

## THROTTLING DEVICES

A throttling device should be used when a pressure gauge is subjected to rapid pressure fluctuations, which make the gauge difficult to read because of rapid pointer movement. Such a device reduces pressure impact, slows the speed and range of pointer movement, and prolongs gauge life.

Throttling effect is obtained by installing a restricting orifice between the gauge socket connection and the bourdon tube. Several types are available: throttle screws, pressure snubbers, pulsation dampeners, Gauge Saver® and the Campbell MICRO-BEAN.

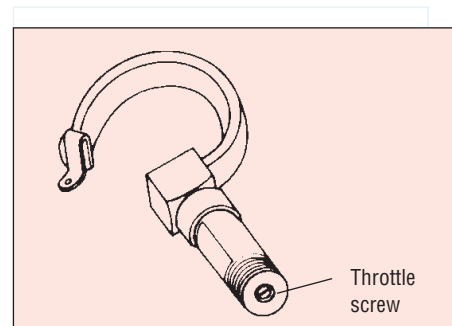
Severe service applications are characterized by the presence of significant levels of pressure pulsation and/or vibration. Gauges should be protected from severe pressure pulsation by the inclusion of a dampener such as a throttle plug/screw or porous metal snubber. If the pulsation is extreme, a liquid-filled gauge, with dampener, should be used. A liquid-filled gauge will also last significantly longer than a comparable dry gauge when vibration is present. If the vibration levels are extreme, the only solution may be to remotely mount the gauge away from the source of vibration. In that case capillary tubing may be used to connect the gauge to the pressure source.

## THROTTLE SCREWS

The simplest means of providing a restriction in the socket, a throttle screw, should be ordered with the gauge. Threaded or pressed into an instrument socket, the throttle screw orifice selected is based on the viscosity of the pressure fluid, rapidity of pressure fluctuations, and the amount of dampening effect desired.

A smaller orifice should be used for low viscosities, high frequencies, high pres-

sure and reduced pointer amplitude. To accommodate these variables, throttle screws are available in these sizes: 0.0135, 0.020, 0.031, 0.040, and 0.070 inches, in brass and stainless steel. When orifice size or service condition is not specified, a 0.020-inch orifice will be supplied on Royal pressure gauges 0.0135, on 3½" Regal Gauges.



## STATIONARY RED SET HAND



### Stationary Red Set Hand

to indicate a specific pressure. Ring must be removed to move the hand.

## OVERLOAD STOP



### Overload Stop

to protect gauge system against extreme overpressure.

## SPECIAL DIAL



### Special Dial

ranges different from standards, or custom artwork, available on application.

## MAXIMUM POINTER



### Maximum Pointer

available for gauges 4½" size and larger. Indicates maximum pressure attained. Can be reset by a knob on outside of window.

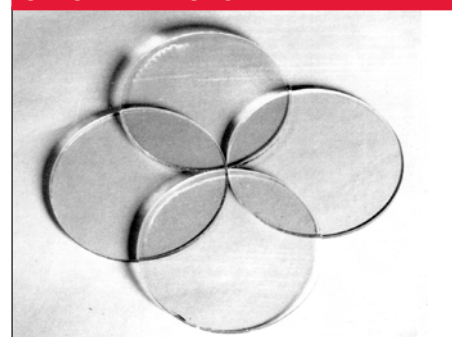
## VACUUM STOP



### Vacuum Stop

to protect low range gauges against vacuum.

## OPTIONAL WINDOWS



**Plastic Disc** – optional for glass window  
**Laminated Safety Glass** – optional for glass window  
**Nonglare Glass** – optional for glass window

**ELECTRIC WARNING CONTACTS**

The electric contact feature is a switching mechanism actuated by the indicating pointer. Switch points are adjustable and can be set throughout the 270° arc. Contacts are used to activate alarms and relays. (Not recommended for continuous switching). The Weksler electric contact is an ideal accessory to turn on a signal light, sound an alarm, or operate a pump or valve. The contacts can easily be set so that a circuit can be closed or opened at a desired pressure or temperature. Settings can be easily made in the field without removing the instrument from service. Contact adjustment is made externally with a removable key to make the instrument virtually tamper proof. Contacts are equipped with adjustable magnets to eliminate chatter caused by vibration. A plug-in connector with five feet of electrical cable is standard.

