

ESP with Jet Pump (Jet ESP)

Meeting standards



Advantages

- Increased drawdown and production gain in gassy wells
- Reliable design with no moving parts and minimized risk of failure
- Compact design allowing for passing high-DLS sections
- Steady tolerance for gas, solids, high- temperature, and corrosive fluids
- Easy wireline installation/ retrieval of the pump from the well

Applications

- Failure to achieve the potential of well productivity
- Remote locations
- Offshore fields
- ESP configurations under packer

Application limits

- Min casing size 5.5" (139.7 mm))
- Max sand 2,000 ppm (2,000 mg/l)
- Max free gas 75%
- Max BHST 302 °F (150 °C)

To improve production gain from gassy wells, we designed the ESP with a jet pump (Jet ESP). The Jet ESP stabilizes the pump operation and increases the drawdown. A jet pump and UHS ESP™ run in a single completion string are very effective against high gas content, as reducing bottom hole pressure, and gain the well production.

In gassy wells, gas often accumulates behind the annulus and increases the uplift pressure on the bottom. Faulty wellhead check valve, packer use, or high line pressures at the remote fields may lead it. As a result, the drawdown and well productivity reduces significantly.

Jet ESP artificial lift system combines Ultra-High-Speed ESP (**UHS ESP™**) and Jet Pump in a single completion string.

The jet pump is in the well tubing above fluid level. Jet pump nozzle is hydraulically connected to ESP discharge through the well tubing, while jet pump intake is open to the well annulus.

UHS ESP™ provides power fluid to the jet pump, where pressure decrease involves. Gas from the annulus injects into the mixing chamber, forming a mixture with the produced fluid, and points the mixture straight up to the wellhead. The reduced annulus pressure provides the reduction of bottom-hole pressure and increases drawdown resulting in production gain.

Figure 1. Performance curves of UHS ESP™ stages

