Issue 08-2025

HDRM™300 Systems

Magnet-free traction motors and transmission drive systems

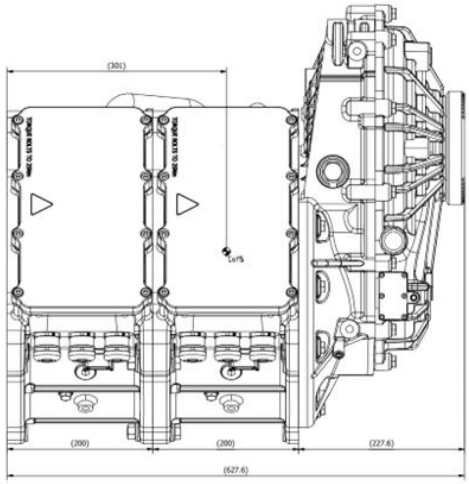
Serial Production

The HDRM™300 Systems incorporate rare earth magnet-free motor technology for high efficiency over real-world duty cycles. These systems are available with HDRM™300 and HDRM™300T motors, both giving class-leading power density and torque.

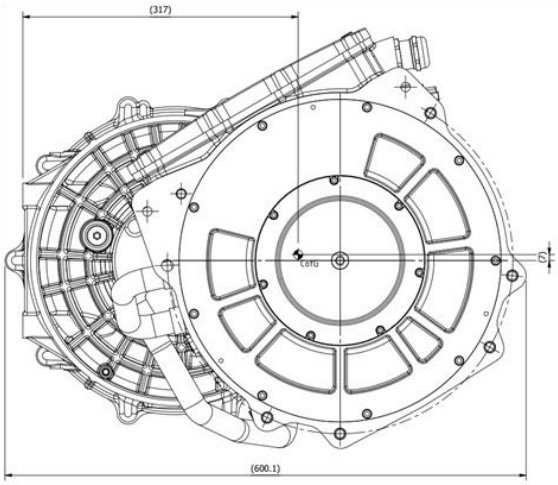
Features

- Sustainable, magnet-free motors.
- Stackable design for a wide range of applications.
- Ingress Protection Level IP67.
- High strength transmission with low noise and minimised losses.
- Dual motor system offers extended high-efficiency operating range.
- 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



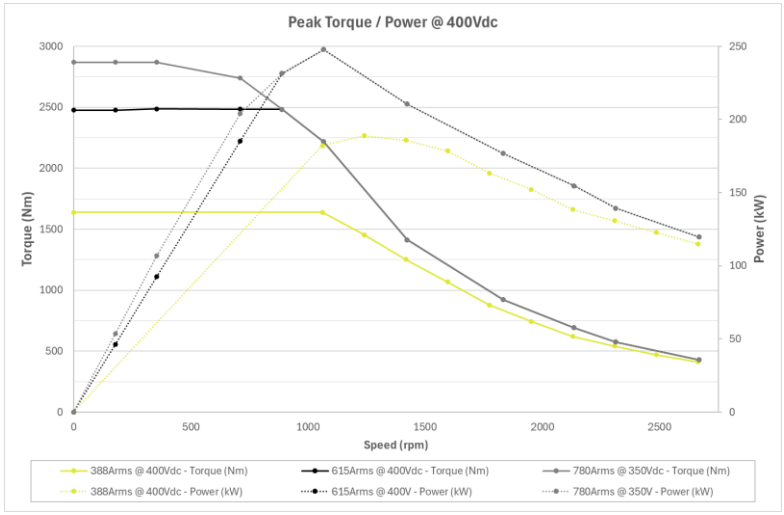
245kg

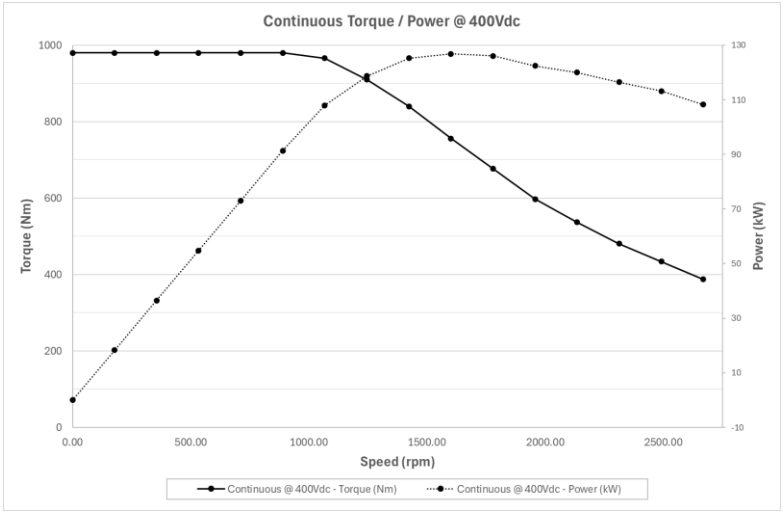


10-11 Teal Farm Way, Washington, NE38 8BG | +44 (0)191 4477 010 | info@advancedelectricmachines.com | **www.advancedelectricmachines.com**

