CONSIDERING MULTIPHASE PUMPING?

If you are assessing for the first time whether your production system is a candidate for a multiphase pump installation onshore or offshore, we're here to help. There is more to consider than just the size and type of pump.

A multiphase pump system efficiently conveys unseparated hydrocarbons and accommodates a wide spectrum of gas fractions and flow regimes at the production manifold or wellhead, moving it to a central production facility via a single pipeline. Multiphase pumping technology helps to eliminate the costs of typical surface facilities such as separators, gas compressors, flow lines, flares and tanks. The resulting operating footprint is substantially smaller, and platform or infrastructure construction, maintenance and inspection costs just as substantially lower.

TOP TEN THINGS YOU SHOULD KNOW when investigating multiphase pump technology for your situation.

1. The two-screw pump [API STD 676] is the most common type of surface-installed multiphase pump in systems for gathering and boosting functions in certain oil and gas scenarios both on and offshore. With limited internal slippage but excellent suction, two pairs of opposed screws convey fluid to the center of the pump where the discharge port is located. This design helps to maintain proper wetting of the screws.
2. Suitable challenges for selecting this technology include needs to: (1) counteract persistent production declines and inlet pressure changes in mature or marginal fields; (2) simplify surface facility infrastructure to lower OPEX and CAPEX; and (3) address environmental compliance issues (gas emission, flaring).
3. Multiphase pump systems are inherently engineered to actively manage pressures at the wellhead and improve oil recovery. The ability to decouple wellhead pressure from the pressure needed to move production flow through surface facilities or pipelines makes this possible.
4. Reducing wellhead pressure is particularly useful in stimulating production in cases where mature reservoir pressure has depleted while well backpressure from surface facilities remains the same or increases.
5. Two-screw positive displacement pumps are volumetric solutions. Their primary purpose is fluid transfer, not pressure creation. Their size, capacity and power requirements are determined using established formulas that organize volumetric throughout by capacities, pressures and temperatures.
6. Combining fluid transfer functionality with the compression properties of production gas results in the speed of the pump determining the pump's inlet pressure and pressure at the wellhead.
7. Hydraulically opposite and equal forces keep the rotor axially balanced, increasing the multiphase pump's mechanical integrity; there is little or no wear of metal parts during the life of the pump, even as it overcomes the conventional challenges of moving sandy, sour or ultra-high GVF flows downstream.
8. The efficacy of the multiphase pump technology is best realized by surrounding the pumps with specialized equipment such as smart pressure, temperature and vibration sensors to manage pump operations through a customizable control module and variable speed drive.
9. As such, the pumping plan should provide for capacity to accommodate variability in flow rate over time, as well as redundancy and backup requirements. The modular multiphase pump system is also comprised of basket strainers, a power supply unit, power distribution and liquid recirculation and cooling.
10. Whether a system solution will work and the project economics are favorable depend heavily on a detailed analysis of the reservoir conditions and production impact and equipment performance across varying characteristics. It is crucial to work with a supplier that has the technical expertise to provide this analysis for your situation.

FOR ADDITIONAL INFORMATION VISIT:
circorpt.com/multiphase

CIRCOR

ALLWEILER® HOUTTUIN™ IMO® ROSSCOR®
SES INTERNATIONAL® SICELUB® WARREN®