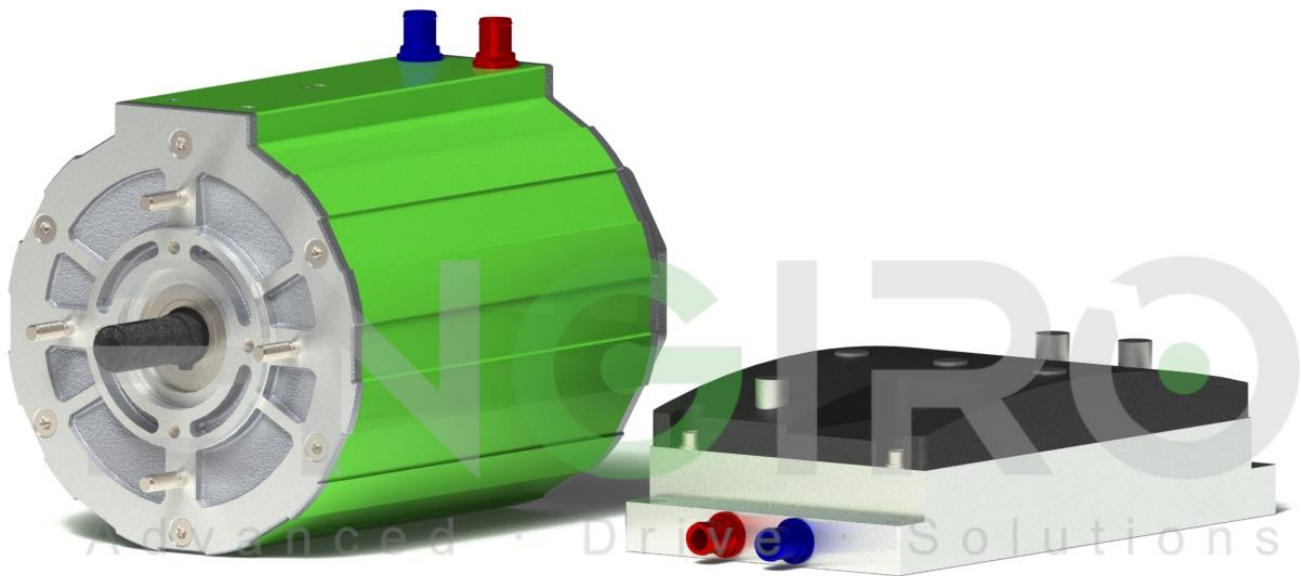


205W-12013-SSE 96V Traction Set

27 kW drive set for traction applications

Art.-No.: 1842



KEY FEATURES

- 96V 3-phase motor controller
- Water-cooled
- High peak power for traction and marine applications
- Full torque at zero speed

Section	Page
Operating Range	3
Additional Data	5
Certifications	6
Performance Plots	7
Additional Characteristics	8
Technical Drawings	9
Delivery Content	11

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.

