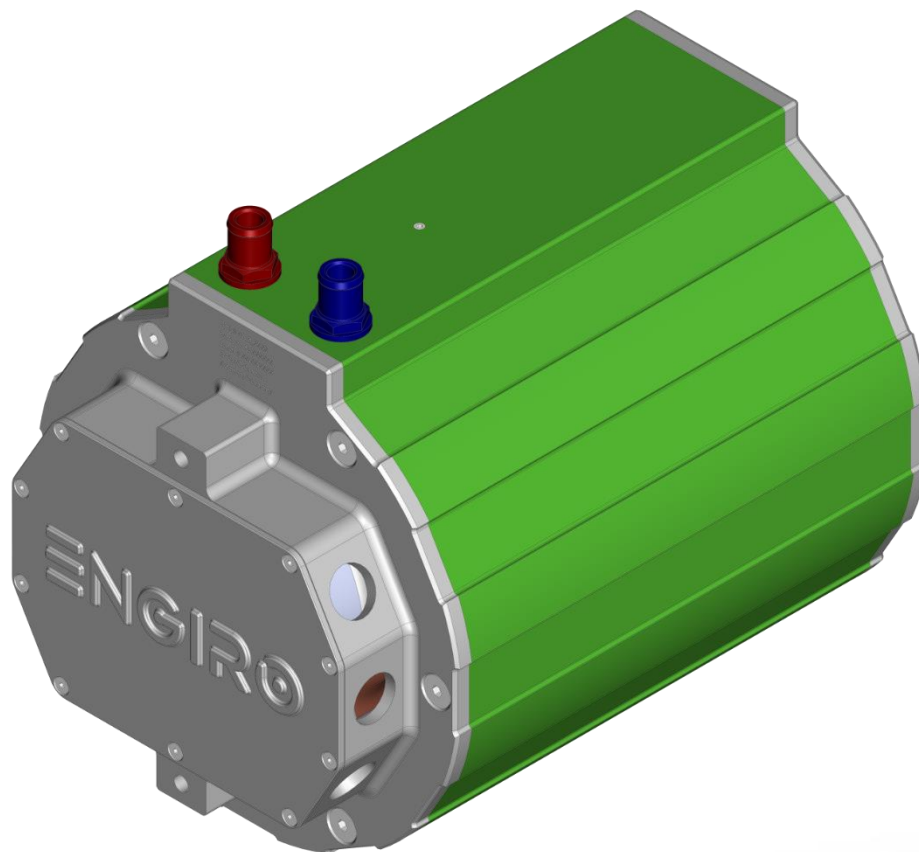


205W-08011-ABC

water-cooled motor / generator with 16 kW continuous power

This datasheet refers to art.no.: see page 2



KEY FEATURES

- permanent magnet synchronous machine
- water-cooled
- high peak power for motor applications
- convincing cost-benefit ratio
- recommended voltage range from 48 V to 200 V
- delivery with controller possible

Section	Page
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Additional Data	5
Available Type Variants / Technical Drawings	6
Performance Plots	7
Additional Characteristics	8

Note:

On September 1st, 2024, we transferred our ERP systems to SAP. Due to this change, we are altering our current part numbers. To see how our article numbers and motor naming scheme has changed, please consider the conversion table below:

Article Number Conversion				
Part. No.	Old Part. No.	Flange	Shaft	Position Sensor
4807272	205W_08011_SSE	S1	S1	E
4843480	205W_08011_SHE	S1	H1	E

To be noted:

The information in this technical data sheet is based on our current knowledge and experience. Due to the wide range of possible influences during application, they do not exempt the processor and user from carrying out their own tests and trials. Although the suitability for a specific application can be estimated from our information, a legally binding assurance is by no means possible. Depending on the individual case, we recommend consultation with us. Any industrial property rights and applicable laws must be observed by the recipient of our products on his own responsibility.

