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ISF-DGD Series

Measuring Tools Dynamometers

Operation Manual



1. Summarize

Measuring Tools Dynamometers is a digital display type instrument for checking and calibrating the measuring force of the measuring instrument. It can be used for measuring force of micrometers, depth micrometers, dial test indicators, inside micrometers, indicators, micrometer heads and optical instruments (optical meters, contact interferometers) and other force measurement verification. With high precision, wide application, reliable structure, easy to operate and so on, it is an indispensable and good force measuring and calibrating instrument for the metrology department.

2. Main technical parameters

Code	ISF-DGD15	ISF-DGD50
Measuring range	0~15N	0~50N
Resolution	0.01N	
Accuracy	<4N: ±0.01N; ≥4N: ±0.5%	
Volume	230×220×310mm	
Weight	10kg	

3. Structures

The Measuring Tools Dynamometers is mainly composed of a base, an adjustment device, a cross arm and a clamping disk. The force sensor in the base has high measuring accuracy and good stability. The adjusting device includes column, cross arm, etc., which can adjust

the height of column, height of cross arm, angle of cross arm, angle of clamping disk and clamping position according to the demand, so as to make the measurement more convenient. Clamping disk has a round hole, flat clamp, V groove, pressure plate and other clamping position, can adapt to a variety of gauges clamping, greatly improving the scope of use of the equipment. Its specific structure is shown in Fig. 1.

4. Methods of use:

4.1. Indicators and optical instrument force measurement verification

Will be examined by the indicators (percentage, micrometers, torsion spring tables, micrometers, lever tables), optical instruments (optical meter, contact interferometer) into the clamping disk⁽⁹⁾ in the corresponding holes, and by the screw lock. Rotate the cross arm and clamping disk, so that the probe of the instrument being examined aligned with the instrument disk⁽¹⁰⁾ of the plane position, rotate the column on the lifting nut⁽⁵⁾ so that the table being examined is close to contact with the disk⁽¹⁰⁾ of the plane position, that is, the locking of the positioning screws⁽⁴⁾ and the cross arm directional screws⁽⁶⁾ and the clamping disk fastening nut⁽¹²⁾. Turn on the power switch⁽²⁾ and press the zero button⁽¹⁾ so that the number on the display⁽³⁾ is zero. Rotate the fine-tuning device⁽⁸⁾, down the clamping disk, so that the instrument being inspected by the probe and the

instrument disk⁽¹⁰⁾ plane contact, and continue to transfer the fine-tuning device ⁽⁸⁾, can be measured by the instrument being inspected by the positive and negative strokes on the measurement of the force.

4.2. Calibration of the measuring force of the internal diameter gauge

Put the inspected internal diameter gauge into the clamping disk V-groove, adjust the position of the meter rod so that the movable probe is aligned with the instrument disk⁽¹⁰⁾, and press it tightly with the corresponding pressure plate. Turn on the power switch, press the zero button⁽¹⁾, so that the number on the display ⁽³⁾ is zero. Rotate the cross arm and the clamping disk to align the movable probe of the inspected internal diameter gauge with the plane position of the disk⁽¹⁰⁾, rotate the lifting nut⁽⁵⁾ on the column to make the inspected gauge close to touching the plane of the disk⁽¹⁰⁾, locking the locating screw⁽⁴⁾ and the cross arm directional screw⁽⁶⁾ and the clamping disk tightening nut⁽¹²⁾. Rotate the fine-tuning device⁽⁸⁾, down the clamping disk⁽⁹⁾, so that the inspection of the inside diameter table activities of the probe and the instrument disk⁽¹⁰⁾ plane contact, continue to adjust the fine-tuning device⁽⁸⁾, you can measure the inspection of the inside diameter table of the measured force.

4.3. Calibration of micrometer force:

The micrometer type (OD micrometers, metric micrometers, digital micrometers, depth measuring micrometers, internal measuring micrometers, etc.) will be examined into the corresponding position of the clamping disk⁽⁹⁾ (see the schematic diagram) and lock. Turn on the power switch, press the zero button⁽¹⁾, so that the number on the display⁽³⁾ is zero. Rotate the cross arm and the clamping disk⁽⁹⁾, so that the micrometer activity measuring rod is aligned with the disk⁽¹⁰⁾ of the steel ball position, rotate the column on the lifting nut⁽⁵⁾, so that the micrometer is close to contact with the disk⁽¹⁰⁾ of the steel ball, tighten the positioning screws⁽⁴⁾ and the cross arm directional screw⁽⁶⁾ and the clamping disk fastening nut⁽¹²⁾. Rotate the micrometer force measurement device, so that the micrometer activity measuring rod and the disk⁽¹⁰⁾ spherical contact, when the ratchet slipping sound, the instrument display shows the value, that is, the micrometer at this point in the measurement of force.

4.4. Other measuring tools can be referred to the schematic force test clamping, and refer to the previous gauge force test method.

