ASHCROFT®
Trust the shield.®

Diaphragm Seals

PIP #: DS-PI-04

Applicable to:
All Diaphragm Seals

DIAPHRAGM SEALS
FAILURES AND CORRECTIVE STEPS

Three conditions account for the majority of diaphragm failures. They are:

1. Corrosion
2. High Temperatures
3. Filling Leakage

The following measures can be taken to combat these causes:

Corrosion

Diaphragm corrosion is due to choosing the incorrect material for a particular service. Modern chemistry is so complex that it is difficult to set up hard and fast rules regarding proper diaphragm materials. For example: A change in concentration or temperature of a chemical will cause corrosion which will not occur with the same chemical at a different concentration or temperature.

Diaphragm failures are seldom of a mechanical nature as diaphragm deflection (for the entire range of a Bourdon tube pressure gauge) is only a few thousandths of an inch. Never probe into the attachment with a sharp object such as a screw driver which can pierce the diaphragm.

If it is necessary to clean the attachment, use the removable type which permits the lower housing to be removed without disturbing the liquid seal.

Dissimilar metals in contact with one another can also cause galvanic corrosion.

Chemical attack on housings are seldom serious as housing thickness is many times greater than diaphragm thickness. Most metal diaphragms are only .004″ & .005″ thick for design reasons.

If a corrosion failure occurs consult your plant metallurgist or Ashcroft Inc. for a recommendation. When making such a request be sure to forward all possible service details. These should include: exact chemistry, concentration, temperature and pressure as well as additional pertinent data.

High Temperatures

High temperatures can cause the diaphragm to bulge outward. When such bulging occurs, the type of liquid fill should be examined. If the fill being used is unsuitable to the process temperature, a suitable fill should be used. When the attachment or gauge is to be refilled with another fill liquid it is important to thoroughly clean out the old liquid. The “Liquid Filling Procedure for Chemical Gauges and Attachments” section explains the proper method of liquid filling.

Filling Leakage

Failure due to leakage of filling may be due to nicked gasketing surfaces at the O-ring on the diaphragm capsule stud or the gauge connection into the attachment may not be tight. Therefore a new O-ring, a new top housing (if the seal surface is nicked); or tightening may be needed.

All specifications are subject to change without notice.
All sales subject to standard terms and conditions.
© 2015 Ashcroft Inc.

ashcroft.com
info@ashcroft.com
1.800.328.8258