DPI 800 Pressure Leak Test Kits Help Reduce Gas Pipeline Maintenance Costs

GE Oil & Gas expands its use of the DPI 800 Series to perform more thorough checks on pipeline pigging systems

GE Oil & Gas offers a variety of services to assess the condition of pipelines for oil and gas companies. One of the services offered involves the use of pigging systems or pigs, which are mechanical devices inserted into pipelines predominantly to inspect the inside wall for cracks, corrosion and damage. The pigs are moved through the pipeline, in contact with the pipe walls, by the pressure of the product being carried. If the pig fails, the pipeline is blocked and rendered unusable until the pig is removed.

Before inserting the pig into the pipeline, technicians perform a variety of checks to ensure the system is operating properly. GE Oil & Gas is already using the DPI 802 pressure indicator/loop calibrator to validate the hysteresis of the pressure switches on pigs. This is a check that allows the operability of the switches to be predicted.

To prove the integrity of the pigging systems even further, GE Oil & Gas is using the DPI 800 to carry out definitive leak testing of the pig's associated pressure vessel, using a special leak test kit, consisting of a DPI 800 dual range pressure indicator with a vacuum pump, adaptors and a pressure hose.

Background

A pigging system pressure vessel contains all the system's control and measurement electronics. The pressure inside this vessel remains at atmosphere, while the pressure outside can be as high as 200 bar. If the pressure vessel leaks, the higher pressure from the outside renders the electronics useless, causing the pig to become inoperable. Performing a leak test on the pressure vessel significantly reduces the chance of failures, thus reducing the cost of extracting the pig and keeping the pipelines operational.

How It's Done

The leak test function built into the DPI 800 allows reliable and accurate leak testing of the pressure vessel. Typically, the DPI 800 (center) is connected to the pressure vessel (right) as shown in Figure 1. A hand pump (left) is used as the pressure source.

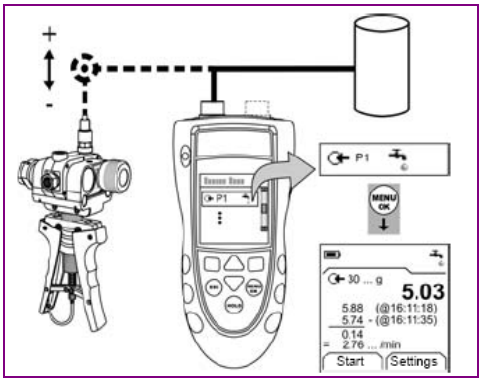

Figure 1: Typical Installation for DPI

The pressure ranges of the DPI 800 are 350-mbar absolute and 2-bar gauge. The 350 mbar absolute sensor is used for the vacuum measurement to measure and determine the leak rate of the vessel.

A vacuum of 10 mbar absolute is produced by the vacuum pump.

The 2 bar gauge sensor is used when back-filling the vessel with dry nitrogen. This is to provide an inert atmosphere for the electronics inside the vessel, to allow operation in the hazardous environment.

GE Sensing provided the complete solution, including the vacuum source, adaptors and connecting hoses, plus the robust and accurate DPI 800 with its standard Leak Test function, all in a tough carry case (see Figure 2, below).

Figure 2: DPI 800 Leak Test Kit

Why GE Sensing

The flexibility of the leak test function plus the accuracy of the DPI800 provide fast reliable results and reduce the likelihood of failure during the operation of the pipeline pig. The cost savings made as a result of this preventative maintenance can be huge for the customer.

As a result of the success of the first DPI802 units for the switch test, GE Oil & Gas have now placed further significant orders for a full test kit to complement the Leak Test kit detailed in this Application Note.

GE Sensing is now able to supply complete solutions for testing the pressure switch and pressure vessel on the pipeline pigs used by GE Oil & Gas, and there is great potential for selling similar test kits to other customers in this expanding market area.

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