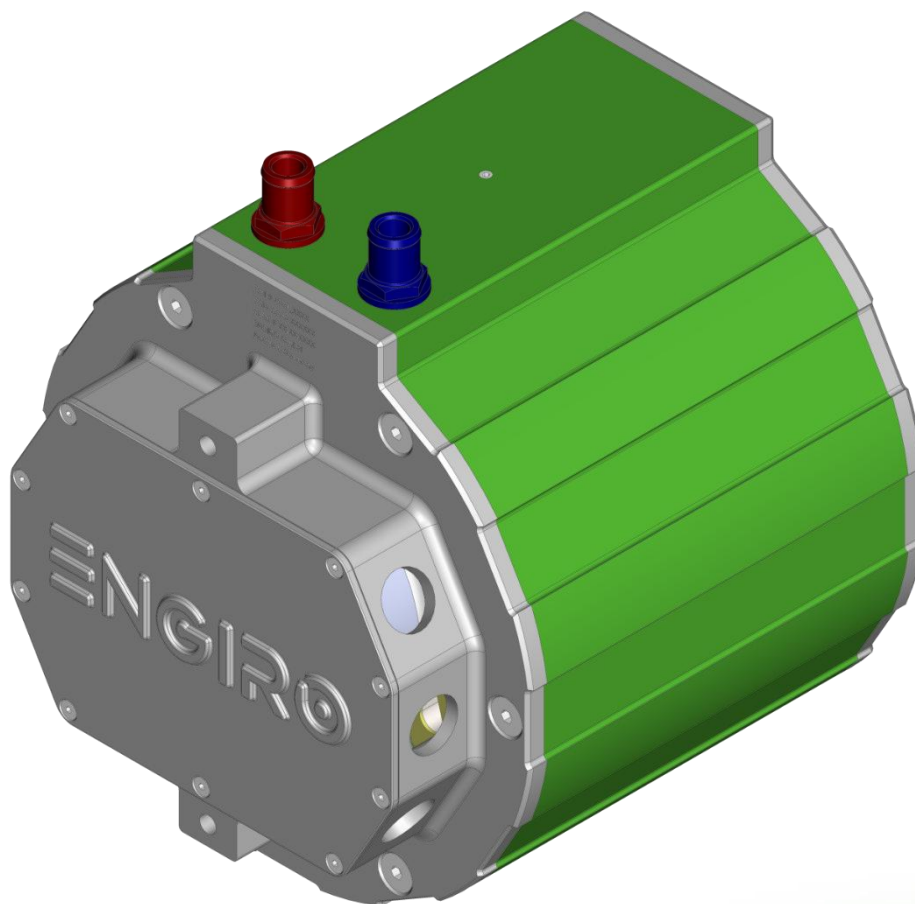


205W-08052-P-ABC

water-cooled motor / generator with 55 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 350 V to 850 V
- delivery with controller possible

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Additional Data	5
Available Type Variants	6
Technical Drawings	7
Performance Plots	8
Additional Characteristics	10

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	HV-Interlock
4872294	205W_08052_CDF_P	C1	D1	F	-
4872306	205W_08052_CGF_P	C1	G1	F	-
4872308	205W_08052_SHF_P	S1	H1	F	-
4872310	205W_08052_SSF_P	S1	S1	F	-
4909326	205W_08052_BCF_P	B1	C1	F	-
4948753	-	S1	S1	F	x

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.

