

Static Pressure Transmitter Measurement

In-line front bonded diaphragm pressure transmitters



ABB can reduce installation costs and optimize preventative maintenance for water and wastewater, pulp and paper, and other applications where plugging is possible.

Measurement made easy

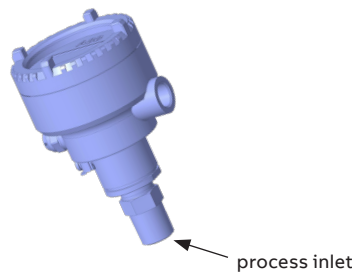
01 Standard in-line, static pressure transmitter

02 Standard static pressure transmitter process connection showing void area

03 Typical isolation diaphragm

Introduction

One of the most popular and often used form factors for static pressure transmitter measurement from many different suppliers is the “in-line” version shown below.

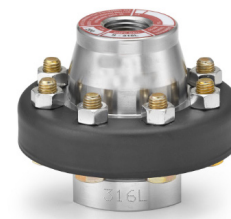


01

This form factor provides a compact, easy-to-install and cost-effective package that can be installed and used in a variety of gas and liquid services. However, in applications where entrained solids or pulp could be present, potential issues exist whereby the void at the transmitter’s inlet could become plugged, leaving the transmitter unable to measure, or worse, the constant exposure to abrasive material could cause premature diaphragm failure.

Solution

One industry solution that has been available in the past is the addition of an Isolation Diaphragm.



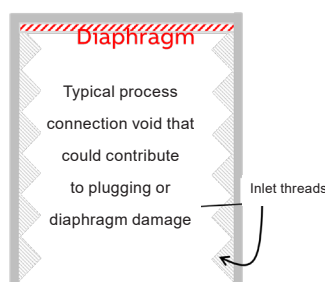
03

With this solution, an isolation diaphragm is purchased. Then, a third party provider is often required to assemble the diaphragm and pressure transmitter together after filling the top half of the diaphragm with a silicone oil under a vacuum. This process adds hardware and labor cost but is necessary in order to provide the added protection required to protect the transmitter inlet from plugging. Also note that while this approach can indeed help protect the transmitter the inlet to the isolation diaphragm can be prone to plugging as well.

Process connection cutaway detail for typical 1/2 NPT female connection



02



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In-line front bonded diaphragm pressure transmitters

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01
ABB front-bonded
diaphragm

With the new ABB PxS100 line of pressure devices, we have developed a specific model targeted for applications where entrained solids are likely to be present. This model differs in that its diaphragm is bonded to the front of the transmitter's process connection entry point instead of being recessed in the body as in the case of other models. This innovative "front bonded" diaphragm provides a barrier to pulp and entrained solids and prevents them from entering and coming into contact with the measuring diaphragm, insuring proper operation and prolonged service life.

PGP100 benefits for applications where plugging is a potential issue:

1. Cost effective – no additional hardware to purchase and no additional labor for assembly.
2. Ease of Maintenance – if transmitter ever needs to be replaced, there is no additional isolation diaphragm to worry about.
3. Fewer leak points.
4. ABB's exclusive optional Diaflex diaphragm coating can ensure extra abrasion resistance if required adding, additional robustness when needed.

