WISE CONTROL INC.

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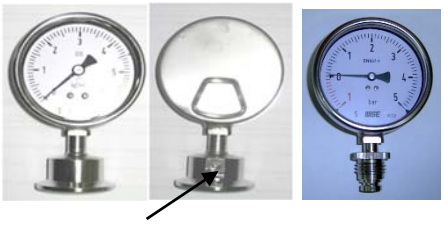
USE AND INSTALLATION OF PRESSURE GAUGES

P752, P753 SERIES

SANITARY PRESSURE GAUGE

WARNING

- Misuse of pressure gauges may cause explosion and personal injury. Do not use without first reading and understanding these instructions and apparatus installation and operating instructions.
- The user must ensure that the appropriate pressure gauge with regard to scale range and performance and the appropriate wetted material (corrosion) for the specific measuring conditions of the respective application is selected. In order to guarantee the accuracy and long term stability specified, the corresponding load limits are to be observed.
- Only qualified persons authorized by the plant manager are permitted to install, maintain and service the pressure gauges.
- Dangerous pressure media such as oxygen, acetylene, flammable gases or liquids, toxic gases or liquids as well as for refrigeration plants or compressors requires attention above the standard regulations. Here the specific safety codes or regulations must be considered.
- Serious injuries and/or damage can occur should the appropriate regulations not be observed.
- Instruments should be protected against coarse dirt and wide fluctuations in ambient temperature.
- Do not damage the diaphragm. Scratches on the diaphragm (caused by sharp objects, for example) are the main causes of corrosion.
- Never undo the sealed filling screw



1. General

- A diaphragm seal (isolator) is a device which is attached to the inlet connection of a pressure instrument to isolate its measuring element from the process media. The space between the diaphragm and the instrument's pressure sensing element is solidly filled with a suitable liquid. Displacement of the liquid fill in the pressure element, through movement of the diaphragm, transmits process pressure changes directly to a gauge, switch or any other pressure instrument. When diaphragm seals are used with pressure gauges, an additional 0.5% tolerance must be added to the gauge accuracy because of the diaphragm spring rate.
  Used in a variety of process applications where corrosives, slurries or viscous fluids may be encountered, the diaphragm seal affords protection to the instrument where:
- The process fluid being measured would normally clog the pressure element.
- Pressure element materials capable of withstanding corrosive effects of certain fluids are not available.
- The process fluid might freeze due to changes in ambient temperature and damage the element.

2. Installation instructions

- To protect the measuring system from mechanical damage leave it in the factory packing until installation.
- When removing the measuring system from the factory packing and during installation treat the system with particular care to prevent damage and mechanical deformation of the diaphragm.
- Never undo the sealed filling screw on either the diaphragm seal or the measuring instrument.
- For sealing choose appropriate seals.
- For flange fitting use a seal with adequate large inner diameter and center it. Contact with the diaphragm leads to deviations in measurement.
- When using soft or PTFE seals, observe the instructions of the seal manufacturer, especially with regards to tightening torque and setting cycles.
- For installation use appropriate fixing position, screws and screw nut according to fitting and flange standard.

3. Temperatures

To ensure long life and accuracy, pressure gauges should preferably be used at an ambient temperature between -30 to +65C. At very low temperatures, standard gauges may exhibit slow pointer response. At high temperature, the class accuracy is to be observed. When selecting the diaphragm seals, the pressure and temperature stability of the fittings and flange components has to be observed by choosing suitable materials and pressure ratings. The pressure rating marked on the diaphragm seal is valid for ambient temperatures. For higher temperatures the max. working pressure should be taken from the industrial standard marked on the diaphragm seal.

4. Use in hazardous areas

Use of diaphragm seals with pressure measuring instruments in hazardous areas:

- When using diaphragm seals with pressure transmitters in hazardous areas, the permissible ambient temperature limits for the pressure measuring instrument must not be exceeded. Hot surfaces at the part cooling element (capillary or cooling tower) might also be a possible ignition source. Appropriate measures have to be taken.
- When mounting diaphragm seals with flame proof throttle, the permissible ambient temperature is determined by the mounted pressure measuring instrument. In an explosive atmosphere the temperature around the flame proof throttle must not exceed +60 ℃. See also supplement to operating instructions for diaphragm seals with built in flame proof throttle.

5. Maintenance instructions

Under normal circumstances the diaphragm seal measuring system requires no maintenance. Tests should be carried out on are regular basis to guarantee the measuring accuracy of the pressure gauge. The tests or recalibrations have to be carried out by qualified persons with the appropriate equipment. For dismounting the measuring system must be in an unpressurised condition. Remainder of the pressure medium contained in the pressure element may be hazardous or toxic. This should be considered when handling and storing the removed pressure gauge.

In case of polluted, viscous or crystallizing pressure media, it may be necessary to clean the diaphragm from time to time. Only remove deposits from the diaphragm with a soft brush and a suitable solvent. Do not use aggressive cleaning agents.