

Rimac Automobili Powertrain System

The high level of integration makes our systems the ideal choice for high-performance applications. Every component is matched perfectly to the entire system which results in the most power-dense systems in the 150+kW power range. Our motor-systems can be used as independent-wheel drive systems (for torque-vectoring applications) but they can also be matched to a differential or directly coupled to a shaft for a more traditional propulsion concept.

After several generations of proprietary propulsion systems, we decided to apply everything we have learned and start from scratch. The result is a revolutionary propulsion system with an extreme power and torque output in a small package with very low weight.

Cooling

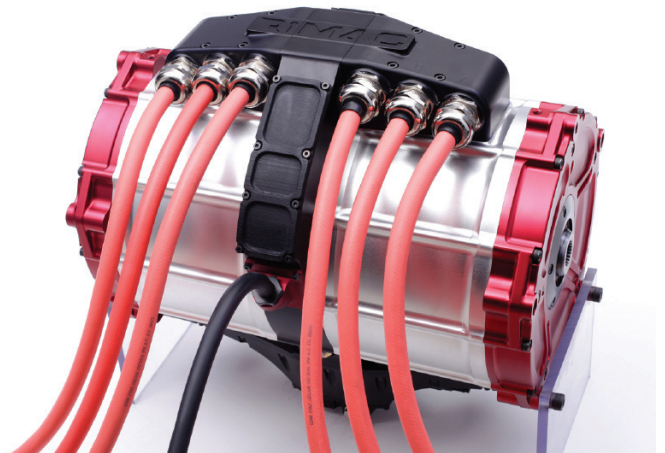
Permanent magnet motors achieve the highest power-to-weight ratio of any motor type. Most PM motors are water-cooled. In such motors, coolant fluid circulates through a jacket around the stator. Such motors deliver good short-term performance but their rotors tend to overheat during continuously demanding conditions such as race-track use. Besides of the inconvenience of a time-limited performance, such motors are in danger of demagnetization which can permanently damage the motor. Rimac motors are rotor and stator cooled with low viscosity oil which is pumped by an integrated pump. The integrated heat-exchanger transfers heat to the external water/glycol circuit which is circulating through the vehicle and radiators (the oil stays always inside the motor and does not circulate through the vehicle). This unique design is the guarantee for flawless performance even during very demanding race-conditions.

Flexibility

Our standard systems house two motors in a single housing with a shared cooling and pump system for the purpose of driving wheels separately, but our motors can be applied to a wide range of applications where other powertrain configurations are required. The Rimac motor system can be configured as a single-motor system and coupled directly to a differential, gearbox or range-extender engine (as a generator). Our modular system enables us to adapt the design and power range quickly and cost effective for new applications. The motors can also be adapted in size in order to suit the performance and package requirement.

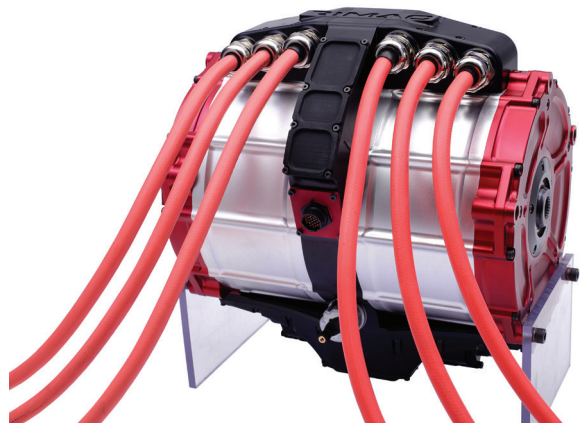
D-PM-OC-600

The D-PM-OC 600 system consists of two oil-cooled permanent magnet motors (two independent motors in shared housing) with an integrated oil pump, heat exchanger and matching reduction gearboxes.

