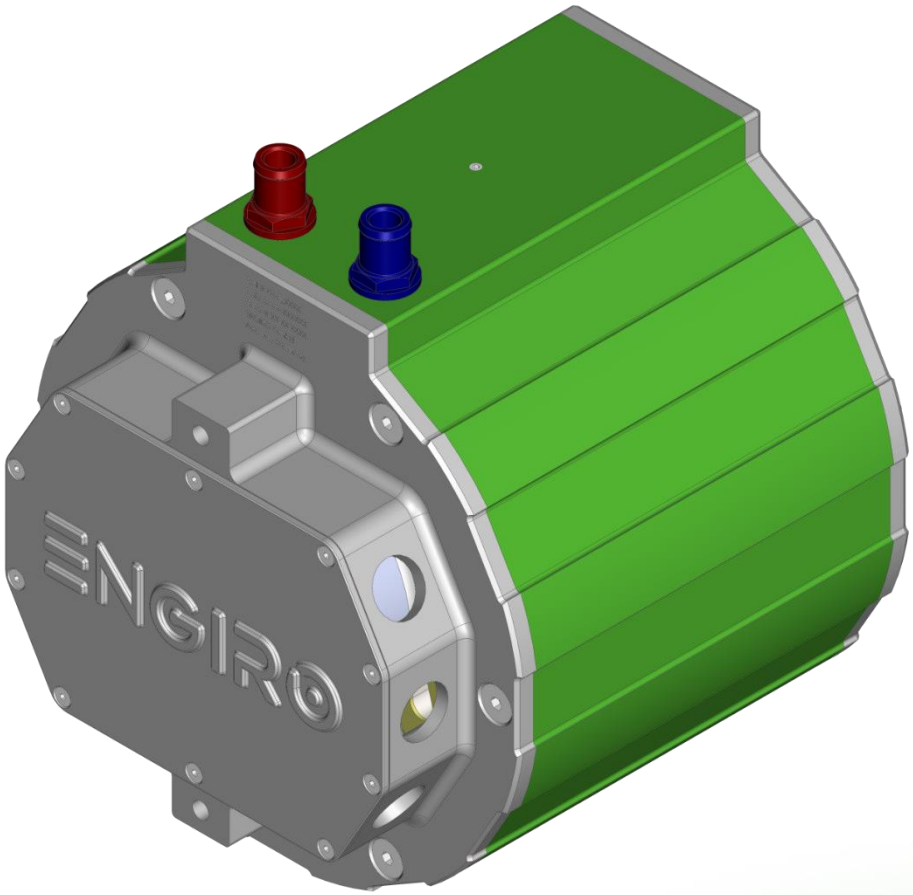
205W-08043-P-ABC

water-cooled motor / generator with 54 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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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**
4872269	205W_08043_BCF_P	B1	C1	F	-
4872274	205W_08043_CDF_P	C1	D1	F	-
4872271	-	C1	D1	F	x
4872287	205W_08043_SEF_P	S1	E1	F	-
4872291	205W_08043_SSF_P	S1	S1	F	-

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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Operating Range