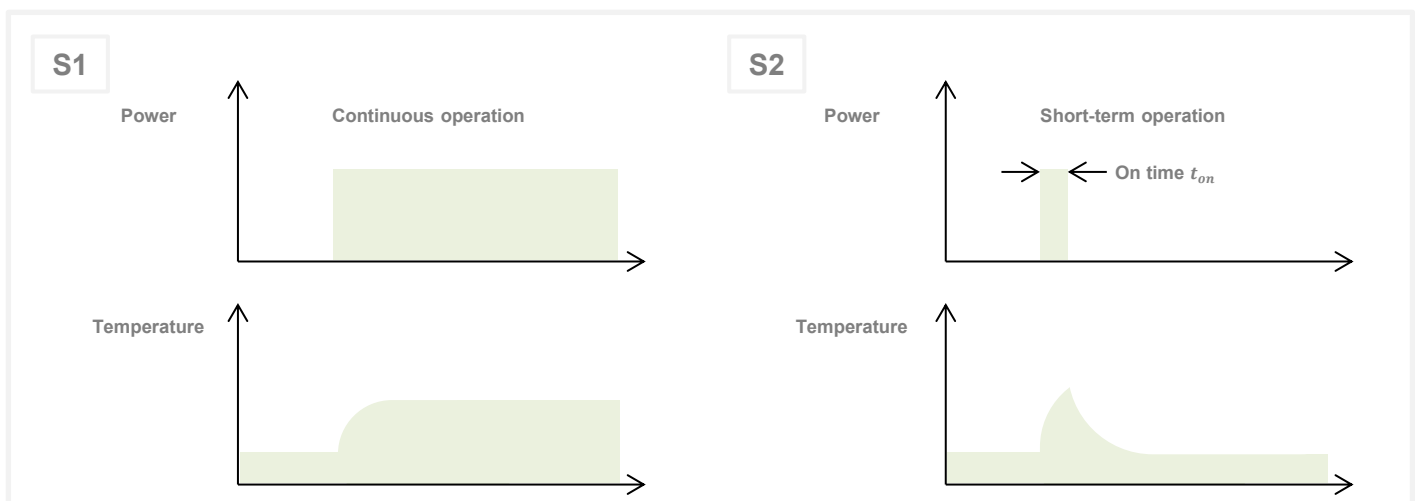
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Characteristic Operating Points¹⁾

		S1	S2	S2	
Feasible operation time	t_{on}	continuous	15 min	60 sec	
Torque ²⁾	T	82	85	166	Nm
Power ²⁾	P	16	17	22	kW
Speed	n	1870	1870	1280	rpm
Phase RMS-current (AC) ³⁾	I_{rms}	404	409	974	A
Battery current (DC) ³⁾	I_{DC}	389	405	770	A
Battery voltage (DC)	U_{DC}	48	48	48	V
Electric frequency	f_{el}	124	124	85	Hz
Efficiency	η_{tot}	86	86	63	%
Power factor	$\cos(\varphi)$	0.89	0.94	0.71	
Cooling	specified in chapter „Additional Data“				

Maximum Operating Range

Torque ^{2) 4)}	T_{max}	174 @ 1200 rpm			Nm
Power ^{2) 4)}	P_{max}	23 @ 2000 rpm			kW
Speed ⁵⁾	n_{max}	9000			rpm
Phase RMS-current (AC) ^{3) 4)}	$I_{rms,max}$	983			A
Battery current (DC) ^{3) 4)}	$I_{DC,max}$	796			A
Battery voltage (DC)	U_{max}	200			V
Electric frequency	f_{el}	593			Hz



