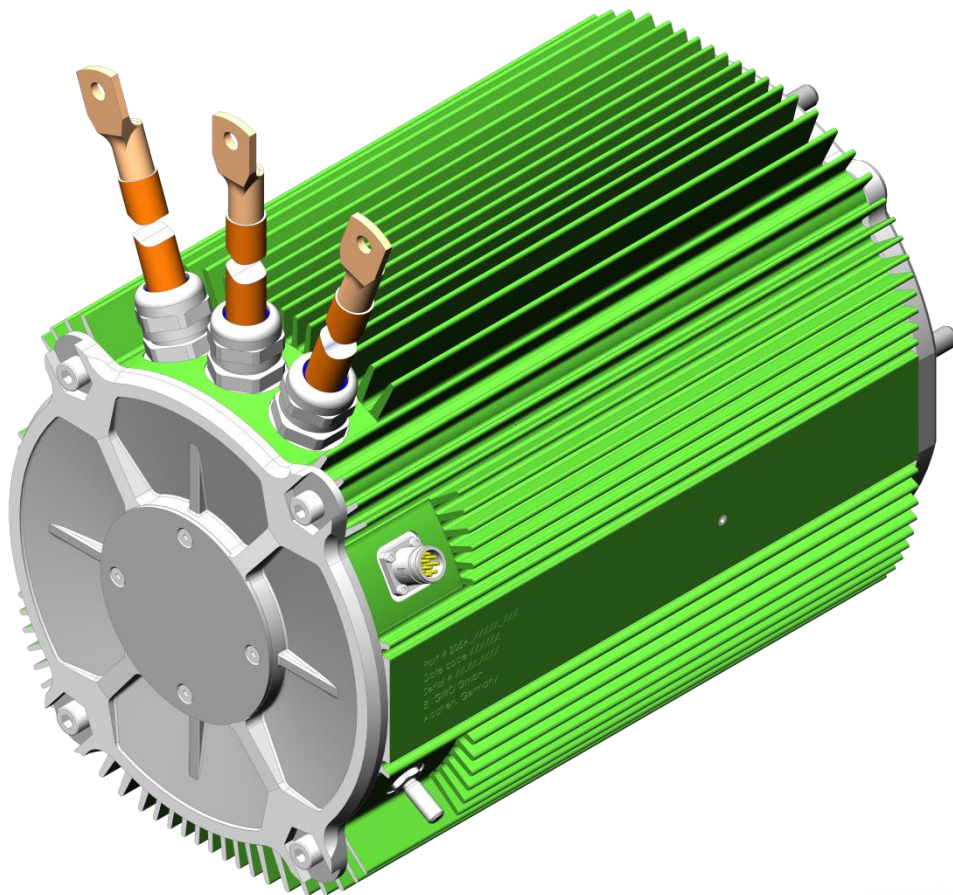


205A-12013-ABC

air-cooled motor / generator with up to 24 kW continuous power



KEY FEATURES

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

Section	Page
Technical Data Machine	3
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Characteristics Machine 48V	5
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Characteristics Machine 140V	7
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Technical Data Inverter Set 96V	9

