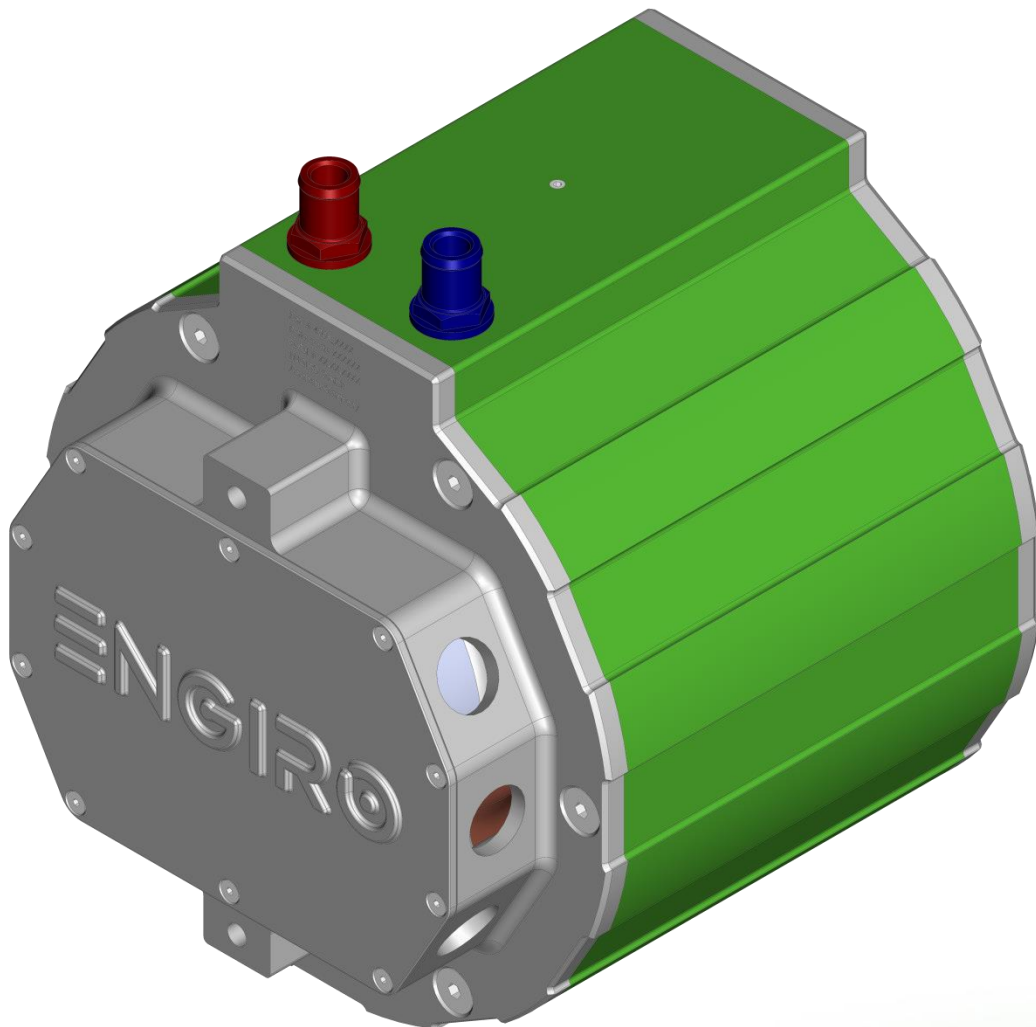


205W-04013-ABC

water-cooled motor / generator with up to 14 kW continuous power



KEY FEATURES

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

Section	Page
Technical Data Machine	3
Technical Drawings Machine	4
Characteristics Machine	5
Technical Data Inverter Set	6

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Nominal Operation (machine only, S1, cooling as specified below)

Torque	T_{nom}	42	Nm
Power	P_{nom}	14	kW
Speed	n_{nom}	3270	rpm
Phase rms-current	I_{nom}	358	A
Battery voltage (DC)	U_{nom}	48	V
Electric frequency	$f_{el,nom}$	218	Hz
Power factor	$\cos(\varphi)$	0.69	

Maximal Values (machine only, S2, 10s, cooling as specified below)

Torque	T_{max}	95	Nm
Power	P_{max}	25	kW
Phase rms-current	I_{max}	959	A
Battery voltage (DC)	U_{max}	96	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 ($I < I_{nom}$)		0.12	Nm/A _{rms}
U/n constant (AC)	rms: 7.9	peak: 11.2	V/(1000rpm)
K_e constant (AC)	rms: 0.019	peak: 0.027	V/(rad*s ⁻¹)