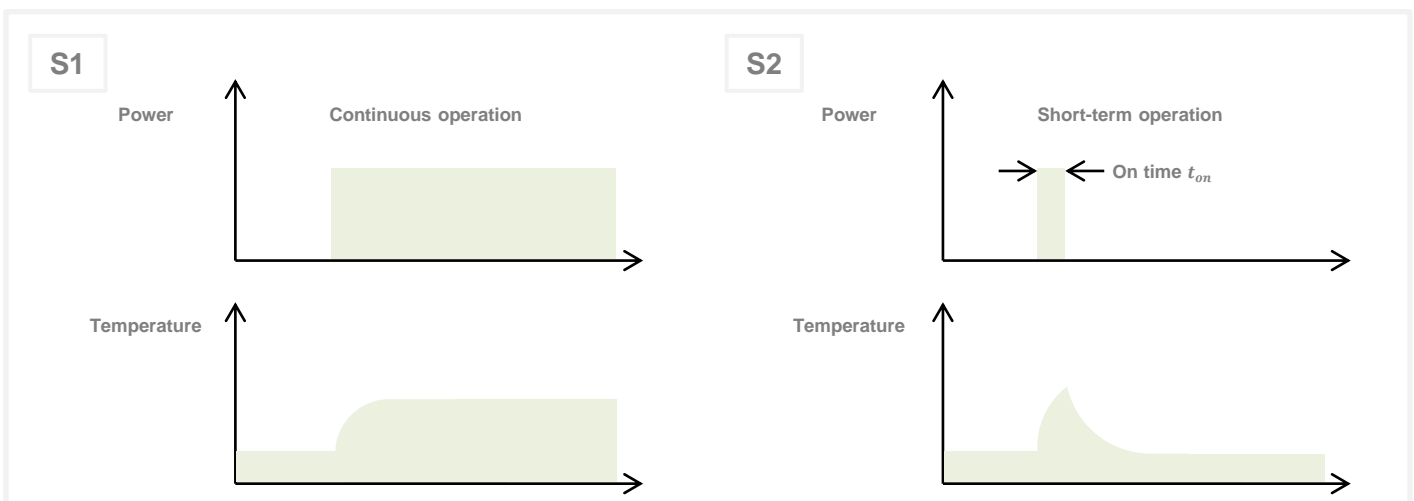
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Characteristic Operation Points¹⁾ (cooling as specified on next page)

		S1	S2	S2	
Feasible operation time	t_{on}	continuous	190 sec	60 sec	
Torque	T	121	167	214	Nm
Power	P	27	36	40	kW
Recuperation power	P_{recu}	31	43	51	kW
Phase rms-current (AC)	I_{rms}	339	450	602	A
Battery current (DC)	I_{DC}	338	450	554	A
Battery voltage (DC)	U_{DC}	96	96	96	V
Speed	n	2170	2070	1800	rpm
Electric frequency	f_{el}	145	138	120	Hz
Set Efficiency	η_{tot}	85	84	79	%

Maximum Operating Range

		Min.	Nom.	Max.	
Torque	T_{max}	-	121	214	Nm
Power	P_{max}	-	27	40	kW
Recuperation power	$P_{max,Recu}$	-	31	51	kW
Phase rms-current	$I_{rms,max}$	-	339	602 ²⁾	A
Battery current (DC)	$I_{DC,max}$	-	338	554 ²⁾	A
Battery voltage (DC)	U_{max}	14 ³⁾	96	140 ³⁾	V
Speed	n_{max}	-	2170	3520 ⁴⁾	rpm
Electric frequency	$f_{el,max}$	-	145	235	Hz
Power density	$P_{gravimetric}$			0.85	kW/kg

