



Ingeteam Indar Machines designs and manufactures customized electric rotating machines based on the requirements of each project. The **PMM** series of permanent magnet machines is a clear example of our product portfolio constant development. As a result, we adapt Indar machines to the market needs and regulation compliance requirements. Thanks to its knowledge and experience, Ingeteam is specialized in both, newbuilding and refurbishment projects. From a retrofit of a big tanker ship to install a **PM shaft-generator**, to design a **PM motor** with optimized efficiency for a grinding mill of a new building cement plant.

Main features

	PMM
Rotor Type	Permanent magnets
Frame Size	H≥630
Power	Up to 15 MW
Speed	Up to 600 rpm
Voltage	Up to 15,000 V
Temperature Rise Class	F / B
Thermal Insulation Class	Up to class H
Power Supply	PWM or DOL
Construction	Horizontal or vertical
Protection Degree	Up to IP 56
Cooling	Upon request (except IC411)
Bearings	Sleeve bearings
Main Options	Lubrication groups, hydrostatic groups, special sensors (vibrations, temperature, speed, etc.)

ADVANTAGES AND APPLICATIONS

MAIN ADVANTAGES

- ✓ Simple and robust design.
- ✓ Compact and low weight.
- ✓ Optimum power density.
- ✓ Proven reliability and endurance.
- ✓ Premium quality thermal insulation class.
- ✓ Optimized efficiency within the entire operation speed range.
- ✓ No need of external excitation.
- ✓ Versatility (Construction/configuration, operation modes, etc.).
- ✓ Operation under most severe operating conditions.
- ✓ Low maintenance level.

TYPICAL APPLICATION

- Marine: Propulsion, on-deck machinery.
- Metals: Rolling mills, crushers, extruders.
- Mining: Grinding mills, conveyor belts, hoists.
- Heavy duty fans, wind tunnels.
- Heavy duty pumps.
- Test bench.
- Pulp & paper.

STANDARDS & TESTS

Indar™ machines are designed, manufactured according to the criteria and standards of the IEC, IEEE or NEMA.

Thanks to our multiple test benches, every Indar machine is tested according to the above mentioned standards requirements as well as to any additional test required by each project.

When it comes to specific sectors such as the marine market, Indar motors are compliant with the requirements established by the various classifying bodies.

Additionally, special tests can be run on our combined power electronics and rotating electrical machine world class laboratory. This laboratory enables us to measure how the electrical machines operate once installed at their final destination, allowing for instance to test them at full load conditions or back-to-back configuration.