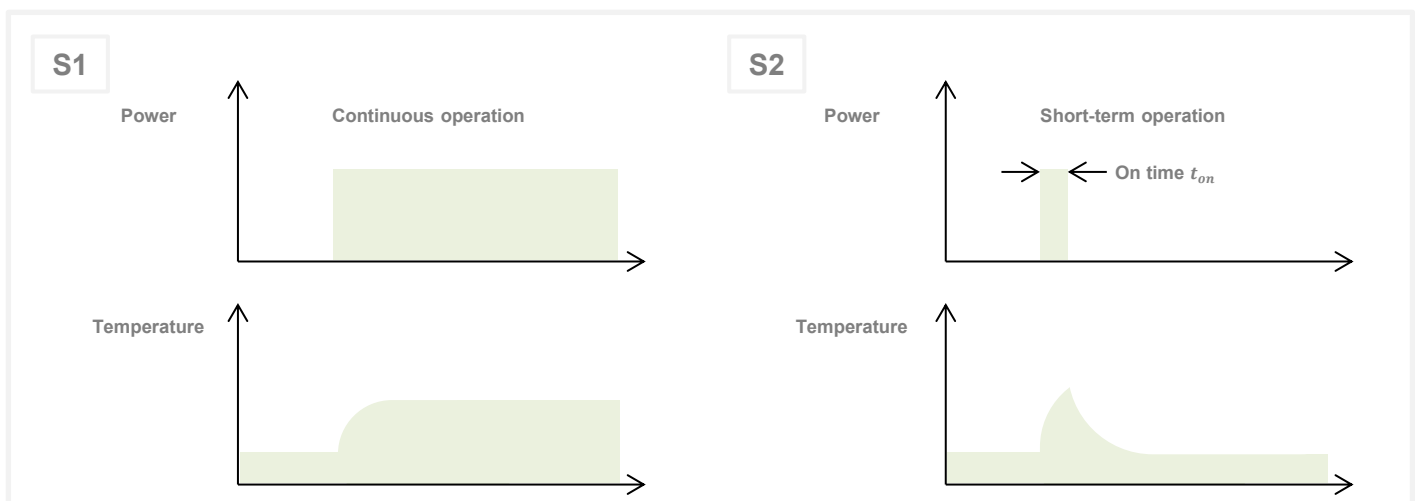
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Characteristic Operating Points¹⁾

		S1	S2	S2	
Feasible operation time	t_{on}	continuous	30 min	30 sec	
Torque ²⁾	T	71	71	184	Nm
Power ²⁾	P	55	55	101	kW
Speed	n	7380	7380	5230	rpm
Phase RMS-current (AC) ³⁾	I_{rms}	77	77	236	A
Battery current (DC) ³⁾	I_{DC}	74	74	148	A
Battery voltage (DC)	U_{DC}	800	800	800	V
Electric frequency	f_{el}	492	492	349	Hz
Efficiency	η_{tot}	93	93	85	%
Power factor	$\cos(\varphi)$	0.89	0.89	0.88	
Cooling		specified in chapter „Additional Data“			

Maximum Operating Range

Torque ^{2) 4)}	T_{max}	184 @ 5230 rpm			Nm
Power ^{2) 4)}	P_{max}	101 @ 5230 rpm			kW
Speed ⁵⁾	n_{max}	8000			rpm
Phase RMS-current (AC) ^{3) 4)}	$I_{rms,max}$	236			A
Battery current (DC) ^{3) 4)}	$I_{DC,max}$	148			A
Battery voltage (DC)	U_{max}	850			V
Electric frequency	f_{el}	533			Hz



