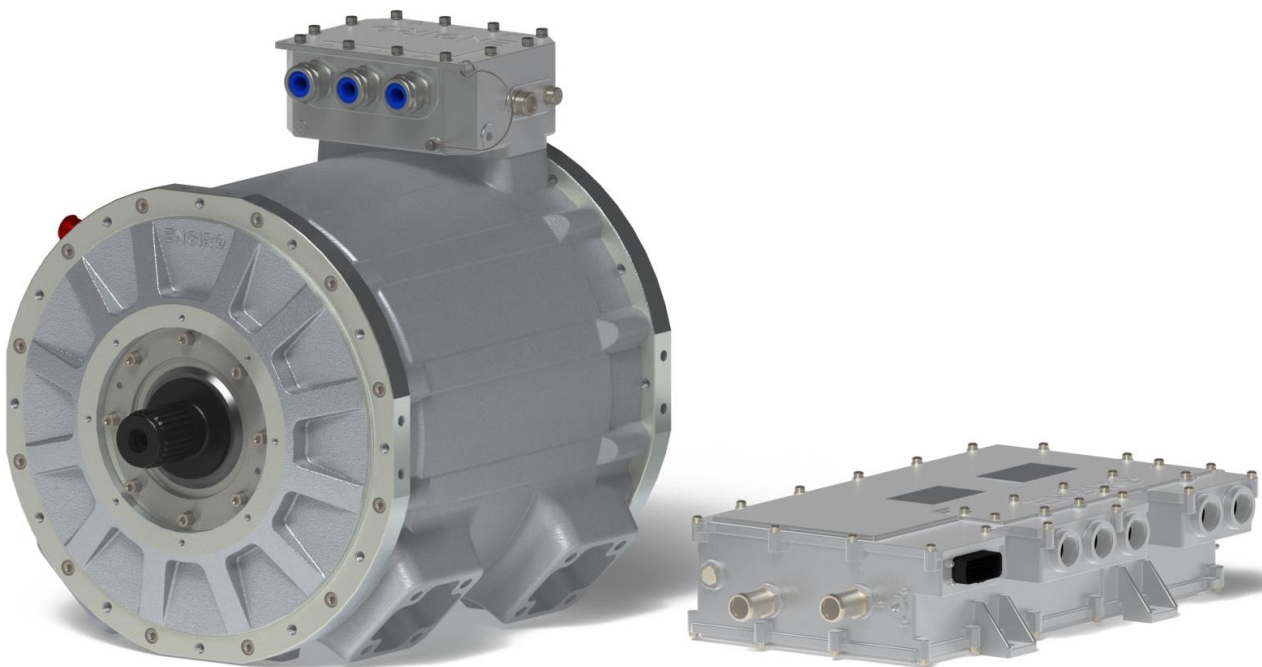


370W-29012-ABC-P

Drive set with 333 kW continuous power

This datasheet applies to part numbers.: see page 2



Part no.: 4843401
Article Name: EN1_800V_900A_W

KEY FEATURES

- Interior permanent magnet synchronous machine
- Water-cooled
- Full torque at zero speed
- Redommended voltage range from 350 V to 850V
- Delivery with controller possible

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Additional Data	5
Certifications	6
Performance Plots	7
Additional Characteristics	8
Technical Drawings	9
Delivery Content	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
4832774	370W_29012_SSR_P	S1	S1	R
4850537	370W_29012_SER_P	S1	E1	R

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.