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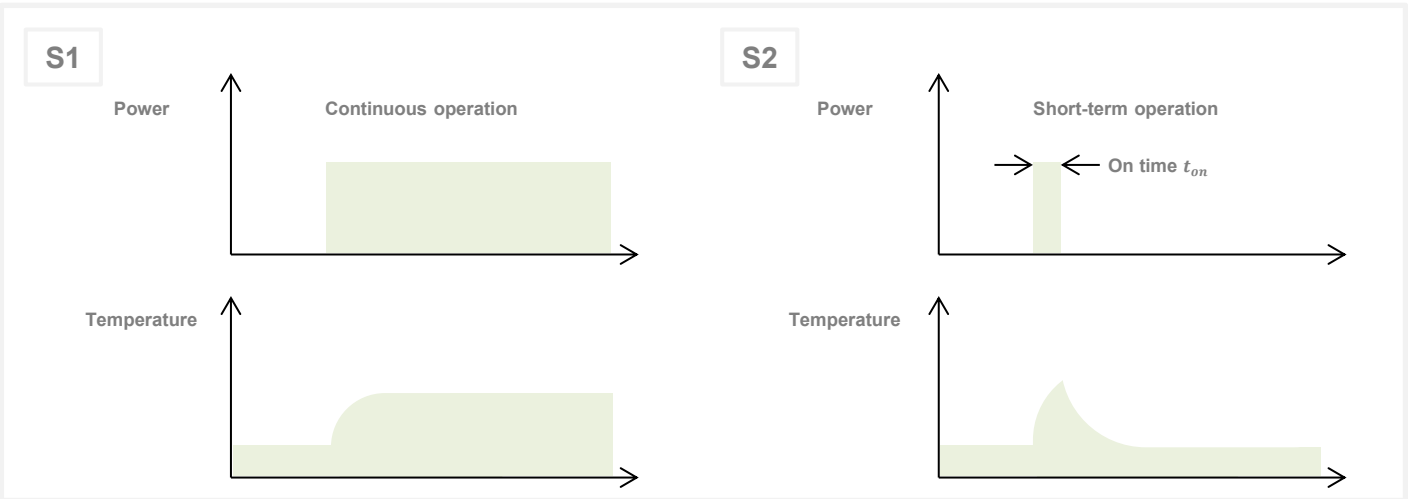
Characteristic Operating Points[1]					
		S1	S2	S2	
Feasible operation time	t_{on}	continuous	30 min	30 sec	
Torque [2]	T	64	64	178	Nm
Power [2]	P	54	54	94	kW
Speed	n	8010	8010	5050	rpm
Phase RMS-current (AC) [3]	I_{rms}	84	84	283	A
Battery current (DC) [3]	I_{DC}	85	85	338	A
Battery voltage (DC)	U_{DC}	750	750	750	V
Electric frequency	f_{el}	534	534	337	Hz
Efficiency	η_{tot}	94	94	84	%
Power factor	$cos(\varphi)$	0.91	0.91	0.87	
Cooling	specified in chapter „Additional Data“				

Maximum Operating Range			
Torque [2] [4]	T_{max}	178 @ 5050 rpm	Nm
Power [2] [4]	P_{max}	94 @ 5050 rpm	kW
Speed	n_{max}	9000	rpm
Phase RMS-current (AC) [3] [4]	$I_{rms,max}$	283	A
Battery current (DC) [3] [4]	$I_{DC,max}$	338	A
Battery voltage (DC)	U_{max}	850	V
Electric frequency	f_{el}	600	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

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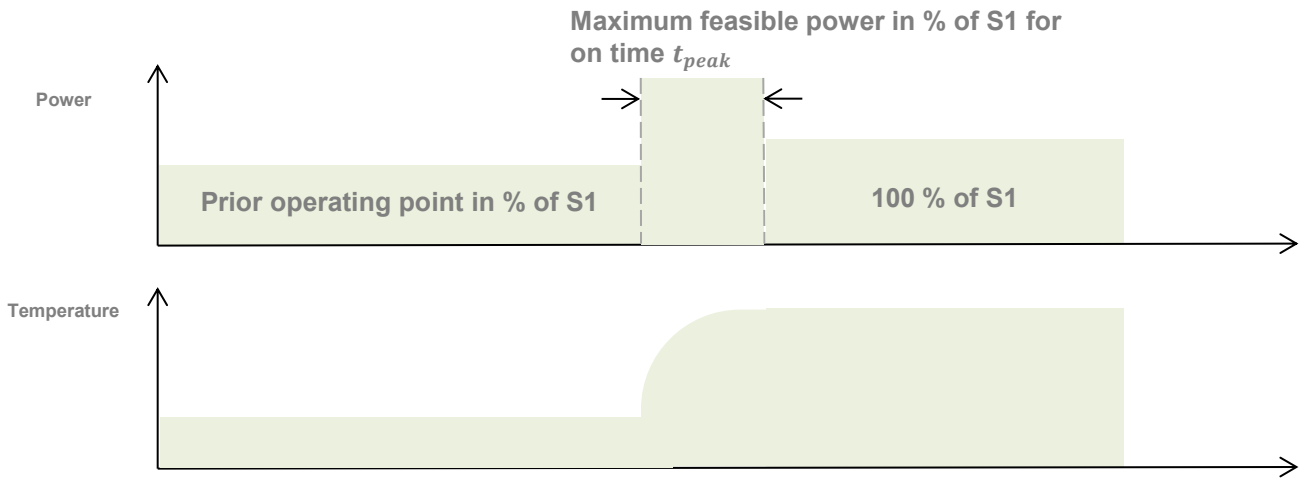
S9 Operating Points [1] Maximum Feasible Power in % of S1						
U_{nom} = 750 V		Prior operating point in % of S1				
		0 %	25 %	50 %	75 %	100 %
On time t_{peak}	30s	180 %	180 %	160 %	140 %	100 %
	180s	100 %	100 %	100 %	100 %	100 %
	420s	100 %	100 %	100 %	100 %	100 %