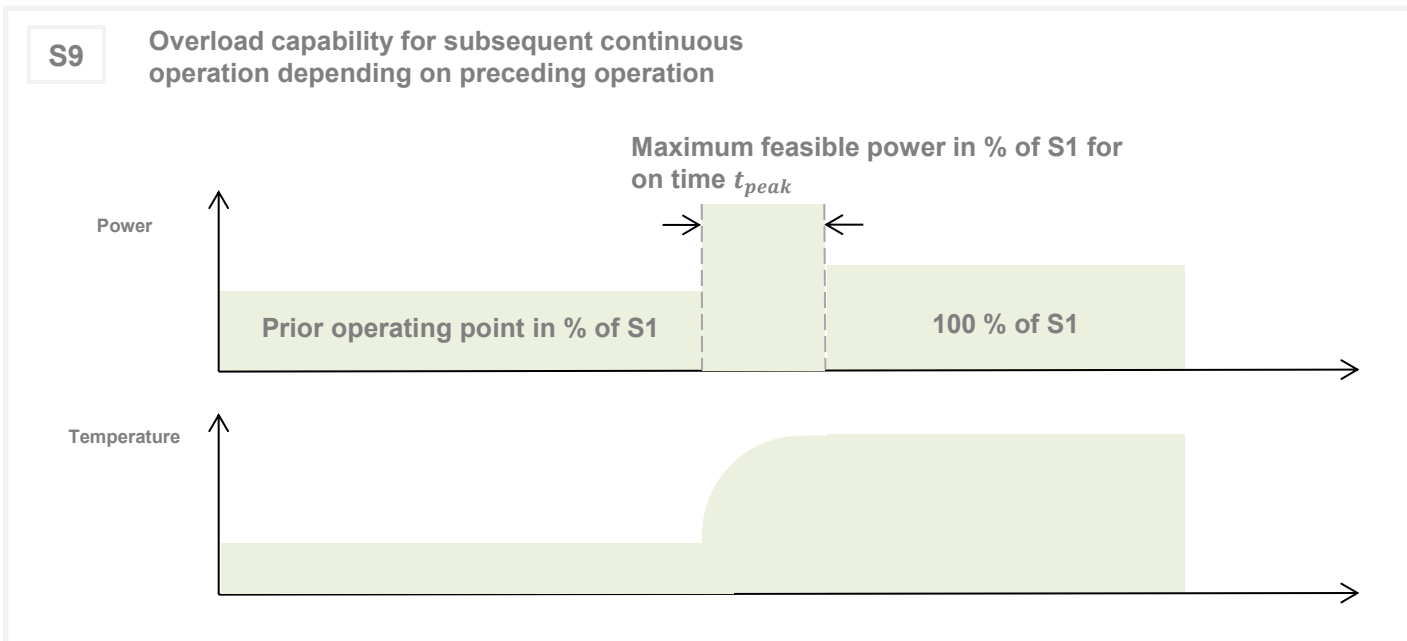
- 1) Defined Range only valid for a power factor of 1 at DC input
- 2) Torque / Power rating is dependent on rotor temperature
- 3) The cables must not exceed a temperature of 140 °C at any time. Temperature and service life depend on the installation condition.
- 4) Peak rating for max. 30 sec on time
- 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

$U_{nom} = 800\text{ V}$		Prior operating point in % of S1				
		0 %	25 %	50 %	75 %	100 %
On time t_{peak}	30s	170 %	170 %	160 %	130 %	100 %
	180s	110 %	110 %	110 %	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⁾	115 A (RMS) @ 20 °C @ ≥ 900 rpm			
Maximal efficiency				94 %
T/I constant (I<I _{nom})				0.922 Nm/A _{rms}
U/n constant (AC) at temperature 20 °C	rms:	62.89	peak:	102.27 V/(1000rpm)
Ke constant (AC) at temperature 20 °C	rms:	0.6	peak:	0.98 V/(rad*s ⁻¹)
Additional Data				
Rotor moment of inertia	0.0149 (S1S1/S1H1), 0.0152 (C1D1/C1G1)			kg*m ²
Allowed range of ambient temperature ²⁾				-20 ... +85 °C
Maximal motor temperature ⁴⁾				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	0.76 l		
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 mist	ISO 9227			
Protection grade	IP6K9K ³⁾			
Vibrations	ISO 16750-3			
Customs tariff number	8501 5290			

1) Simulated

2) Linear derating from 70 °C to 0 A at 85 °C

3) 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.

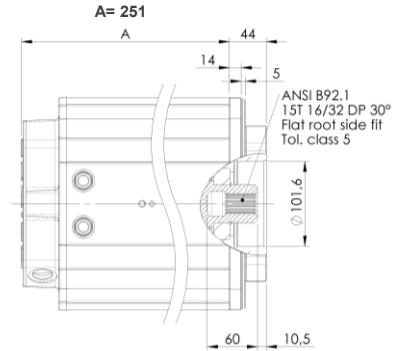
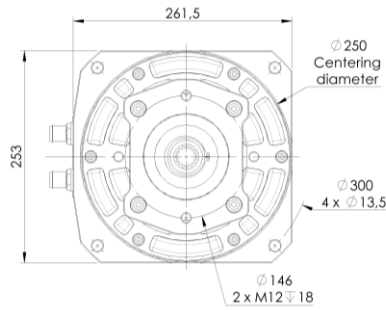
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Available Type Variants			
Flange	Shaft	Pos. sensor	Weight (kg)
C1 Hydraulic Pump ANSI 101-2 / SAE B - Ø101,6 mm centering hole	D1 hollow shaft with internal splines ANSI B 92.1 15T 16/32DP30°	F Resolver 0,29 Gain	≈ 39 kg
C1 Hydraulic Pump ANSI 101-2 / SAE B - Ø101,6 mm centering hole	G1 hollow shaft with internal splines ANSI B 92.1 / 13T	F Resolver 0,29 Gain	≈ 39 kg
S1 Standard with 4xM10x35 threaded stud	H1 Hollow shaft with internal splines ANSI B 92.1 9T 16/32DP 30°	F Resolver 0,29 Gain	≈ 35 kg
S1 Standard with 4xM10x35 threaded stud	S1 Cylindrical shaft with keyway Ø 28mm	F Resolver 0,29 Gain	≈ 36 kg
B1 Hydraulic pump ANSI 127-4 / SAE C - Ø127 mm centering shoulder	C1 cylindrical shaft with keyway Ø35mm	F Resolver 0,29 Gain	≈ 40 kg

