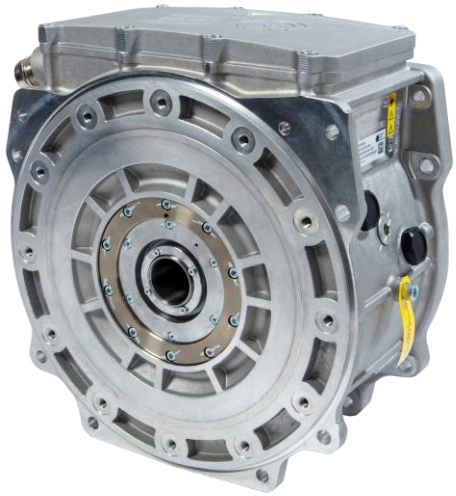
Issue 08-2025

HDRM™300 Family

Magnet-free traction motors for CV, Rail and Marine applications

Serial Production

The HDRM™300 Series are rare earth magnet-free motors offering market-leading performance, efficiency and sustainability for a range of applications. Using off-the-shelf power electronics, the HDRM™300 motors are a direct replacement for permanent magnet machines.

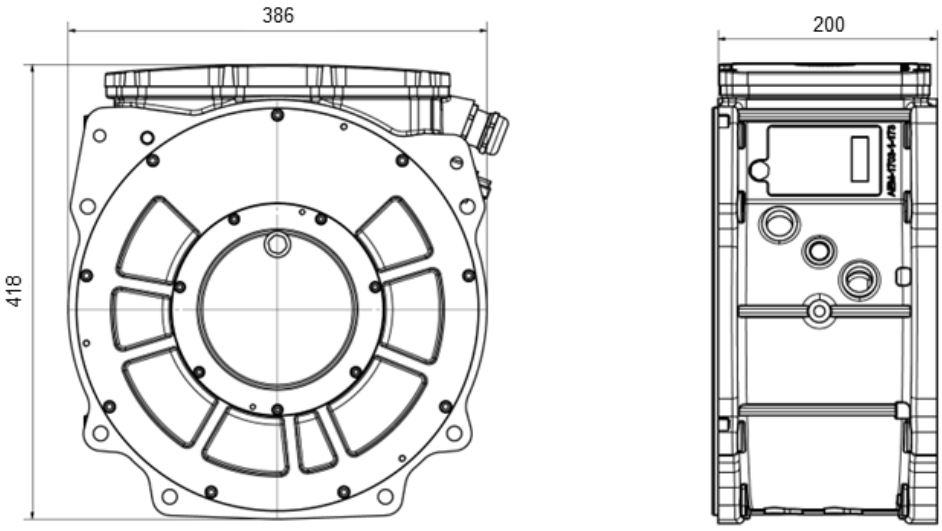


Features

- Peak efficiency >97%.
- Sustainable, magnet-free motor.
- Modular, stackable design for a wide range of applications.
- Robust and maintenance-free with the motor sealed for life.
- Ingress Protection Level IP67.
- Freewheeling capability allowing vehicle to coast when necessary.
- Inverter agnostic.
- No risk of demagnetization, allowing motors to run faster and hotter.
- No back-EMF or short circuit current to ensure safe failure modes.
- No cogging at high speeds for high drive cycle efficiencies.