Additional Data

Weight (w/o cables)		see page 4	
Rotor moment of inertia		0.0065	kg*m ²
Protection category		IP65 / IP69k	
Maximal motor temperature		140	°C
Allowed ambient temperature		-20 ... 45 ¹⁾	°C
Cooling (medium, flow rate, inlet temperature, pressure)		water/glycol 50/50, 6 l/min, ≤ 45°C, ≤ 0.5 bar	
Temperature monitoring		1 x KTY84-130	
Type approval		CE, EN 60034	
Customs tariff number		8501 5230	

Connectors

Power terminals		3 x M25 cable gland	
Signal connectors		M16, 10 Pin	
Cooling connectors		2 x 3/4" / 19 mm	

¹⁾ other range on request

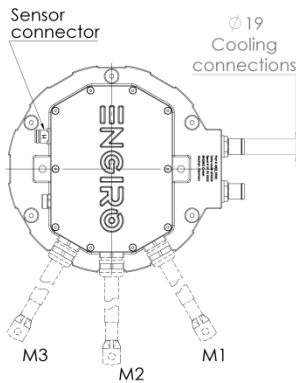
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Available Type Variants

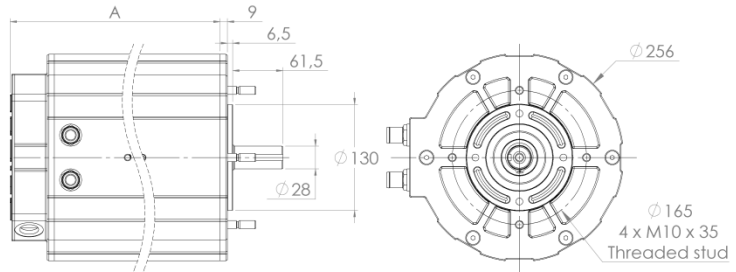
type number	A: flange	B: shaft	C: position sensor
205W-04013-	S: standard	S: cylindrical shaft with keyway Ø28mm	R: resolver
	B: flange for fan motor	H: hollow shaft with internal splines ANSI B 92.1	E: sin/cos encoder
	C: flange for fan without insert	E: external splines, DIN 5480	N: none
		C: cylindrical shaft with keyway Ø35mm	
		D: hollow shaft with internal splines ANSI B 92.1	

Dimension „A“ = 257 mm

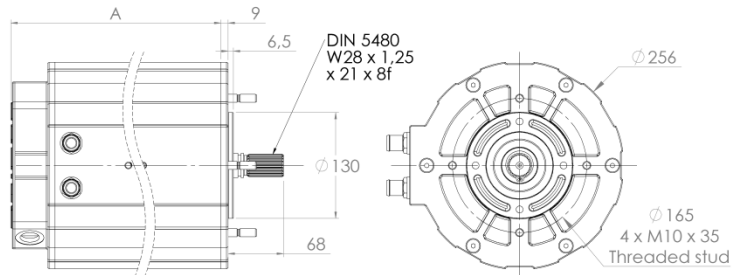
Approximate machine weight		
flange	shaft	kg
S	S	27
S	E	27
S	H	26
C	D	29
B	C	31