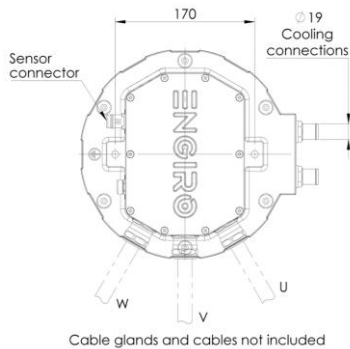
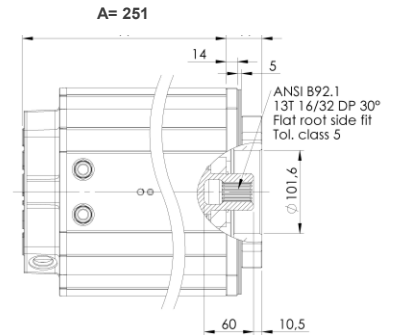
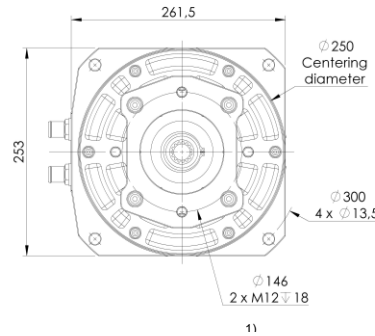
Other individual combinations are also possible on request.

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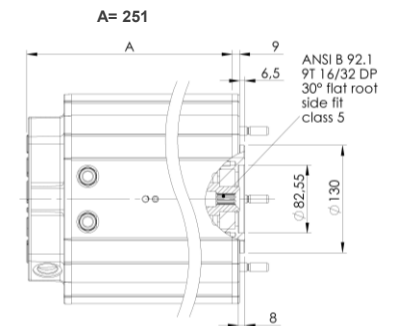
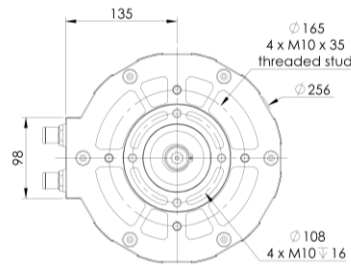
**Flange C1
Shaft D1**



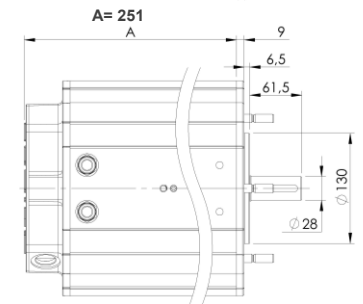
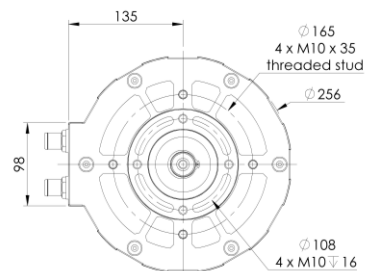
**Flange C1
Shaft G1**



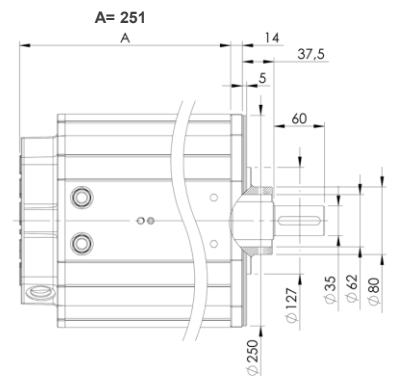
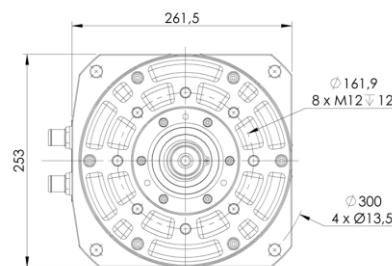
**Flange S1
Shaft H1**