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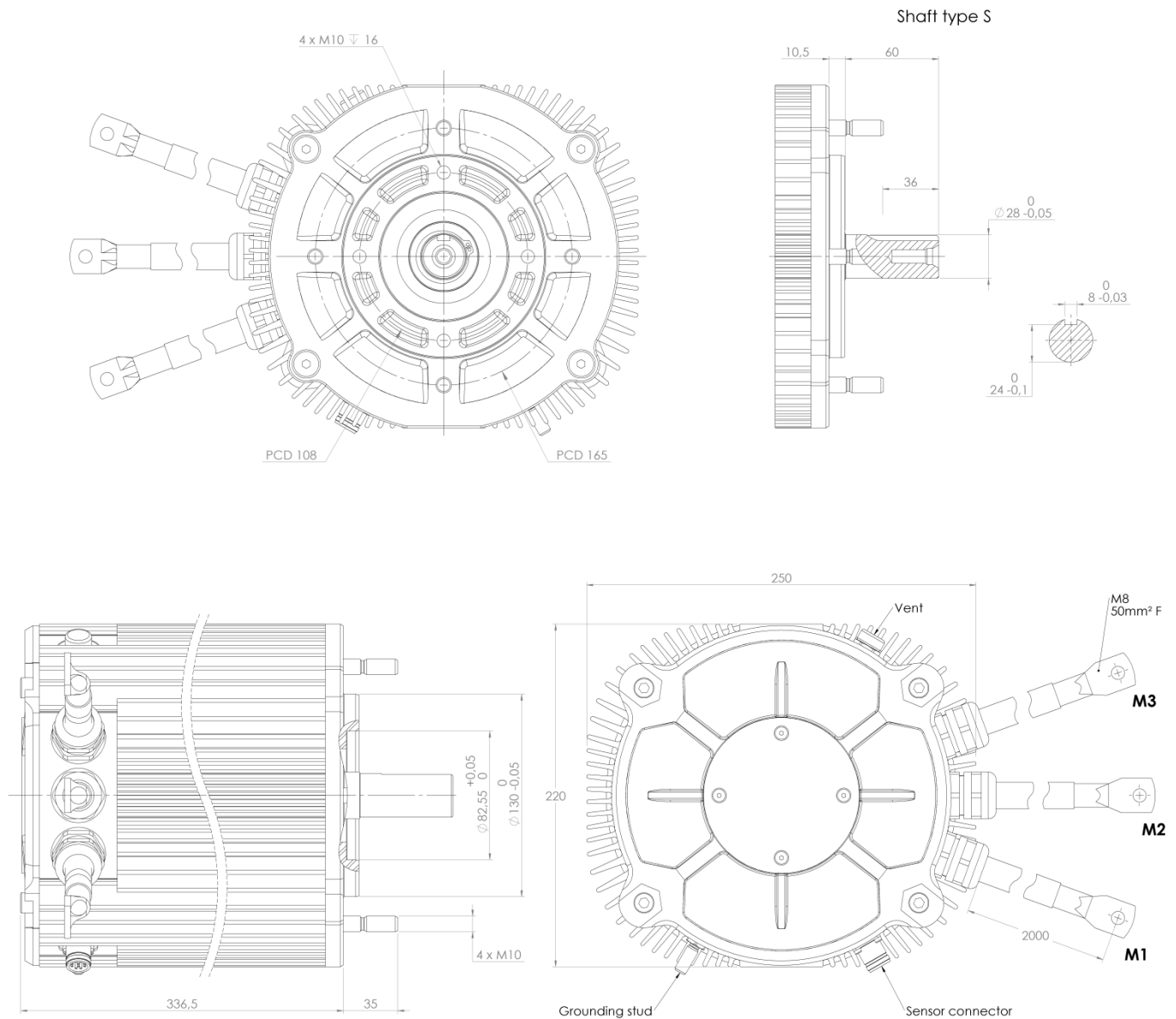
Nominal Operation (S1, cooling as specified below)					
Torque	T_{nom}	67	67	67	Nm
Power	P_{nom}	8.2	16	24	kW
Speed	n_{nom}	1170	2340	3420	rpm
Phase rms-current	I_{nom}	192	192	192	A
Battery voltage (DC)	U_{nom}	48	96	140	V
Electric frequency	$f_{el,nom}$	78	156	228	Hz
Power factor	$\cos(\varphi)$	0.77	0.76	0.76	
Maximal Values (S2, 10s, cooling as specified below)					
Torque	T_{max}	285	285	285	Nm
Power	P_{max}	27	56	83	kW
Phase rms-current	I_{max}	962	962	962	A
Battery voltage (DC)	U_{max}				280 V
Speed	n_{max}				8000 rpm
Electric frequency	$f_{el,max}$				533 Hz
Electrical Data					
Number of phases					3
Number of pole pairs					4
Maximal efficiency					>96 %
T/I constant ($I < I_{nom}$)					0.35 Nm/A _{rms}
U/n constant (AC)	rms:	22.2	peak:	31.4 V/(1000rpm)	
K_e constant (AC)	rms:	0.053	peak:	0.075 V/(rad*s ⁻¹)	
Additional Data					
Weight (w/o cables)					37 kg
Rotor moment of inertia					0.019 kg*m ²
Protection category					IP65
Maximal motor temperature					120 °C
Allowed ambient temperature					-20 ... 45 ¹⁾ °C
Cooling (medium, flow rate, inlet temperature, pressure)					air, 5-17 m/s, ≤ 45°C
Temperature monitoring					1 x KTY84-130
Type approval					CE, EN 60034
Customs tariff number					8501 5230
Connectors					
Power terminals					3 x 50mm ² cables with M8 cable lugs
Weight power cables					3.3 kg
Length power cables					2 m
Signal connectors					M16, 10 Pin

