

PDD® High Torque Traction Motor

PDD® Technology

PDD® traction motors deliver significant torque in a small volume, giving increased flexibility to vehicle designers. Through a fully integrated contactless magnetic gear the motor produces high torques at speeds appropriate for direct-drive of vehicle wheels. The removal of mechanical gear stages increases fuel efficiency, reduces maintenance requirements and increases reliability. The high torque capability of the PDD® is particularly suitable for commercial, construction, and defence Hybrid and Electric Vehicles.

Due to its high torque capability the PDD® can produce sufficient torque within the limited space of a wheel-hub and due to its large airgaps, is able to withstand the severe shock loads associated with wheel hub applications.



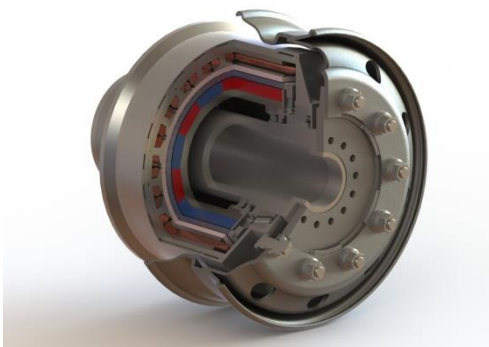
PDD® Traction Motor - Key Benefits

- Very high efficiency over wide operating range, including high torque
- Eliminates requirement for gearbox from drivetrain, 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
- Low NVH
- Operates with large airgaps to enable high shock ratings
- Fault tolerant

PDD® - High Torque Electric Drive for Commercial Vehicles

A 65kW rated motor capable of meeting the demands of a wheel hub drive for a city bus/truck. It can produce up to 3kNm of peak torque for vehicle launch, kerb climbing etc. Its rated torque and speed are 2.5 kNm at a base speed of 300rpm. Given the PDD® Traction motor's very high torque density, it is possible to fit the motor within the wheel hub where a conventional motor would not fit. Deploying traction motors within the wheels can also simplify the vehicle architecture (removing transmission shafts etc.) and can increase the space available for passengers/cargo.

- Full field weakening capability
- Low cogging torque
- Driven by conventional traction inverter
- Rated for 20g shock load
- Suitable for in wheel or inboard arrangements
- Range of voltages – up to 600 V DC link



Typical Applications



Commercial Vehicles

- High efficiency for stop-start driving cycles
- Increased payload with wheel-hub drive



Construction Vehicles

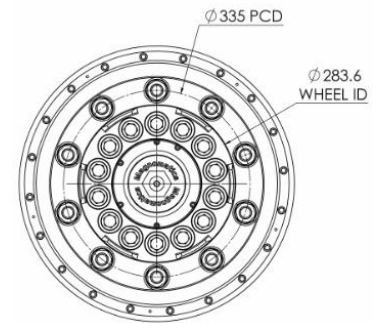
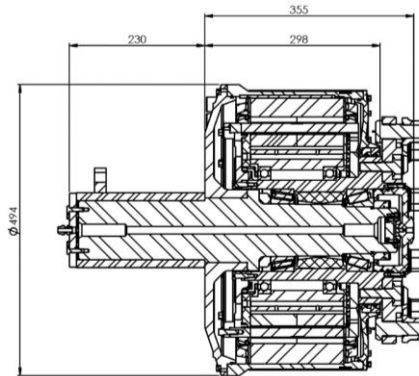
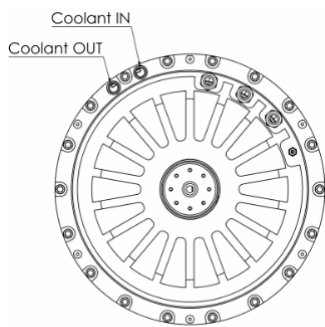
- Rugged design
- Robust in shock environments
- Longer service intervals



Defence Vehicles

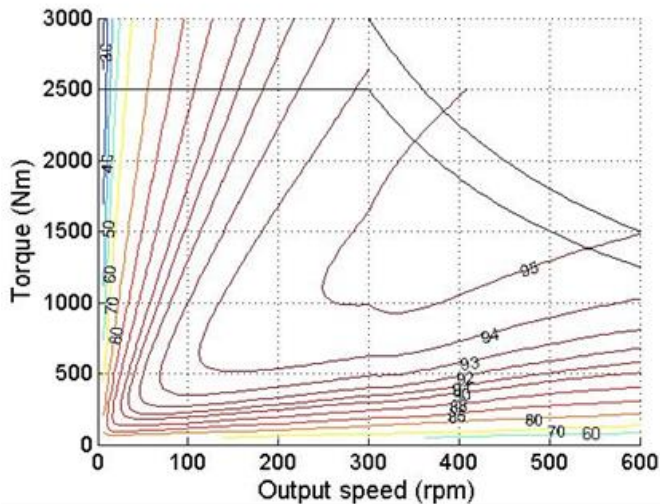
- Low acoustic noise (no gear whine)
- Robust
- Inbuilt, self-resetting torque-fuse

Dimensions



Performance

Efficiency



65kW Traction Motor Specifications

Peak Torque	3,000 Nm
Rated Torque	2,500 Nm
Base Speed	300 rpm
Max Speed	600 rpm
Peak Power	90 kW
Rated Power	65 kW
Supply Voltage	300 V
Case Diameter	475 mm
Case Length	275 mm
Active mass	130 kg
Total Mass	294 kg
Maximum Shock Load	20g
Rated Power Factor	0.7 (to achieve field weakening)
Cogging torque	<0.5% of rated
Ingress Protection	IP66