1) Cooling conditions as specified in chapter “Additional Data”

S9 Overload capability for subsequent continuous operation depending on preceding operation



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Additional Data

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Electrical Data						
Number of phases					3	
Number of pole pairs					4	
Maximum stationary short circuit current [1]					139 A (RMS) @ 20 °C @ ≥ 900 rpm	
Maximal efficiency					95	%
T/I constant (I<Inom)					0.762	Nm/A_{rms}
U/n constant (AC) at temperature 20 °C		rms:	52.04	peak:	84.81	V/(1000rpm)
Ke constant (AC) at temperature 20 °C		rms:	0.5	peak:	0.81	$V/(rad*s^{-1})$
Additional Data						
Rotor moment of inertia					0.0149 (S1S1, S1E1), 0.0152 (C1D1), 0.0153 (B1C1)	kg*m²
Allowed range of ambient temperature [2]					-20 … +85	°C
Maximal motor temperature					140	°C
Temperature monitoring					KTY-84-130	
Cooling	Advised medium (OAT Coolants)				water/glycol - 50/50 ▪ TL 774-D/F ▪ VIN 878389 ▪ MAN 324 SNF ▪ MTL 5048	
	Flow rate				12	l/min
	Inlet temperature				45	°C
	Pressure drop				0.298	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 5381	

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

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Available Type Variants				
Flange	**Shaft**	**Pos. sensor**	**HV-Interlock**	**Weight (kg)**
B1 Hydraulic pump ANSI 127-4 / SAE C - Ø127 mm centering shoulder	**C1** cylindrical shaft with keyway Ø35mm	**F** Resolver	-	≈ 40 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	-	≈ 39 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	**HVIL**	≈ 39 kg
S1 Standard with 4xM10x35 threaded stud	**E1** External splines, DIN 5480 W28x1,25x21x8f	**F** Resolver	-	≈ 35 kg
S1 Standard with 4xM10x35 threaded stud	**S1** Cylindrical shaft with keyway Ø 28mm	**F** Resolver	-	≈ 36 kg

Other individual combinations are also possible on request.

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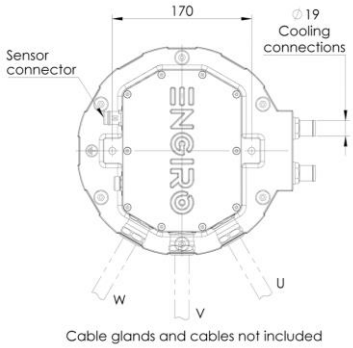
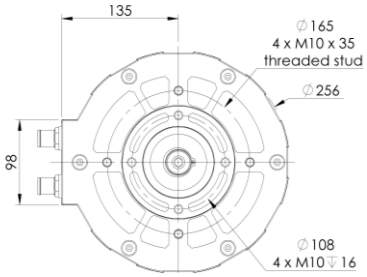
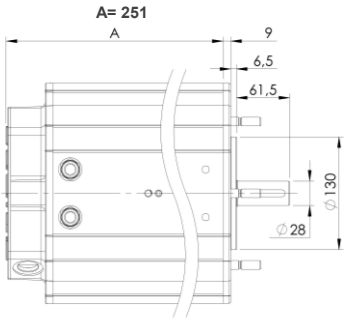
Technical Drawings



