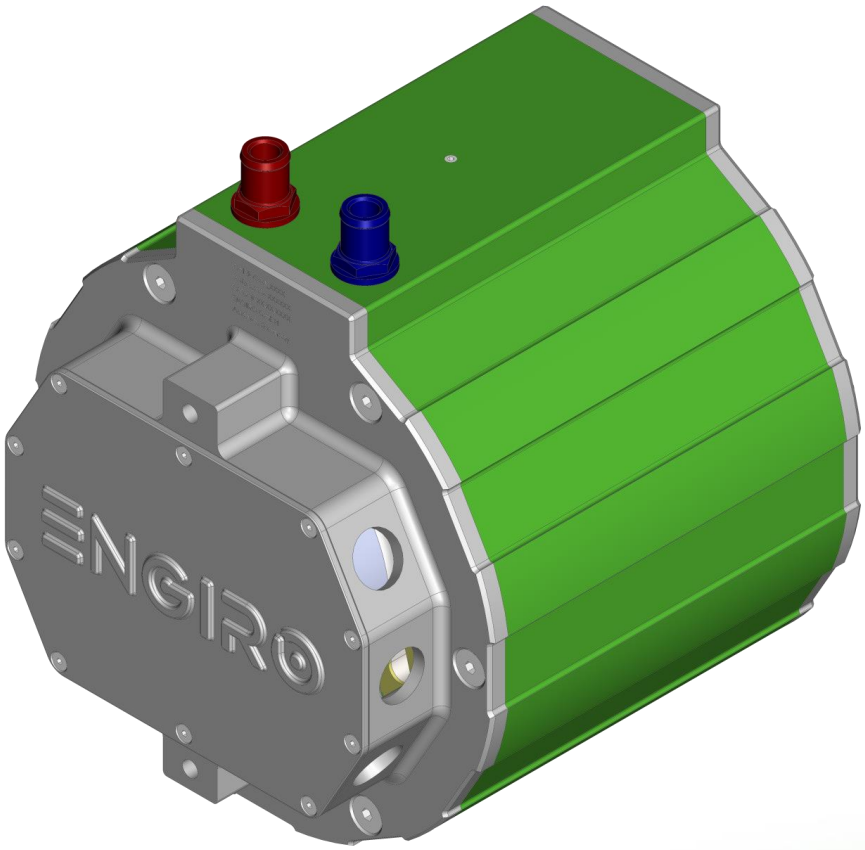
Data Sheet
205W-08016-ABC

water-cooled motor / generator with up to 23 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

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Technical Data Machine

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Nominal Operation (S1, cooling as specified below)				
Torque	T_{nom}	81	76	Nm
Power	P_{nom}	12	23	kW
Speed	n_{nom}	1320	2660	rpm
Phase rms-current	I_{nom}	295[1,2)]	379[1,2)]	A
Battery voltage (DC)	U_{nom}	48	96	V
Electric frequency	$f_{el,nom}$	88	177	Hz
Power factor	cos(φ)	0.72	0.69	

Maximal Values (S2, 10s, cooling as specified below)				
Torque	T_{max}	188	188	Nm
Power	P_{max}	18	38	kW
Phase rms-current	I_{max}	780[1,2)]	780[1,2)]	A
Battery voltage (DC)	U_{max}		200	V
Speed	n_{max}		6950	rpm
Electric frequency	$f_{el,\ max}$		463	Hz

Electrical Data					
Number of phases				3	
Number of pole pairs				4	
Maximal efficiency				96	%
T/*I* constant (I<I_{nom})				0.29	Nm/A_{rms}
U/*n* constant (AC) at a temperature of 30°C	rms:	19.5	peak:	33.2	V/(1000rpm)
K_e constant (AC) at a temperature of 30°C	rms:	0.047	peak:	0.079	V/(rad*s^{-1})

Additional Data		
Weight (w/o cables)	see page 4	
Rotor moment of inertia	0.0149	kg*m²
Protection category	IP6K9K[3)]	
Maximal motor temperature	140	°C
Allowed ambient temperature	-20 … 45[4)]	°C
Cooling (medium, flow rate, inlet temperature, pressure)	water/glycol 50/50, 8 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 Hummel Connector	
Cooling connectors	2 x ¾" / 19 mm	

