

**INSTRUCTION FOR USE OF  
MODEL 45  
DIRECT READING DIGITAL RING FORCE GAUGES**

**The Digital Ring Force Gauge** is relatively simple to operate. If maximum accuracy is desired, the Ring Force Gauge should be placed near the location where it is to be used and allowed to stabilize at the ambient temperature, which will prevail during its use. Deviations from the temperature at which the Digital Ring Force Gauge was calibrated will cause errors of approximately 1% for every 70 degrees F.

**PREPARATION FOR LOADING**

When preparing the Digital Ring Force Gauge for use, first connect the Ring's signal cable to the back panel of the Remote Digital Indicator. The Digital Indicator should be plugged into a 115 V, 60 cycle single phase power source. The ON/OFF switch for the Digital Indicator is located on its back panel. After all connections are made the Digital Indicator should be turned on and allowed to warm up approximately 25 minutes before use.

**COMPRESSION:** If the Ring Force Gauge is to be used with the spherical surface or button on the top boss, a piece of cold rolled steel of suitable thickness should be inserted between the spherical surface of the top boss and the upper surface against which it will bear. This will prevent the spherical surface from possibly indenting and damaging the surface against which it will be bearing.

The surface against which the lower boss will bear should be flat so that non-axial loading is held to a minimum. Additionally, the unit stress under the lower boss should be calculated to be sure that the surface will not be damaged during loading. It may be wise to use a hardened and ground steel bearing plate under the lower boss to prevent damage. For information about hardened bearing plates please do not hesitate to contact us.

Special consideration is required if the Ring Force Gauge is to be loaded through a steel ball in place of the spherical surface on the top boss and the flat surface or load base on the lower boss. When loading through a steel ball, the surface opposing the steel ball should have a ball seat approximating the dimensions shown on the attached drawing numbered A-99331.

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The threaded hole in both the upper and lower boss of the Ring can be used as a ball seat. Ordinarily, a steel ball bearing of the proper alloy and having dimensions as shown on drawing numbered A-99331, can be used as a loading ball, and can be obtained from most machinery supply companies.

**TENSION:** There are no special instructions for mounting tension type Ring Force Gauges that are not obvious, except to keep any special attachments or adaptors in as close alignment as possible.

## **OPERATION**

After mounting the Ring Force Gauge in the press or other assembly in which it is to be used, the instrument should be exercised two or three times. That is: load the ring to its rated capacity or to the capacity of the device, which is being checked, whichever is less, and release the load. After exercising the ring, reset the Remote Digital Indicator to zero if necessary. The digital indicator is set to zero as follows:

While depressing the down arrow ( $\nabla$ ) button of the front panel of the Indicator also depress the "P" button. The display of the Indicator will show "tArE" while these keys are depressed. When the keys are released the Indicator will show 0 on the display.

Maximum (peak) and minimum (valley) load values are automatically stored in memory by the Indicator. The maximum (peak) and minimum (valley) measurement is not instantaneous. They are based on a nominal two second response time. They can be recalled at any time and can be viewed as follows:

The maximum (peak) load value can be recalled by depressing the "P" button on the front panel of the Indicator, one time. The minimum (valley) load value can be recalled by depressing the "P" button twice. The display will flash "PEA" for maximum load or "UAL" for minimum load followed by the current value. The value will be displayed for approximately 15 seconds followed by "END". The Indicator will then return to normal operation.

These values are held in memory till reset. The Indicator should be reset each time it is turned on in order to erase old values from memory .

To reset the maximum (peak) value first depress the "P" button. While "PEA" is displayed depress the down arrow ( $\nabla$ ). While depressing the down arrow ( $\nabla$ ) depress

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"P". To reset the minimum (valley) value first depress the "P" button twice. While "UAL" is displayed depress the down arrow (∇). While depressing the down arrow (∇) depress the "P" button. After either of these steps the display will show "rESET" and then "End" and the value will be erased from memory.

### **FREQUENCY OF RECALIBRATION**

The question of "**How often should a Digital Ring Force Gauge be recalibrated?**", is a difficult question to answer. Some specifications require that instruments of any nature used to check or calibrate production or general inspection devices and gauges be recalibrated annually or biannually. However, where no particular specification must be complied with, the following general rules may be used as a guide:

1. When the Ring Force Gauge is being used on a daily basis under conditions where it is subjected to vibration and infiltration of dirt and grit and the utmost in accuracy and reliability is required, semiannual recalibration is suggested. If it is not subjected to possible infiltration or contamination under the above conditions, annual recalibration is suggested.
2. If the Ring Force Gauge is used two or three times a week to make general force measurements to the highest possible degree of accuracy, annual recalibration is suggested.
3. If the Ring Force Gauge is used two or three times a month to check or calibrate another force measuring device or machines such as presses, testing machines, load cells, etc., biannual calibration is suggested.

### **REMARKS**

**We do not know all the applications for which Ring Force Gauges are used, nor do we know what the limitations are with respect to adaptors, which are attached to the Rings ...they both appear to be limitless. However, do not hesitate to contact us if you have any questions about how the Rings can be applied, or about adaptors you may want to attach to them.**

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