

Avenger™ Motor Lead Extension

OUTPERFORMS IN CORROSIVE HIGH-TEMPERATURE ACCELERATED LIFE TESTS

OVERVIEW

A weak point in the electric submersible pump's (ESP's) electrical system is the pothead electrical connection (also known as the motor lead extension or MLE) because it is required to act as both an electrical connector and a seal to the motor. Additionally, high wellbore temperatures and the heat generated from the motor can lead to premature motor failure.

Engineers from Summit ESP® – A Halliburton Service have developed the Avenger™ MLE as a cost-effective solution that is reliable in both high-temperature and gassy wells. To prove the design and pinpoint any deficiencies, Summit ESP engineers ran the Avenger MLE through a number of Accelerated Life Test Protocols (ALTPs), which were created in partnership with some of our customers. These tests were performed at our research and development (R&D) facility. Using a pressure vessel with 4,000 psi of carbon dioxide (CO₂) and nitrogen, a mixture of water and diesel fuel to simulate well fluids, and with temperatures cycled up to 500°F (260°C) for seven days, engineers tested both our legacy and Avenger MLE designs, as well as two other competitor potheads.

When the testing was completed, two fatal flaws were noted on the competitors' MLEs related to the internal rubber seal swelling because of thermal expansion and the impregnation of gases. Both flaws resulted in an electrical failure of the competitors' ESP, while the Avenger MLE was still functioning perfectly.



Summit ESP® engineers have designed the Avenger™ MLE to outlast competitor designs.



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FEATURES

- » Sealed internally, using an O-ring within the motor head to protect the seal
- » Protection against corrosive gases provided by a lead washer seated in a groove on the face of the pothead
- » Rubber component in the seal reduced by 90 percent to mitigate swelling issues
- » Surpasses the industry in thermal ratings up to 450° bottomhole temperature (BHT)
- » 24-hour availability of any length MLE due to rapid assembly, which is conducted in half the time of competitor MLEs
- » Historically proven tape-in connection creates a 260 percent longer arc path than is typical of the industry
- » Patent pending
- » Made in the U.S.

For more information, contact your local Halliburton representative or visit us on the web at www.halliburton.com

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