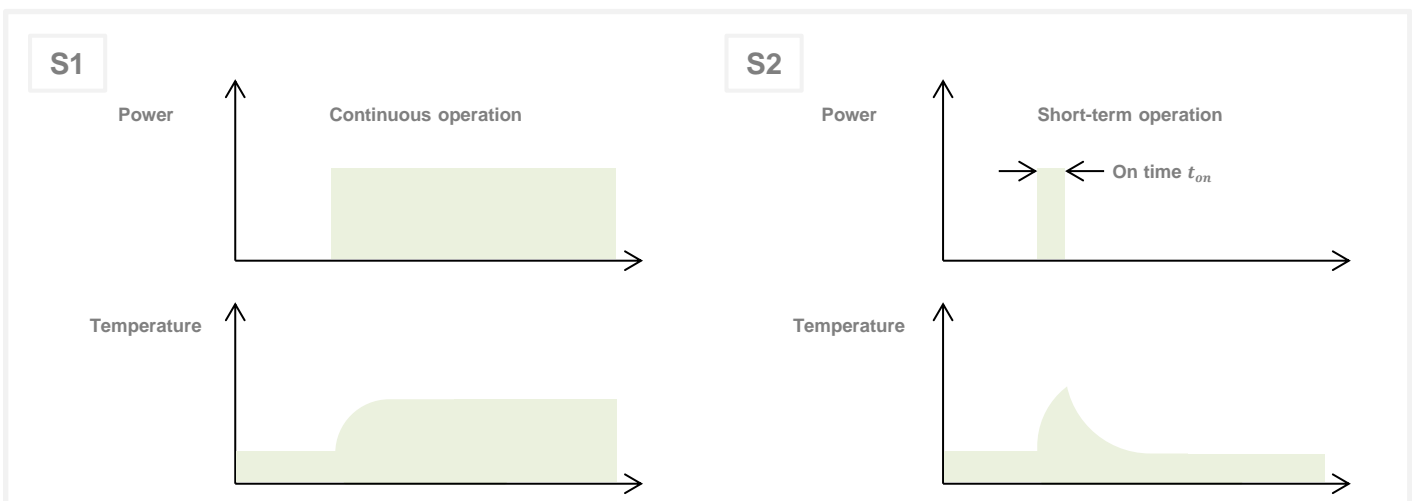
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Characteristic Operating Points¹⁾

		S1	S2	S2	
Feasible operation time	t_{on}	continuous	30 min	30 sec	
Torque	T	1600 ²⁾	1600 ²⁾	3050	Nm
Power	P	333	333	510	kW
Recuperation power	P_{recu}	350	350	548	kW
Phase rms-current (AC)	I_{rms}	439 ³⁾	439 ³⁾	900 ³⁾	A
Battery current (DC)	I_{DC}	467 ³⁾	467 ³⁾	731 ³⁾	A
Battery voltage (DC)	U_{DC}	750	750	750	V
Speed	n	2000	2000	1600	rpm
Electric frequency	f_{el}	200	200	160	Hz
Set Efficiency	η_{tot}	95	95	94	%
Cooling	specified on page 5				

Maximum Operating Range

		Max.	
Torque	T_{max}	3050 @ 1600 rpm	Nm
Power	P_{max}	576 @ 2000 rpm	kW
Speed	n_{max}	4000	rpm
Phase rms-current	$I_{rms,max}$	900 ³⁾⁴⁾	A
Battery current (DC)	$I_{DC,max}$	900 ³⁾⁴⁾	A
Battery voltage (DC)	U_{max}	850	V
Electric frequency	f_{el}	400	Hz