Dimensions

75kg



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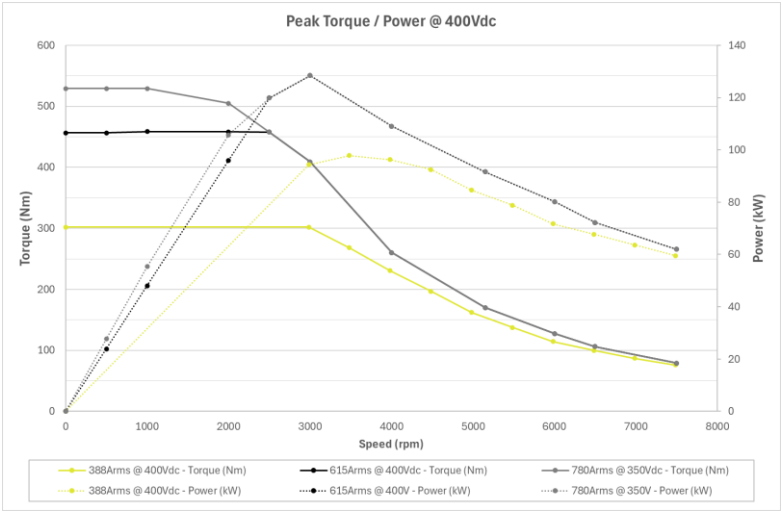
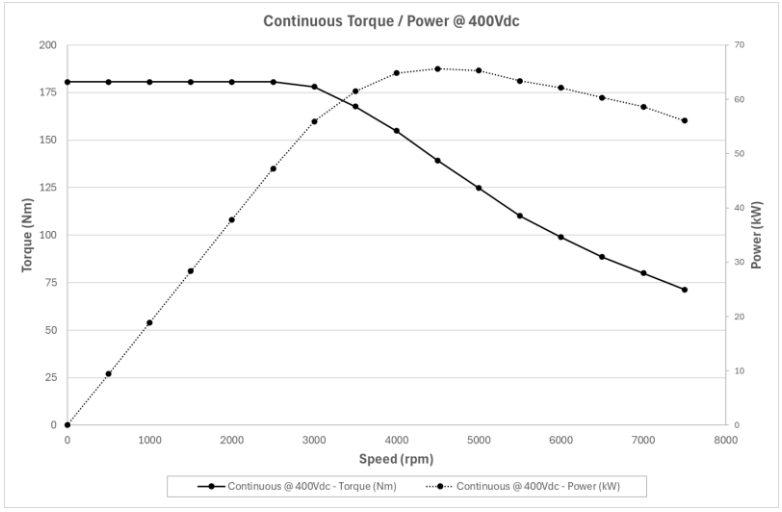
HDRM™ 300

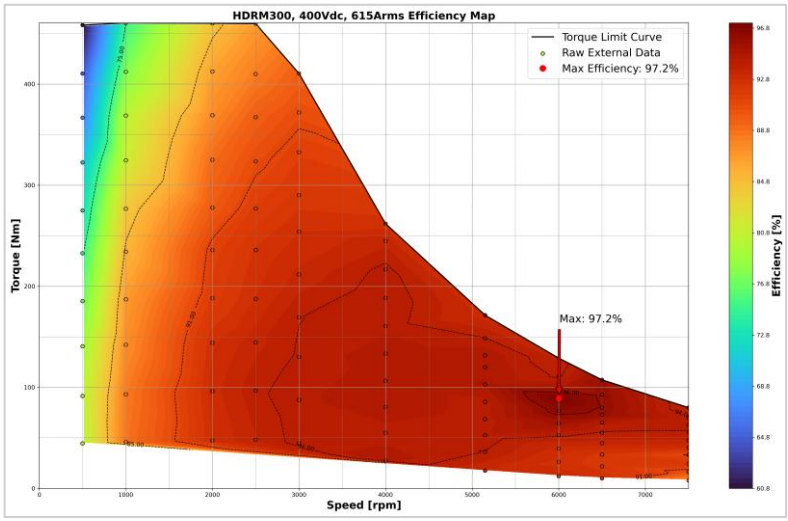
Voltage (Vdc)	Peak Power (kW) @700Vdc	Peak Torque (Nm)	Cont. Power (kW) @700Vdc	Cont. Torque (Nm) S1-60	Max Speed (rpm)
300-750	>225*	540	98	180	7,500

