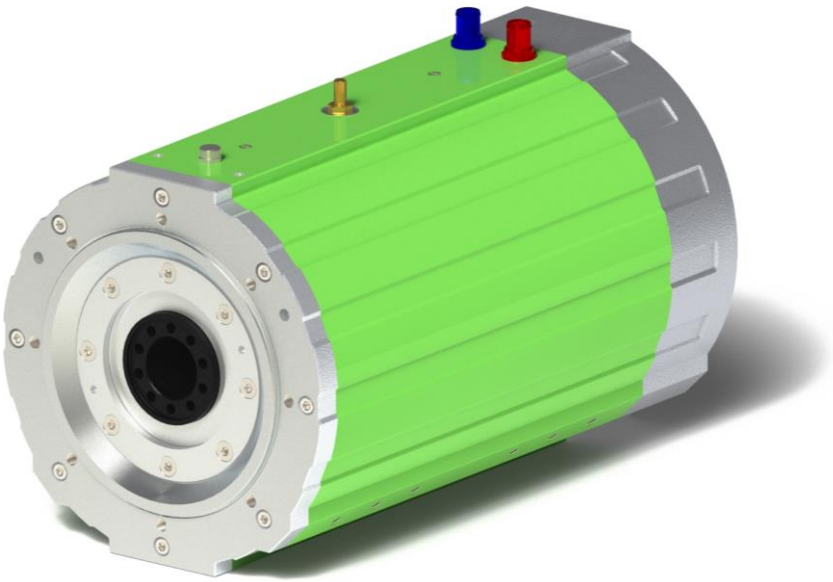
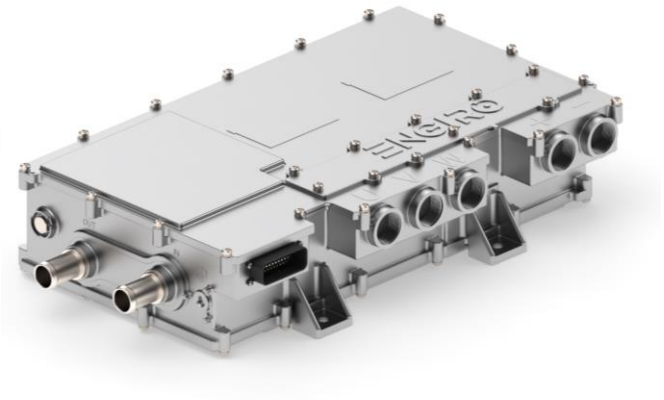
260W-08028-ABC

water-cooled motor / generator with 102 kW continuous power

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





Part no.: 4858006
Article Name: EN2_800V_900A_W

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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Table of Content

Note:

On September 1st , 2024, **we transferred our ERP systems to SAP**. Due to this change, **we are altering our current part numbers**.

From now on, configurations regarding the rear interface of the motor (e.g., accessible rear shaft end, closed, …) will be specified in a separate part of the motor naming. Therefore, all 260W **D1-flanges will be renamed to S1-flanges** with the according B-side specification.

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**	**B-side interface**
4752424	260W_08028_SFR	S1	F1	R	…S11

