

## Pressure Gauge Technical Brief

### Proof Pressure and Burst Pressures

#### Heavy-Duty Pressure Gauges and Diaphragm Seal Assemblies

In general, there are two types of over pressure ratings for bourdon tube pressure gauges, proof pressure (often times called Over-Pressure) and rupture pressure (often times called Burst Pressure)

Per ASME B40.100 a pressure gauge should not be operated continuously at greater than 75% of scale. Furthermore, ASME B40.100 defines proof pressure as the maximum amount of pressure the bourdon tube can withstand without changing the accuracy of the gauge. Rupture pressure is defined as the maximum pressure which the bourdon tube can hold before developing a leak.

Reotemp Instrument's Heavy-Duty Pressure Gauges (Model PR, PT) are built to withstand infrequent pressure spikes of up to 130% of the element range without significantly altering the accuracy of the instrument. This is the proof pressure for these gauges. The only exception to this proof pressure is for gauges over 5,000psi, the proof pressure is 110% of scale.

Sample tests of completed bourdon tube/socket assemblies of the gauge models above have been tested to verify burst pressures and the following burst ratings were derived from those tests:

<u>Gauge Range</u>	<u>Burst Rating</u>
15 - 200psi	10x Gauge Range
300 – 1000psi	5x Gauge Range
1500 – 4000psi	2.5x Gauge Range
5,000psi +	1.5x Gauge Range
10-300 inWC (Model PC)	75psi

It is recommended, per ASME B40.100, that pressure gauges be operated at a steady pressure between 40-65% of the element range. If pressure surges or extreme pulsation could occur it is strongly advised that snubbers or pressure limiting valves (overload protectors) are used to prevent damage to the pressure gauge and avoid process leaks.

#### Diaphragm Seal Assemblies

When diaphragm seals are assembled to pressure gauges and other pressure instruments the following definitions apply:

Proof Pressure is the maximum pressure that the complete assembly can withstand.

Maximum Process Containment Pressure is the maximum pressure the diaphragm seal can withstand without leaking any process fluid.

Please contact Reotemp Customer Service at (858) 784-0710 for further questions or application support.

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