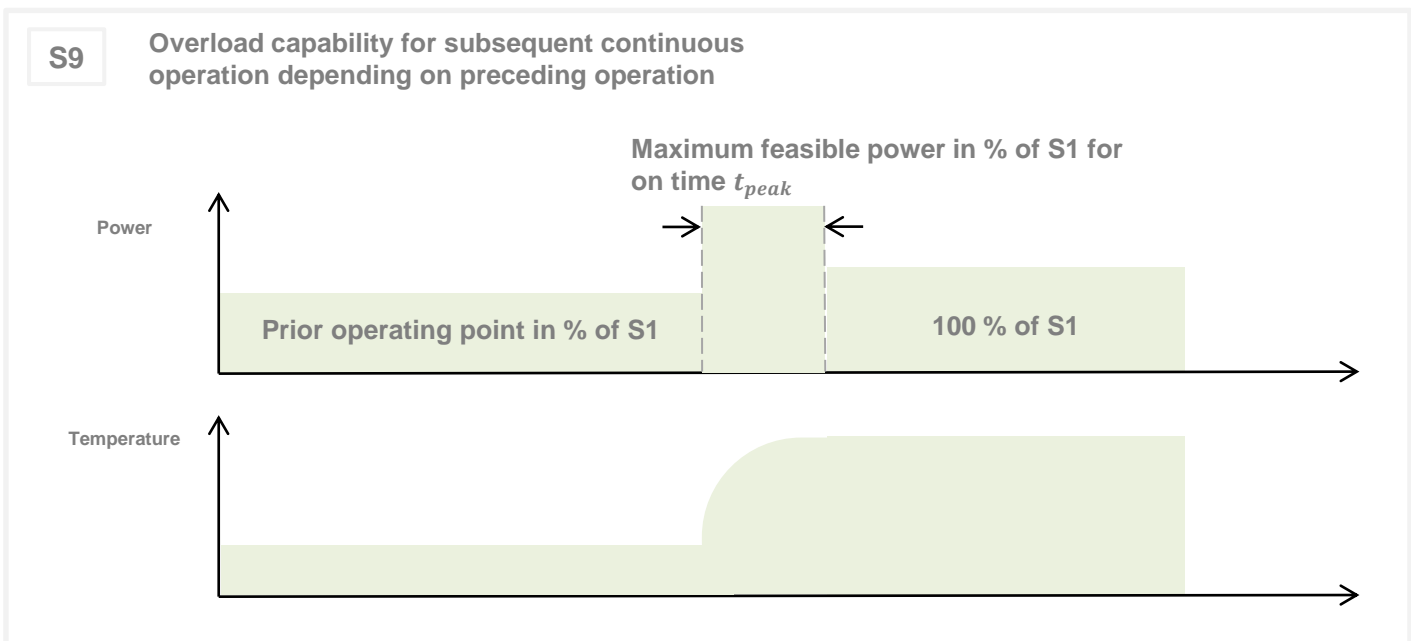


- 1) Defined Range only valid for a power factor of 1 at DC input
- 2) Peak rating for max. 60 seconds on time
- 3) Derating < 16V & Derated generating power > 130V
- 4) Higher speeds available upon request. A detailed discussion of the functional safety concept of the vehicle is required.

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S9 operating points Maximum feasible power in % of S1

$U_{nom} = 96V$		Prior operating point in % of S1				
		0 %	25 %	50 %	75 %	100 %
On time t_{peak}	60s	147 %	142 %	138 %	134 %	100 %
	190s	133 %	127 %	122 %	119 %	100 %
	300s	119 %	115 %	112 %	108 %	100 %



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Additional Data					
		Motor	Inverter ¹⁾		
Weight (w/o cables)		47	6.2	kg	
Rotor moment of inertia		0.0183	-	kg*m ²	
Allowed range of ambient temperature		-20 ... +85	-30 ... +85	°C	
Cooling	Advised medium (OAT Coolants)	water/glycol - 50/50 ▪ TL 774-D/F ▪ VIN 878389 ▪ MAN 324 SNF ▪ MTL 5048			
	Flow rate	> 11	> 6	l/min	
	Inlet temperature	≤ 60 ¹⁾	≤ 60	°C	
	Pressure drop	> 0.13, max. 0.5	0.02	bar	
	Maximum pressure	2	2	bar	
	Cooling channel volume	0.91	0.5	l	
DC link capacitance		-	5940	µF	
Temperature monitoring		1 x KTY84-130	Internal		
Rotation direction		freely controllable via CAN-Bus			
Ports					
Power terminals		1 x 2-Phase DC, 1 x 3-Phase AC			
Signal connectors		AMP, 35-Pin			
Cooling connectors		inner Ø 12 mm, outer Ø 19 mm			
Control and Communication					
Type		CAN, Hardware interface (analog/digital input)			
		Speed/Torque Control selectable via software			
CAN Bus	Symbol/Baud rate	100/125/250 kBaud/s			
	Technology	CANopen			
Torque Ramp		Safety limits can be set in inverter by ENGIRO.			
Speed Ramp		Safety limits can be set in inverter by ENGIRO.			