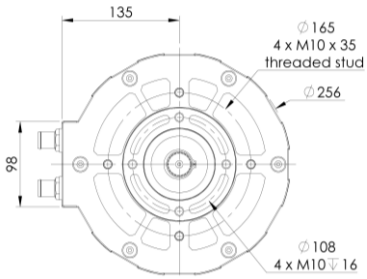
Cable glands and cables not included

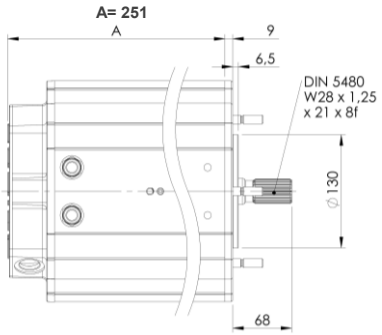
Flange S1
Shaft S1



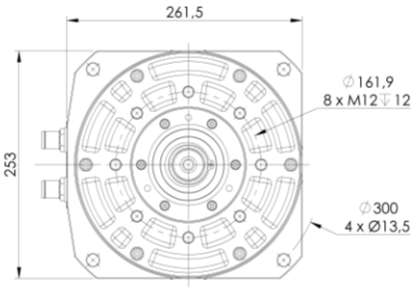


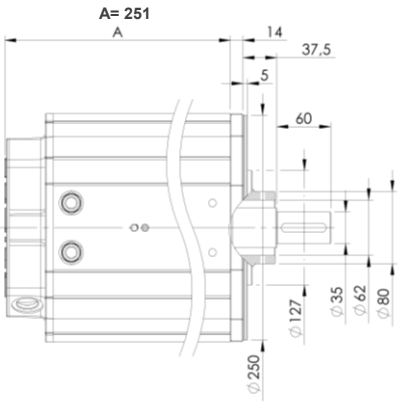
Flange S1
Shaft E1



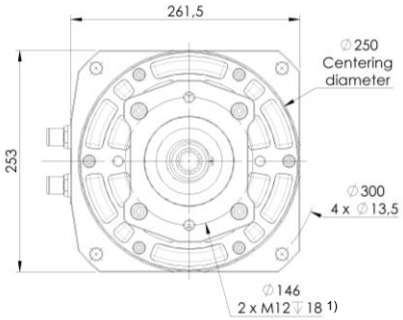


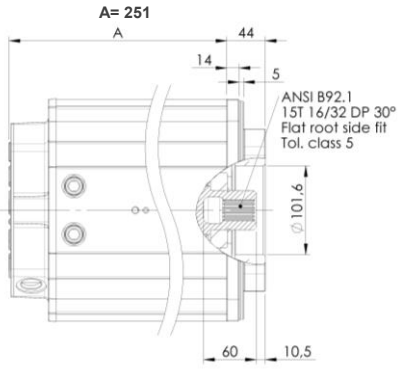
Flange B1
Shaft C1





Flange C1
Shaft D1





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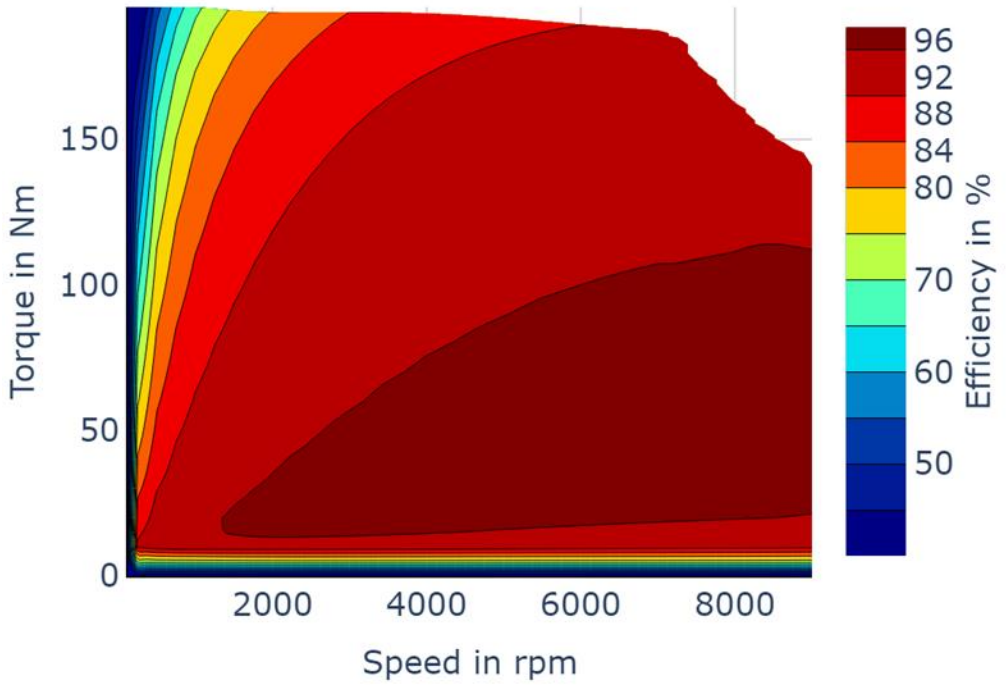
Performance Plots

