OPERATING INSTRUCTIONS

Clamped Boss Load Measuring Rings

78-0050 to 78-0860

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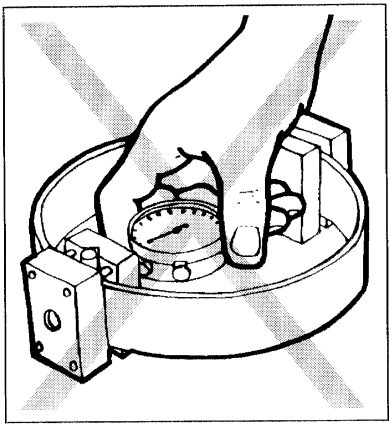
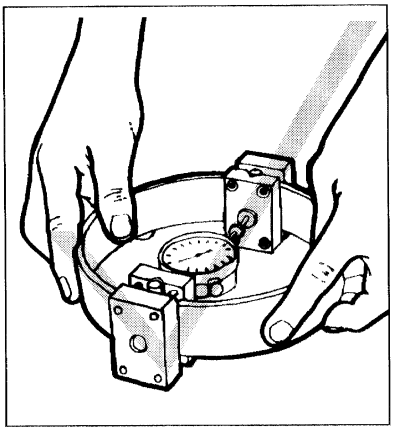
Contents





Warning

Do not lift the load ring by the dial gauge

Attention

Ne pas soulever l'anneau de charge par la jauge à cadran

Warnung

Lastring nicht mittels der Meßuhr anheben

Advertencia

No levante el anillo de carga tomándolo por el calibrador

تحذير

لاترفع حلقة الضغط من
مقياس الحركة المدرّج

1 Introduction

The use of high tensile steel for load measuring rings enables an operator to reduce the total number of rings required to cover a wide range of loading.

The load frame attachment pads are threaded as follows:

1 kN to 50 kN: ½ inch BSF

50 kN tension ring only: ½ inch x 16 TPI Whitworth

Each load measuring ring is supplied complete with deflection measuring dial gauge which is fitted before the calibration of the load measuring ring and is retained in its mounted position when supplied. It is not advisable to disturb the dial gauge mounting or replace the dial gauge unless the ring is to be recalibrated.

Do not tamper with the eight retaining screws securing the pads to the ring. If for any reason these screws are removed or loosened then the ring must be returned to ELE for resetting and calibration before further use.

2 Setting Up Procedure

Each load ring is supplied with a ball nipple for seating onto the equipment to be measured. The procedure for using the ball nipple with the range of clamped boss load rings is as follows:

1 kN – 50 kN load rings, compression application: screw ball nipple into bottom pad.

2 kN – 28 kN load rings, tension application: remove ball nipple.

50 kN load ring calibrated in compression and tension: compression application: screw ball nipple into bottom adaptor, tension application; screw adaptors into top and bottom pads.

For setting up in specific applications please refer to the relevant operating instructions for the equipment being used.

Ensure that the dial gauge plunger anvil is in contact with the load ring adjustable anvil before applying any load. The load ring anvil should be adjusted so that the gauge reading corresponds to the calibration chart being used, eg. for compression: zero load, zero gauge reading, and for tension: zero load, maximum gauge reading, (assuming that the dial indicator is identical for both tension and compression tests).

Lock tight the load ring anvil after adjustment.

Check that the dial gauge plunger has free movement and returns to zero position when released.

Ensure that the load measuring ring is tightly screwed onto its load frame fittings.

3 Ring Factor Calculation

ELE load rings are calibrated over the range of the device at 10 calibration points, the results of which are provided on the calibration certificate supplied with each load ring.

In order to determine, with the greatest degree of accuracy, load against deflection between the calibration points, the following procedure is recommended.

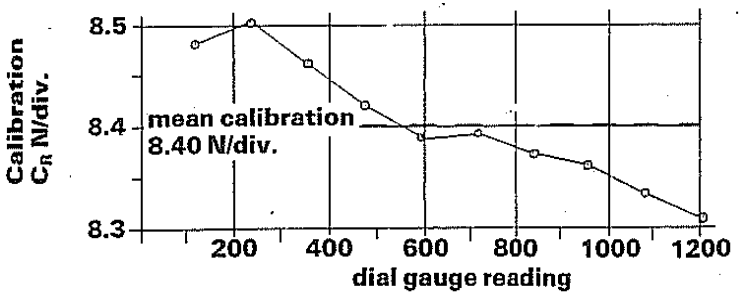
- Calculate the ring factor C_R (N/div.) at each calibration point by dividing the force by the dial reading. *Typical values are shown on line 3 of Table 1.*
- Plot the C_R values against the dial reading at the calibration points. *Fig.1 shows typical graphical results.*
- The force at any dial reading can be calculated accurately by multiplying the dial reading by the C_R value.

Table 1

Calibration of load ring no. LR 581 (10 kN)

Load kN	1·0	2·0	3·0	4·0	5·0	6·0	7·0	8·0	9·0	10·0
Gauge reading	117·9	235·2	354·5	475·0	596·1	715·0	836·1	956·8	1079·9	1205·7
Calibration C_R N/div.	8·482	8·503	8·465	8·421	8·388	8·372	8·372	8·361	8·334	8·308

Fig. 1



Notes

- If the dial gauge reading under zero load is not zero, differences from the zero reading must be used.
- The working range of a load ring is normally considered to commence at a reading equal to 10% of that indicated at maximum designed working load. Below 10% the greatest deviation from linearity occurs, and unless calibration data is provided, use within this range may give unacceptable inaccuracies.

4 Maintenance

It is recommended that the load measuring ring is recalibrated at intervals not greater than two years.

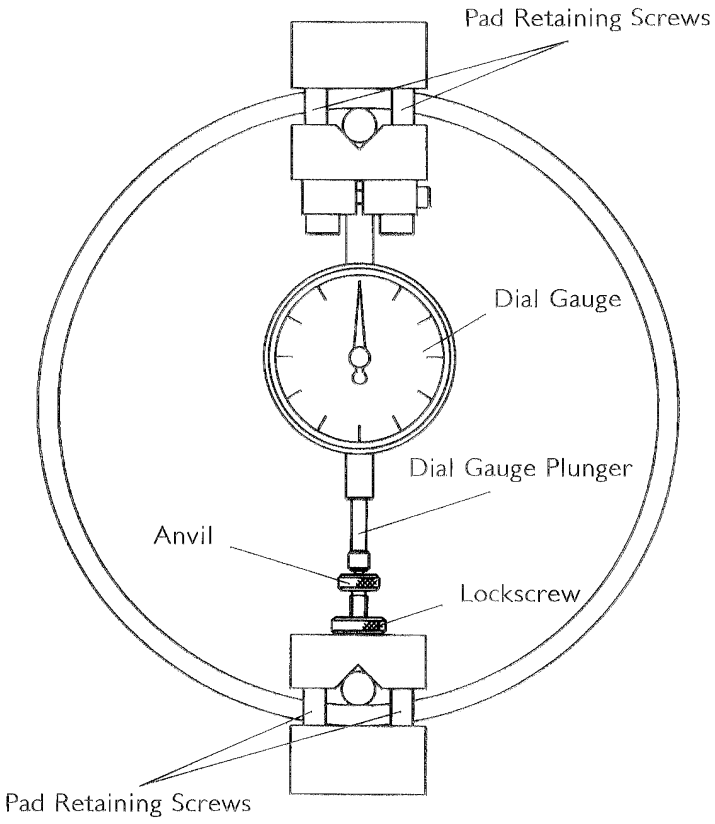


Figure 1 Clamped Boss Load Measuring Ring