

Solution to increase production by 10-45% in deviated wells

Challenges

- Deviated sections in wells
- Additional costs for repair crew
- Need to deploy the ESP

Results

- Increase the fluid flow rate by 30–40%
- Fast installation of the equipment
- Reduced failure rate due to bending loads

Oil production optimization problems make companies cut costs and reconsider the choice of pumping equipment to boost the well operation. In many deviated wells cases, the optimization of production requires pumping unit deployment.

We offer a new solution to safely penetrate even highly deviated sections of wells and work in deviated and horizontal wells: the compact Ultra-High-Speed (12,000 rpm) ESP (UHS ESP™) by Lex.

About 1/3 of wells worldwide have deviated sections that limit the ability to install standard length equipment at the desired depth. When operating in the deviated area, the equipment has peak bending loads, leading to premature failures. As a result, up to 30% of the wells reserves remain untapped.

Sucker rod pumps or top drive cavity pumps may only be used in moderately deviated wells due to the risks of sucker rod breakage and back off and limited rotor speed. That is why oil companies are more likely to use submersible cavity pumps.

At the same time, companies limit the speed of lowering the equipment, increasing the installation time, and incurring additional repair crew costs and well downtime losses.

Developing our solution, we have reconsidered and adapted the Lex high-speed ESP for oil production in deviated wells.

The Lex Ultra-High-Speed ESP has a rotational speed of up to 12,000 rpm, resulting in a 10-fold

increase in the generated head.

This increase made it possible to reduce the number of stages in the pump and reduce its size. The increase in speed also influenced the reduction in the size of the gas separator and permanent magnet motor. Due to this feature, the length of the high-speed ESP became shorter by 2–3 times (up to 29.5 ft (9 m)) compared to standard equipment and work in previously inaccessible deviated sections of wells.

As a result, the reduction in the total length allows to bury the ESP and increase the fluid flow rate by 30–40% by lowering the bottom-hole pressure and buildup of the drawdown.