HDRM™ 300

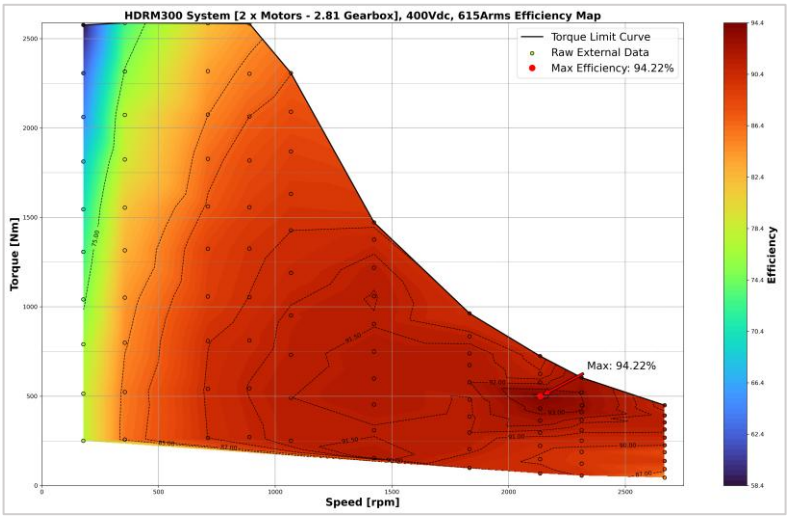
Voltage (Vdc)	Peak Power (kW) @700Vdc	Peak Torque (Nm)	Cont. Power (kW) @700Vdc	Cont. Torque (Nm) S1-60	Max Speed (rpm)
300-750	>435*	2900	190	980	2,670

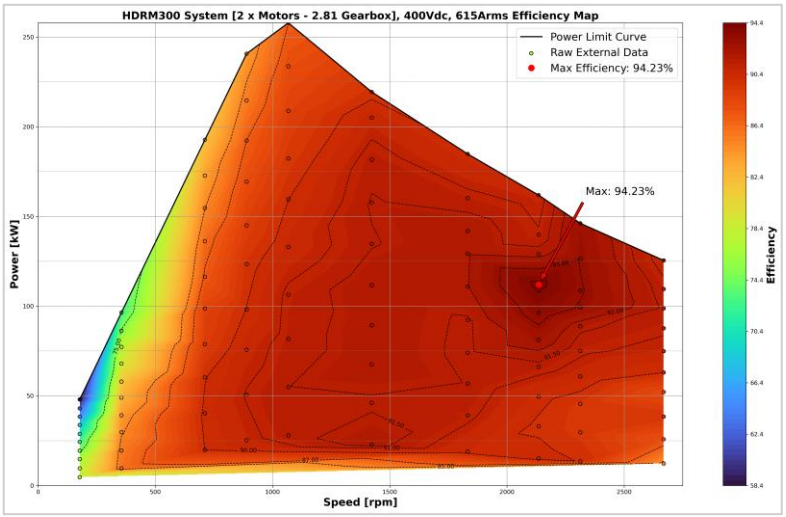




For performance curves at different voltages and currents, please contact AEM.

Efficiency (@ 400Vdc)





Efficiency can be improved by implementation of a smart duty cycle. Speak to AEM for further information.

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.
- 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.
- Acceptable Peak Current 800Arms achieves 540Nm per motor.
- Maximum Operating Voltage 750Vdc – performance and power 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.

www.AdvancedElectricMachines.com
info@AdvancedElectricMachines.com
+44 (0)191 4477 010