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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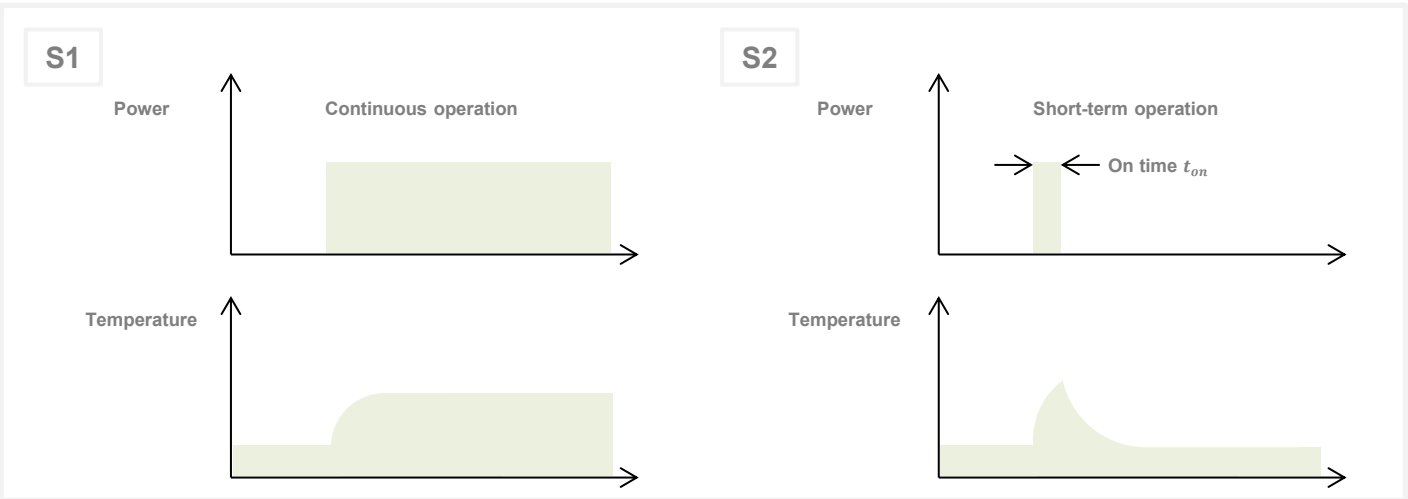
Operating Range

ENGIRO HYDAC INTERNATIONAL

Characteristic Operating Points[1]					
		S1	S2	S2	
Feasible operation time	t_{on}	continuous	30 min	30 sec	
Torque [2]	T	202	206	392	Nm
Power [2]	P	102	104	174	kW
Speed	n	4810	4810	4230	rpm
Phase RMS-current (AC) [3]	I_{rms}	143	143	350	A
Battery current (DC) [3]	I_{DC}	142	143	254	A
Battery voltage (DC)	U_{DC}	800	800	800	V
Electric frequency	f_{el}	401	401	353	Hz
Efficiency	η_{tot}	90	91	85	%
Power factor	$cos(\varphi)$	0.91	0.91	0.87	
Cooling	specified in chapter „Additional Data“				

Maximum Operating Range			
Torque [2] [4]	T_{max}	392 @ 4230 rpm	Nm
Power [2] [4]	P_{max}	174 @ 4230 rpm	kW
Speed [5]	n_{max}	6000	rpm
Phase RMS-current (AC) [3] [4]	$I_{rms,max}$	350	A
Battery current (DC) [3] [4]	$I_{DC,max}$	254	A
Battery voltage (DC)	U_{max}	850	V
Electric frequency	f_{el}	500	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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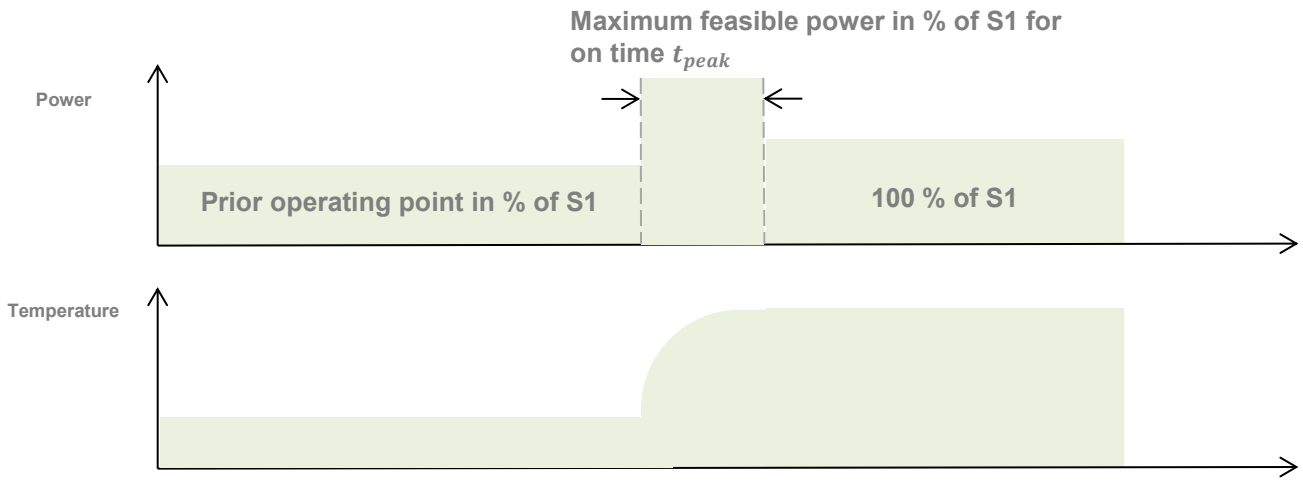
Operating Range