1) Derating for $T_{coolant} > 45^{\circ}\text{C}$

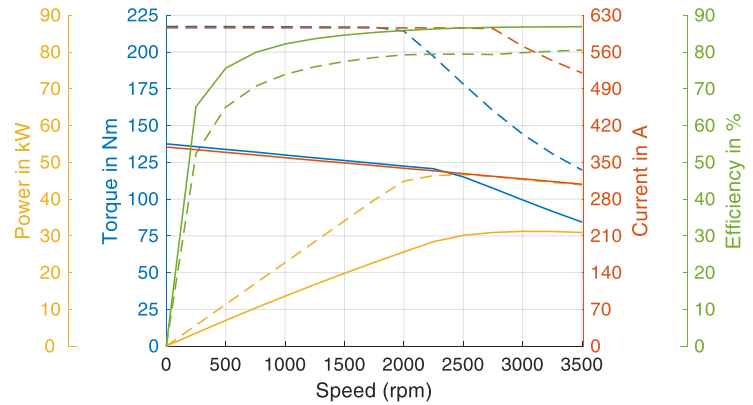
Certifications			
	Motor	Inverter	
Type approval	CE, EN 60034	-	
Environmental	ISO 9227	-	
Protection grade	ISO 20653 IP6k9k ¹⁾	ISO 20653 IP65	
Vibrations	ISO 16750-3	-	
EMC	-	EN12895 (2015), EN 61000-6-3 (2007) , EN61000-6-2 (2005)	
Functional safety	-	EN1175-1 (2011), machine directive 2006/42/EC	
Custom tariff number	8501 5230	8504 4088	

1) Only valid if the machines is installed with suitable cable glands and an appropriate shaft sealing.

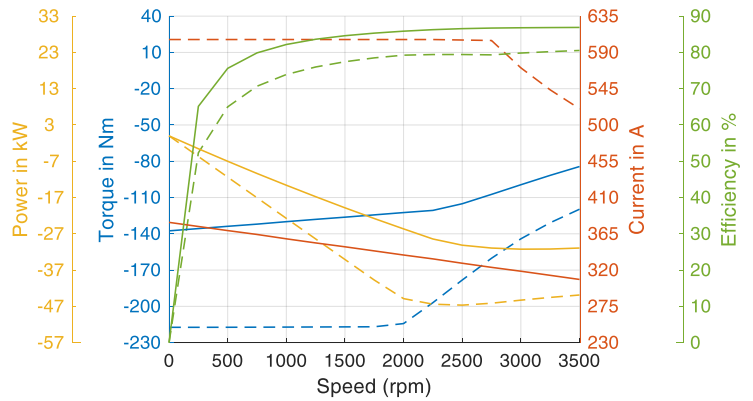
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96V

Simulated Motor Characteristics
solid lines: continuous
dashed lines: maximum

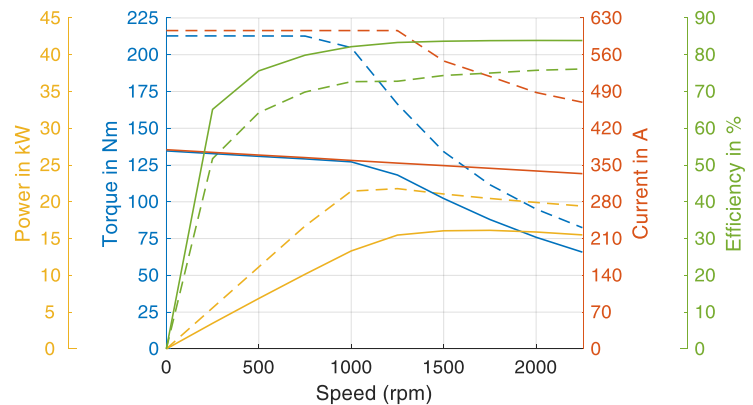


Simulated Generator Characteristics
solid lines: continuous
dashed lines: maximum