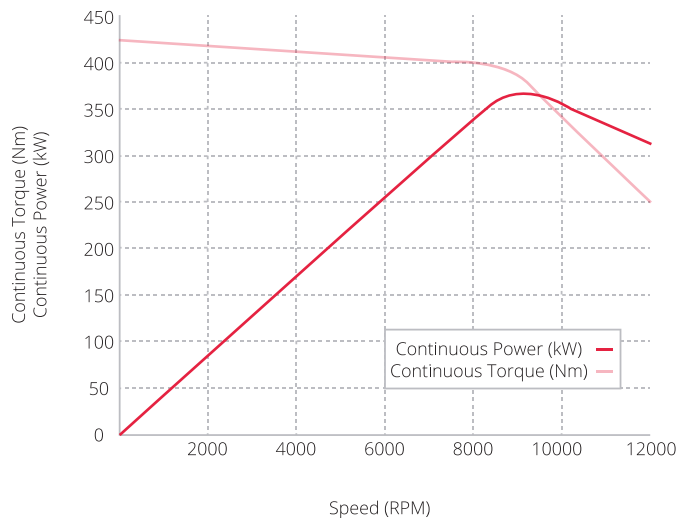


D-PM-OC 500

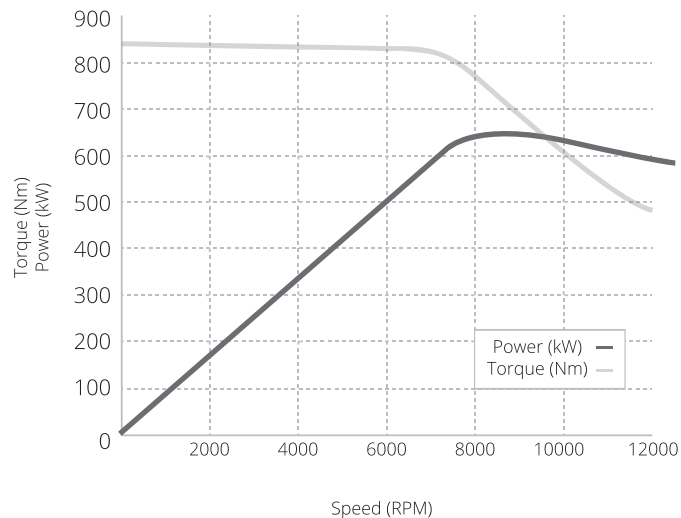
The main difference is a reduced width of 50 mm (each motor is 25 mm shorter), reduced weight (20 kg less) and reduced maximum torque (190 Nm less).



