

Operator Uses New Corsair™ 420 Series EMS Motor to Reduce Scaling and Limit Shutdowns

INCREASED PERFORMANCE AND RELIABILITY IN 5½-INCH CASING WITH HIGHER HORSEPOWER AND LOWER TEMPERATURE

NORTHWEST ALBERTA, CANADA

CHALLENGE

Mitigate the following issues with legacy 375 DMS motor:

- » Low horsepower
- » High operating temperature during low flow situations/low fluid velocities
- » Damage to MLE
- » Water scaling tendency

SOLUTION

- » Replace 375 DMS motor with new Corsair™ 420 Series EMS motor

RESULT

- » Delivered shorter motor designed for heavy wall 5½-inch casing
- » Increased horsepower by 51% over previous motor
- » Successfully lowered operating temperatures, with less slip and higher efficiency
- » Protected the MLE during installation

OVERVIEW

An operator in Alberta, Canada, needed a motor with a shorter overall length than traditional motors, which would generate more horsepower and run cooler. The operator was also struggling with motor lead extension (MLE) damage at the 375/400 motor connection. The existing procedure for these particular Canadian wells had been to run a 375 DMS motor with 400 Series pumps.

However, this slim motor was causing issues with the negative standoff near the 375/400 connection, resulting in MLE damage. The 375 DMS motor was also prone to experience high temperatures during low flow situations due to low fluid velocities.

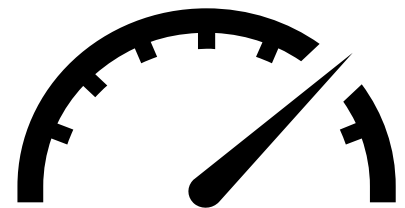
CHALLENGE

A main concern was the low horsepower (3.5 hp/ft) capability of the 375 DMS motor. Additionally, the 375 motor's outer diameter (OD) was not a good fit for the 5½-inch casing, and its motor longevity was impacted by the high operating temperature. There was also a tendency for water scaling due to the increased motor temperatures. The operator sought a better motor solution to address these issues, in addition to resolving a gas-locking problem that was causing non-productive time (NPT).

SOLUTION

The Halliburton Summit ESP® team recommended replacing the 375 DMS motor with the new Corsair™ 420 Series EMS motor, which runs at a cooler temperature in the same size casing. The newer model is also shorter in design, and has a more suitable outer diameter (4.2 inches) for the 5½-inch casing used to line these wells. This allowed the operator to fit the system in tighter tangent lengths at inclination. The 4.2-inch OD motor with 4-inch pumps and seals also provided protection of the MLE when installing. Finally, the 420 EMS motor was designed to produce 5.27 hp/ft, while the 375 DMS motor only produced 3.5 hp/ft – representing a 51% increase in power density.

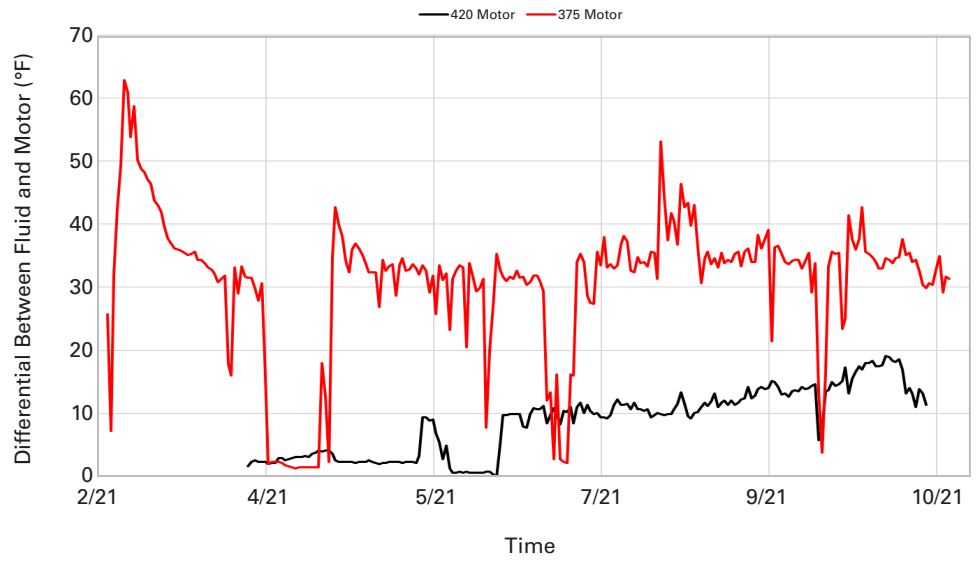
**INCREASED
HORSEPOWER BY
51%**



RESULTS

The shorter 420 EMS motor has performed at a higher level of efficiency, with less slip and lower operating temperatures – running 54°F (30°C) below the 375 DMS motor in the same size of casing. This reduced amount of heat will result in longer motor life, less scaling tendency of the water, and reduced shutdowns due to gas locking. Since this motor replacement, there is evidence of increased protection on the MLE because of the positive standoff. The customer is very pleased, and will continue using Summit ESP products because of the continual push for better solutions.

375 vs. 420 Motor in 5½-In., 17-Lb/Ft Casing



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