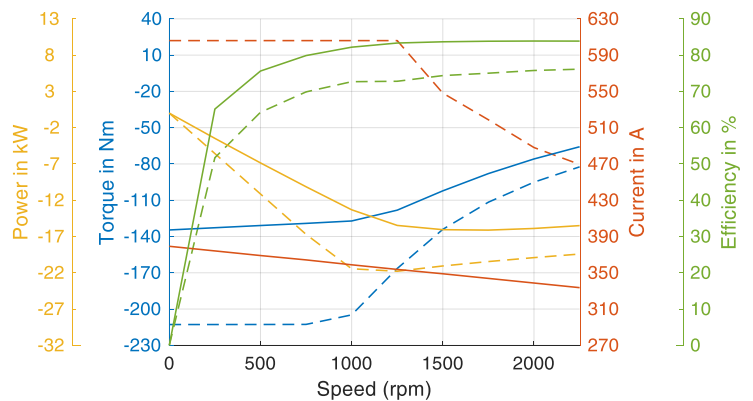


48V

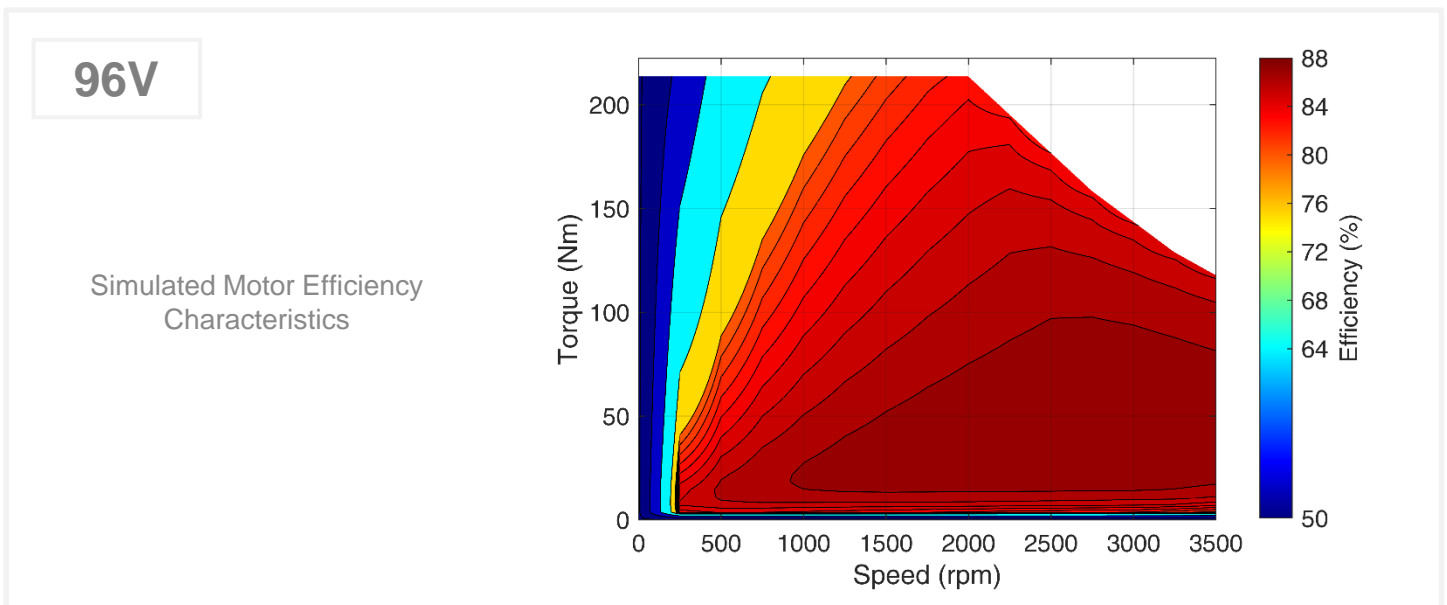
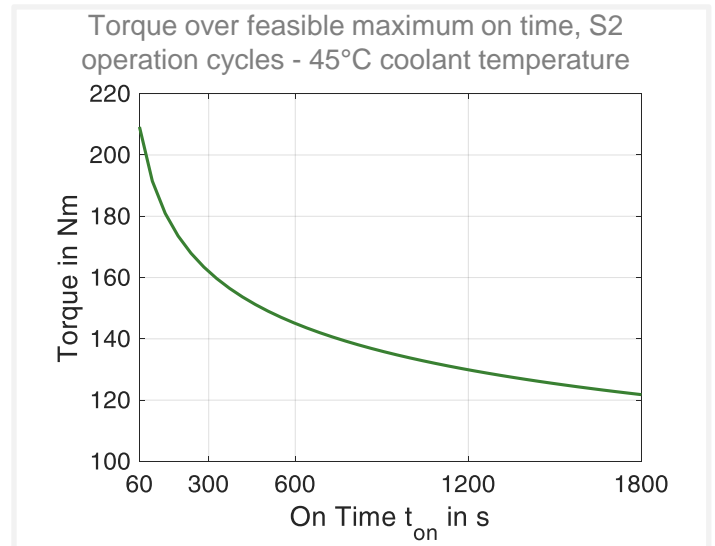
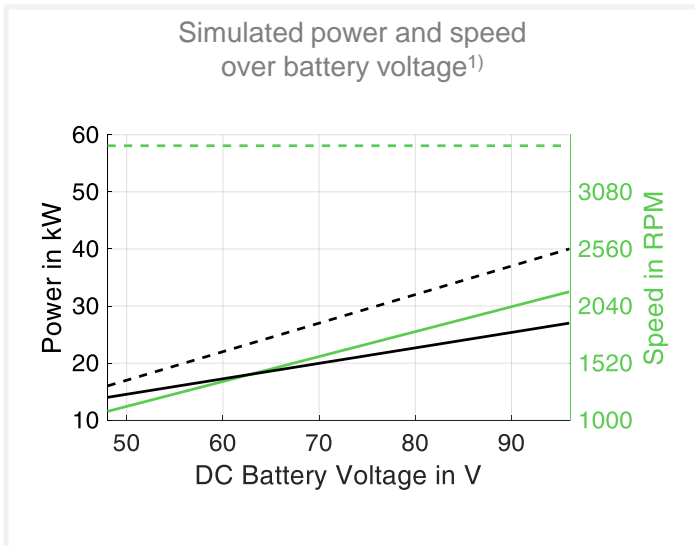
