

The Morehouse Ring Dynamometer is an easy-to-use instrument designed to measure mechanical forces. Its applications include checking mechanical and hydraulic presses and calibrating universal testing machines, Brinell hardness testers, weighing systems, and other force measurement systems. It is a simple-to-use device recommended when a load cell system cannot be used.

When force is applied to the ring, a change in diameter, or deflection, occurs. The indicator measures this deflection in terms of divisions, which is translated into force by means of a calibration.

The ring used in this force measuring device is machined from closely controlled alloy steel, which has been forged to obtain the proper metal grain structure. After rough machining, the ring is heat-treated and then ground to size. The diametrically opposite protrusions on the ring's outside diameter are known as external bosses and serve as the loading surfaces of the ring.

Smaller protrusions on the inside diameter of the ring are known as internal bosses and are necessary for the positive location of the deflection measuring dial indicator. The external and internal bosses are machined as integral parts of the ring so that the uninterrupted metal will conduct elastic reactions free from mechanical interference. The upper boss has a spherical surface, while the lower external boss is ground flat. These design features facilitate axial loading, which is important in accurate force measurements.

Experience has proven that a ring of selected alloy steel, properly constructed and heat-treated, will perform as a nearly perfect elastic member. The limitations in accuracy are attributable to the deflection measuring devices used within this type of instrument. A special, fully jeweled indicator further measures ring deflection under load to ensure the desired high degree of accuracy and reliability. Accuracies of 0.05% of load can be expected using a Morehouse Ring Dynamometer.

Features include:

- Accuracy of 0.05 % of range
- An analog device, no wires or power required
- Calibrated at specific force loads
- Constructed from closely-controlled alloy steel



Care and Adjustment

Since the accuracy of the ring dynamometer is directly dependent on the dial indicator, the instrument should be handled carefully. If the dial indicator shows evidence of malfunction, the ring dynamometer should be returned for repair and recalibration.

In operation, the zero setting of the dial indicator is made by rotating its bezel. Otherwise, the dial indicator has been positioned at assembly and normally should need no further adjustment. If, for some unusual reason, the dial indicator needs repositioning, it can be readily accomplished. Release the clamp screw in the center of the back of the ring dynamometer (see Figure 6) until the dial indicator is snugly seated. Then turn the adjusting screw (see Figure 6) to bring the indicator pointer to an approximate upright position. Tighten the clamp screw and complete the precise zero setting by turning the bezel of the dial indicator.

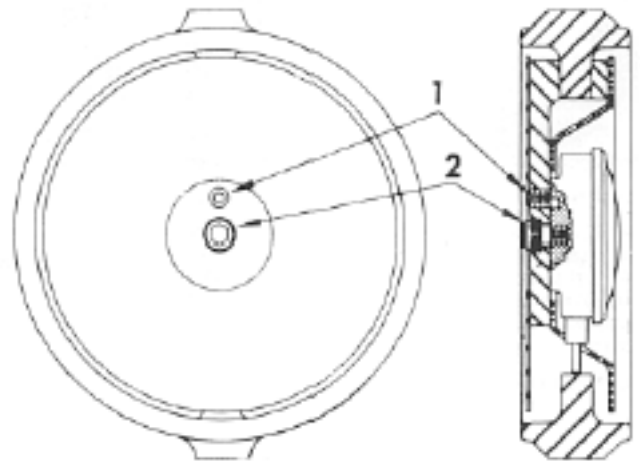


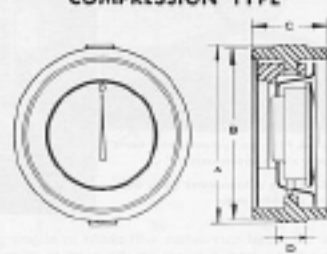
FIGURE 8 1—ADJUSTING SCREW 2—CLAMP SCREW

Specifications

- Uncertainty: 0.05% of range at calibrated load. (Equal to 0.5 lbf per 1,000 lbf capacity)
- Capacity Load Reading (approximate): 10,000 lbf capacity and less – 925 divisions.
- 10,000 lbf to 50,000 lbf capacity – 850 divisions.
- 100,000 lbf to 300,000 lbf capacity – 650 divisions.

- Readability:** 0.2 division
- Sensitivity:** 0.1 division
- Calibration:** All Ring Dynamometers are calibrated in accordance with ASTM specification E74.
- Indicator Accuracy:** Meets or exceeds A.G.D. specifications.
- Standard Capacities:** See dimensional charts. (Also available Newton, and special capacities.)

COMPRESSION TYPE

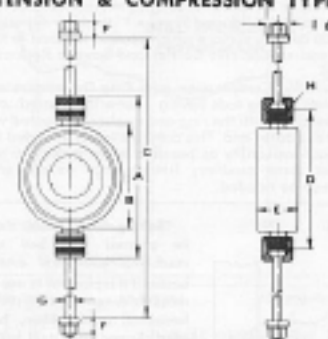


DIMENSIONS—INCHES

Cap. lbf	A	B	C	D
500	5-3/16	5-3/8	1-1/2	3.14
1,000	5-5/8	5-7/16	1-1/2	3.14
2,000	6-3/4	5-0/16	1-1/2	3.14
5,000	6-1/8	5-15/16	2-1/8	1
10,000	7-7/16	6-7/8	3	1-1/4
20,000	7-3/8	7-1/4	3-7/16	1-3/8
50,000	10-1/4	9-3/8	4-3/8	1-1/2
100,000	11-1/2	10-7/16	4-5/8	0
200,000	13	11-1/2	4-7/8	0
300,000	16-1/4	14-3/8	6-1/8	2-1/2

LARGER CAPACITIES ON REQUEST

TENSION & COMPRESSION TYPE



DIMENSIONS—INCHES

Cap. lbf	A	B	C	D	E	F	G	H	I
50	1-1/4	5-1/2	9-1/2	11-3/4	11-3/4	3/4	1/2	100	1-1/2
100	1-1/4	5-1/2	9-1/2	11-3/4	11-3/4	3/4	1/2	100	1-1/2
200	1-1/4	5-1/2	9-1/2	11-3/4	11-3/4	3/4	1/2	100	1-1/2
500	1-1/4	5-1/2	9-1/2	11-3/4	11-3/4	3/4	1/2	100	1-1/2
1,000	1-1/4	5-1/2	9-1/2	11-3/4	11-3/4	3/4	1/2	100	1-1/2
2,000	1-1/4	5-1/2	9-1/2	11-3/4	11-3/4	3/4	1/2	100	1-1/2
5,000	1-1/4	5-1/2	9-1/2	11-3/4	11-3/4	3/4	1/2	100	1-1/2
10,000	1-1/4	5-1/2	9-1/2	11-3/4	11-3/4	3/4	1/2	100	1-1/2
20,000	1-1/4	5-1/2	9-1/2	11-3/4	11-3/4	3/4	1/2	100	1-1/2
50,000	1-1/4	5-1/2	9-1/2	11-3/4	11-3/4	3/4	1/2	100	1-1/2
100,000	1-1/4	5-1/2	9-1/2	11-3/4	11-3/4	3/4	1/2	100	1-1/2
200,000	1-1/4	5-1/2	9-1/2	11-3/4	11-3/4	3/4	1/2	100	1-1/2
300,000	1-1/4	5-1/2	9-1/2	11-3/4	11-3/4	3/4	1/2	100	1-1/2

LARGER CAPACITIES ON REQUEST