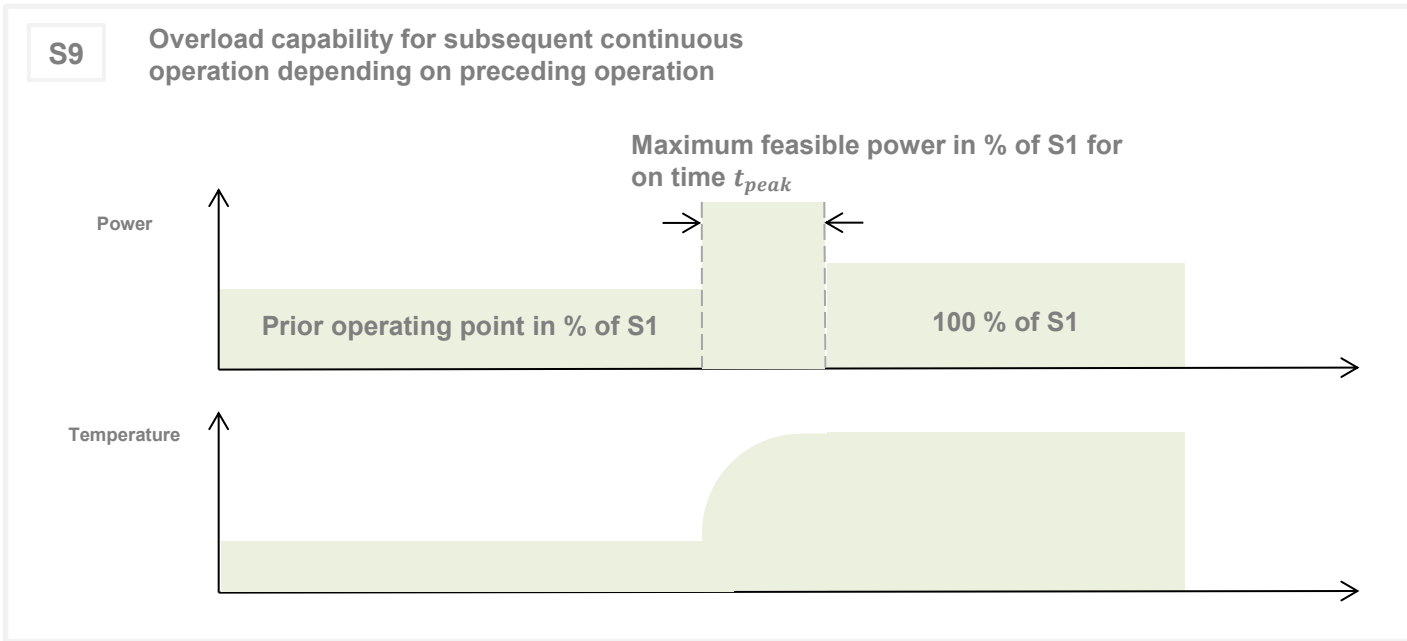
- 1) Defined Range only valid for a power factor of 1 at DC input
- 2) Torque / Power rating is dependent on rotor temperature
- 3) The cables must not exceed a temperature of 140 °C at any time. Temperature and service life depend on the installation condition.
- 4) Peak rating for max. 60 sec on time
- 5) Higher speeds available upon request. A detailed discussion of the functional safety concept of the vehicle is required.

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S9 Operating Points ¹⁾
Maximum Feasible Power in % of S1

$U_{nom} = 48\text{ V}$		Prior operating point in % of S1				
		0 %	25 %	50 %	75 %	100 %
On time t_{peak}	30s	130 %	130 %	120 %	110 %	100 %
	180s	110 %	110 %	100 %	100 %	100 %
	420s	100 %	100 %	100 %	100 %	100 %

1) Cooling conditions as specified in chapter "Additional Data"



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Electrical Data				
Number of phases				3
Number of pole pairs				4
Maximum stationary short circuit current ¹⁾		545 A (RMS) @ 20 °C @ ≥ 1000 rpm		
Maximal efficiency				91 %
T/I constant (I<I _{nom})				0.205 Nm/A _{rms}
U/n constant (AC) at temperature 20 °C	rms:	13.2	peak:	21.39 V/(1000rpm)
Ke constant (AC) at temperature 20 °C	rms:	0.13	peak:	0.2 V/(rad*s ⁻¹)
Additional Data				
Rotor moment of inertia		0.0150 (S1S1), 0.0149 (S1H1)		kg*m ²
Allowed range of ambient temperature				-20 ... +85 °C
Maximal motor temperature				140 °C
Temperature monitoring				KTY 84-130
Cooling	Advised medium (OAT Coolants)	water/glycol - 50/50 <ul style="list-style-type: none"> ▪ TL 774-D/F ▪ VIN 878389 ▪ MAN 324 SNF ▪ MTL 5048 		
	Flow rate			8 l/min
	Inlet temperature			45 °C
	Pressure drop			0.186 bar
	Maximum pressure			2 bar
	Cooling channel volume			
Connectors				
Power terminals		Prepared for M8 cable lugs; 3x M25 cable glands (not included)		
Signal connectors		1x Hummel 10 Pin Connector, M16		
Cooling connectors		inner Ø 12 mm, outer Ø 19 mm		
Certifications				
Type approval		CE, EN 60034		
Salt spray test		ISO 9227		
Protection grade		ISO 20653 IP6K9K ²⁾		
Vibrations		Prepared for ISO 16750-3		
Customs tariff number		85015230		