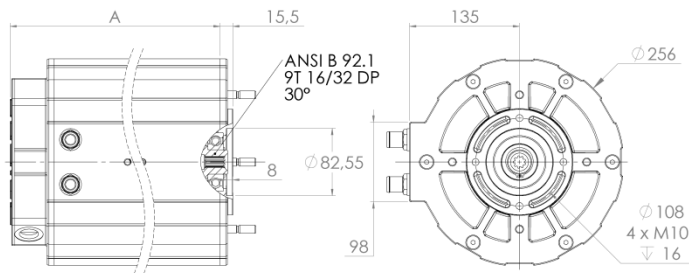
Flange S
Shaft S



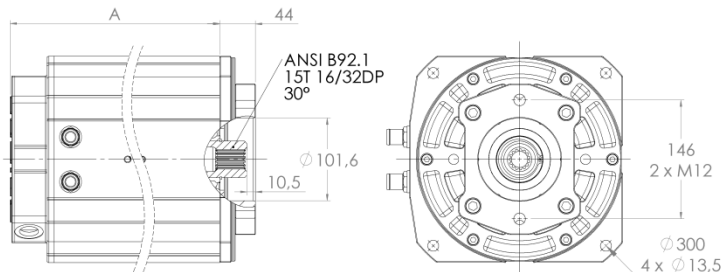
Flange S
Shaft E



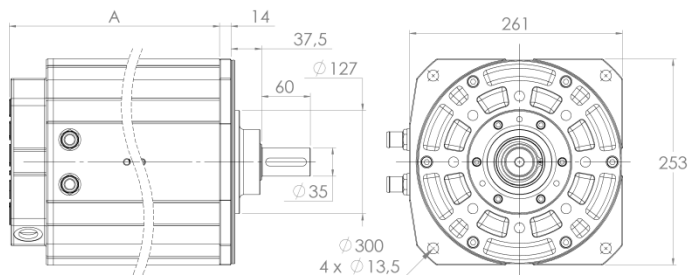
Flange S
Shaft H



Flange C
Shaft D



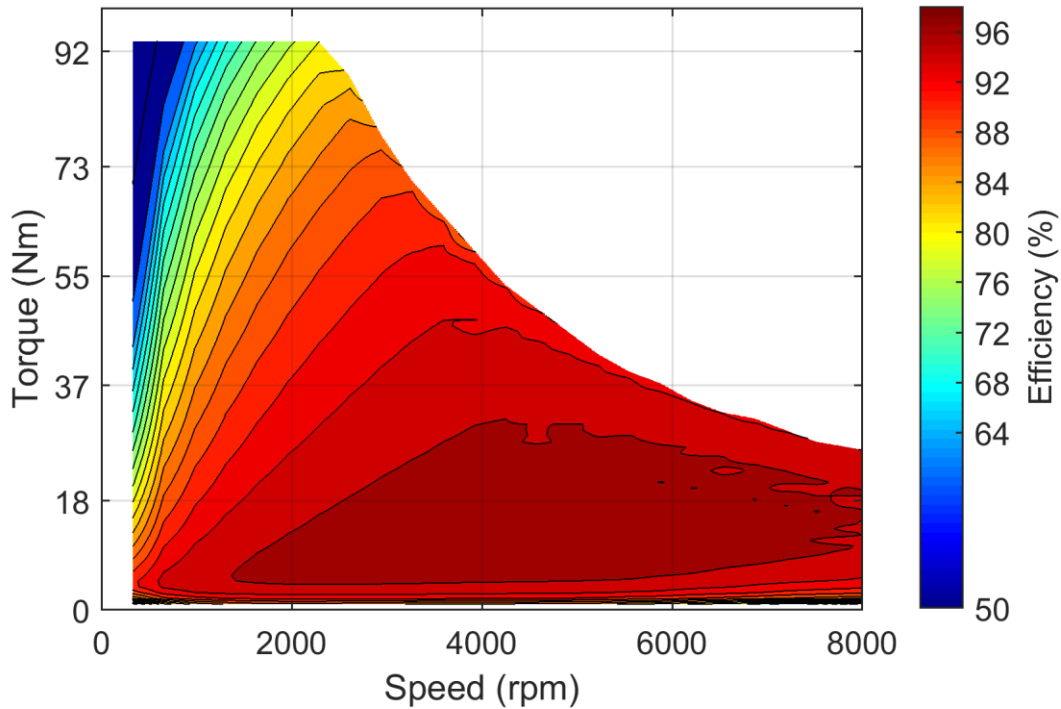
Flange B
Shaft C



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Simulated Efficiency of Motor Application

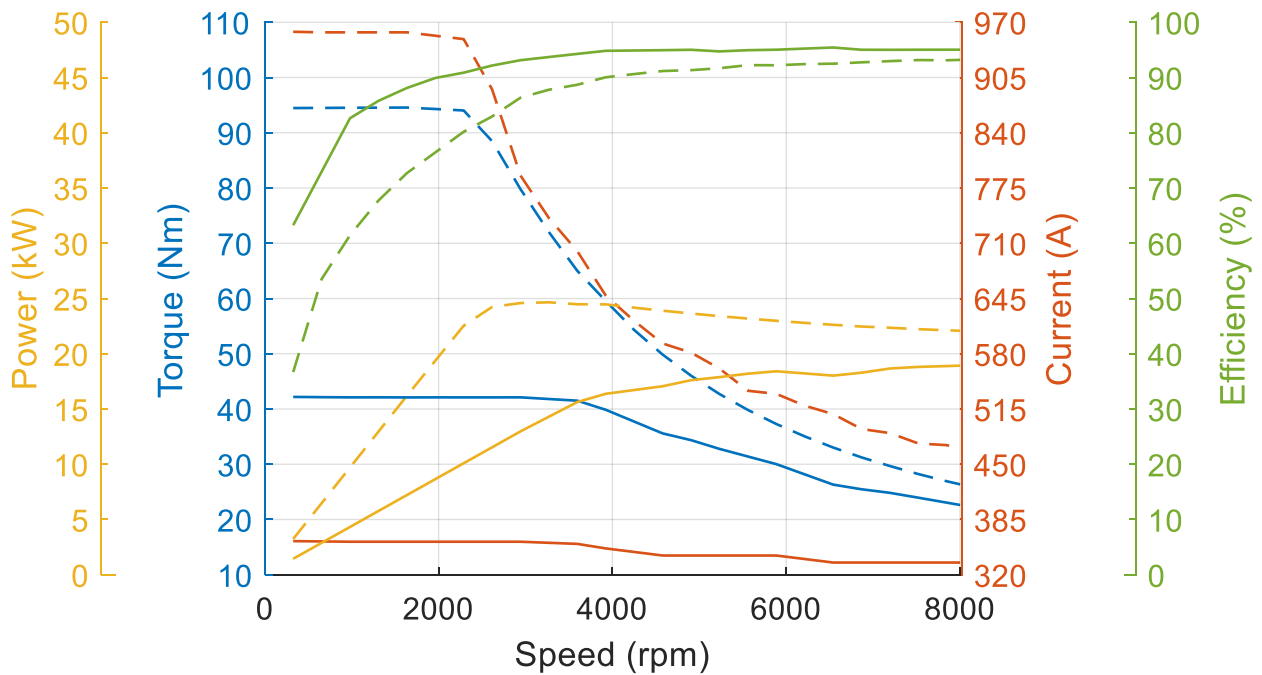
(electric machine only; $U_{nom} = 48V$; machine at 100 °C;)



