THE INSTRUCTIONS
OF INCH DIAL BORE GAUGES

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- Structural drawing
- Introduction
  The series of dial bore gauges are the special tools widely used in measuring the inner diameter of mechanical processing industry. We can measure the inner diameter and the shape error of hole by the comparison method. They are most suitable to measure the precision hole (grade IT7 to IT9) in mass production.
- Structure Chart

![Diagram of Dial Bore Gauges]

- Specifications

<table>
<thead>
<tr>
<th>Range (mm)</th>
<th>Depth (mm)</th>
<th>Anvils</th>
<th>washers</th>
<th>Sub-anvils</th>
<th>The travel of contact point (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-18</td>
<td>104</td>
<td>9</td>
<td>1</td>
<td>0</td>
<td>0.8</td>
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<tr>
<td>18-35</td>
<td>105</td>
<td>10</td>
<td>2</td>
<td>0</td>
<td>1.0</td>
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<tr>
<td>35-60</td>
<td>137</td>
<td>6</td>
<td>4</td>
<td>0</td>
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<tr>
<td>35-160</td>
<td>158</td>
<td>15</td>
<td>8</td>
<td>1</td>
<td>1.2/1.5</td>
</tr>
<tr>
<td>50-100</td>
<td>158</td>
<td>11</td>
<td>4</td>
<td>0</td>
<td>1.5</td>
</tr>
<tr>
<td>50-150</td>
<td>158</td>
<td>11</td>
<td>4</td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td>50-160</td>
<td>158</td>
<td>12</td>
<td>4</td>
<td>1</td>
<td>1.5</td>
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<td>4</td>
<td>2</td>
<td>2.0</td>
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</tbody>
</table>

- Usage
  1. Attaching the dial indicator
     First, loose the locking screw and insert the indicator's spindle into the joint. Then, make the hand of indicator turns about 1 revolution. Last, lock the indicator with screw.
  2. Zero adjustment
     First, remove the anvil locking nut. Then, select and install the correct anvils and
washers. Last, install the anvil locking nut tightly.
The zero adjustment is accomplished by the following three methods.
(A) Adjustment with master ring.
Please insert the gauge into the master gauge; slowly swing as shown in Figure 2
direction to find the position D, at the position D, the long hand of indicator at the
Max. position, rotate the bezel of indicator to make the long hand of indicator
points to zero. The method is suitable for a mass-production or regular model
because of simple operation and high precision.
(B) Adjustment with outside micrometer
Set the outside micrometer to exact dimension to be measured. Place the dial bore
gauge measuring contacts across the micron meter faces as shown in Figure 3;
adjust the measuring contacts to position the long hand of the dial indicator at the
Max. Position, rotate the bezel of indicator to make the long hand of indicator
points to zero. It facilitates zero adjustment in condition of no master gauge in the
workshop, but it requires some skills to ensure the accuracy. So, need to test again
and again to find the correct position.
(C) Adjustment with gauge blocks
As shown in Figure 4, select gauge blocks to reach exact dimension to be measured,
fix these blocks with the special clamer. The rest steps are same as outside
micrometer. The advantage of this method is that the value of zero position is exact
and stable.

3. Measuring diameter of the hole
After zero setting, don’t loose the locking nut. Please insert the dial bore gauge
obliquely into the hole, Make hand shank parallel to the axis of hole, and find the
Min. reading of indicator. This is correct diameter data of the hole.
Measuring the shape of the hole:
Measure different position on the Radial plane can get the roundness of the hole,
axial measure different position can get the cylindricity of the hole.
4. Clean and apply antirust after using, disassemble the indicator, place the gauge
in the box.