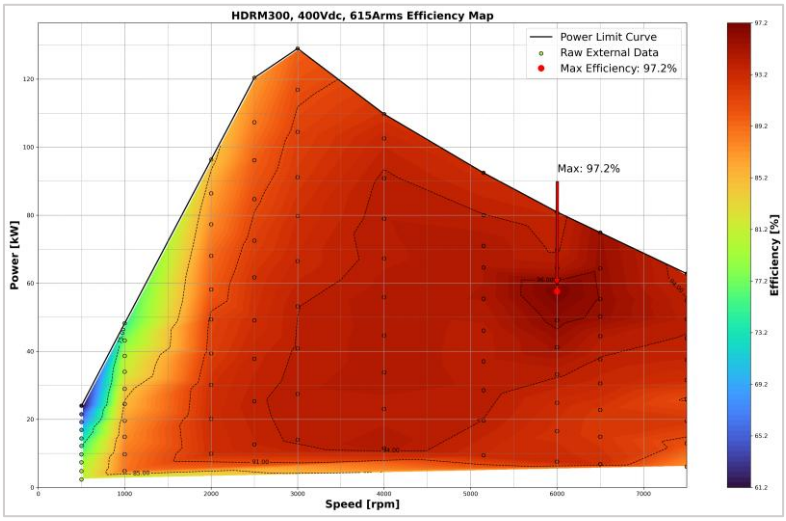




For performance curves at different voltages and currents, please contact AEM.

Efficiency (@ 400Vdc)





Conditions

- *Peak power may vary based on chosen inverter.
- Torque/speed/power curves and efficiency maps generated using test data at 400Vdc with a maximum current of 615Arms.
- Acceptable peak current of 900Arms achieves up to 575Nm.
- Continuous torque/speed/power curves generated using test data at >350Vdc with a continuous current of 300 Arms.
- Continuous power with 37°C coolant @ 12lpm.
- Maximum operating voltage 750Vdc – performance at this voltage will be greater than represented in the charts.
- Motor performance may vary based on the customer's duty cycle and operating conditions.
    - Conditions include but not limited to: coolant flow rate, coolant temperature, inverter parameters and mounting arrangement.
    - Customer must validate exact performance in the end application.

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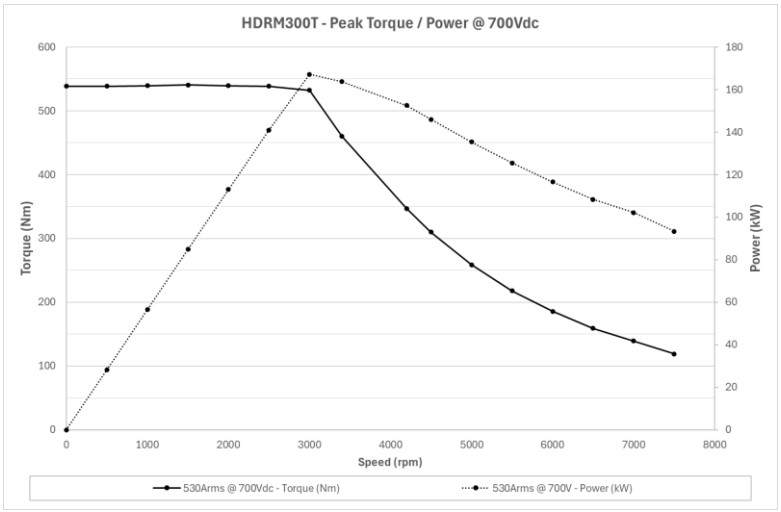
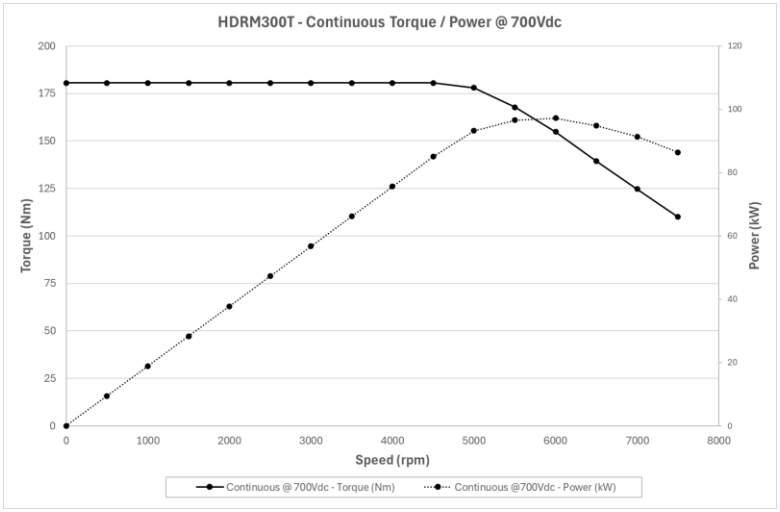
HDRM™ 300T