S9 Operating Points [1] Maximum Feasible Power in % of S1						
U_{nom} = 800 V		Prior operating point in % of S1				
		0 %	25 %	50 %	75 %	100 %
On time t_{peak}	30s	180 %	170 %	160 %	140 %	100 %
	180s	120 %	120 %	110 %	110 %	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]				187 A (RMS) @ 20 °C @ ≥ 600 rpm	
Maximal efficiency				93	%
T/I constant (I<Inom)				1.407	Nm/A_{rms}
U/n constant (AC) at temperature 20 °C	rms:	94.26	peak:	141.6	V/(1000rpm)
Ke constant (AC) at temperature 20 °C	rms:	0.9	peak:	1.35	$V/(rad*s^{-1})$

Additional Data			
Rotor moment of inertia		tbd	$kg*m^2$
Allowed range of ambient temperature		-20 … +85	°C
Maximal motor temperature [2]		operating point dependent	°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	20	l/min
	Inlet temperature	45	°C
	Pressure drop	0.655	bar
	Maximum pressure	2	bar
	Cooling channel volume	0.76	l

Connectors	
Power terminals	3 x M25 cable gland
Signal connectors	M16, Hummel 10 Pin connector
Cooling connectors	2 x ¾" / 19 mm

Certifications	
Type approval	CE, EN 60034
Salt mist	Prepared for ISO 9227
Protection grade	IP6K9K[3]
Vibrations	Prepared for ISO 16750-3
Customs tariff number	8501 5381

1) Simulated
2) Please contact ENGIRO for the parametrization of third-party inverters
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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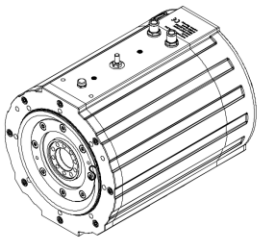
Available Type Variants

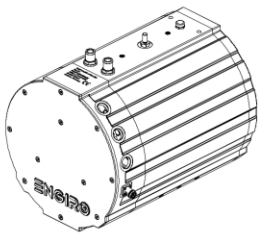
Available Type Variants				
Flange	**Shaft**	**Pos. sensor**	**B-side interface**	**Weight (kg)**
S1 Flange with mounting threads (Ø230 mm centering, Ø250 PCD 8 x M10)	**F1** Hollow shaft with screw flange (Ø90 and Ø50 mm centering, Ø66 mm PCD 10 x M10)	**R** Resolver	**S11** Closed B-side	≈ 68 kg

Other individual combinations are also possible on request.