1) Simulated

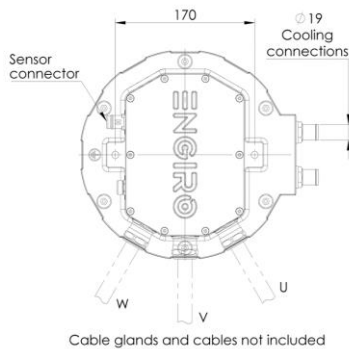
2) Please note that the IP6K9K rating is only valid if the machine is installed with suitable cable glands and an appropriate sealed interface at the drive side of the motor (flange and/or shaft). Please contact ENGIRO for further questions.

Available Type Variants

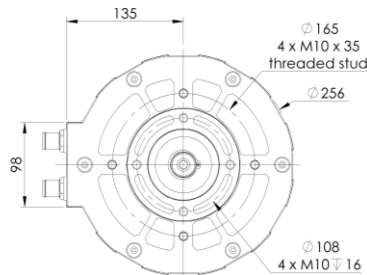
Flange	Shaft	Pos. sensor	Weight (kg)
<p>S1 Standard with 4xM10x35 threaded stud</p>	<p>S1 Cylindrical shaft with keyway, Ø28 mm</p>	<p>E Encoder</p>	<p>≈ 38 kg</p>
<p>S1 Standard with 4xM10x35 threaded stud</p>	<p>H1 Hollow shaft with internal splines ANSI B 92.1 9T 16/32DP 30°</p>	<p>E Encoder</p>	<p>≈ 35 kg</p>

Other individual combinations are also possible on request.

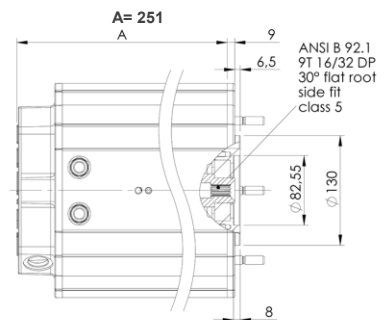
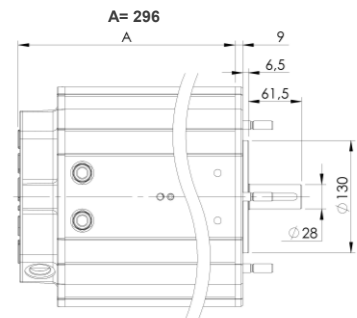
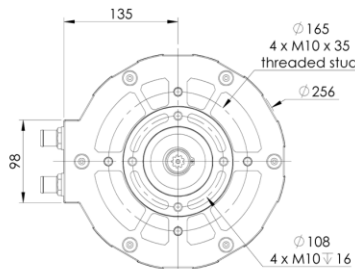
Technical Drawings