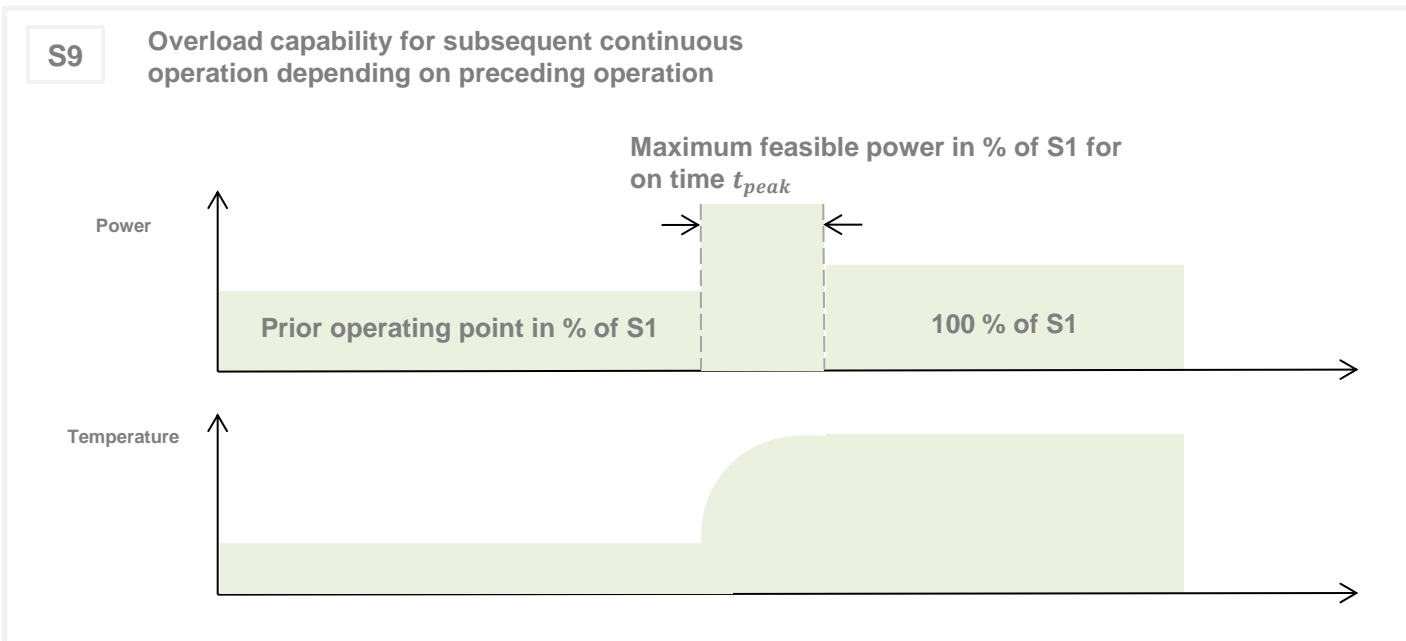


- 1) Defined Range only valid for a power factor of 1 at DC input
- 2) Torque rating is dependant on rotor temperature
- 3) The cables must not exceed a temperature of 140 °C at any time. Temperature and service life depend on the installation condition.
- 4) Peak rating for max. 30 seconds on time

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S9 Operating Points¹⁾
Maximum Feasible Power in % of S1

U _{nom} = 750V		Prior operating point in % of S1				
		0 %	25 %	50 %	75 %	100 %
On time <i>t_{peak}</i>	30s	155%	150%	140%	120%	100%
	180s	125%	120%	110%	110%	100%
	420s	110%	100%	100%	100%	100%



1) Theoretical rounded assumption

Electrical Data			
Number of phases			3
Number of pole pairs			6
Maximal efficiency			96 %
T/l constant (I<Inom)			3.64 Nm/A _{rms}
U/n constant (AC) at T _{ambient} = 20 °C	rms:	224	peak: 343 V/(1000rpm)
Ke constant (AC) at T _{ambient} = 20 °C	rms:	2.14	peak: 3.27 V/(rad*s ⁻¹)
Additional Data			
	Motor	Inverter	
Weight (w/o cables)	305	25.5	kg
Rotor moment of inertia	1,07	-	kg*m ²
Allowed range of ambient temperature	-20 ... +85	-40 ... +85	°C
Maximal motor temperature	operating point dependent ¹⁾		-
Cooling	Advised medium (OAT Coolants)	water/glycol - 50/50 ▪ TL 774-D/F ▪ VIN 878389 ▪ MAN 324 SNF ▪ MTL 5048	
	Flow rate	30	15-25 l/min
	Inlet temperature	45 ²⁾	45 °C
	Pressure drop	1.1	0.65-1.65 bar
	Maximum pressure	2	2.5 bar
	Cooling channel volume	3.8	0.21 l
DC link capacitance	-	900	µF
Temperature monitoring	2x PT1000	Internal	
Rotation direction	Freely controllable via CAN Bus		
Connectors			
Power terminals	3 x M32 cable gland		
Signal connectors	Harting 19 pin connector, M23		
Cooling connectors	Inner Ø 21 mm, outer Ø 25 mm		
Control and Communication			
Type	Slave		
	Speed/Torque Control freely controllable via Software		
CAN Bus	Symbol/Baud rate	250/500 kbaud/s	
	Technology	CAN 2.0, J1939 like	
Torque Ramp	Safety limits can be set in the inverter by ENGIRO		
Speed Ramp	Safety limits can be set in the inverter by ENGIRO		