¹⁾ other range on request

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Available Type Variants

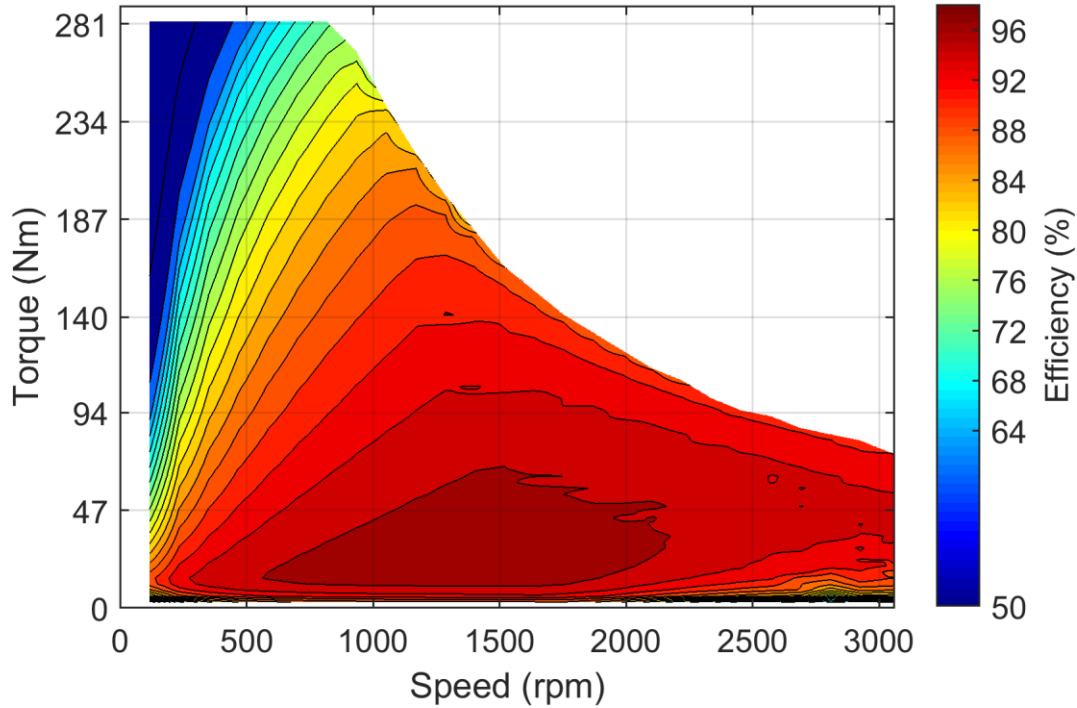
type number	A: flange	B: shaft	C: position sensor
205A-12013-	S: standard	S: cylindrical shaft with keyway	E: sin/cos encoder
			N: none



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Simulated Efficiency of Motor Application