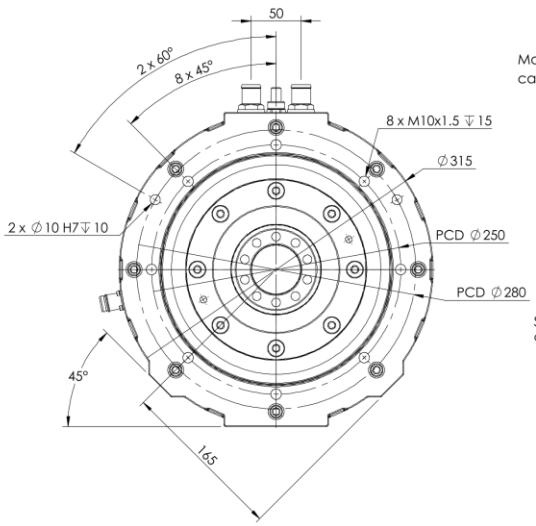
Technical Drawings

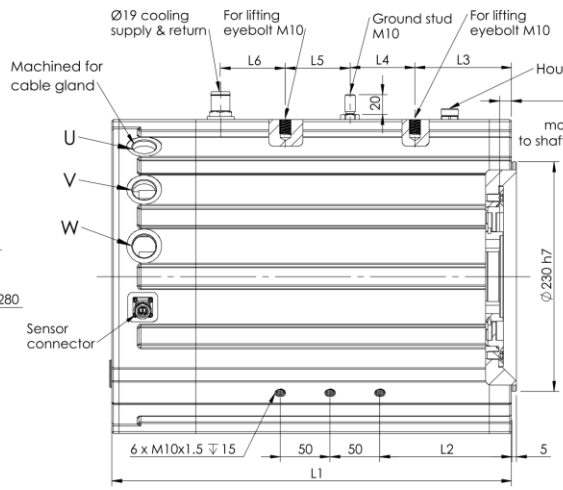


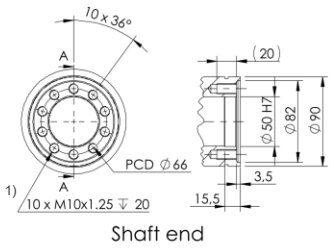
Front view



Rear view







Shaft end

Model	L1	L2	L3	L4	L5	L6	Moment of Inertia [kg.m²]	Cooling channel volume [L]
260W_080xx	331	97	92	40	30	60	0,0671	1,28
260W_100xx	351	107	97	45	35	65	0,0899	1,38
260W_130xx	381	112	107	55	35	75	0,0944	1,53
260W_150xx	401	132	97	65	65	65	0,1006	1,64

1) Depending on the operating points and load conditions, measures may be required to increase the coefficient of friction in the flange connection. Please contact ENGIRO for further questions.

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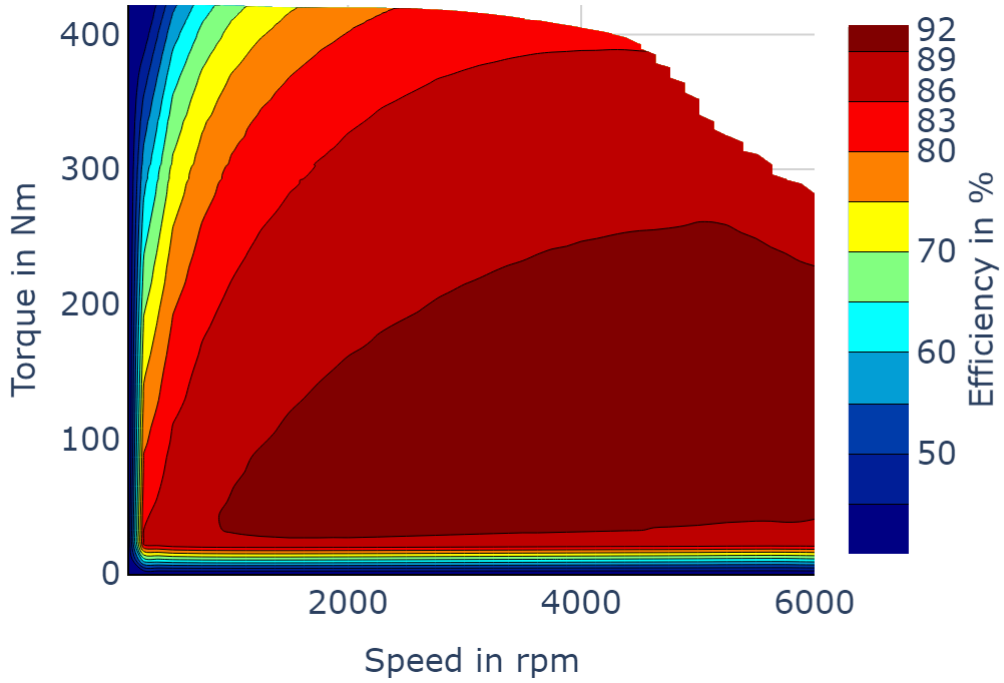
Performance Plots