**Flange S1
Shaft S1**



**Flange B1
Shaft C1**



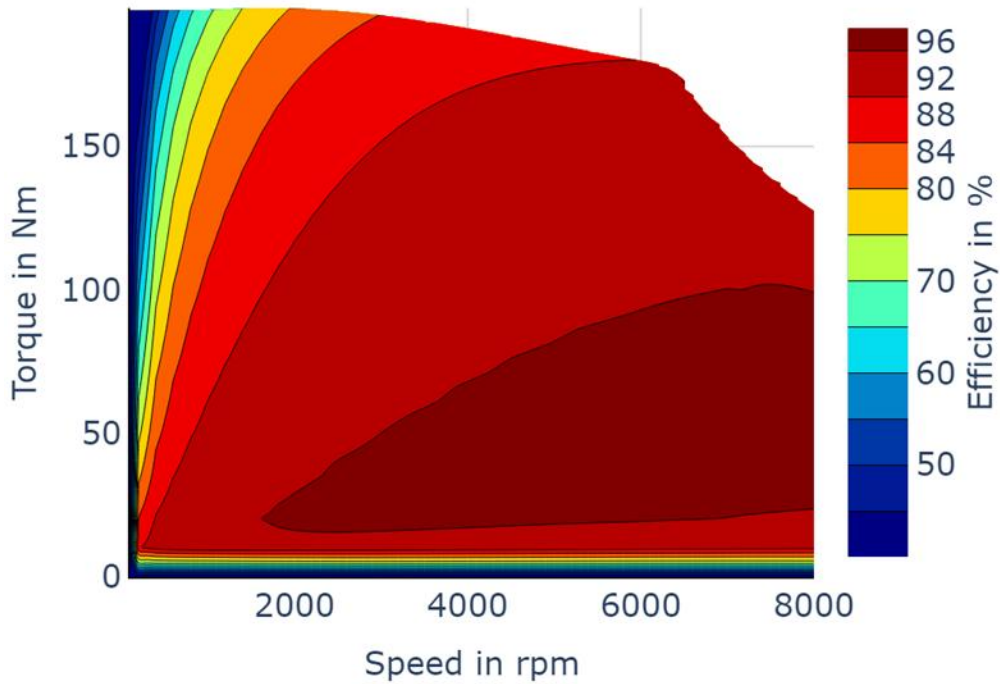
¹⁾ Machines with C-Flange and a revision number smaller than Rev16 have an M14 Helicoil 1,5*D. Revision number is printed on each machine on the rear flange below the water-cooling hose barbs.