[1)] Nominal current strongly dependent on cooling as specified below.
[2)] The cables must not exceed a temperature of 140 °C at any time. Temperature and service life depend on the installation condition.
[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.
[4)] other range on request

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Table Shaft and Flange Combinations

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Shaft and Flange Combinations For 205W-08016-ABC		Flange (A)	
		S (Standard)	**C** (Flange for fan without insert)
Shaft (B)	**S** (Cylindrical shaft with keyway Ø 28mm)	● (~36kg)	
	H (Hollow shaft with internal splines ANSI B 92.1 9T)	● (~35kg)	
	G (Hollow shaft with internal splines ANSI B 92.1 13T)		● (~39kg)
	D (Hollow shaft with internal splines ANSI B 92.1 15T)		● (~39kg)
Position Sensor (C)		E: sin/cos encoder	

Other individual combinations are also possible on request.

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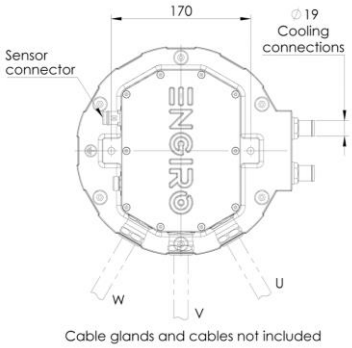
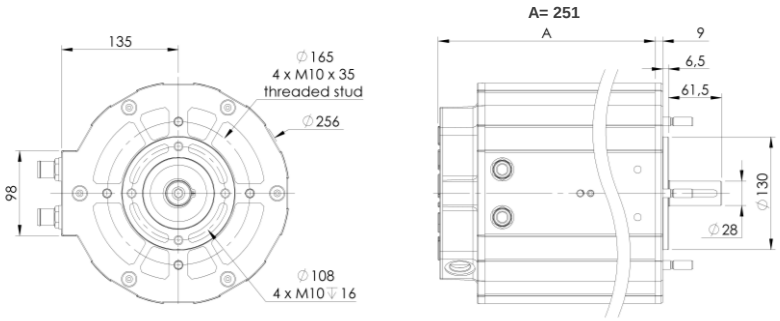
Technical Drawings

