

AMBIT DIAPHRAGM SEALS

PREVENT CORROSION OR CLOGGING OF PRESSURE INSTRUMENTS

GENERAL

Ambit Diaphragm Seals are designed to form a satisfactory barrier to halt the ingress of the process medium into a pressure measuring instrument. Without such a barrier the service life of the instrument would be greatly reduced and/or its performance severely degraded.

Typical applications are:—

- **WHEN THE PROCESS MEDIUM WOULD CHOKE OR CORRODE THE SENSING ELEMENT.**
- **WHERE UNACCEPTABLE PRESSURE FLUCTUATIONS ARE PRESENT.**
- **WHEN THE PROCESS IS AT AN ELEVATED TEMPERATURE.**
- **TO ISOLATE THE INSTRUMENT FOR SANITARY PURPOSES.**
- **WHEN THE PROCESS IS VISCOUS OR COULD POSSIBLY SOLIDIFY.**

The seals illustrated and detailed in this brochure represent just a general cross section of the many types that can be designed and supplied to satisfy the most difficult applications found throughout many industries.

WORKSHOP FACILITIES

The Ambit workshop facilities have all the necessary equipment and personnel to provide a fast seal service for new instruments or repair/overhaul work.

This workshop service also extends to the fitting of our seals to instruments of the customer's own supply.

MOUNTING CONFIGURATION

Ambit seals and the pressure instrument can be supplied direct connected, or remote connected via a stainless armour capillary tube having a length of up to 30 metres. (This length will vary depending on the instrument/seal/range combination).

Where high temperatures are present we recommend that a heat dissipating extended neck be interposed between the seal and the instrument. Such applications will also normally require the selection and use of a suitable high temperature fill fluid.

FILLING

Filling of seals is a special technique that requires both expert knowledge and equipment. Careful consideration must also be given to the correct selection of the seal fill transfer fluid to ensure chemical compatibility with the process, especially where the process is hazardous, explosive or in the food industry.

Due care must also be exercised to eliminate or minimise the hydrostatic effect present with extended capillary systems in particular with low pressure applications where there is a difference in the relative mounting positions of the instruments and the seal.

FILLING FLUIDS

Many filling fluids are available to suit a broad range of situations and applications throughout various industries, and the selection of a suitable fluid is usually governed by chemical compatibility and operating temperature.

As a general guide (other than for hazardous applications) our standard filling for applications over the temperature range of —10 to 200°C is a Silicone oil, 200 fluid 350 CS.

This fluid is non-toxic and may be used for applications in the food and beverage industries, however for known foodstuffs applications we would normally use medicinal glycerine or a vegetable oil.

Special fills are used for temperatures up to 400°C and/or when a dangerous reaction could occur in the event of a ruptured diaphragm.

ACCURACY

When correctly filled and assembled, the combination of instrument and diaphragm seal can normally be calibrated to perform with the same accuracy to which the instrument was originally manufactured. This approximate degree of calibrated accuracy can be assured on remote mounting combinations up to 260°C. provided a P.T.F.E. (Teflon) diaphragm is specified. However, with other combinations, temperature effect can only be estimated. For example, at 200°C a seal with a metal diaphragm could have a temperature error effect of approximately 35kPa.

NEGATIVE PRESSURE (VACUUM) APPLICATIONS

A combination of minute amounts of entrapped air, the relative rigidity of the seals diaphragm, and vapour pressure of the fill fluid, limit the performance of such seals in negative pressure applications, and as a general guide indications of negative pressure over —70kPa cannot be relied on.

MATERIAL CHOICE

Most of the seals detailed in this brochure are manufactured in 316 stainless steel which according to our experience satisfies a very high percentage of applications. We do however build seals of most other available metals or plastic materials when required by the customer and enquiries for special applications are always welcome.

Many diaphragm protections are available such as P.T.F.E., Tantalum Silver etc., details on request.

AMBIT SALES ENGINEERS ARE ALWAYS AVAILABLE TO ASSIST WITH ADVICE ON ARDUOUS APPLICATIONS.

AMBIT PRESSURE CALIBRATIONS ARE TRACEABLE TO NATIONAL STANDARDS VIA OUR N.A.T.A. ACCREDITED LABORATORY.