1) Please contact ENGIRO for the parametrization of third-party inverters

2) Derating for T_{coolant} > 45°C

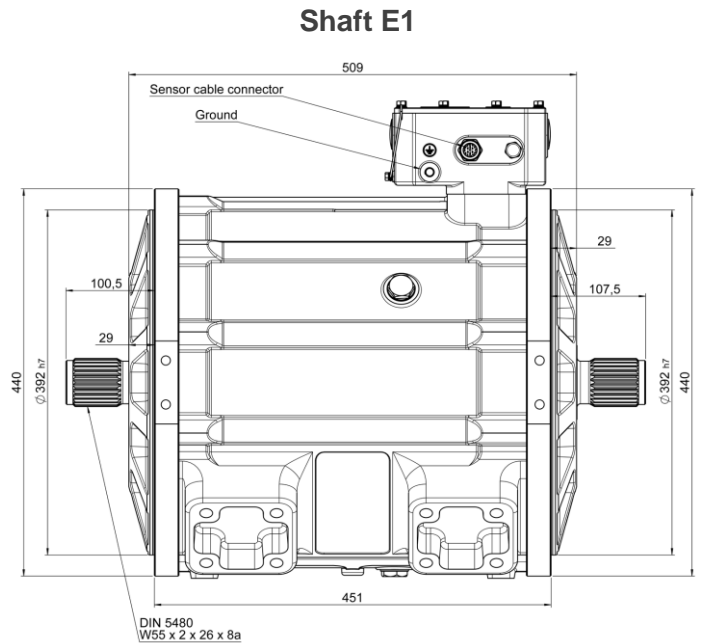
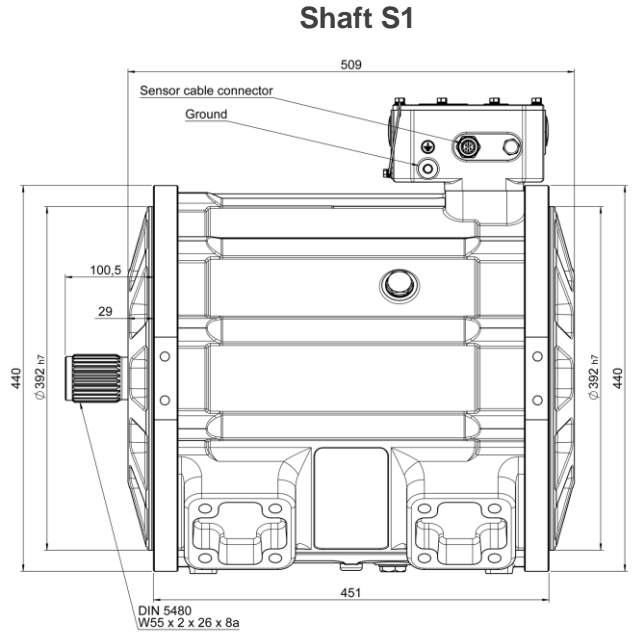
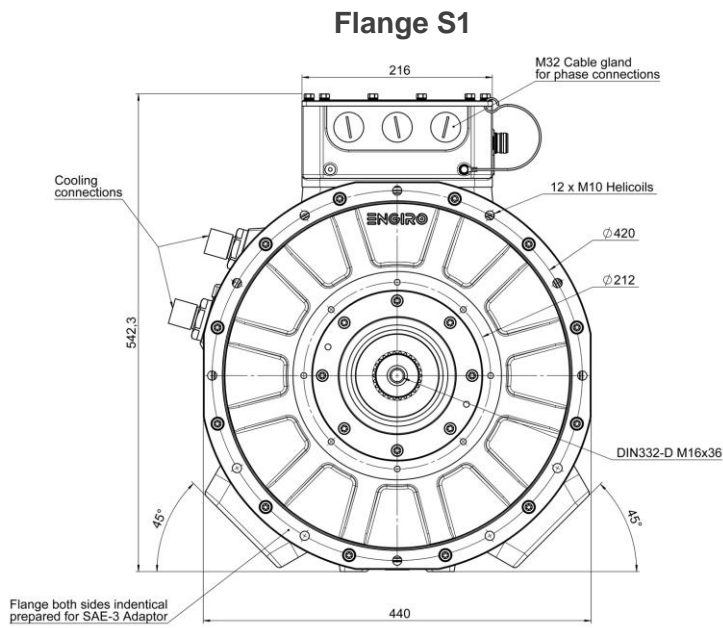
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Certifications		
	Motor	Inverter
Type approval	CE, EN 60034	-
Environmental	ISO 9227 (400h)	-
Protection grade	IP6K9K ¹⁾	Prepared for ISO 20653 IP6K9K
Vibrations	Prepared for ISO 16750-3	Prepared for ISO 16750-3
EMC	-	Prepared for CISPR25 (2016), ECE R10
Functional safety	-	Prepared for ISO 26262 up to ASIL-C
Customs tariff number	8501 5350	8504 4086