**Flange S1
Shaft S1**



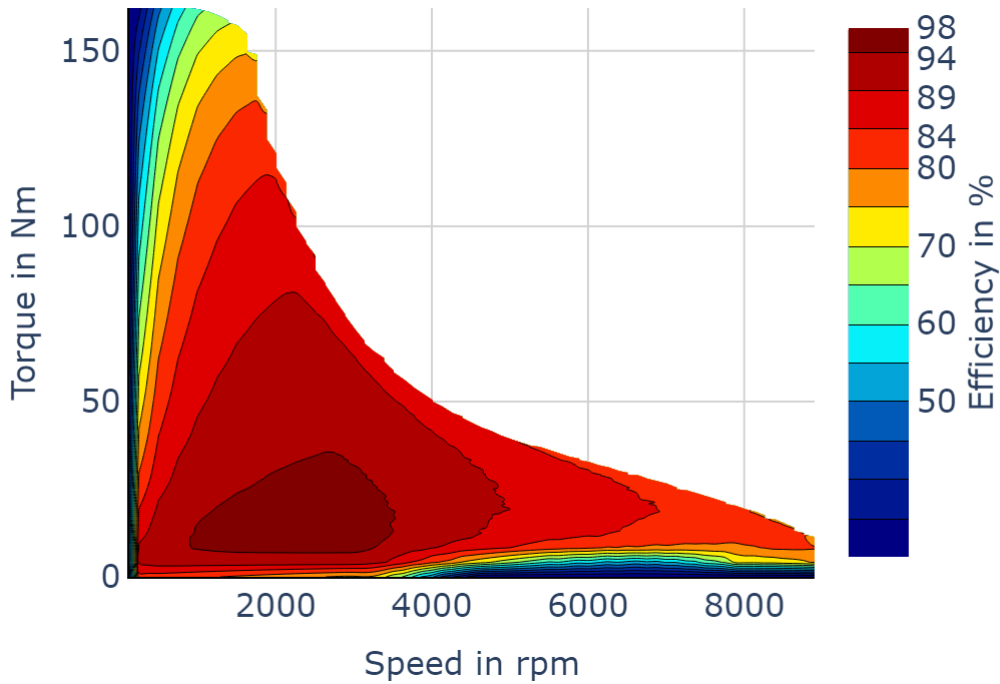
**Flange S1
Shaft H1**



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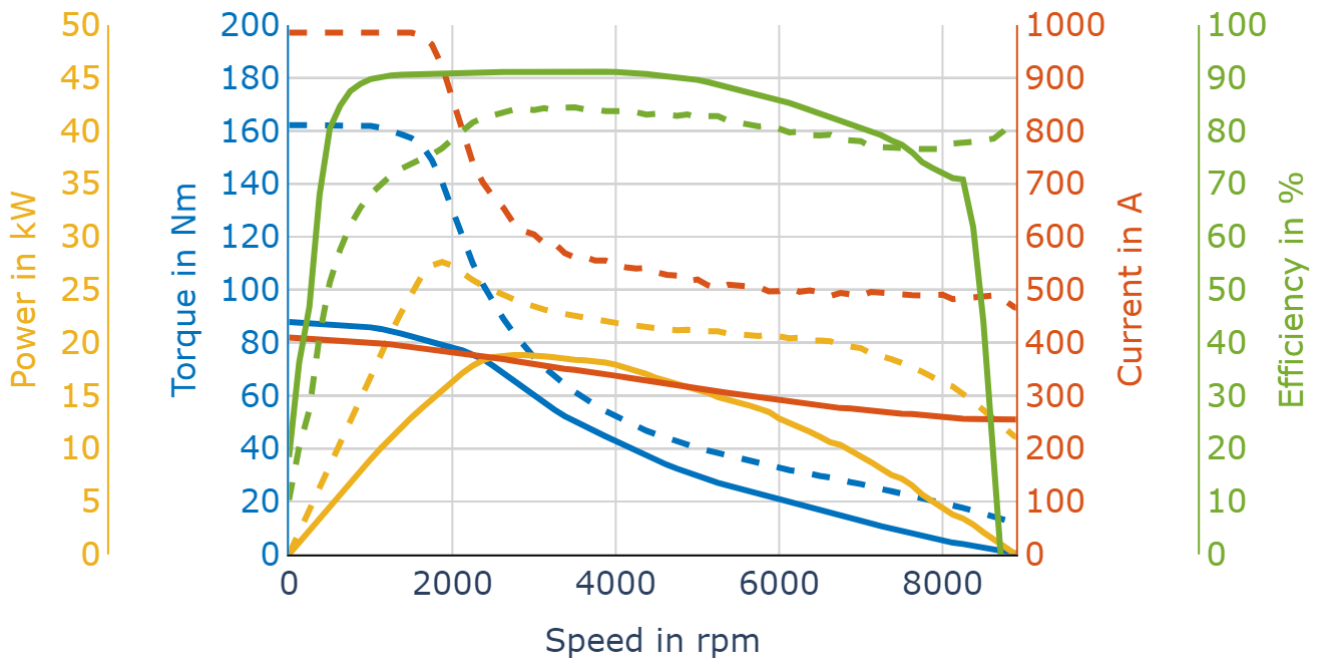
48 V