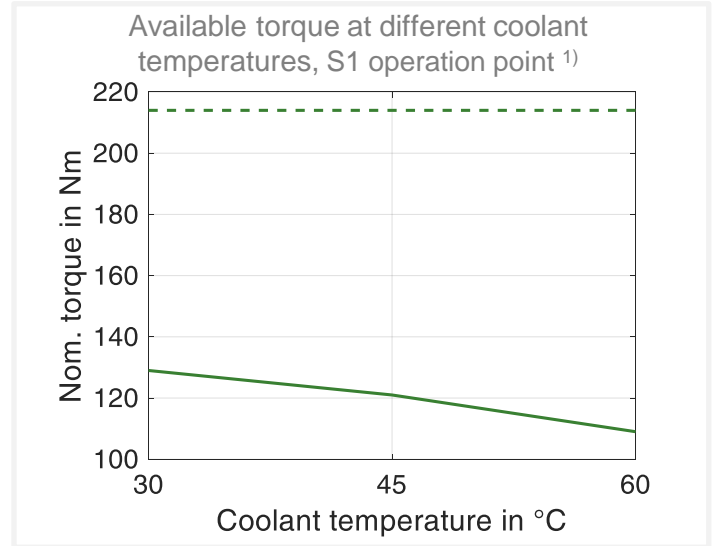
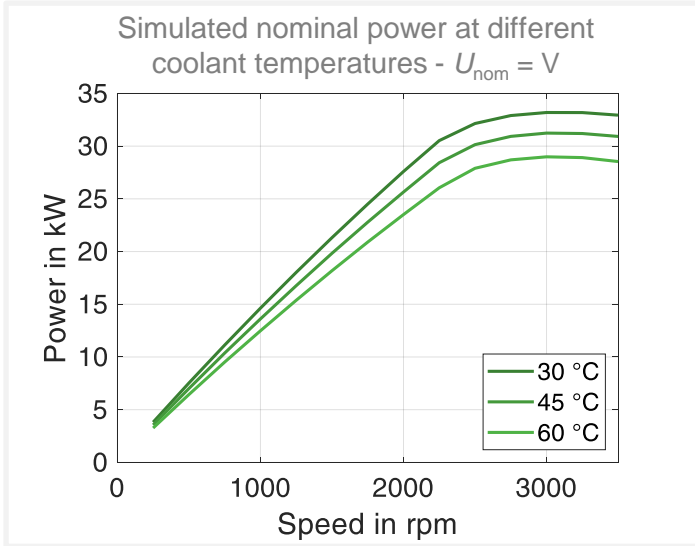
Simulated Motor Characteristics
solid lines: continuous
dashed lines: maximum



