

Boosted GASSEP gas booster pump increased mean-time-to-failure by 281 days, decreased total failure index by 31 percent in Argentinian wells

CHALLENGES

- ESP installs at 6,000 to 9,000 ft in wells with perforations from 2,000 to 10,200 ft
- Bottomhole temperatures around 300°F (-150°C) made long-term operability of 375 Series motors with 4 ½-in. shrouds and 400 series pumps challenging
- Long fluid path from annulus to ESP's shroud inlet created negative pressure due to head losses in the gas separator
- Low pressure at vent holes led to direct fluid entry that bypassed the motor
- Shorter path resulted in motor overheat and increased friction losses due to scale buildup on housing

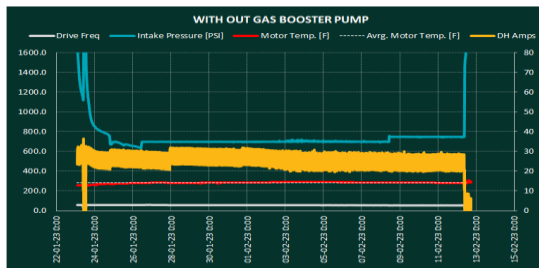
SOLUTION

Baker Hughes installed a Boosted GASSEP™ gas booster pump, which improved shrouded ESP operations by:

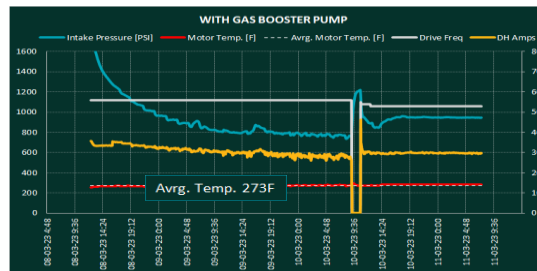
- Increasing the internal pressure inside the gas separator
- Preventing short-path fluid recirculation through the gas separator vent outlet holes
- Preventing higher temperatures in the motor winding by ensuring the production fluid recirculated through the entire shroud
- Improving gas separation operation with a more homogeneous fluid, with less free gas

RESULTS

- Increased mean-time-to-failure (MTTF) by 281 days
- Decreased total failure index by 31 percent
- Increased average ESP pump efficiency 3.1 percent
- Lowered motor's operating temperature
- Reduced scale in motors and shrouds
- Avoided pump locking for more stable production



Results before gas booster pump was installed.



The gas booster pump increased internal pressure in the gas separator.