Simulated Efficiency of Motor Application
(electric machine only; $U_{nom} = 48\text{ V}$)



48 V

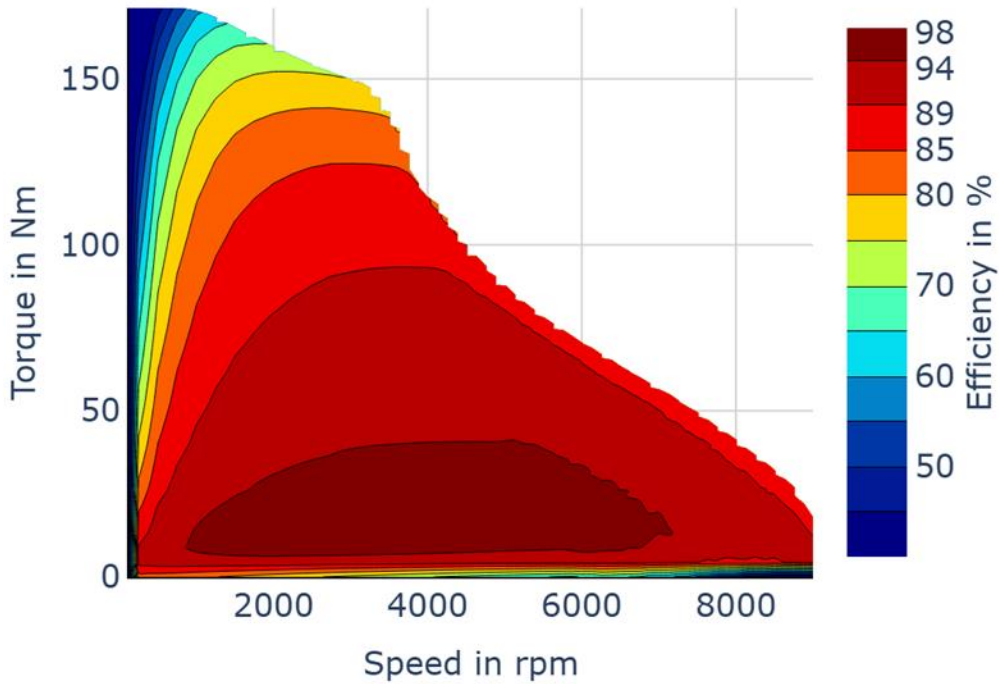
Simulated Characteristic Motor Parameters
solid lines: S1 continuous; dashed lines: S2 (60 sec) maximum
(cooling as specified in chapter "Additional Data")