**STANDARD FEATURES**

- High impact polycarbonate enclosure for ambient temperature up to 150°F
- Full scale contact adjustment from front of enclosure
- Available on ranges 30 psi and up
- Magnetically assisted, silver alloy contact
- Accuracy ±2% of scale arc (add to instrument accuracy)
- Rated for ¼ amp. 110 volt AC non-inductive load
- Available in: 4½" case styles #2\*, #4, #6, "A"  
6" case styles #2, #4, #6, "A"

Model	Code	Contact arrangements
2265	XED	High and low contact
	XEE	Double high contact
	XEF	Double low contact
	XEG	"OFF" at low and high, and "ON" in between

\* Style case #2 with lower connect comes with DIN Connection. No cable, mating connector available at extra charge.



Indicating accuracy of Royal Gauge, above 300 psi with contact: Pointer not carrying contact – 1.0%. Pointer carrying contact – 1.5%. For ranges below 30 psi, add an additional ½% to indicating accuracies.

**TEST GAUGE CARRYING CASE**

This rugged blow-molded high-density polyethylene carrying case accommodates the standard 4½", 6 & 8½" Regal analog test gauges. It accepts both lower and back connect gauges. A foam insert protects the gauge when not in use. Type No. 2505.



**TOOLS**

**Hand Jack Set** – gauge pointer remover and a pointer set to secure pointer to the shaft. Type No. 3220.

**Ring Removal** – For the 3½" Regal gauges. Includes 2½" and 3½" wrench and nest. Type No. 1206T.

**Small Tools** – For the 3½" Regal gauges. Includes pointer puller, span adjust wrench, slotted screw driver for pointer adjustment, pointer staker and pinion backup. Type No. 1205.

**Gauge Tool Kit** – A complete kit for gauge maintenance. Includes hand jack set, screw driver, five reamers, pin vise holder, wiggler and tweezers all packed in a neat carrying case. Ideal for a gauge maintenance shop. Type No. 1105T.



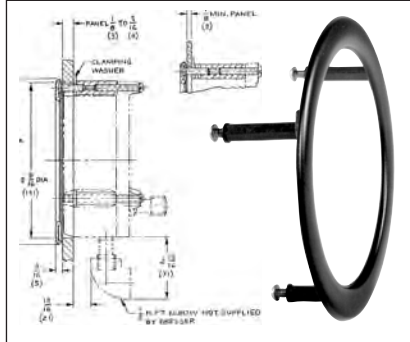
**ROYAL AND REGAL GAUGE OPTIONS**

CODE	DESCRIPTION
XNN	Paper Tag on Gauge
XNH	SS Tag Wired to Gauge
XMN	SS Tag Wired to Gauge
XOS <sup>(1)</sup>	Overload Stop
XVS <sup>(1)</sup>	Underload Stop
XTS	Throttle Screw
XDM	Dial Markings
X6B	Cleaned for Oxygen Service
XGV	Silicone Filled
XSH	Red Set Hand
XSJ	Dual Red Set Hands
XEP*	Max. Indicating Hand
XEQ*	Min. Indicating Hand
XSG	Safety Glass
XPD	Plastic Window
XC1	Certificate of Conformance
XC4	Calibration Certificate

\* Not available in 3½" Regal

(1) Standard for 3½"

**TYPE 1278M FLUSH MOUNTING RING**



Gauge Size (inches)	Ring O.D. (inches)	A Dia. (inches)	"B"-Three Screws
			Size
4½	6.000	5.625	#10-24 x 1½"
6.765	7.25	¼-20 x 1½"	

Used to flush-mount 4½" and 6" Royal and bellows type gauges. Standard finish is black; polished stainless steel finish is available at an extra charge, 4½" and 6".

**FLUSH MOUNTING RING**

CODE	DESCRIPTION	TYPE	MOUNTING MATERIAL
56	Flush Mounting	1278M	Black
57	Rings*	1278MC	Polished SS

\*For 4½" and 6" Royal / Regal gauges manufactured after 10/1/04

**TYPE A-1285**

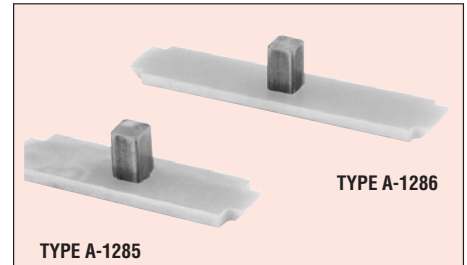
**Ring Wrench – 4½"**

(For installing front threaded rings in 4½" #2, #4 safety cases)

**TYPE A-1286**

**Ring Wrench – 6"**

(For installing front threaded rings in 6" #4 aluminum safety cases)



TYPE A-1285

TYPE A-1286