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800 V

Simulated Efficiency of Motor Application

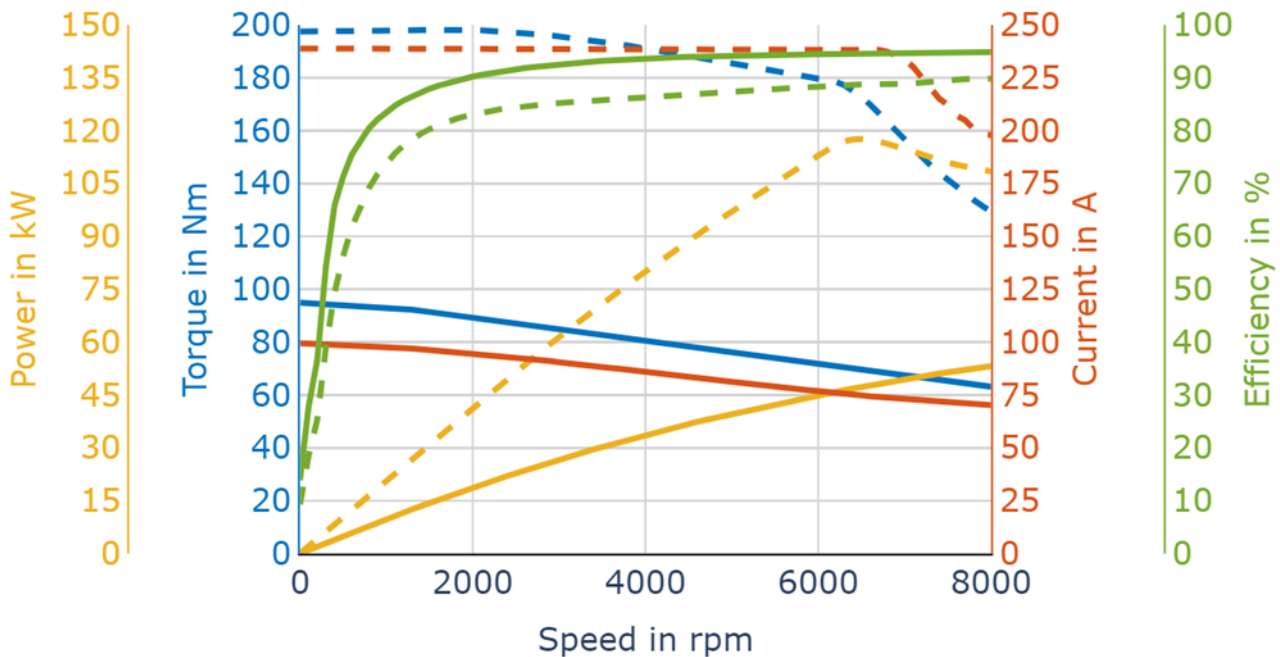
(electric machine only; $U_{nom} = 800\text{ V}$)



800 V

Simulated Characteristic Motor Parameters

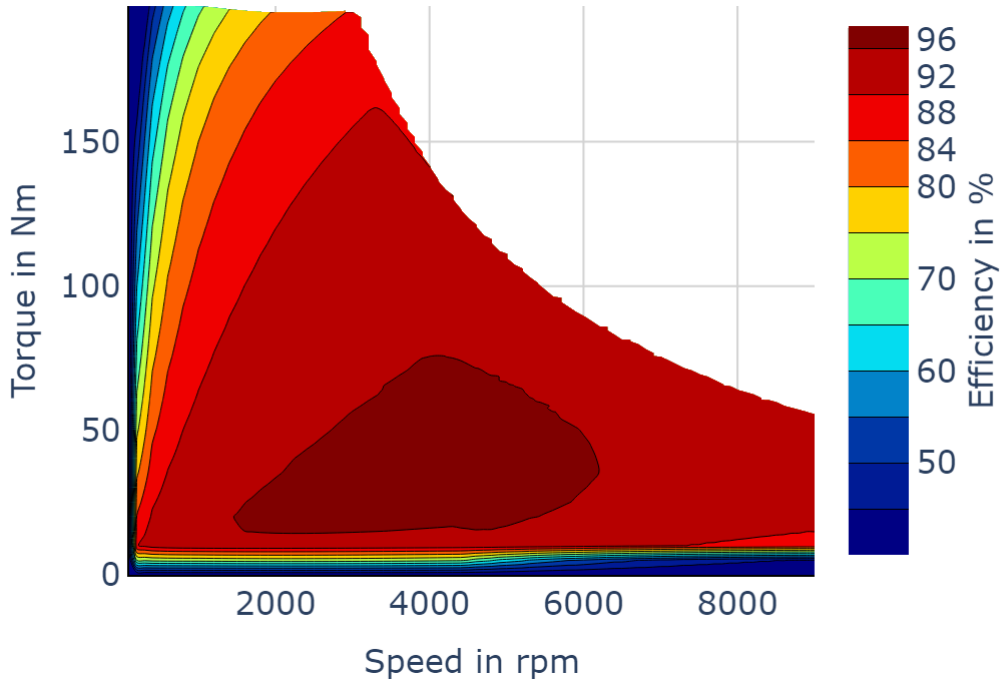
solid lines: S1 continuous; dashed lines: S2 (30 sec) maximum
(cooling as specified in chapter "Additional Data")