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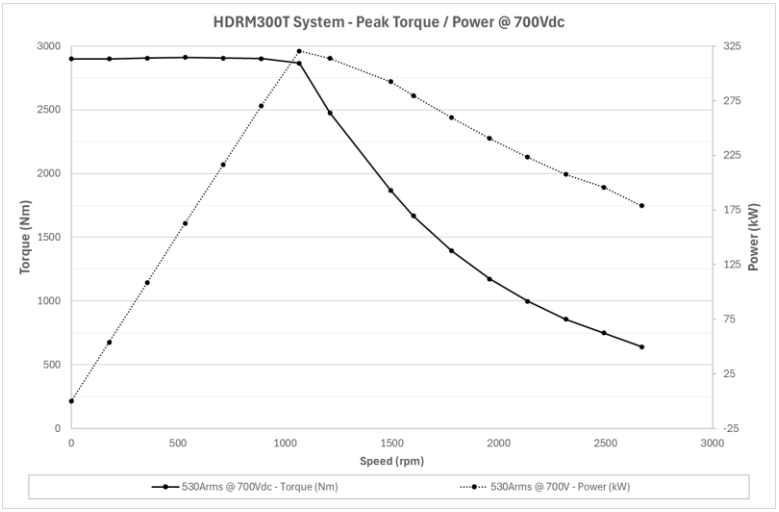
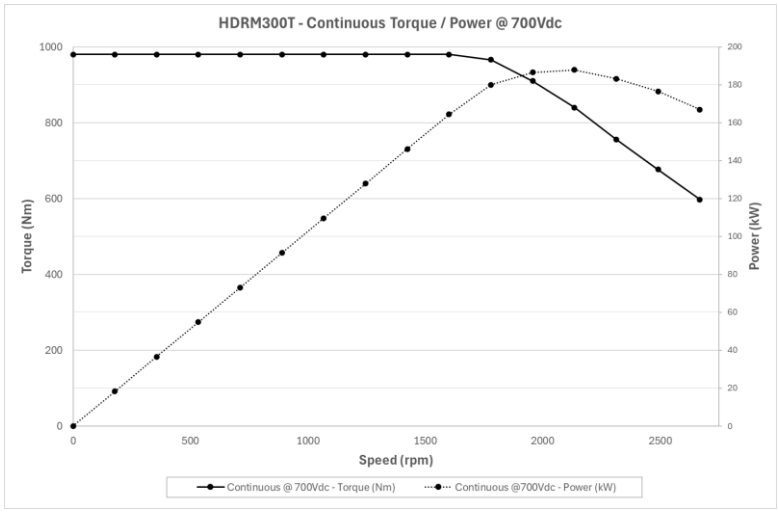
HDRM™ 300T

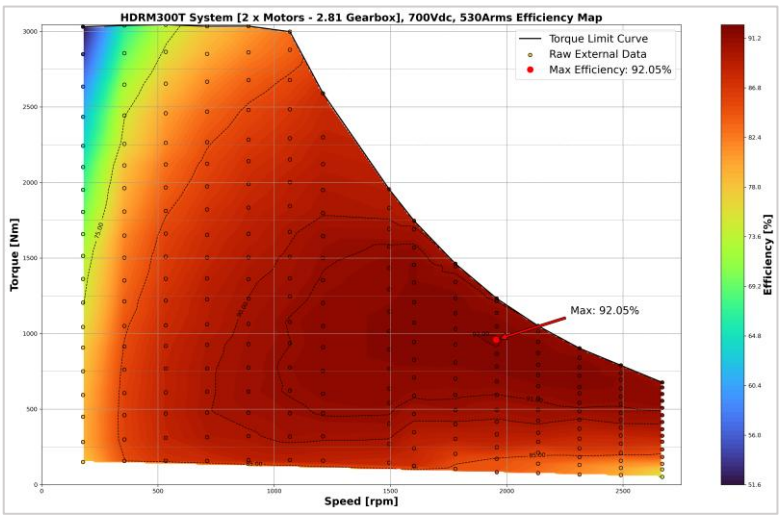
Voltage (Vdc)	Peak Power (kW) @700Vdc	Peak Torque (Nm)	Cont. Power (kW) @700Vdc	Cont. Torque (Nm) S1-60	Max Speed (rpm)
500-750	>320*	2900	190	980	2,670

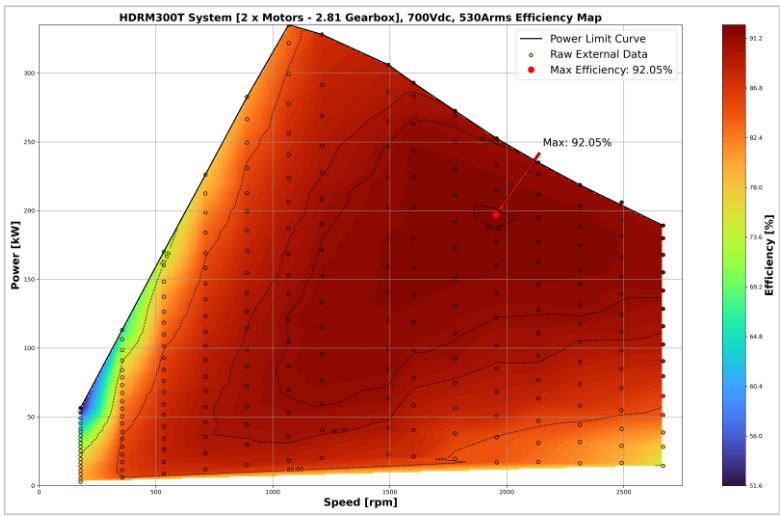




For performance curves at different voltages and currents, please contact AEM.

Efficiency (@ 700Vdc)





Efficiency can be improved by implementation of a smart duty cycle. Speak to AEM for further information.

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..
- Continuous torque/speed/power curves based on test data at 700Vdc with a continuous current of 150Arms.
- Continuous power with 37°C coolant @ 12lpm.
- Acceptable peak current 530Arms achieves 540Nm per motor.
- 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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