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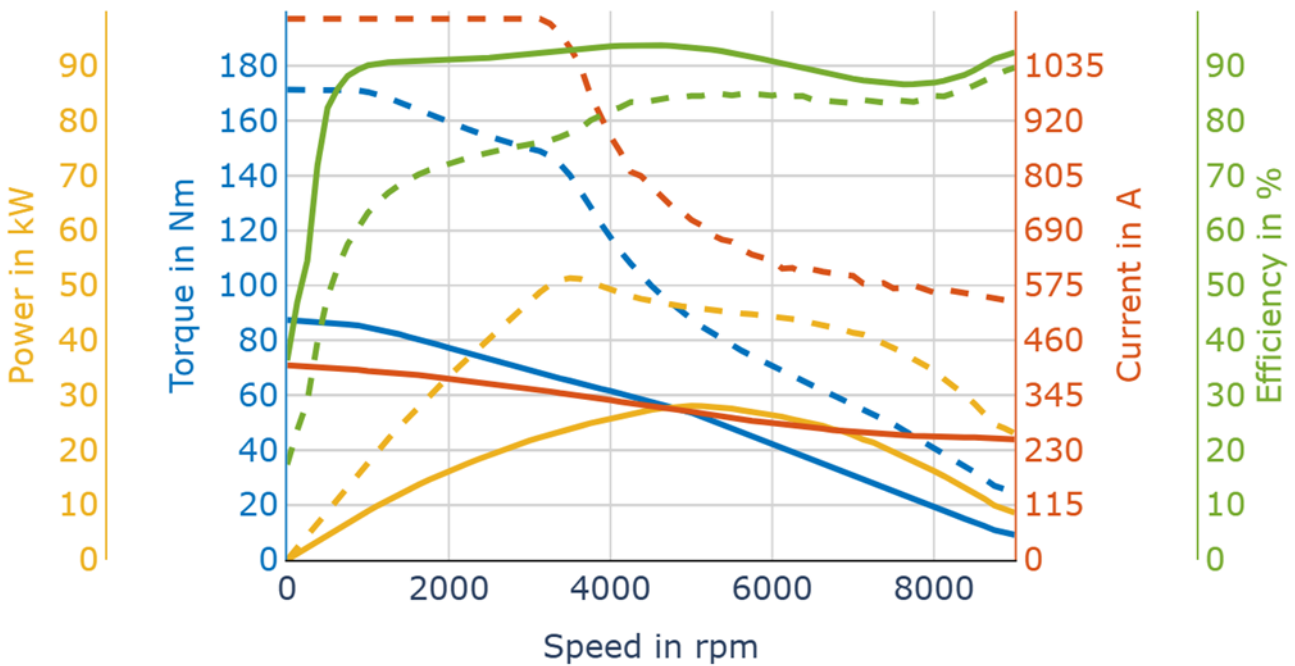
96 V

Simulated Efficiency of Motor Application
(electric machine only; $U_{nom} = 96\text{ V}$)