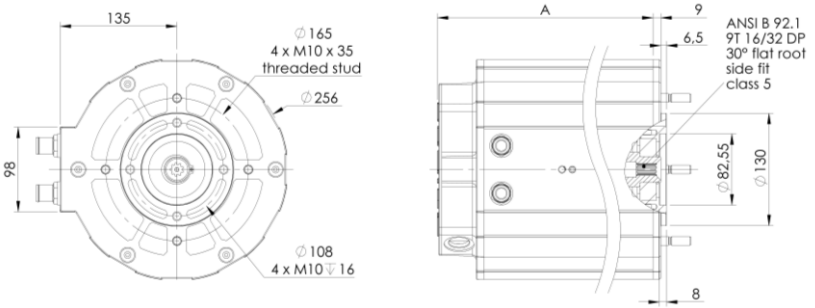


Cable glands and cables not included

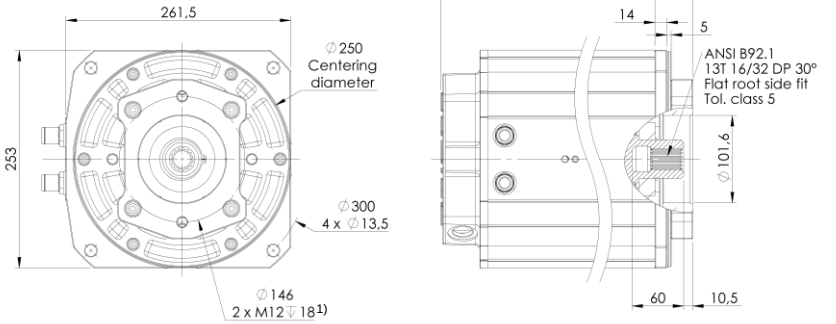
Flange S
Shaft S



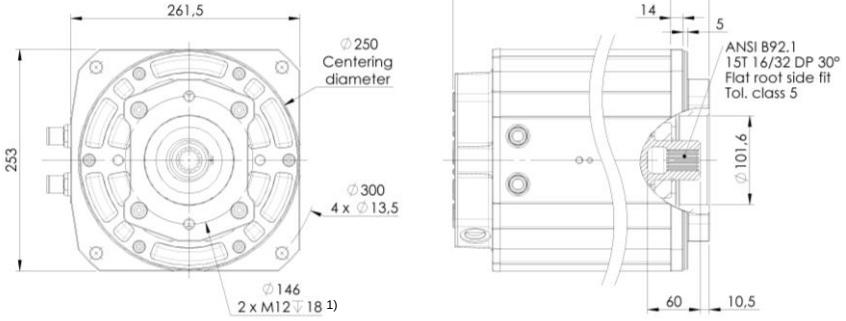
Flange S
Shaft H



Flange C
Shaft G



Flange C
Shaft D



[1)] Machines with C-Flange and a revision number smaller than Rev16 have an M14 Helicoil 1,5*D. Revision number is printed on each machine on the rear flange below the water-cooling hose barbs.

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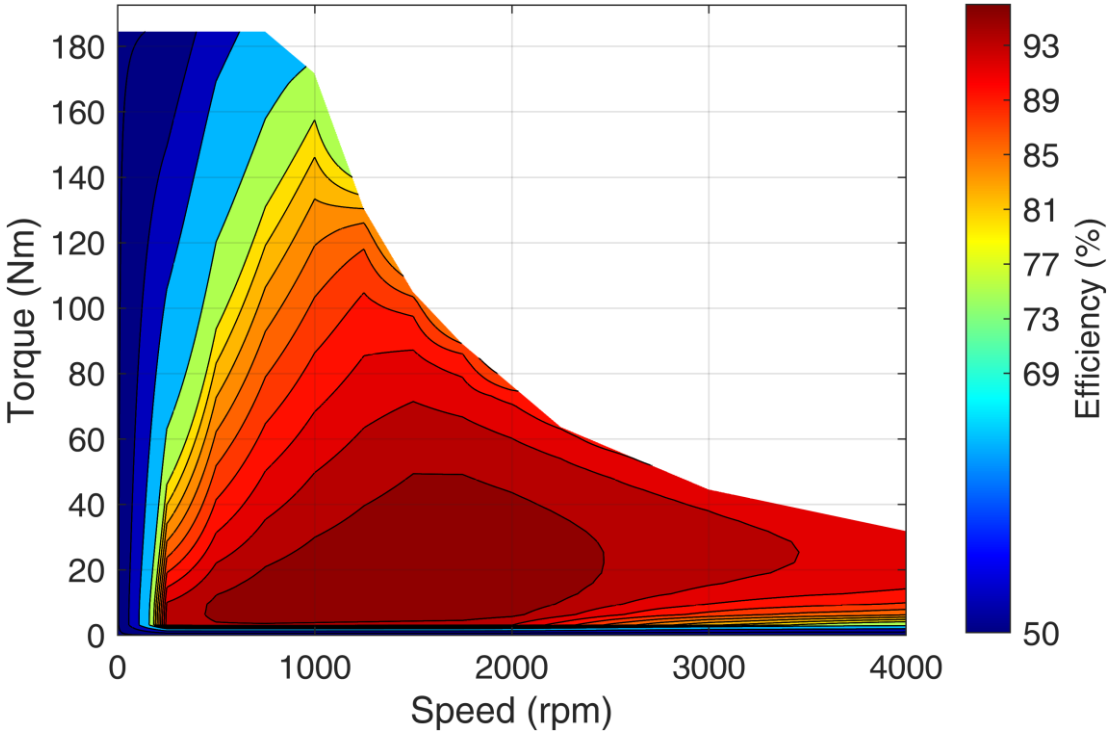
Simulated Efficiency of Motor Application

