Pleuger® PMM

High-Efficiency Submersible Motor with Permanent Magnet Technology for Electrical Submersible Pumps (ESP)
**New Pleuger Permanent Magnet Motor Type PMM**

The Flowserve Pleuger PM motor has been developed for the highest possible energy efficiency.

The permanent magnet technology guarantees approximately 10 percentage points better motor efficiency, resulting in a lower elevated temperature rise of the motor windings, increasing power output more than 100%.

The PM motor construction is based on the reliable Pleuger three-phase AC submersible squirrel cage induction motor. Permanent magnet (PM) motors are rewindable, synchronous electric motors. Variable frequency drives (VFD’s) must be used to start PM motors and bring the motor up to synchronous speed.

Submersible pumps equipped with a PM motor and a VFD are utilized to ensure the pump is operating at BEP (Best Efficiency Point).
Motor Type | Power Output (kW) | Efficiency (%) | Speed rpm | Length L (mm) | Diameter D (mm) | Weight kg (lb) | Maximum Permissible Thrust kN (lbf) | FA1 | FA2 |
---|---|---|---|---|---|---|---|---|---|
PMM6-270-4 | 5 – 20 (7 – 27) | 85 – 92 | 1500 – 4000* | 664 (26.14) | 144 | 49 (108) | 27.5 (6100) | 6 (1350) |
PMM6-530-4 | 15 – 45 (20 – 60) | 91 – 93 | 1500 – 4000* | 946 (37.24) | 144 | 79 (174) | 27.5 (6100) | 6 (1350) |
PMM8-610-4 | 50 – 200 (67 – 268) | 92 – 94 | 1500 – 3600* | 1438 (46.59) | 186 | 152 (335) | 55 (12 300) | 12.5 (2800) |

*) Depending on pump type, duty conditions and variable frequency drive (VFD)

**Permanent Magnet Technology:**
The magnetic field of the rotor is generated by permanent magnets fixed on the rotor.

**Induction Motor**
Asynchronous Motor (Squirrel Cage Motor)

**Permanent Magnet Motor**
Synchronous Motor

- Magnetization of squirrel cage rotor through stator → Copper losses in rotor
- Magnetization of PM-rotor via permanent magnets → No losses

**Comparison Motor Efficiency PMM6 Versus M6**

Power increases approximately 50% (PMM6) / or 100% (PMM8). About 10 (PMM6) / or 8 (PMM8) percentage points better efficiency and improved partial load conditions.

**Temperature Rise Comparison PMM6 Versus M6**

In total, there is ⅓ (PMM6) / or ¼ (PMM8) less temperature rise and therefore, significant increase of winding lifetime.

**Comparison Motor Efficiency PMM8 Versus M8**

**Comparison Temperature Rise PMM8 Versus M8**

Refer to selection of suitable VFD; please contact your regional Flowserve contact.
To find your local Flowserve representative:

For more information about Flowserve Corporation, visit www.flowserve.com or call +1 937 890 5839.