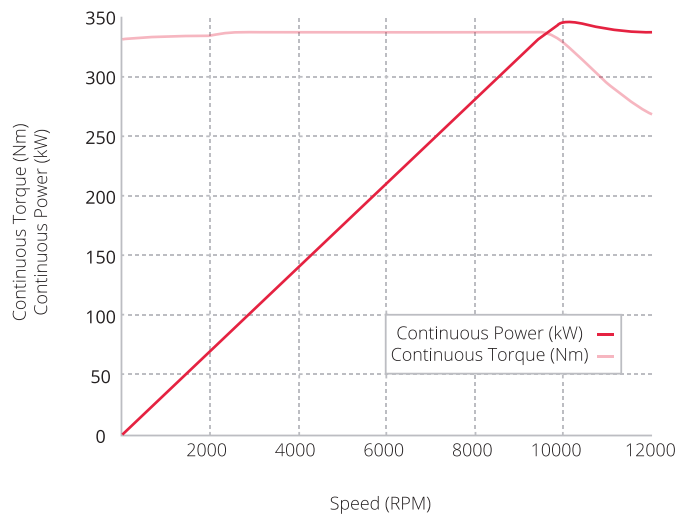
DC-PM-OC-600 CONTINUOUS CHARACTERISTICS



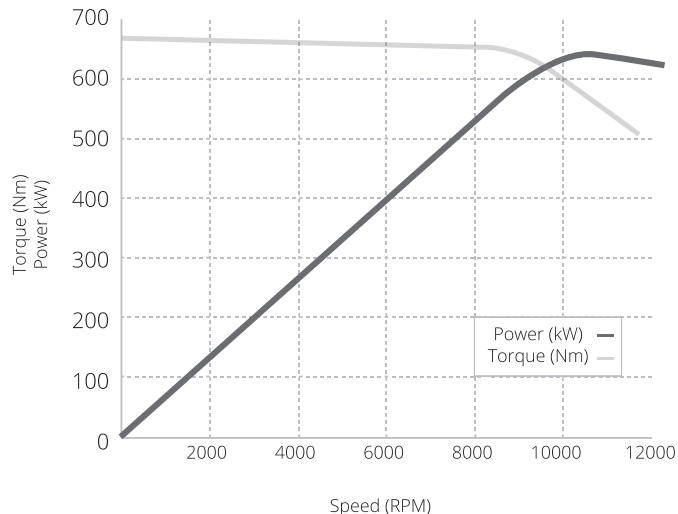
DC-PM-OC-600 PEAK CHARACTERISTICS



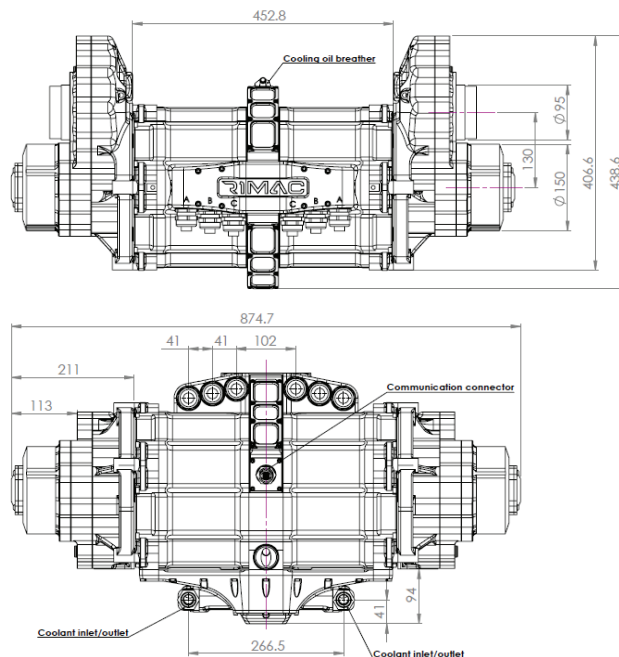
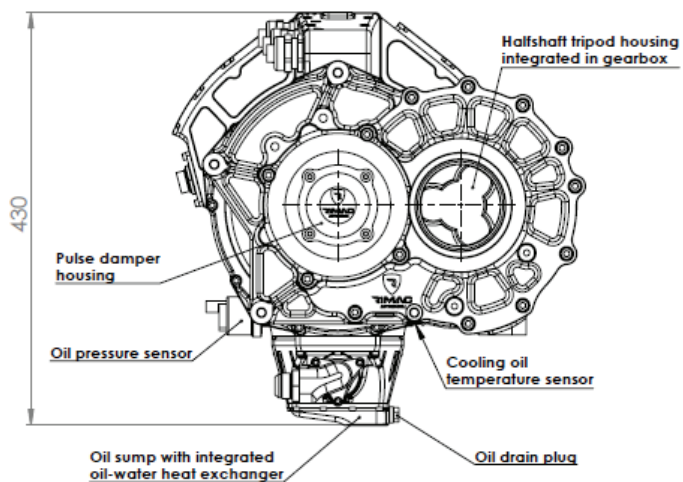
DC-PM-OC-500 CONTINUOUS CHARACTERISTICS



DC-PM-OC-500 PEAK CHARACTERISTICS



Dimensions



Motor specs

	D-PM-OC-600	D-PM-OC-500
Motor type	Internal Permanent Magnet Synchronous Motor	
Internal cooling	Rotor and stator oil cooling with oil-water heat-exchanger and integrated pump	
External cooling loop	Water / glycol	
Continuous system power	386 kW @ 8.800 RPM	320 kW @ 9.600 RPM
Peak system power	654 kW @ 8.500 RPM	638 kW @ 10.300 RPM
Continuous sytem torque	600 Nm (0-4.000 RPM)	500 Nm (0-4.000 RPM)
Peak system torque	848 Nm (0-7.400 RPM)	660 Nm (0-8.500 RPM)
DC voltage	200-800 V DC	
Maximum current (per motor)	600 A rms	
Maximum speed	10.600 RPM	
Number of poles (per motor)	10	
Peak efficiency	94,9%	
Weight of dual motors (excluding reduction gearbox)	115 kg	95 kg
High-voltage cable cross-section	70 mm ² / AWG 2/0	-
Dimensions of dual motor including sump (L x W x H)	365 x 453 x 430 mm	365 x 403 x 430 mm
Motor-position sensor	Sinus/cosinus encoder	
Oil temperature sensor	NTC 323-055	
Oil pressure sensor	VDO 360005	
Protection grade	IP-64	