed for measuring cylinder bores and similar inside diameters. By comparing bore diameter measurements at different points around the circumference, we can determine whether, or to what extent, the cylinder is out-of-round. By comparing measurements made at the top and bottom of the bore, we can determine cylinder taper. Both are important ways of evaluating the condition of the pistons and cylinders, possible causes of symptoms such as low compression or oil consumption, and whether or not the cylinder block can be reconditioned.

The dial indicator portion of a dial bore gauge functions just like any other dial indicator. The zero point on the scale can be adjusted as necessary as an aid to making a particular measurement.

In the example illustrated here, the zero point on the gauge is being pre-set to the nominal dimension specified for the bore. This way, the gauge will directly read the difference between the actual diameter at any point in the bore, and the nominal value.

Dial Bore Gauge

The critical thing to remember about using a bore gauge is that it must be positioned precisely in line with the bore, to measure true diameters at any point in the bore. Tipping the gauge even slightly will cause the dial bore gauge to measure a value larger than the actual diameter.



The cylinder block must not be mounted to the assembly stand when measuring bore diameter. The block is deformed by its own weight under these conditions, and that stress will result in false measurements.



Dial bore gauge measurements must be made perpendicular to the cylinder bore. If misaligned, as shown, the values measured will be larger than the actual diameter and, therefore, inaccurate.