800 V

Simulated Efficiency of Motor Application

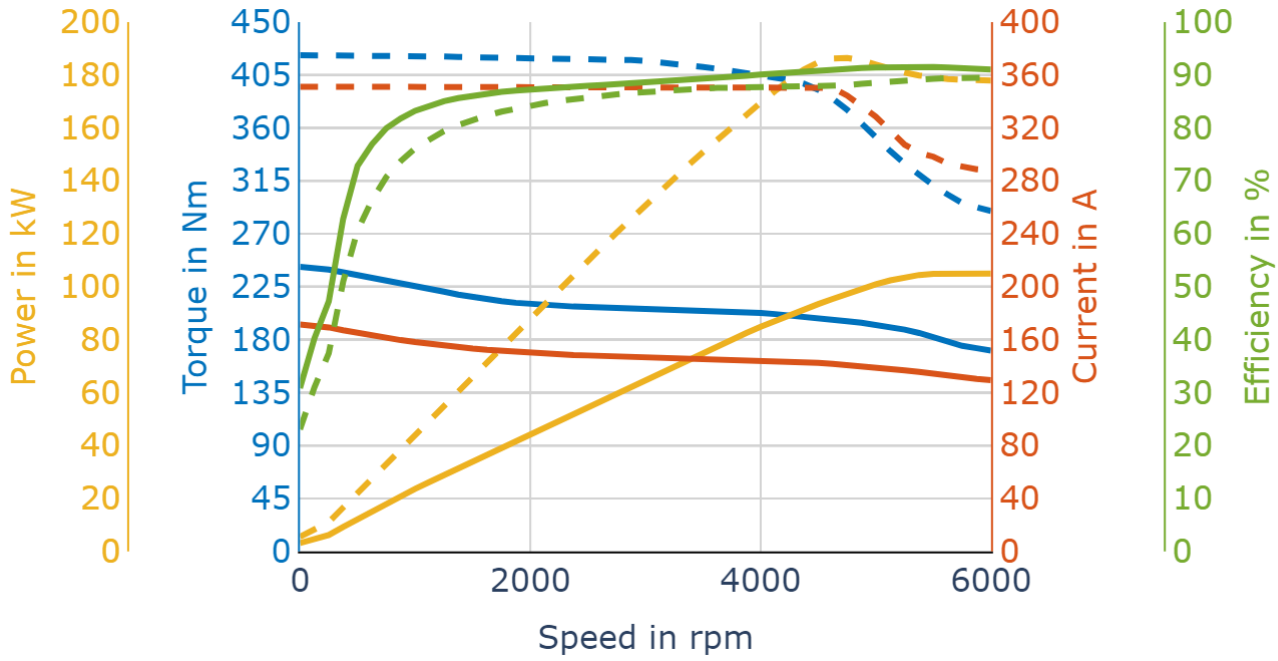
(electric machine only; U_{nom} = 800 V)