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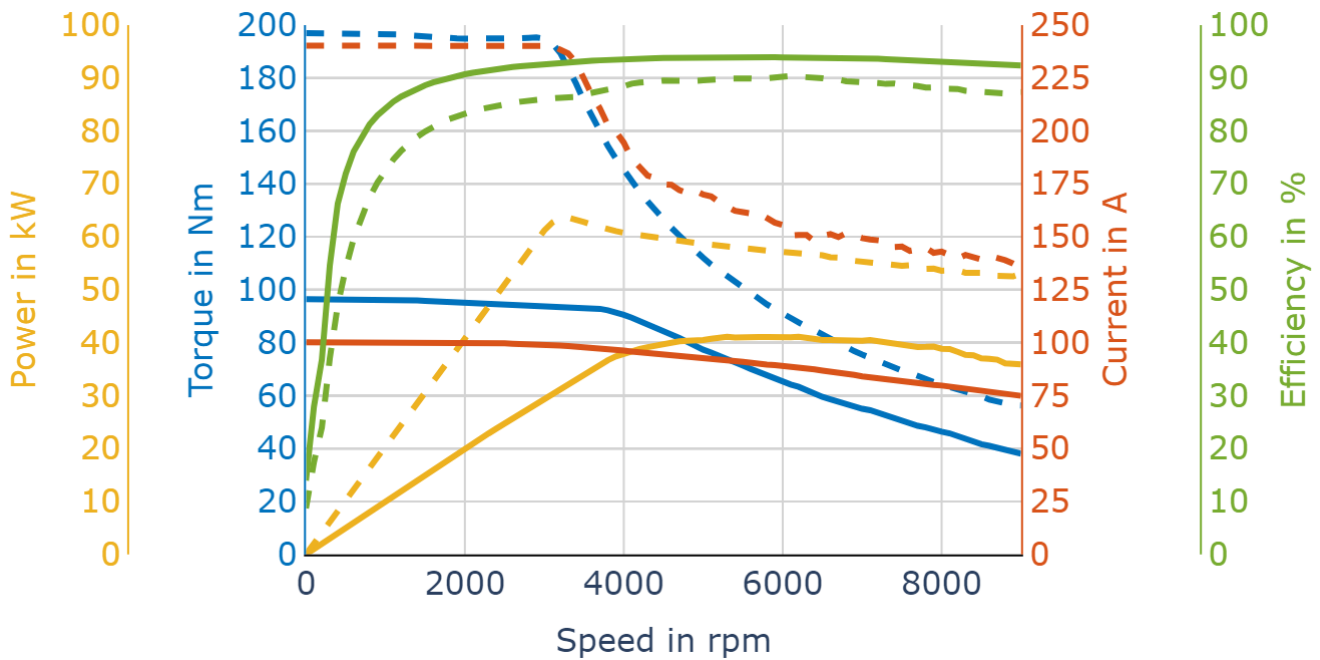
400 V

Simulated Efficiency of Motor Application
(electric machine only; $U_{nom} = 400\text{ V}$)

