



# M-105 PMM Drivehead

We are a leader in the design, manufacture and supply of progressing cavity pump and artificial lift solutions worldwide. Our complete line of direct driveheads are specifically designed for use with progressing cavity pumping systems to meet your most demanding production needs.

The M-105 Permanent Magnetic Motor (PMM) is a part of the PMM series of direct drives, which offer the highest level of energy efficiency. The M-105 PMM is designed for high horsepower applications. Our dedication to safety is front and center in the PMM with an integrated failsafe resistive brake, a single rotating external part, and no overhung motor mass for a safe install. The PMM drive is a friend to the environment as it requires less energy to operate and is extremely quiet.

#### Features And Benefits:

- Safety provided by:
  - Integrated failsafe electronic resistive brake
  - Elimination of rotating parts, such as belts and sheaves
  - Perfectly balance lifting with no overhung motor mass
- Highly efficient motor that reduces electrical energy consumption and greenhouse gas emissions
- Delivers exceptionally high starting torque and rated torque efficiently over entire operating RPM
- Quiet operation – 68 dB at 10 feet (3 m)
- Provides a fully optimized system when paired with the Guardian II VFD

#### Options:

- 77,000 Ca90 lbf Thrust Bearing
- Rope style stuffing box
- Retrofit stuffing box
- Jam Pack stuffing box
- Leak Free integral stuffing box
- Alternate torque and speed windings
- Certified for use with alternate VFD's from ABB, Yaskawa, and Unico

#### Accessories:

- Polished Rod ejection clamp
- Booth guard
- Shipping/support stand

# M-105 PMM Drivehead

## Specifications

### General

- Drive Type– Direct
- Shaft Type– Hollow
- Drive Style– Bearing
- Input Style– Vertical
- Drive Ratio– 1:1
- Backspin Control– Integrated resistive braking through VFD

### Electrical

- Voltage– 480VAC
- Current– 100 Full Load Amps
- No. of Phases– 3
- Frequency– 50/60 Hz
- Rated Motor Efficiency (Motor/System)– 97.4%/92.9% from utility to rod string
- Hazardous Environment– Class I, Zone 2, AEx nA IIC 135%C (T4) -40°C ≤ Tamb ≤ +40°C  
Class I, Zone 2, Ex nA IIC 135%C (T4) -40°C ≤ Tamb ≤ +40°C  
Class I, Division 2, Groups A, B, C, D
- Service Factor– 1.15 @ 30 rpm, 1.15 @ 225 rpm, 1.05 @ 450 rpm

\* Ca90 load rating is for 90 million revolutions. Reducing load one half increases life 10 times. Reducing rpm by one half doubles hours of life.

\*\* Efficiency and RPM/Torque are typically derated at higher temperatures.

### Ratings

- Max. Output Torque– 1,000 ft-lbs (1355 Nm)
- Speed Range– 30-450 rpm
- Thrust Bearing– 165,000 ISO lbf (Optional 297,000 ISO lbf)
- Thrust Bearing\*– 43,000 Ca90 lbf (Optional 77,000 Ca90 lbf)
- Polish Rod Size– 1 1/4" (32 mm)
- Max. Operating Temp.\*\*– 112°F / 50°C
- Sound Level– 68 dB at 10 ft (3m)

### Dimensions

- Height w/ Integral Stuffing Box (max)– 56.2" (1427 mm)
- Height w/ Retro Stuffing Box– 72.7" (1847 mm)
- Diameter– 30" (760 mm)
- Maximum Width– 37" (940 mm)
- Weight (No Stuffing Box)– 1550 lbs (705 kg)

### Other Data

- API Wellhead Connection– 2 7/8" EUE Pin  
3 1/8" - 3000 psi R31 Flange  
4 1/16" - 3000 psi R37 Flange  
5 1/8" - 2000 psi R41 Flange

## Driving to the Bottom Line

Electrical energy savings can be considerable and drive to bottom line affordability when considering the installation of a PMM. With observed reductions in energy consumption from 10-20%, an indication of potential annual savings under different scenarios is presented in the following table. The assumptions are for a 100 hp equivalent top drive with an 85% load factor, with the all in cost of power at 12 cents/kWh.

Initial Base Power Consumed (kWh)	M-105 PMM Electrical Energy Reduction	Power Reduction	Power Price	Power Savings
555,000	10%	55,500	\$0.12	\$6,660
555,000	15%	83,250	\$0.12	\$9,990
555,000	20%	111,000	\$0.12	\$13,320

Total annual energy savings in specific applications will be dependent upon overall power consumption and the cost of power in a particular region.