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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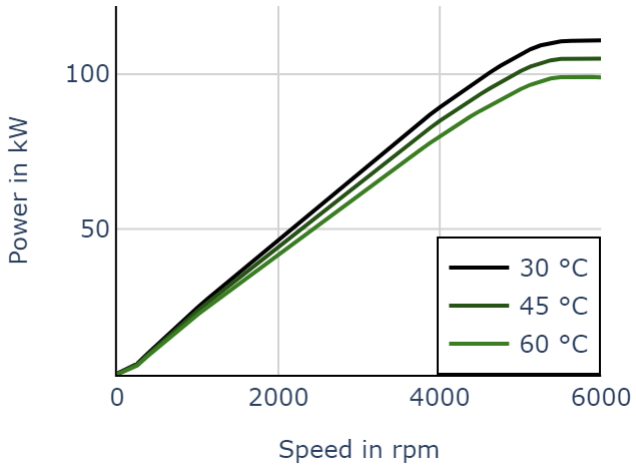
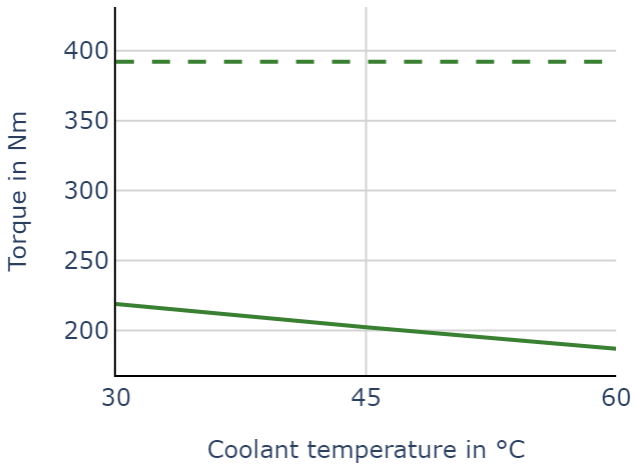
Additional Characteristics

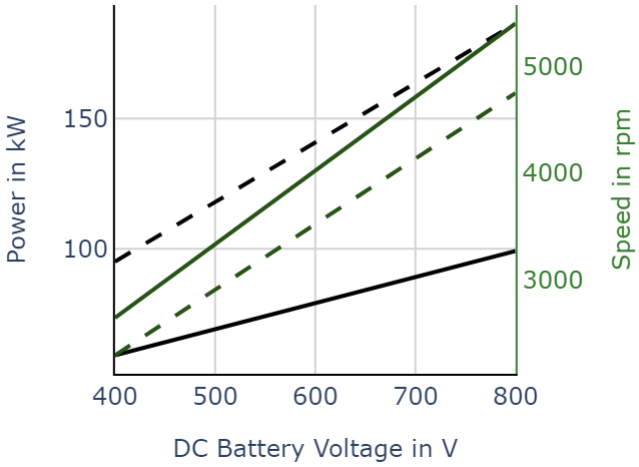
Simulated Nominal Power at Different Coolant Temperatures – U_{nom} = 800 V



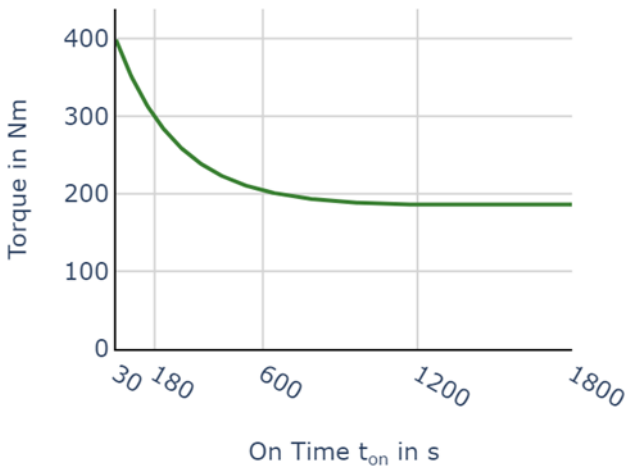
Available Torque at Different Coolant Temperatures [1)]



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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