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Diaphragm Seals

PIP #: DS/PI-05

Applicable to:

VOLUMETRIC DISPLACEMENT OF TYPE 300 TEFLON DIAPHRAGM SEAL

When a diaphragm seal is attached to a pressure measuring element, the diaphragm must have sufficient displacement to operate the element and a low spring rate, so that there is a minimal effect on the unit accuracy. The effect, if any, on the accuracy is due to the fact that the diaphragm rate adds to the spring rate of the pressure element/seat assembly.

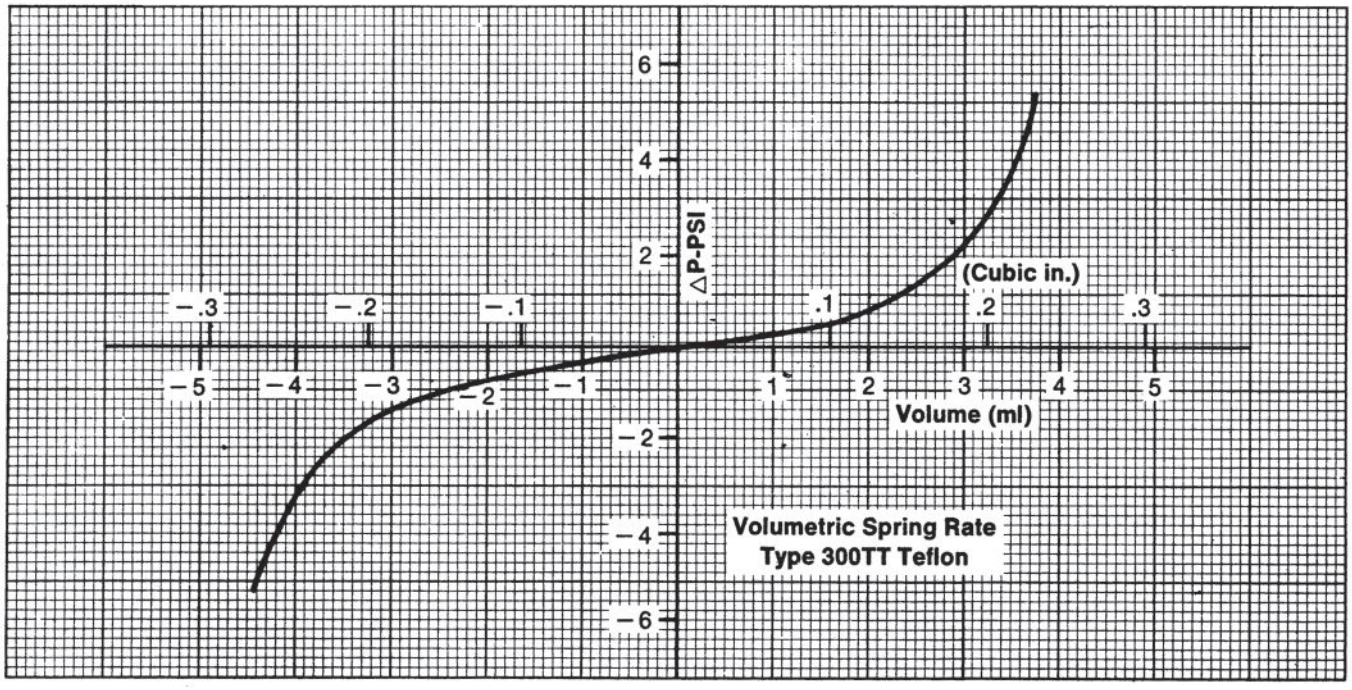
Although the Teflon Diaphragm Seal was designed primarily for use with C-Tube pressure gauges, it is suitable for use with other pressure instruments. The volumetric spring rate curve for the Teflon Seal shown below will allow you to 'predict the effect of the diaphragm on any pressure element with a known volumetric displacement.

The volumetric displacement of a 4½″ 100 psi Bourdon Tube Duragauge is approximately 0.05 cubic inches and from the curve you'll note that the diaphragm does not add significant spring rate to the assembly (gauge attached to the seal).

The result is no measurable effect on the accuracy and no need for recalibration.

A different type of pressure element having a range of 30 psi and a volumetric displacement of 0.2 cubic inches requires (from the curve) 3 psi for full deflection. 3 psi is 10% of the instrument's range and this is the induced error. Recalibration would be required.

The curve also includes vacuum and can be used for both vacuum or pressure applications.



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