ABSTRACT for the 2017 ISA WWAC Symposium

Measuring Pressure in Challenging Environments

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ABSTRACT

Misapplied pressure instruments can provide inadequate information, cease to operate or fail catastrophically causing significant damage to surrounding equipment or severe injuries to personnel. Therefore, it is extremely important that the correct devices be selected. This proposed paper and power point presentation are focused on the challenges an automation engineer would encounter when selecting pressure measurement instruments for difficult applications. The content will target installations where the instruments will be used to measure high particulate media (such as slurries) as well as operating in high vibration and pulsation environments.

Making the proper selection first requires the specifier to apply an understanding of a set of variables specific to the operating environment. These factors are related to both the environment that surrounds the instrument and the pressure media that will come in contact with the wetted surfaces. The ambient and process temperatures are also important, as extremes can inflict damage or loss of accuracy.

The system requirements will dictate the type of instrument necessary. A control device, like a pressure switch, is used to open or close a circuit to another device, like a servo valve or an alarm. If the purpose of the instrument is only to provide measurements to monitor a pressure source, then a variety of devices may be considered. The availability of power, the possibility of a hazardous combustion source, size restrictions, mounting requirements, pulsation and vibration effects and many other factors will determine whether the best instrument is a mechanical gauge, digital gauge or transducer/transmitter. Other qualifiers include the required accuracy, resolution, anticipated maximum pressure in the line and the need for instrument isolation from corrosives. Many applications require the ability for the instrument to provide a reading at the pressure source, some require that the instrument send a signal to a remote location, and others may require both.

Selecting the appropriate pressure instrument is crucial. The decision will affect the functionality of the system, cost and safety.

ABOUT THE AUTHORS

David Dlugos *has a BSEE degree and 36 years of experience in the measurement industry performing design engineering and product management. Earned 4 US patents. Joined Ashcroft in 2007, currently as the Global Technical Product Leader. ISA Senior member and Past President of the CT Valley Section. Contact: david.dlugos@ashcroft.com*