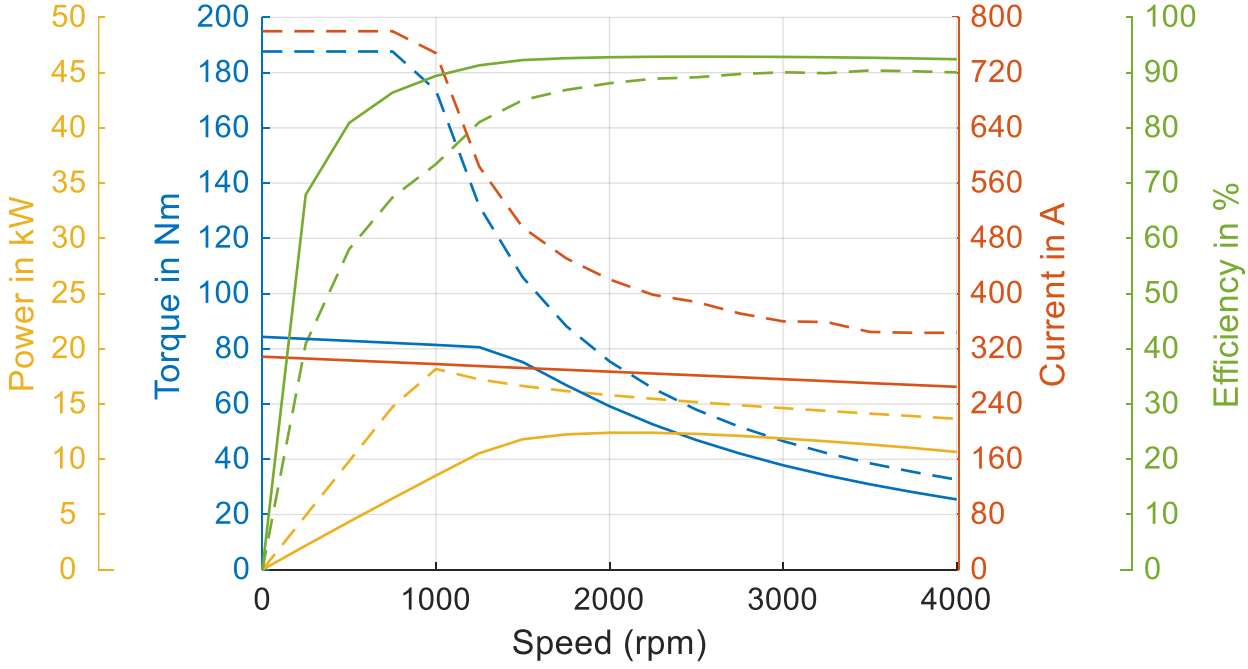
(electric machine only; U_{nom} = 48 V; machine at 140 °C;)



Simulated Characteristic Motor Parameters

U_{nom} = 48 V

solid lines: continuous; dashed lines: maximum;



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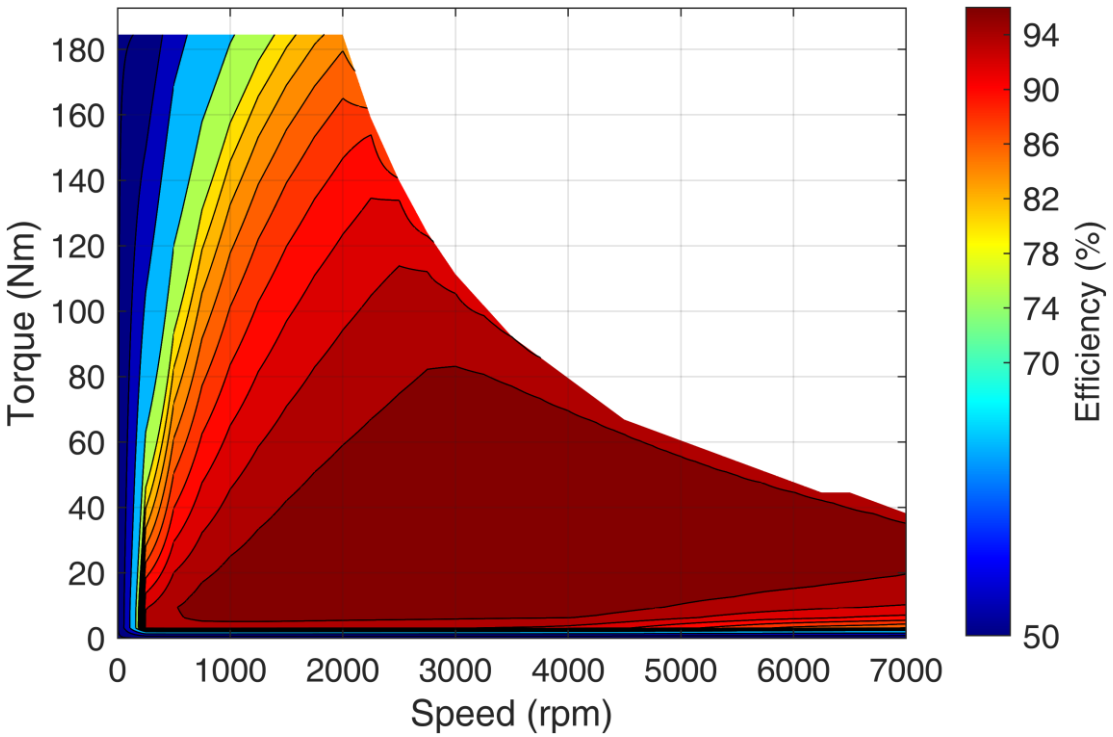
Simulated Efficiency of Motor Application