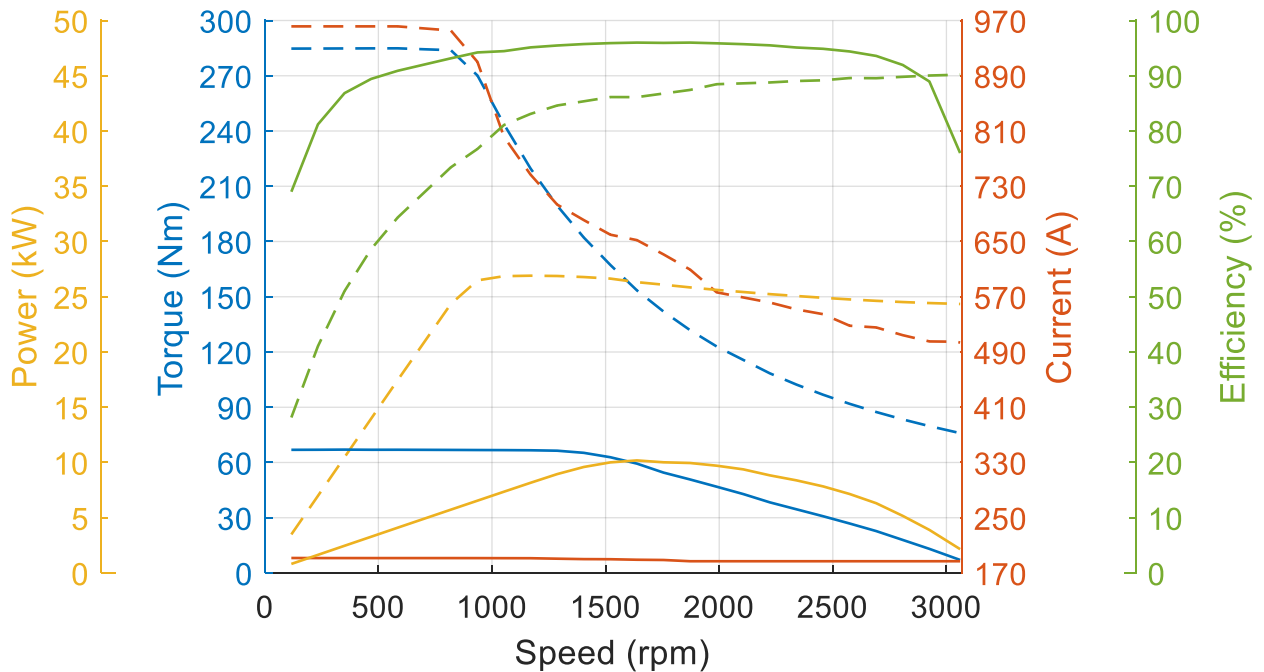
(electric machine only; $U_{nom} = 48\text{ V}$; machine at $100\text{ }^\circ\text{C}$;)



Simulated Characteristic Motor Parameters

$U_{nom} = 48\text{ V}$

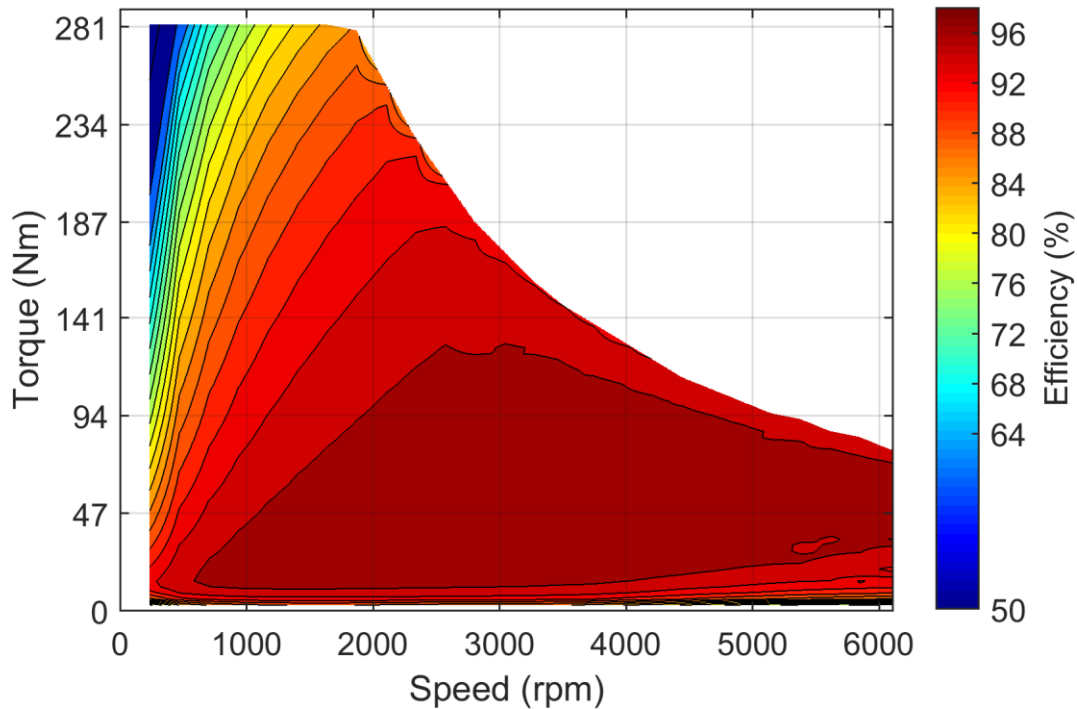
solid lines: continuous; dashed lines: maximum;
(jitter is caused by numerical inaccuracies in the simulation software)



