



PDD®

Marine current turbine generator

PDD® Technology

Magnomatics' patented Pseudo Direct Drive PDD offers a significant advance over conventional PM motor/generator technology, achieving a step-change in continuous torque density of up to four times that of equivalently cooled permanent magnet machines while maintaining very high efficiency. This dramatic increase in torque density allows the motor to directly drive many loads where conventionally a motor and gearbox combination would be employed. It is highly suitable for applications ranging from hybrid vehicle drives to direct drive utility scale wind turbines and marine propulsion systems.

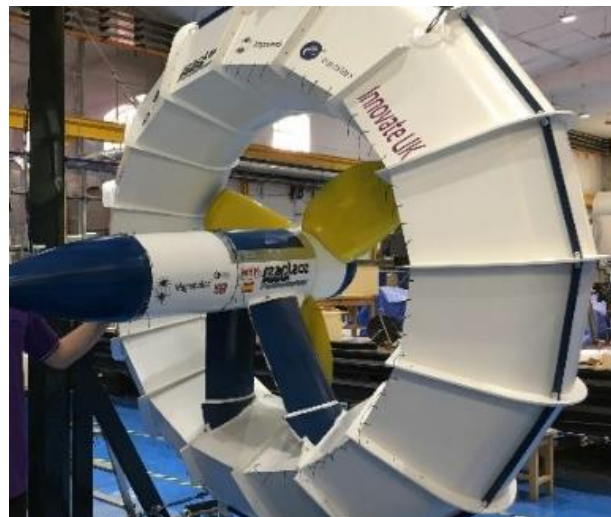
PDD® Motor - Key Benefits

- Very high efficiency over wide operating range, including high torque
- Can eliminate the requirement for gearbox, improving reliability and reducing maintenance
- Significantly smaller and lighter than direct drive equivalents
- Low cooling requirements
- In-built torsional compliance reduces drivetrain pulsations due to inverter harmonics
- Fault tolerant
- Utilises standard power electronics
- Low NVH
- Large airgaps enable high shock ratings



PDD® - High Torque Electric Generator for Marine Current Turbines

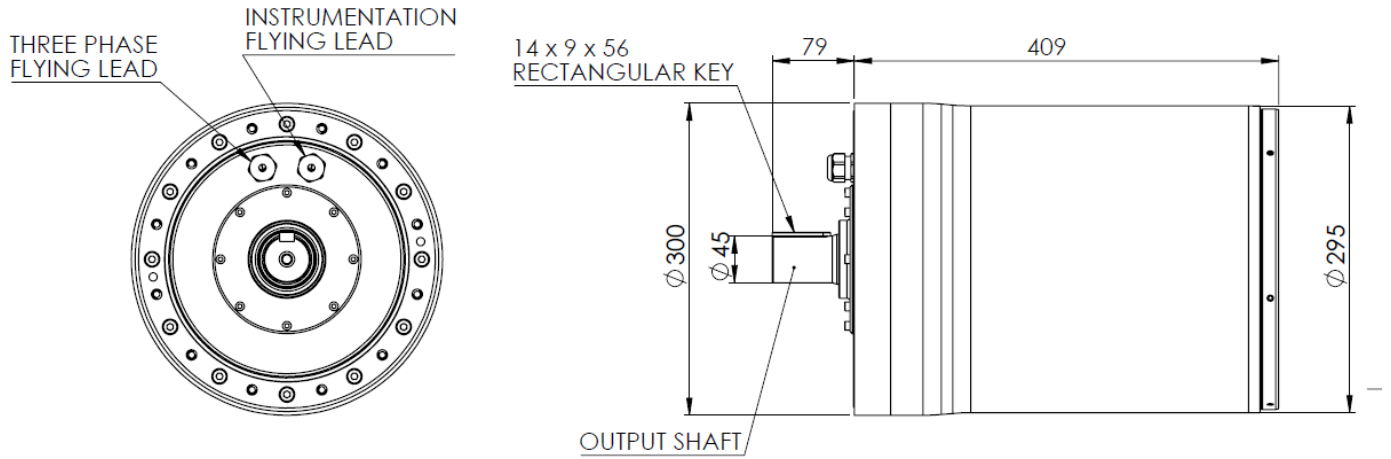
A PDD based generator capable of a rated direct torque of 525Nm (naturally cooled, fully submerged version) at a base speed of 100rpm, with high efficiency in a compact package. Given the PDD® generators very high torque density it is possible to fit the PDD where a conventional motor would not fit. The machine can be compatible with standard LV industrial drives (400V) or a 600V DC link supply fed inverter.



Typical Applications

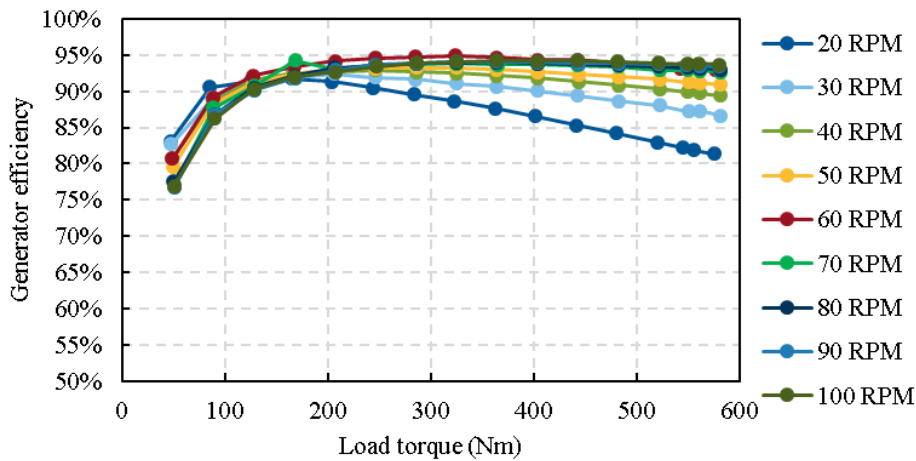
- Electric traction motors for light rail applications – compact, quiet and efficient power delivery direct to the driven wheels
- Renewable Energy Generation – Gearless power train with compact nacelle
- Marine Propulsion Systems - Direct drive to propeller, High efficiency, very compact, low noise
- Industrial Drives – Fans, pumps, etc.

Dimensions



Performance

Measured efficiency



Marine current turbine generator specifications

Peak Torque	660 Nm
Rated Torque	525 Nm
Base Speed	100 rpm
Max Speed	120 rpm
Peak Power	7.3 kW
Rated Power	5.5 kW
Supply Voltage	570 VDC
Case Diameter	295 mm
Case Length	409 mm
Total Mass	100 kg

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