- 1) 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

Shaft and Flange Combinations for 370W-29012-ABC-P		Flange (A)
		S1 (Standard - Ø392 mm centering)
Shaft (B)	S1 (Shaft with external splines - DIN5480 W55 x 2 x 26 x 28a)	● (≈ 305 kg)
	E1 (Double sided shaft with external splines – DIN5480 W55 x 2 x 26 x 28a)	● (≈ 305 kg)
Position Sensor (C)		R: Resolver

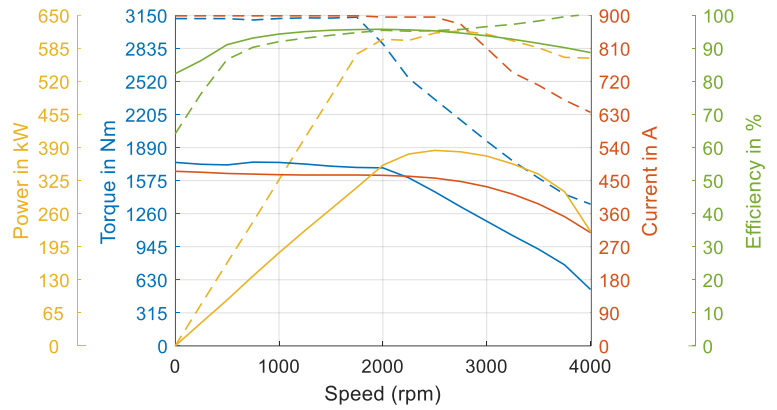
Other individual combinations are also possible on request.



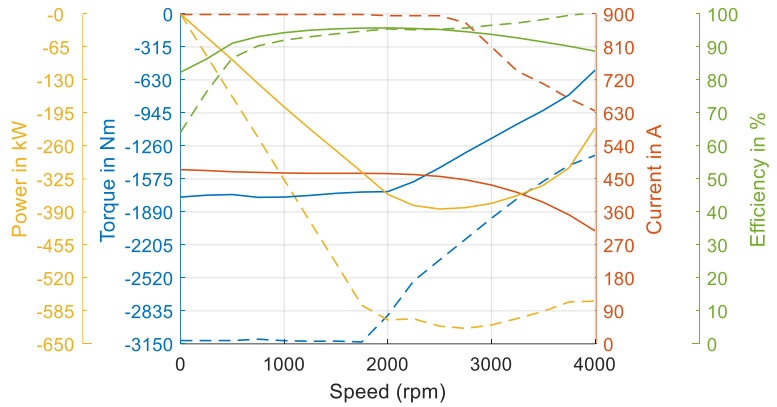
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750V