750 V

Simulated Efficiency of Motor Application

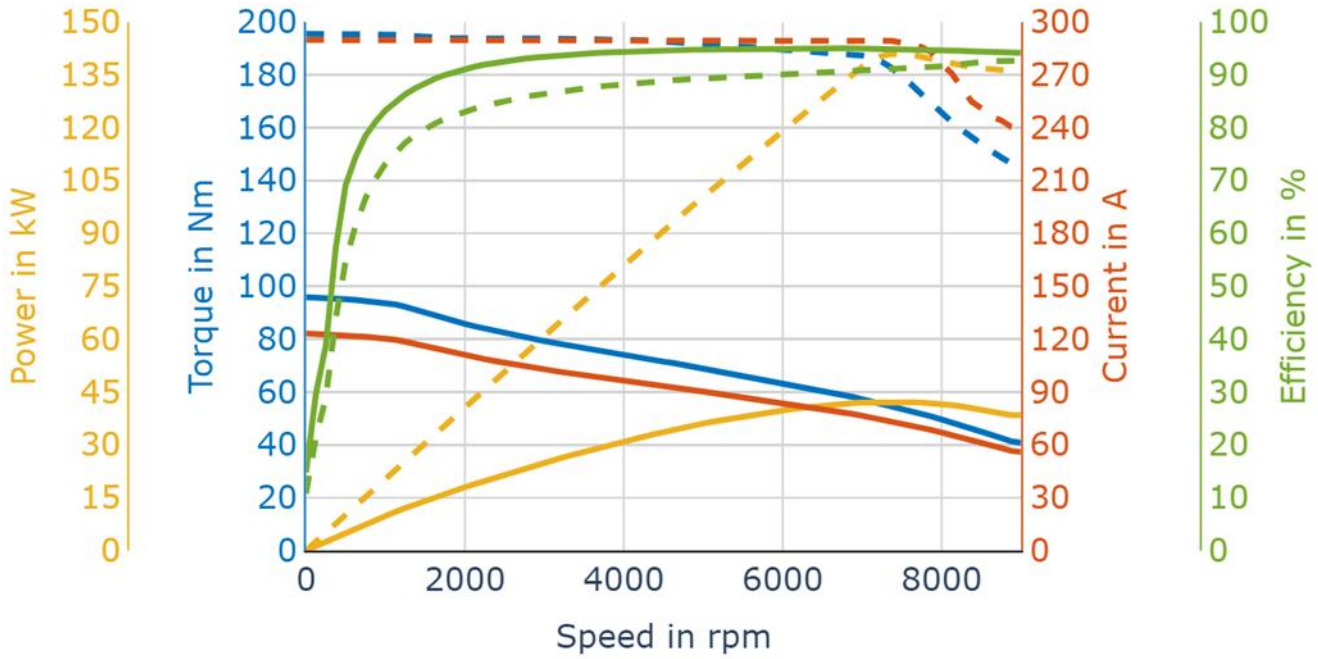
(electric machine only; U_{nom} = 750 V)