Simulated Generator Characteristics
solid lines: continuous
dashed lines: maximum

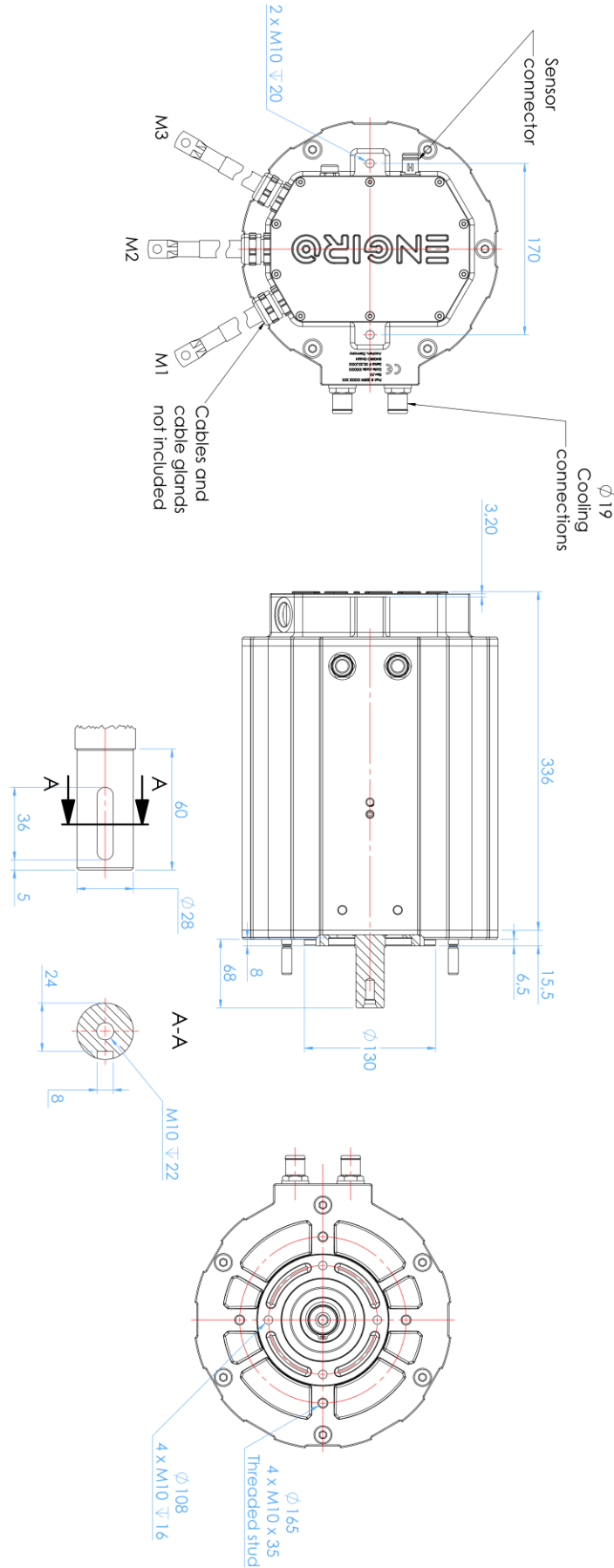


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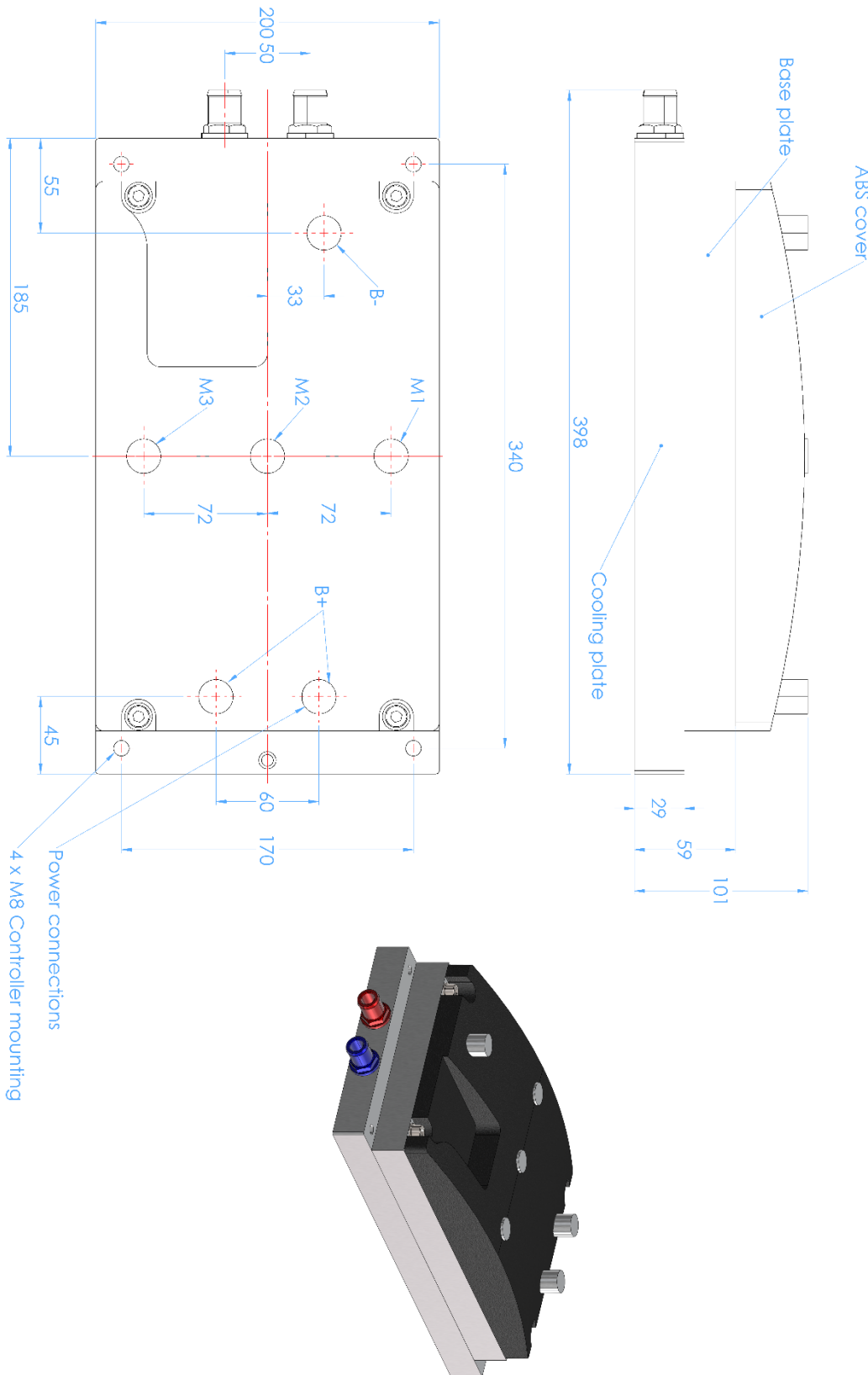


1) solid lines: continuous; dashed lines: maximum;

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205W-12013-SSE 96V Set					
Item description				Article number	
Available Motor Variants	A: flange	B: shaft	C: position sensor	Component	Set
	S: Standard Ø130	S: Standard Ø28 with feather key	E: Encoder	205W_12013_SSE	1842
ENGIRO 300/400/600A 96V Controller				1202	1x
Cables	70mm² Huber and Suhner cables for AC connection			1751	3m
	Encoder + Temp. data cable for ENGIRO 205W 205A and ENGIRO 48-96 V controllers			1269	1x
Cable glands M25 unshielded Pflitsch blueglobe IP6k9k				1313	3x
Cable lugs M8-70 DIN 46234				1724	6x
Cooling plate for 450/600 A 96V controller 370 x 200 x 29 mm				1687	1x

included in set

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