Simulated Motor Characteristics
 solid lines: S1 continuous
 dashed lines: S2 30 sec

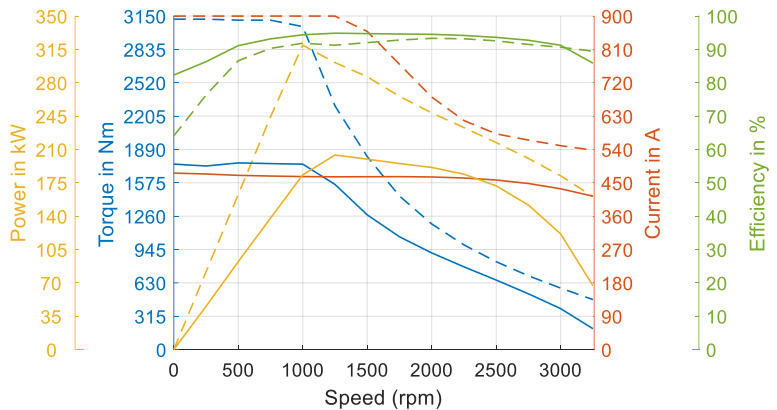


Simulated Generator Characteristics
 solid lines: S1 continuous
 dashed lines: S2 30 sec

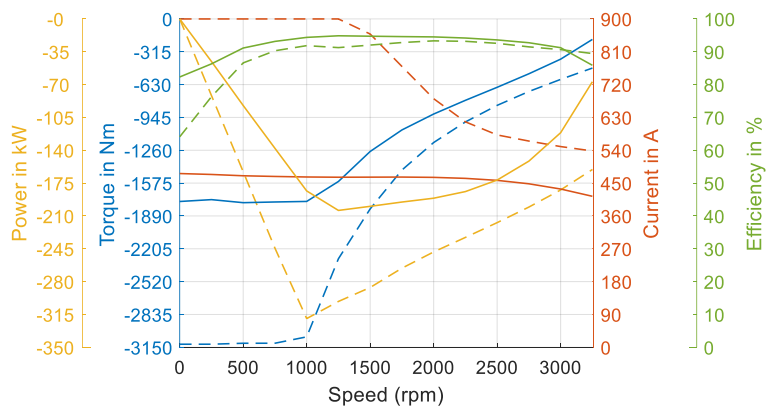


400V

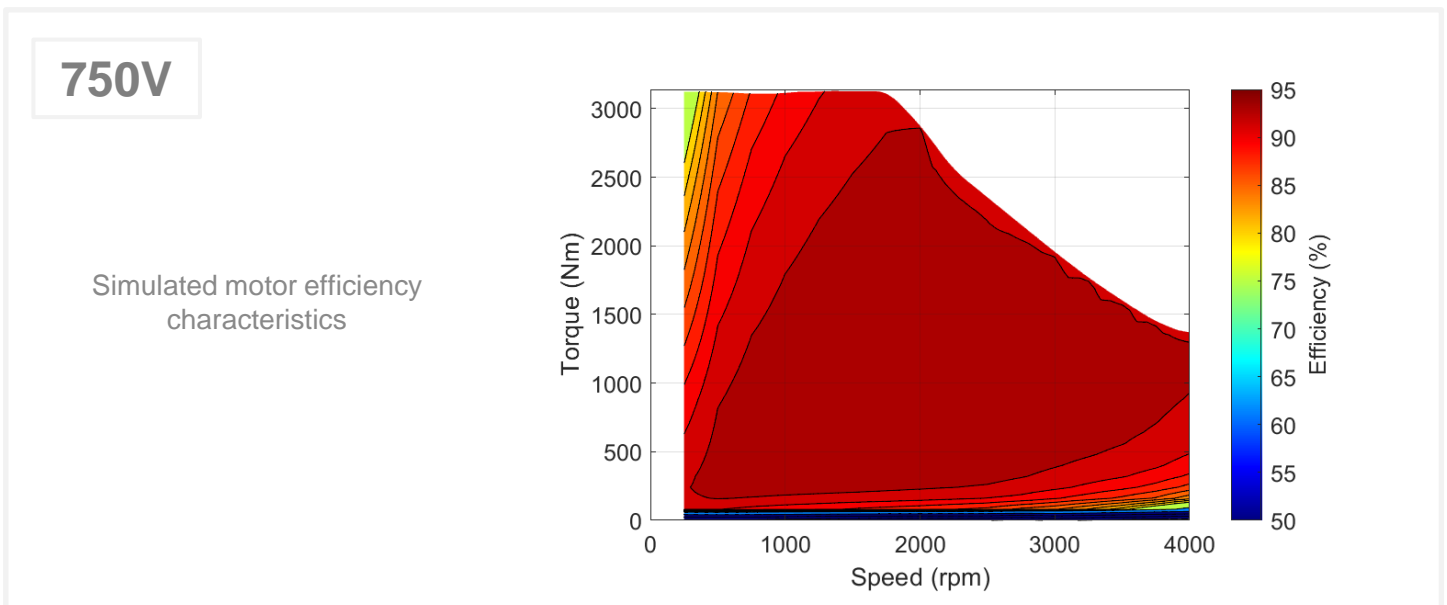
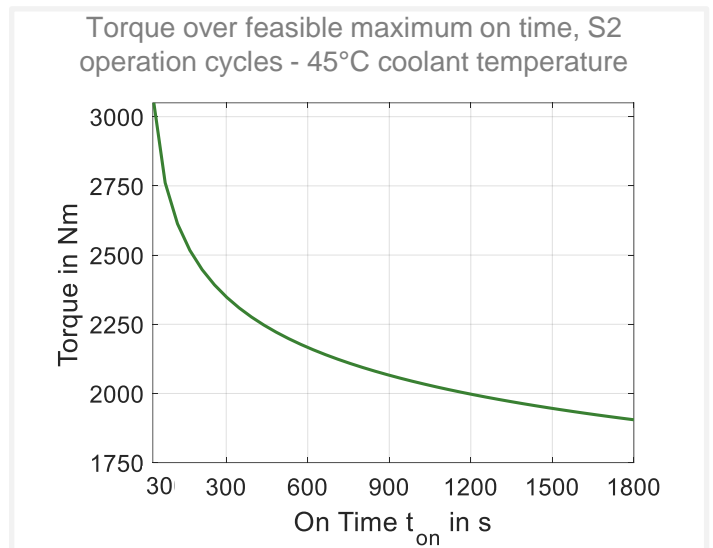
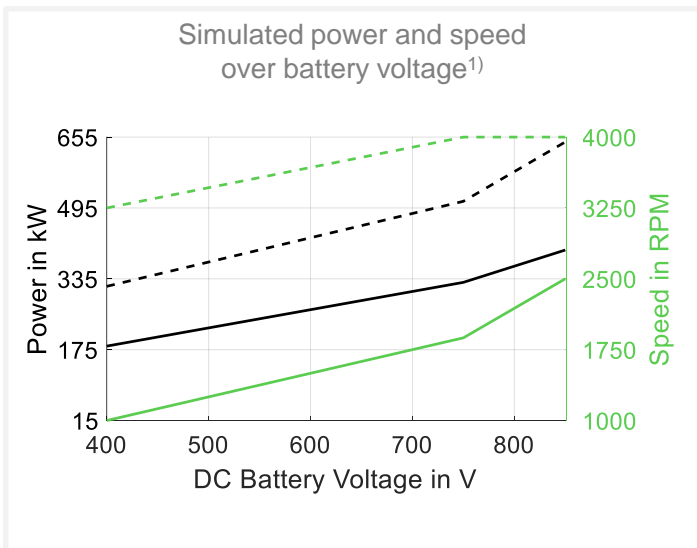
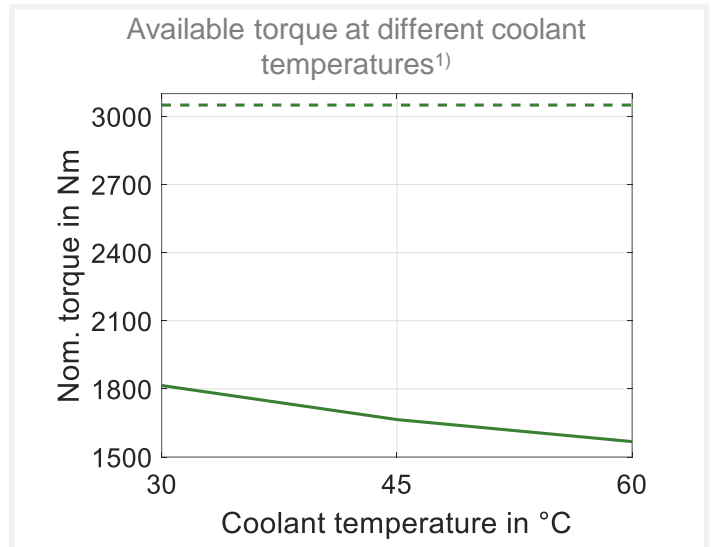
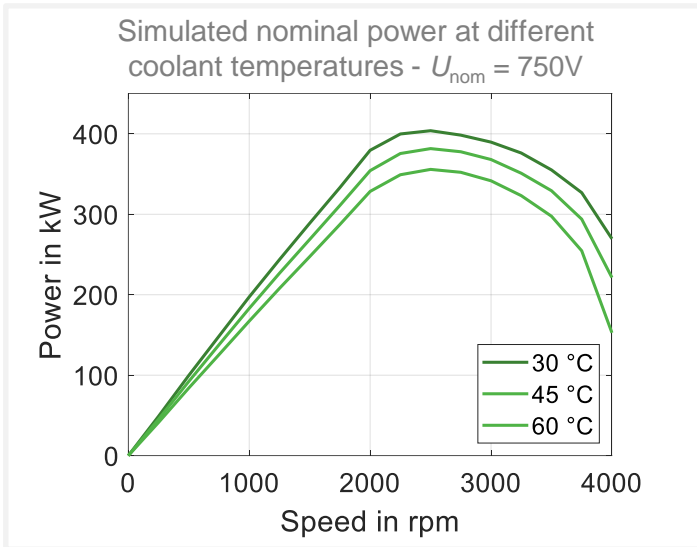
Simulated Motor Characteristics
 solid lines: S1 continuous
 dashed lines: S2 30 sec



Simulated Generator Characteristics
 solid lines: S1 continuous
 dashed lines: S2 30 sec



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

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370W-29012-P Set				
Item description				Part number
Available Motor Variants	Flange	Shaft	Position sensor	
	S1: Standard flange with Ø382 centering	S1: One-sided toothing	R: Resolver	4832774
ENGIRO High Performance Traction Inverter 600A / 900A 800V 3 phase motor controller				4843401
Available Cables	AC port 3 x 120mm ² cables with connector; Length: 1000 mm UVW			4843094
	AC port 3 x 120mm ² cables with connector; Length: 2000 mm UVW			4843095
	ENGIRO 900A controller 120 mm ² cable set DC; Length: 4500 mm			4842772
	ENGIRO 900A controller 120 mm ² cable set DC; Length: 7000 mm			4842773
	Wiring harness for ENGIRO 370W / ENGIRO High Performance Traction Inverter; Length: 2000 mm			4842840

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