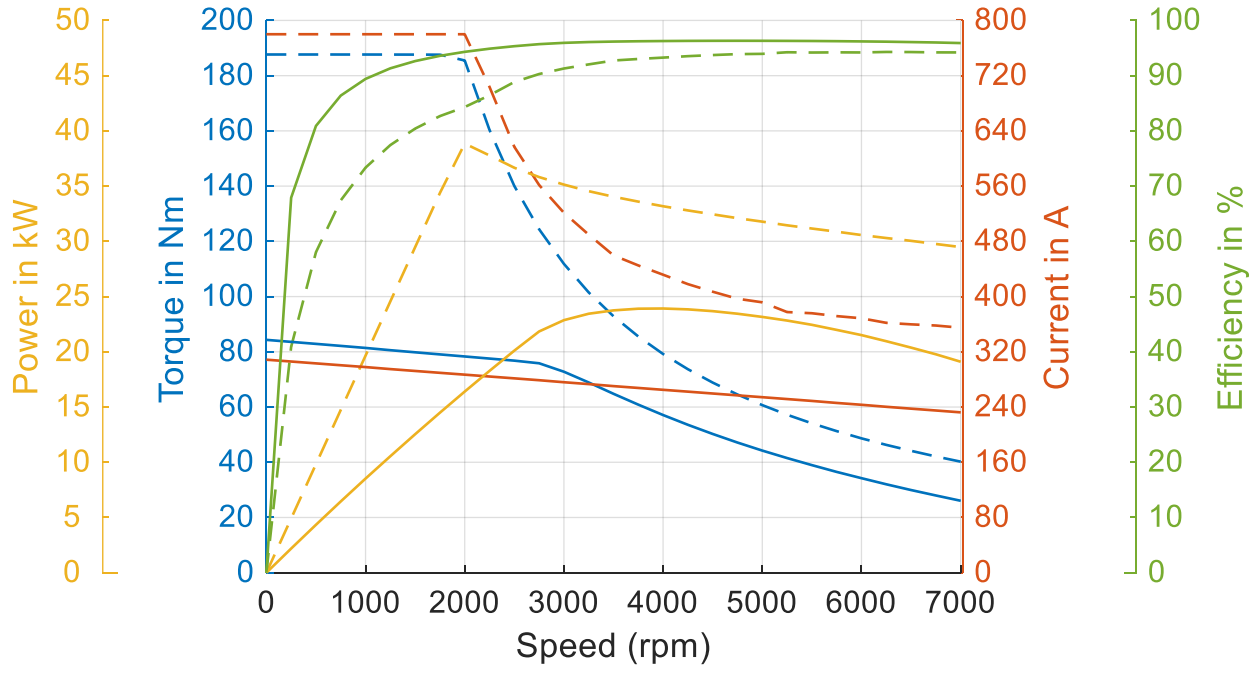
(electric machine only; U_{nom} = 96 V; machine at 140 °C;)



Simulated Characteristic Motor Parameters

U_{nom} = 96 V

solid lines: continuous; dashed lines: maximum;



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