

Universal Permanent Magnet Motors

Meeting standards



American
Petroleum
Institute



Advantages

- Decrease cable losses by 25–40%
- Decrease surface equipment losses by 5–10%
- Efficiency up to 95%
- Higher pass-through DLS available due to compact design
- Stable operation at all range of frequencies

We develop and continually improve Lex Universal Permanent Magnet Motor (Universal PMM) technology, an alternative way to provide rotational energy for electrical submersible, screw or sucker rod pumps. Lex features a product range of Lex UPMM from 85 to 12,000 rpm operating speeds, high efficiency up to 95%, operational flexibility, lower motor heating rise, stable operation at any frequencies, and high-temperature environments up to 392 °F (200 °C).

PM Motor technology answers the challenges of saving resources, reliability growth, using power-saving solutions, depleting fields, production gain from complicated wells. PMM has technical and operational advantages vs. standard asynchronous motors: higher efficiency of 90–95%, lower heat generation, and low energy consumption, compact size, and lightweight.

The main difference between the permanent magnet motors and asynchronous motors is that the permanent magnets are mounted in the rotor instead of the short-circuited squirrel cage to reduce current loss. The electronic engine control system transmits alternate current to the stator coil, and the rotating electromagnetic field attracts the magnet poles to rotate the rotor. The rotor and stator are synchronized to omit slips and magnetic loss. The low starting current reduces the load on the entire electrical system's power network, extension cable, and insulation materials.

The range of Lex Universal Permanent Magnet Motors includes low-speed submersible motors at 85–1,500 rpm for cavity pumps; standard- and high-speed motors at 2,000–6,000 rpm; motors for Ultra-High-Speed ESP by Lex of 1,000–12,000 rpm operating speed; and 86–550 rpm motors for sucker rod pumps.

FIGURE 1. RATED POWER OF MOTORS