Simulated Characteristic Motor Parameters

$U_{nom} = 48 V$

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

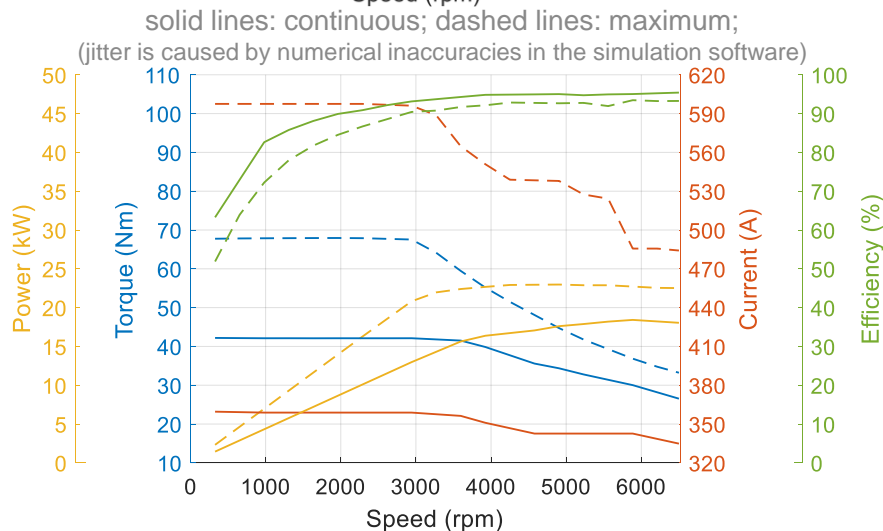
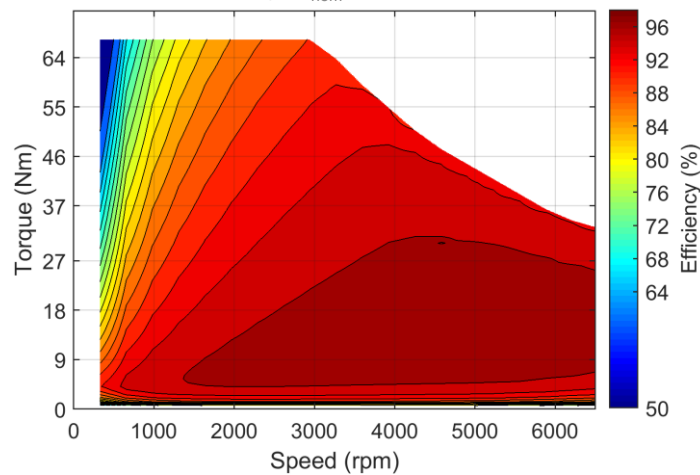


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Nominal Operation Drive Set (S1)			
Torque	T_{nom}		42 Nm
Power	P_{nom}		14 kW
Speed	n_{nom}		3270 rpm
Phase rms-current	I_{nom}		358 A
Battery voltage (DC)	U_{nom}		48 V
Electric frequency	$f_{el,nom}$		218 Hz
Power factor	$\cos(\varphi)$		0.69
Maximal Values Drive Set (S2, 1-10s)			
Torque	T_{max}		68 Nm
Power	P_{max}		23 kW
Phase rms-current	I_{max}		598 A
Battery voltage (DC)	U_{max}		48 V
Speed	n_{max}		6500 rpm
Electric frequency	$f_{el,max}$		433 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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