5. Zero adjustment:

In the use of this instrument, such as power on the display found after the display does not return to zero phenomenon. You can first press the zero button, such as no effect can be directly adjusted to the rear of the instrument within the small hole zero adjustable resistor(11), so that the zero point appears after the power on.

6. Indication value error adjustment:

In the use or calibration process, such as found in the indication value error. Can be adjusted in the small hole on the back of the instrument indication value error adjustable resistor(11), so that it reaches the indication value error within the range.

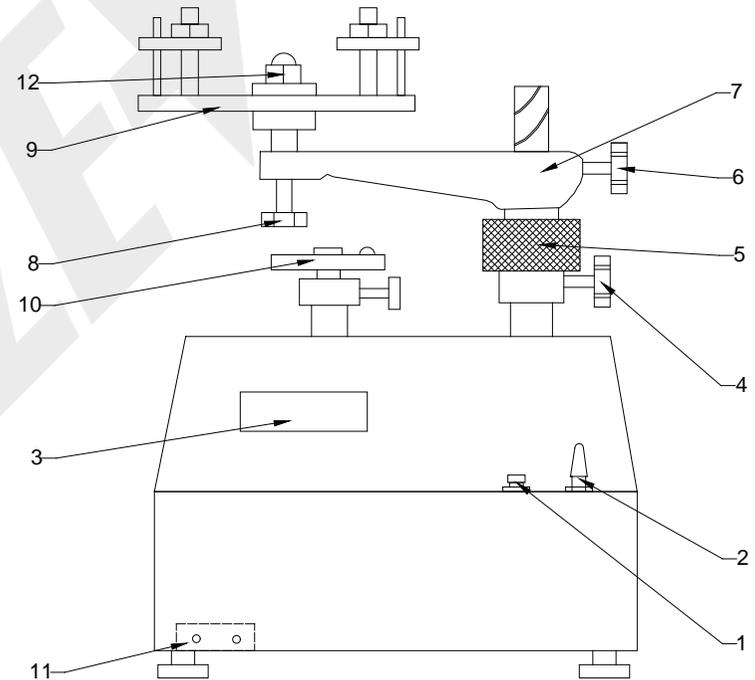
7. Instrument self-calibration:

The self-calibration method of Measuring Tools Dynamometers is as follows:

Turn on the power switch, press the zero button, so that the display figures for zero, and then take 1kg weights placed on the force plate, the indication value should be in the range of 9.74N-9.86N (standard value of 9.80N), such as not in this range, available screwdriver to adjust the rear of the indication value error adjustable resistor (11), so that the indication value in the range of 9.74N-9.86N, it is best to adjust the standard value of 9.80N.

8. Precautions:

- 8.1. The instrument must be placed in a dry and clean room.
- 8.2. Maintain the instrument regularly to prevent rusting.



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|-------------------------------|-------------------------------|
| 1 zero button | 7 cross arm |
| 2 power switch | 8 fine-tuning device |
| 3 display | 9 clamping disk |
| 4 positioning screws | 10 disk |
| 5 lifting nut | 11 adjustable resistor |
| 6 cross arm directional screw | 12 clamping disk fastener nut |