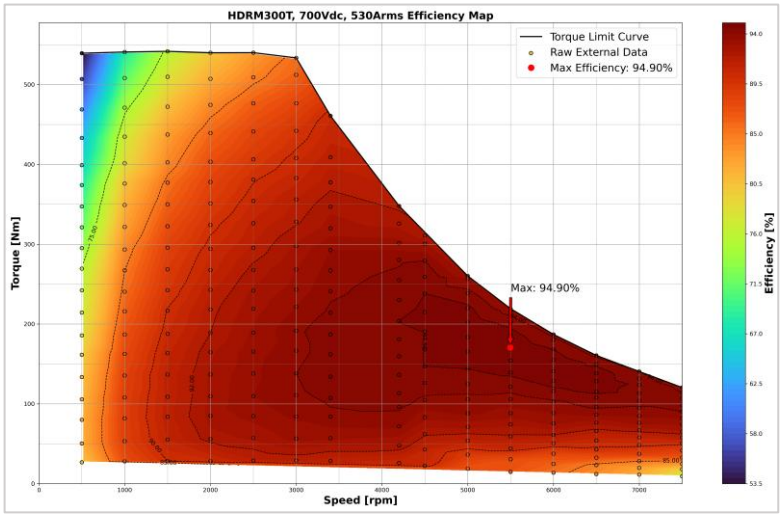
Voltage (Vdc)	Peak Power (kW) @700Vdc	Peak Torque (Nm)	Cont. Power (kW) @700Vdc	Cont. Torque (Nm) S1-60	Max Speed (rpm)
500-750	168	540	98	180	7,500

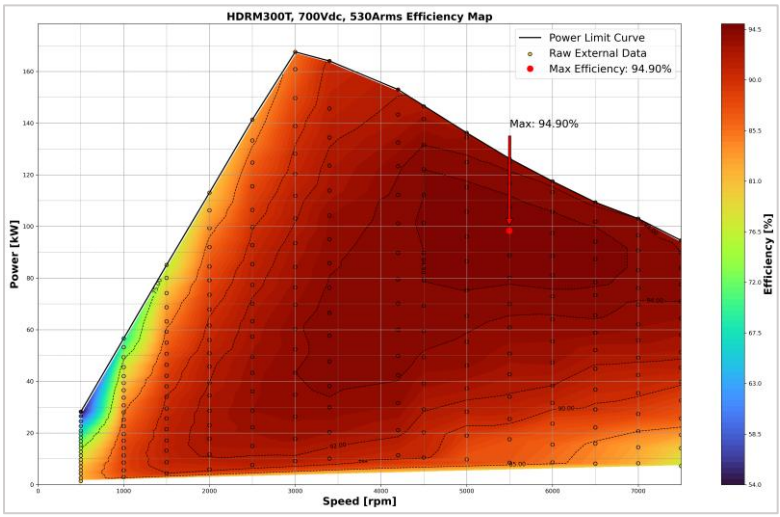




For performance curves at different voltages and currents, please contact AEM.

Efficiency (@ 700Vdc)





Conditions

- Peak power may vary based on chosen inverter.
- Torque/speed/power curves and efficiency maps generated using test data at 700Vdc with a maximum current of 530Arms.
- Acceptable peak current of 530Arms achieves 540Nm.
- Continuous torque/speed/power curves based on test data at 700Vdc with a continuous current of 150Arms.
- Continuous power with 37°C coolant @ 12lpm.
- Maximum operating voltage 750Vdc.
- Motor performance may vary based on the customer's duty cycle and operating conditions.
    - Conditions include but not limited to: coolant flow rate, coolant temperature, inverter parameters and mounting arrangement.
    - Customer must validate exact performance in the end application.

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