750 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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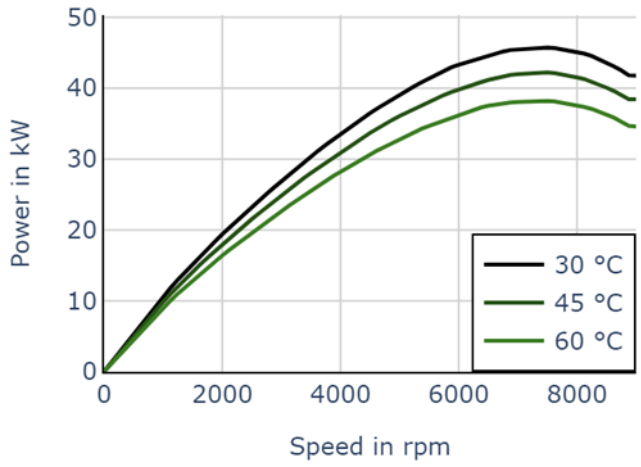
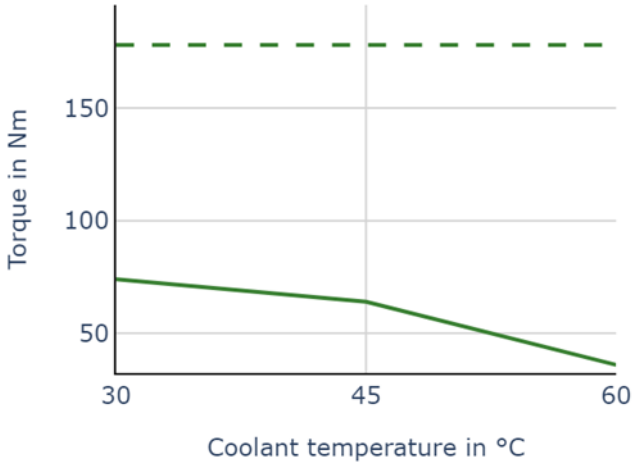
Additional Characteristics

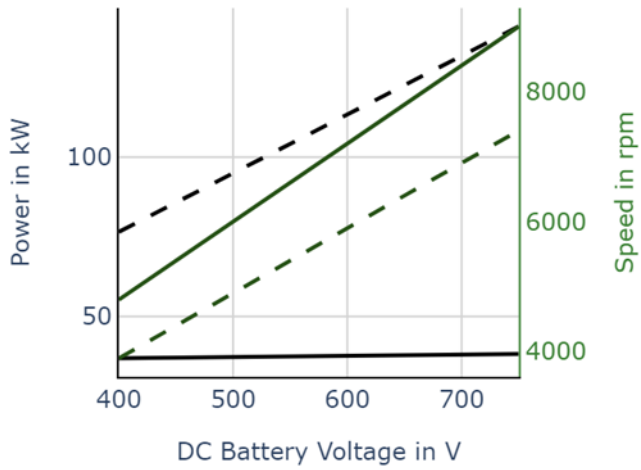
Simulated Nominal Power at Different Coolant Temperatures – U_{nom} = 750 V



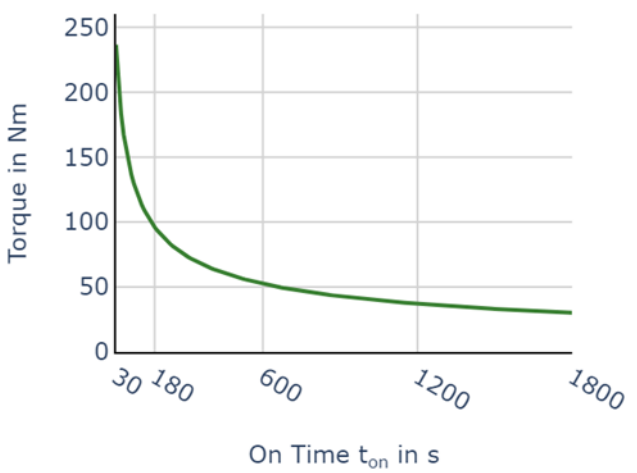
Available Torque at Different Coolant Temperatures [1)]



Simulated Power and Corner Speed over Battery Voltage[1)] (45 °C Coolant Temperature)



Torque over Feasible Maximum On Time, S2 Operation Cycles (45 °C Coolant Temperature)



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

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