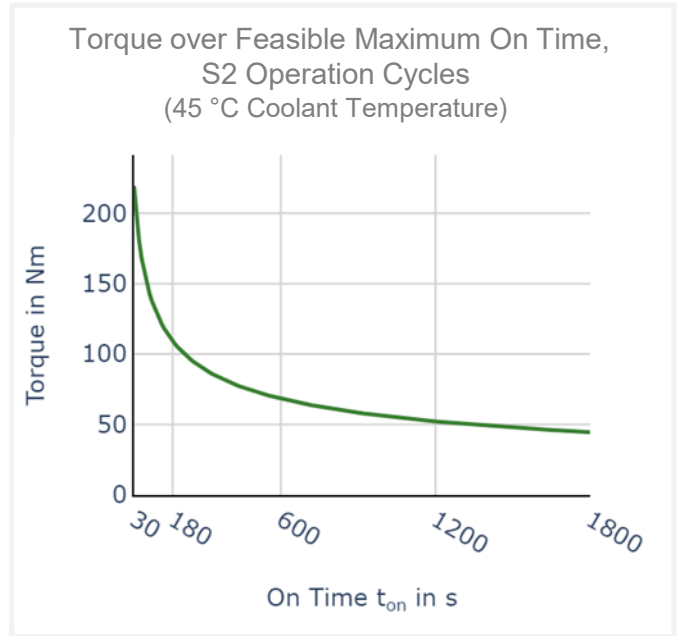
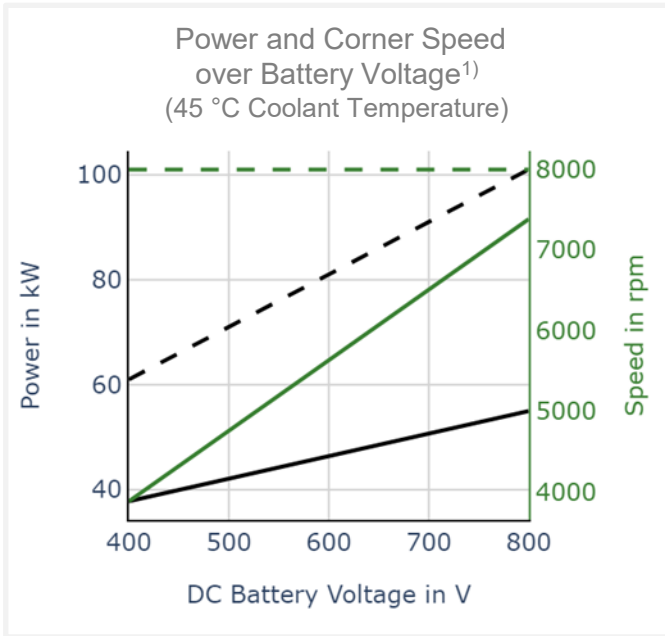
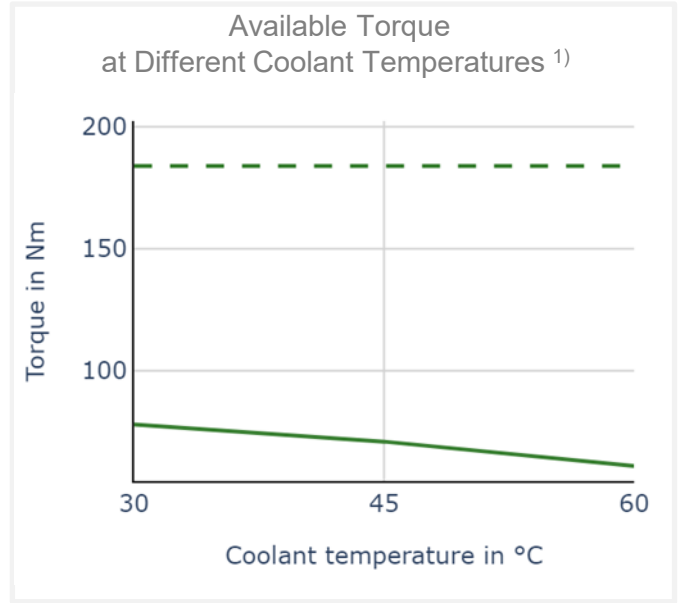
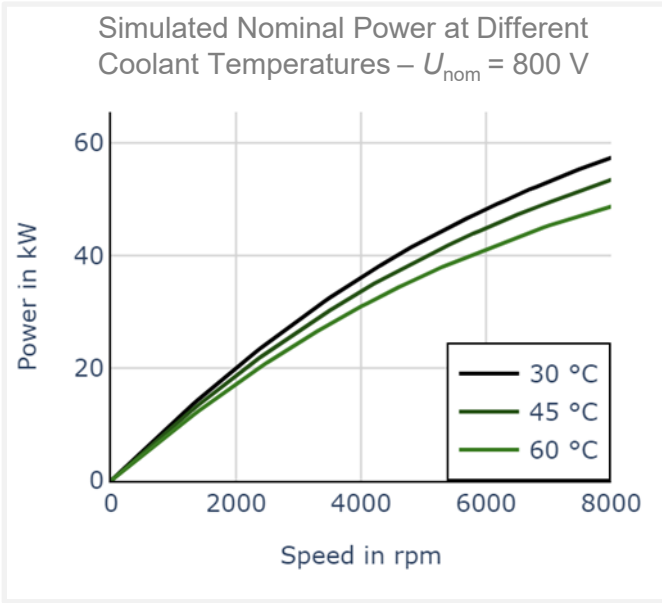


400 V

Simulated Characteristic Motor Parameters
solid lines: S1 continuous; dashed lines: S2 (30 sec) maximum
(cooling as specified in chapter "Additional Data")



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

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