

EPC OPTIMIZES SELECTION OF CLOSED DRAIN DRUM PUMP

A National Oil Company (NOC) in Africa planned a massive new inlet separation and boosting facility in a mature natural gas field. The plant's function is to take fluids from the existing gathering system and boost their pressure at the inlet of the existing gas and liquid processing facilities. This infrastructure compresses gas for commercial sale.

THE CHALLENGE

The EPC initially considered a centrifugal pump for the design of the closed drain drum pump, but struggled to find a solution that could handle very low suction pressure requirements together with a multiple-viscosity process flow. Considering this, there was a clear need to optimize the pump selection, combined with the fact that it was a constant flow application, and the fluids were flammable and corrosive.

THE SOLUTION

Working with a vendor that had in-depth knowledge and experience in complying with the specifications of the NOC customer was imperative. Identifying CIRCOR as that partner, the EPC worked closely with CIRCOR's Sales & Applications Engineering teams to develop the pump specification. As a result CIRCOR recommended a progressing cavity (PC) positive displacement pump per API 676 for this application, with double mechanical seals according to API plan 53B for the utmost in safety and reliability.

A PC pump consists of a rotor (or eccentric screw) surrounded by an elastomeric stator. Allweiler is one of the few global PC pump manufacturers to produce specially formulated elastomeric stators completely in-house to fit a wide range of applications. Quality control and testing for the stators is performed in-house by Allweiler, at the highest standards.



PC pump materials are particularly suitable for highly contaminated or high BS&W fluids such as produced water and raw gas condensates and can accommodate fluctuating working pressure, low NPSH and variable fluid viscosities with ease.

The EPC selected an Allweiler SNTP vertically mounted pump selected and designed according to API 676 3rd Edition with duplex stainless steel wetted materials for enhanced corrosion- and wear-resistance. The skid package included externally mounted pressure relief valves with auxiliary piping and flange termination at the baseplate edge for ease of installation and tie-in by the contractor.

To ensure that the customer was comfortable in the stator material selection considering the high concentration of sulfur process fluids, CIRCOR presented material test samples to demonstrate that the selected Allweiler HP (HNBR) stator material was compatible with and could withstand the actual process fluid characteristics over time.

THE RESULTS

Working with CIRCOR's experts collaboratively, the EPC was able to develop an acceptable and compliant solution. The complete package was delivered in accordance with the NOC's engineering, quality and testing standards.

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