# DIAPHRAGM SEAL INSTRUMENT INSTALLATION INSTRUCTIONS

## HANDLING AND INSTALLATION

Diaphragm Seal Instruments, whether they utilise a pressure gauge, switch, or transmitter, are highly accurate and sensitive measuring instruments. It is therefore necessary to handle these instruments very carefully at all times, but especially whilst removing them from their packaging or during transportation, storage and installation. We have prepared the following guidelines for handling which should be followed in order to maintain the accuracy and reliability of your Diaphragm Seal Instrument.

### Visual Check

All our diaphragm seal instruments are subject to stringent testing and approval before leaving our premises, ensuring they are in full working order. We package our instruments to provide maximum protection during transportation. However, we have no control over the items once they leave our works. Excessive shocks to the packages during transportation can cause damage to the system we recommend that all such packages are checked upon receipt for any signs of damage.

### Removal of Packaging

Care must be taken when unpacking Diaphragm Seal Instrument as this has proved to be one of the main instances when damage occurs. The complete system should be lifted or carried in both hands, preventing undue stress on the connections. This is especially important when the measuring instrument is connected to the seal by a length of capillary, when it may even be advisable to employ a second pair of hands to help.

Always remember that the connections of the system are constructed to withstand pressure in the plane of flow of the process medium once they are in situ. Exerting too much force on any part of the system may cause hairline fractures and result in at least reduced life of the system and at worse system failure, with system accuracy being most affected.

### Transportation

The head of the system (pressure gauge, switch or transmitter) and the seal itself should be supported independently and lifted as one unit. If the system is remote mounted by means of capillary, never use the capillary as a carrying handle as the joints are the most sensitive part of the system and also the most susceptible to damage. We would also recommend that the work space where the system is unpacked is free from other obstructions (screws, tools, metal particles, etc) to prevent any possibility of damage to the seal itself.

When removing the cover just prior to installation, the use of tools is not recommended and this part of the installation procedure should be performed with great care to prevent touching the diaphragm itself. Never press the diaphragm with the hand under any circumstances.

### Installation

When installing a capillary diaphragm seal instrument the capillary should be gently bent into the position it will finally occupy. Being heavy handed during this process could easily cause cracks in the capillary which will cause the system to fail. Once installed it is also recommended that the capillary is fixed into place to minimise movement and vibration (as in a strong wind) which could create an unstable output signal. Before installing your diaphragm seal instrument on a new process line ensures that, the pipelines are thoroughly cleaned and free of loose metal particles. The use of standard gaskets is recommended with care being taken to observe any temperature influences or limitations. The gasket should not cover the diaphragm. All screwed joints should also be sealed and opening these joints should not be attempted under any circumstances.

When bolts and a gasket are used for mounting process flanges, it is advisable not to over tighten these bolts. Consult the data for the gasket and bolts used for advice on the maximum permissible torque.

### Maintenance

Under normal circumstances the diaphragm seal does not require maintenance. If the diaphragm seal instrument seems to be giving false readings then it should be removed immediately, checked for damage and then tested with a testing device. If the diaphragm seal is damaged or tests prove the reading is unreliable it must be repaired or replaced.

### Safe Diaphragm Seal Selection

Choosing the right diaphragm seal instrument whose materials of construction, ratings and other specifications are chemically and functionally compatible with each application is very important. Proper attention to the selection, installation, operation and maintenance of the diaphragm seal system is crucial to ensure safe and appropriate performance. The expertise of your process system designer is vital in this regard.