Fig.1 Measuring Tools Dynamometers specific structure

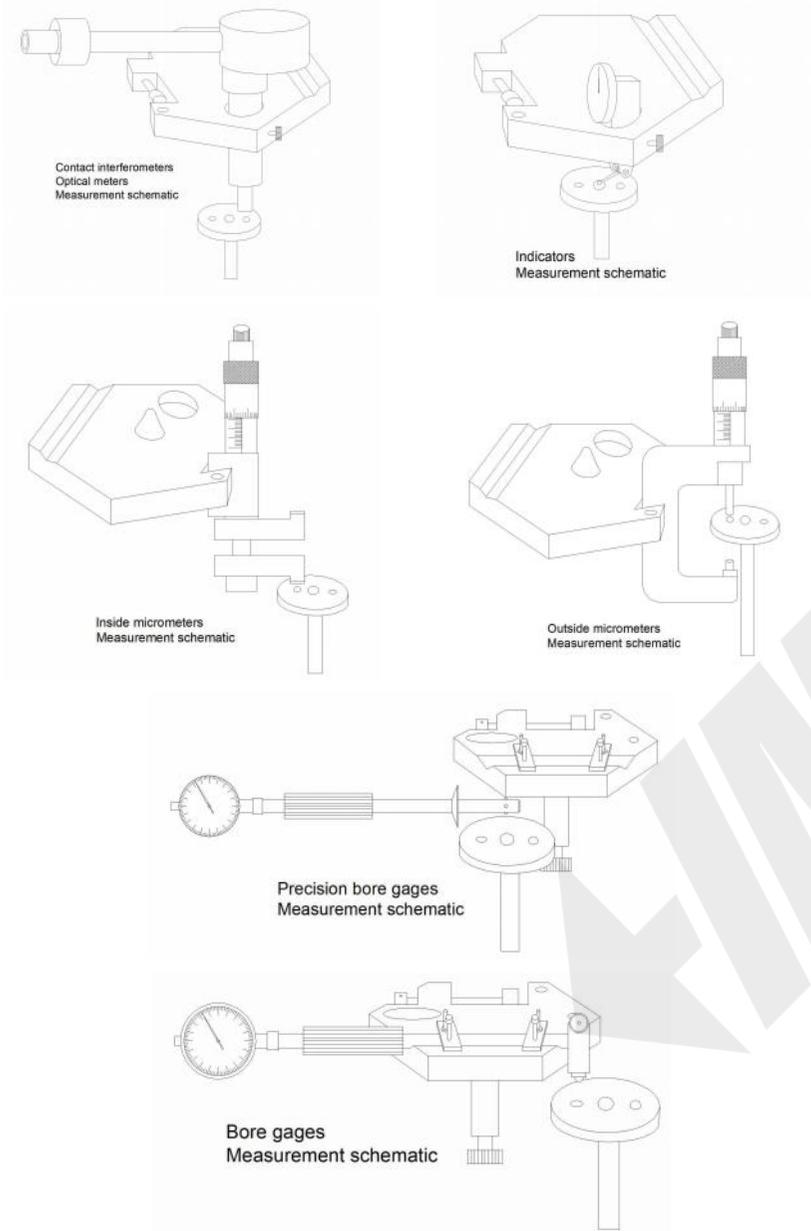


Fig.2 Measurement Schematic

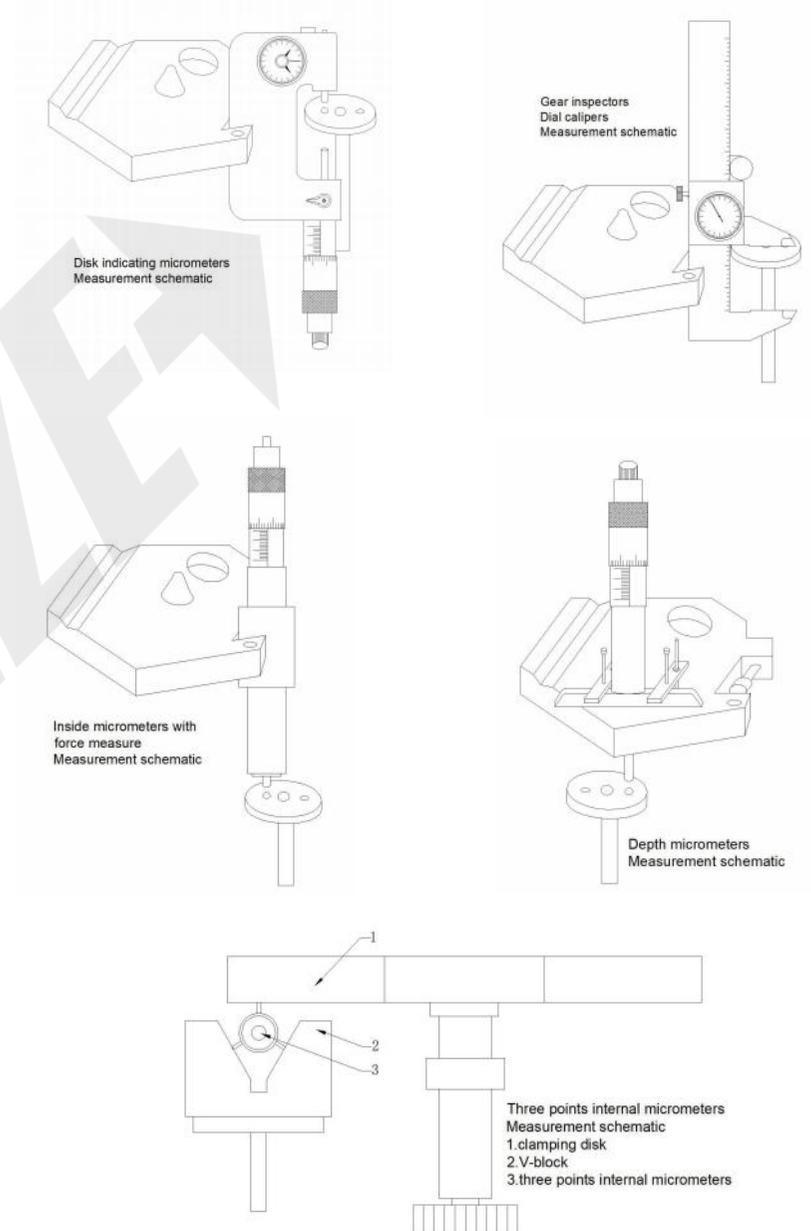


Fig.2 Measurement Schematic