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Simulated Efficiency of Motor Application

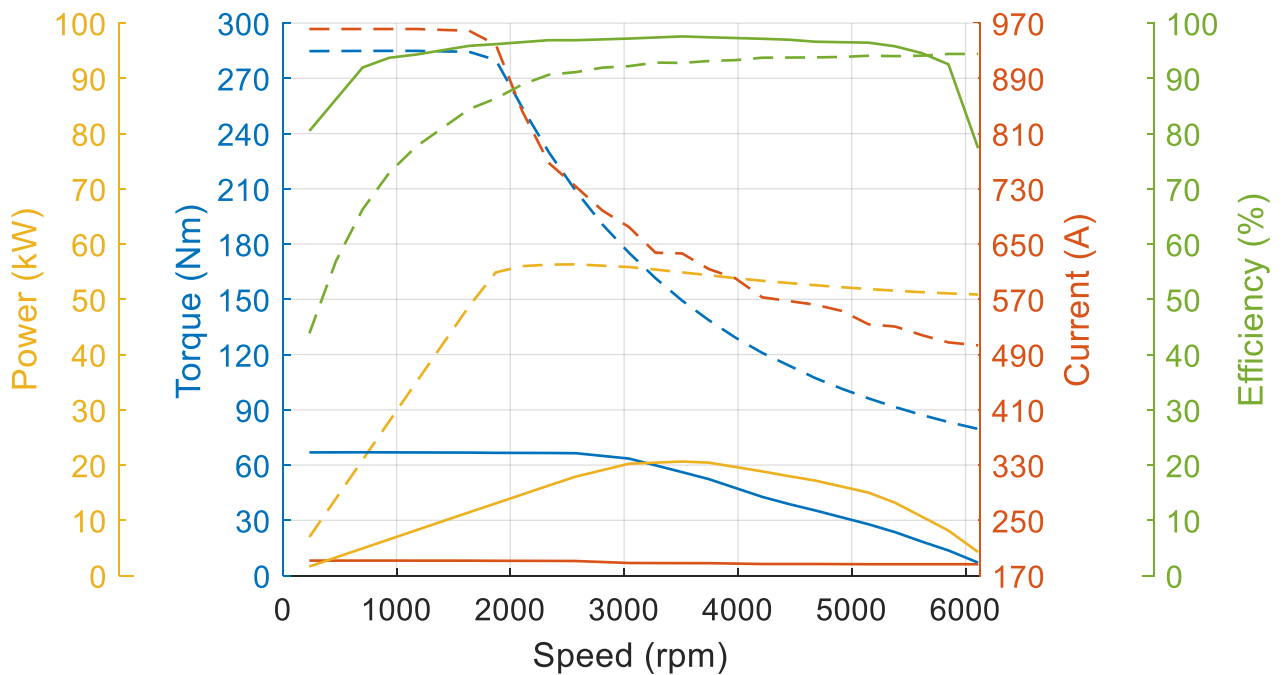
(electric machine only; $U_{nom} = 96\text{ V}$; machine at 100 °C ;)