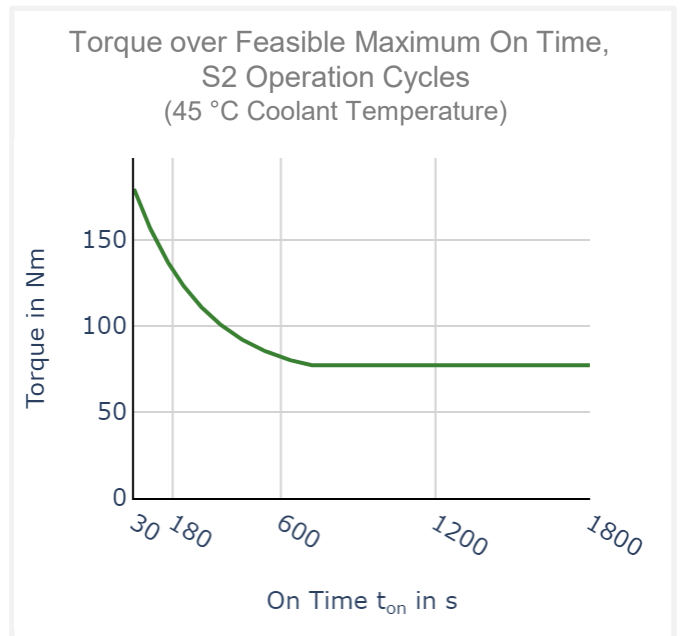
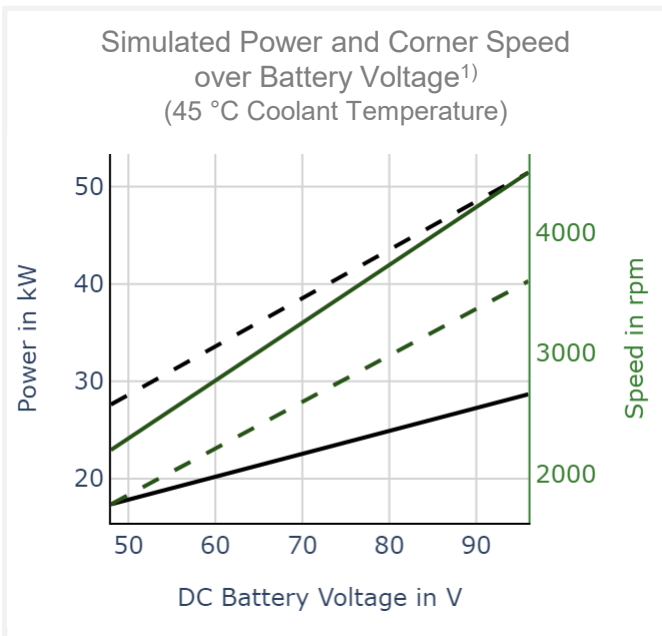
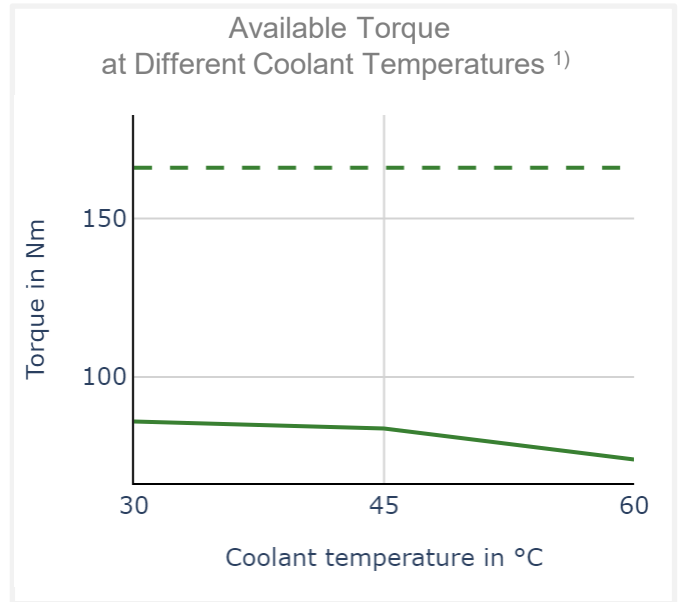
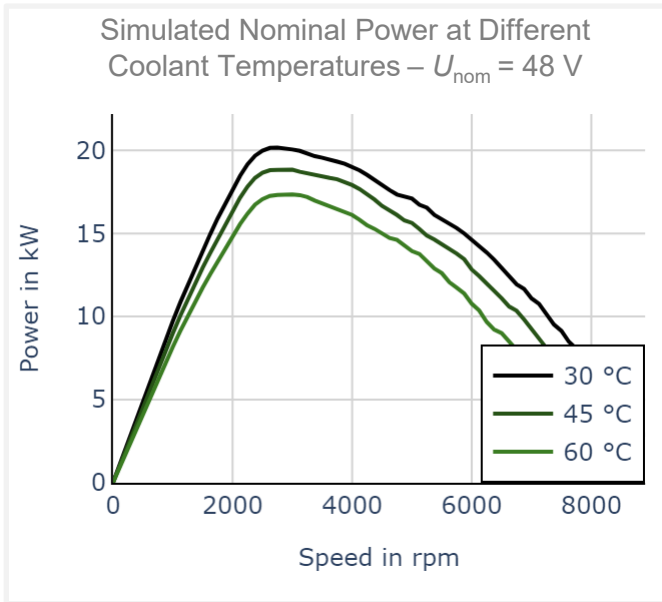


96 V

Simulated Characteristic Motor Parameters
solid lines: S1 continuous; dashed lines: S2 (60 sec) maximum
(cooling as specified in chapter "Additional Data")



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1) solid lines: continuous; dashed lines: maximum;