

PMSM

Permanent Magnet Synchronous Motor

Permanent Magnet Synchronous Motor (PMSM) is a high-efficiency motor that uses permanent magnets to reduce energy loss, delivering lower power consumption, better performance, and cost savings.



Overview

Permanent Magnet Synchronous Motor (PMSM) is a high-efficiency AC motor that uses permanent magnets in its rotor, eliminating energy loss from electrical induction found in conventional motors. By rotating in perfect synchronisation with the stator's magnetic field, it delivers minimal heat loss, higher performance, and ultra-premium efficiency (IE5). PMSM is ideal for replacing traditional motors, offering significant energy savings, lower operating costs, and improved reliability for building and industrial applications.

Features

PMSM provides the following features:

- **IE5 Ultra Premium Efficiency**
Delivers very high energy efficiency, reducing power consumption and operating costs.
- **Multi-speed capability**
Can run at different speeds to match system demand and save energy.
- **Compatible with VFD (Variable Frequency Drive)**
Works with smart controllers to optimise speed, performance, and efficiency.
- **IoT-ready**
Supports real-time monitoring for better control, tracking, and maintenance.

Technology Benefits

- **Energy Savings (20% – 50%)**
Reduces electricity usage significantly compared to conventional motors.
- **Lower Operating Cost**
Cuts energy bills and overall long-term operating expenses.

- **Longer Lifespan**

Reduced wear and tear leads to more durable performance.

- **Lower Maintenance Cost**

Requires less servicing due to fewer losses and better design.

- **Smart System Integration**

Can connect with VFD and monitoring systems for better control and optimisation.

Applications

- **Buildings & HVAC**

Air Handling Units (AHU), Chilled water pumps, Cooling towers

- *Used for cooling & air circulation*
- *High energy usage (24/7 operation)*
- *Optimisation improves comfort & efficiency*

- **Industrial Systems**

Pump systems, Fan systems, Compressors

- *Used in manufacturing processes*
- *Long operating hours*
- *Major energy cost contributor*



PMSM motor driving an HVAC fan for efficient air circulation.