Simulated Characteristic Motor Parameters

$U_{nom} = 96\text{ V}$

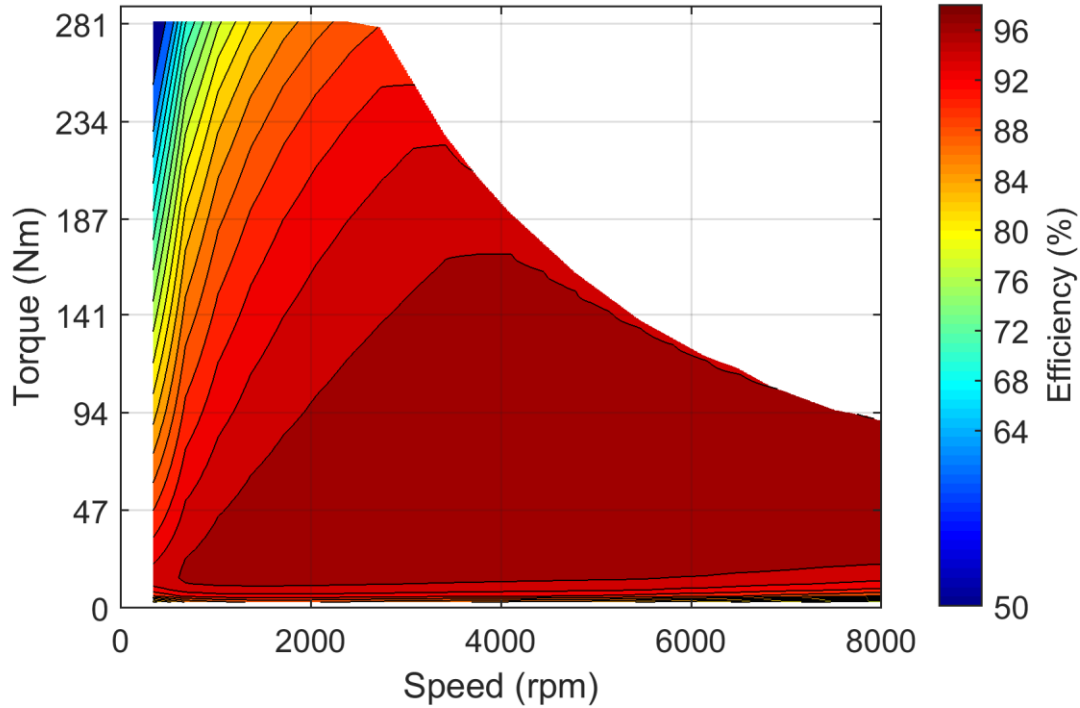
solid lines: continuous; dashed lines: maximum;
(jitter is caused by numerical inaccuracies in the simulation software)



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Simulated Efficiency of Motor Application

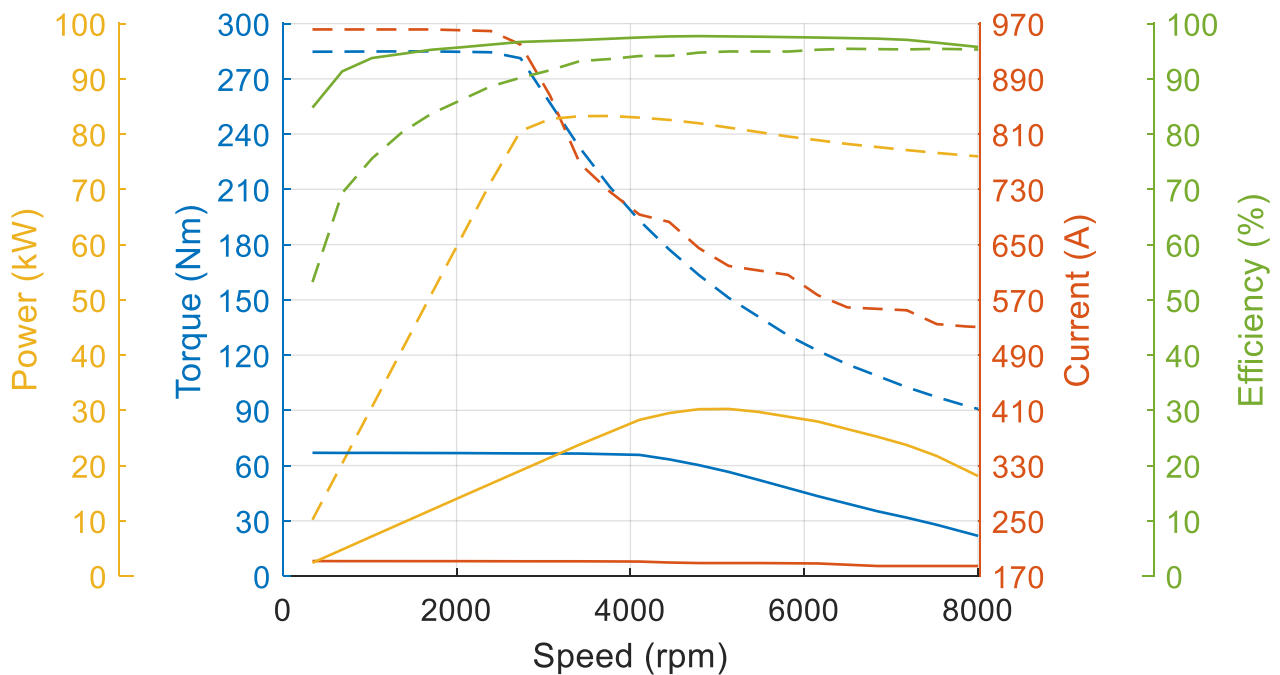
(electric machine only; $U_{nom} = 140\text{ V}$; machine at $100\text{ }^\circ\text{C}$;)



