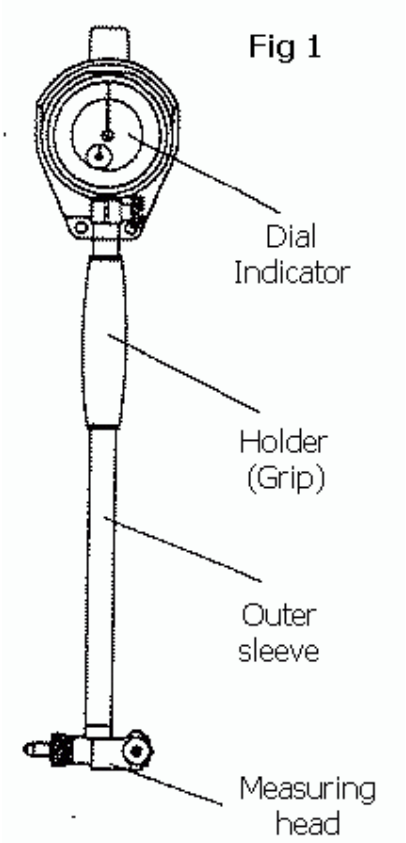
BORE DIAL GAUGE

Introduction:

Bore dial Gauge is used to measure the internal diameter of bores. The various parts are shown in Fig 1. The measuring head is different for smaller sizes.

Fig 1



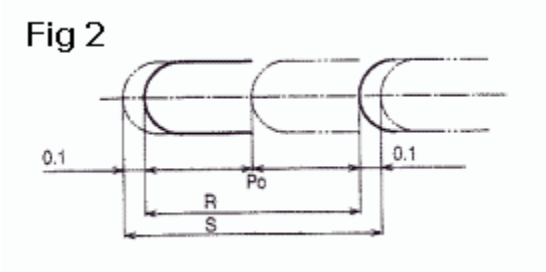
Precautions:

1. Do not disassemble the instrument.
2. Do not bump any part of the instrument.
3. After use, clean the interchangeable rod/washer, etc, apply a coat of anti-corrosive oil to them, and store them in their containers.

Measuring range and neutral point Po.

1. The stroke (S) and the effective measuring range (R) of the contact point are shown in Fig 2.

Fig 2



There is a 0.1mm play at each end of the stroke where the rated measuring accuracy cannot be guaranteed. The distance L in Fig 3 between the anvil and the point Po is the nominal dimension of the bore gauge. The values of S & R for Mitutoyo makes are given in Table 1.

Fig 3

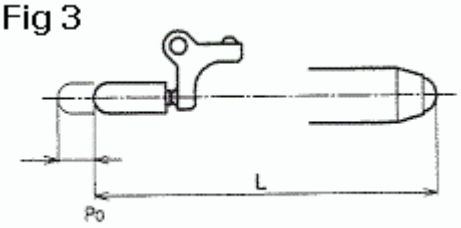


Table 1		
Measuring Range of Bore Gauge	Stroke of the contact point, S	Effective measuring range, R
6-10mm	0.7mm	0.5mm
10-18.5mm	0.8mm	0.6mm
18-400mm	1.4mm	1.2mm

Procedure:

1. Set the Dial Indicator by inserting its spindle in the holder so that the indicator reads at least 0.3mm. Secure the Dial Indicator with the clamp screw.
2. Select the appropriate interchangeable rod, interchangeable washers, and subanvils and other accessories.
3. Adjust the datum point with setting ring, see Fig 4. We need to maintain the moving direction of the contact point along (a) on section A and along (e) on section B. Diameter (a) can be obtained with the help of the guide except in the 6-10mm range set. To adjust the datum point to diameter (e), search for a position where the Bore Gauge reading is maximized by tilting the bore gauge back and forth. Set the dial gauge bezel to read the correct diameter.

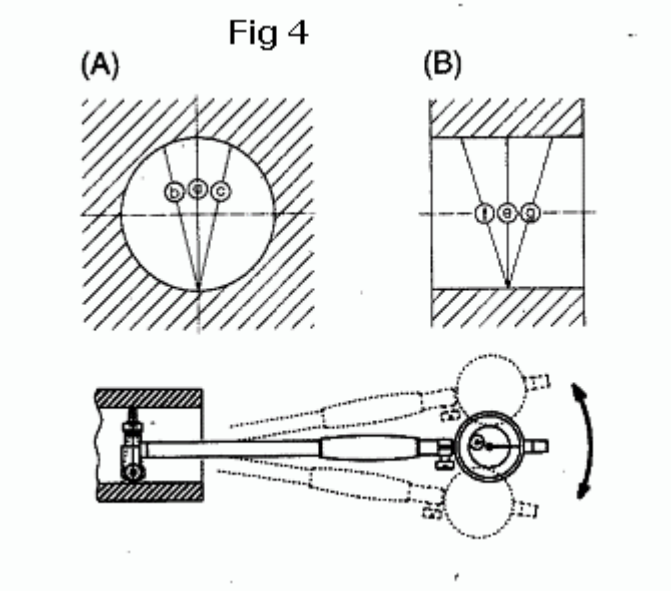


Fig 4

4. Adjustment using outside micrometer is shown in Fig 5. Mount the micrometer vertically on a stand. Set the micrometer to an appropriate size, but do not clamp. Insert the Bore Gage in the micrometer opening and find out the position where it indicates the maximum value. Adjust the datum point by rotating the bezel. Skill is required as there is no guide for assisting in the alignment.
5. The measurement is to be carried out aligning the gauge in the same way as explained in step 3.

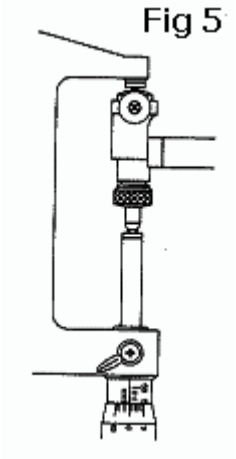


Fig 5