Simulated Characteristic Motor Parameters

$U_{nom} = 140\text{ V}$

solid lines: continuous; dashed lines: maximum;
(jitter is caused by numerical inaccuracies in the simulation software)

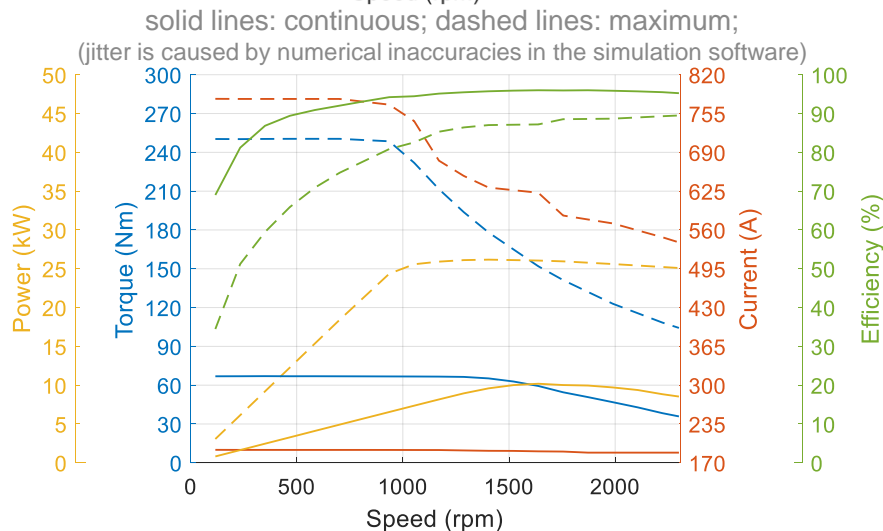
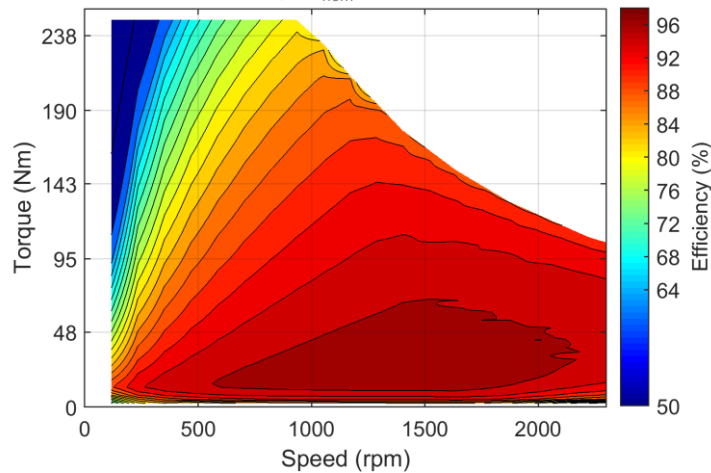


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Nominal Operation Drive Set (S1)			
Torque	T_{nom}	67	Nm
Power	P_{nom}	8.2	kW
Speed	n_{nom}	1170	rpm
Phase rms-current	I_{nom}	192	A
Battery voltage (DC)	U_{nom}	48	V
Electric frequency	$f_{el, nom}$	78	Hz
Power factor	$\cos(\varphi)$	0.77	
Maximal Values Drive Set (S2, 1-10s)			
Torque	T_{max}	250	Nm
Power	P_{max}	26	kW
Phase rms-current	I_{max}	780	A
Battery voltage (DC)	U_{max}	48	V
Speed	n_{max}	2300	rpm
Electric frequency	$f_{el, max}$	153	Hz

Simulated Efficiency and Motor Characteristic of Motor Application

(electric machine only; $U_{nom} = 48\text{ V}$; machine at $100\text{ }^\circ\text{C}$;)

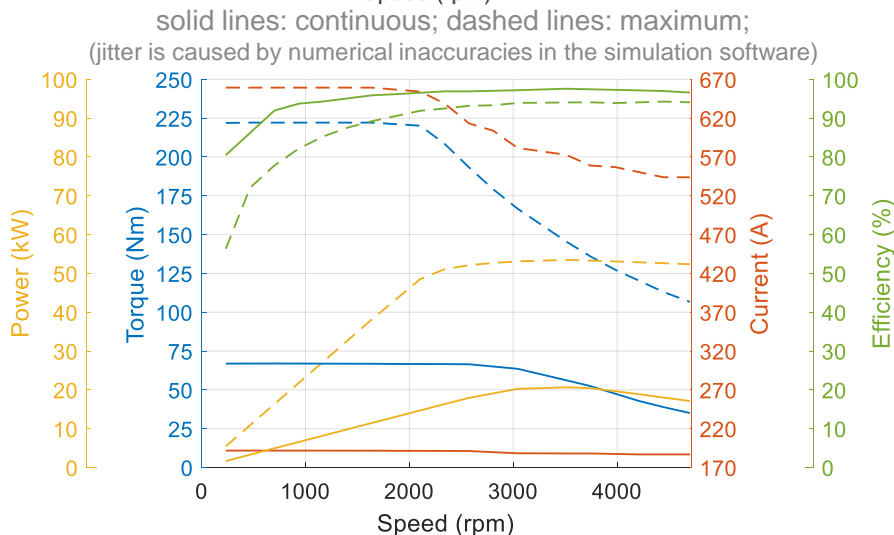
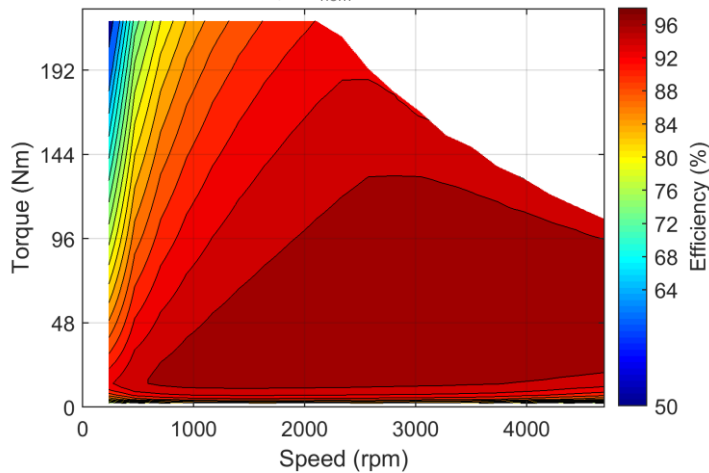


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Nominal Operation Drive Set (S1)			
Torque	T_{nom}	67	Nm
Power	P_{nom}	16	kW
Speed	n_{nom}	2340	rpm
Phase rms-current	I_{nom}	192	A
Battery voltage (DC)	U_{nom}	96	V
Electric frequency	$f_{el,nom}$	156	Hz
Power factor	$\cos(\varphi)$	0.76	
Maximal Values Drive Set (S2, 1-10s)			
Torque	T_{max}	222	Nm
Power	P_{max}	54	kW
Phase rms-current	I_{max}	660	A
Battery voltage (DC)	U_{max}	96	V
Speed	n_{max}	4700	rpm
Electric frequency	$f_{el,max}$	313	Hz

Simulated Efficiency and Motor Characteristic of Motor Application

(electric machine only; $U_{nom} = 96\text{ V}$; machine at $100\text{ }^\circ\text{C}$;)



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