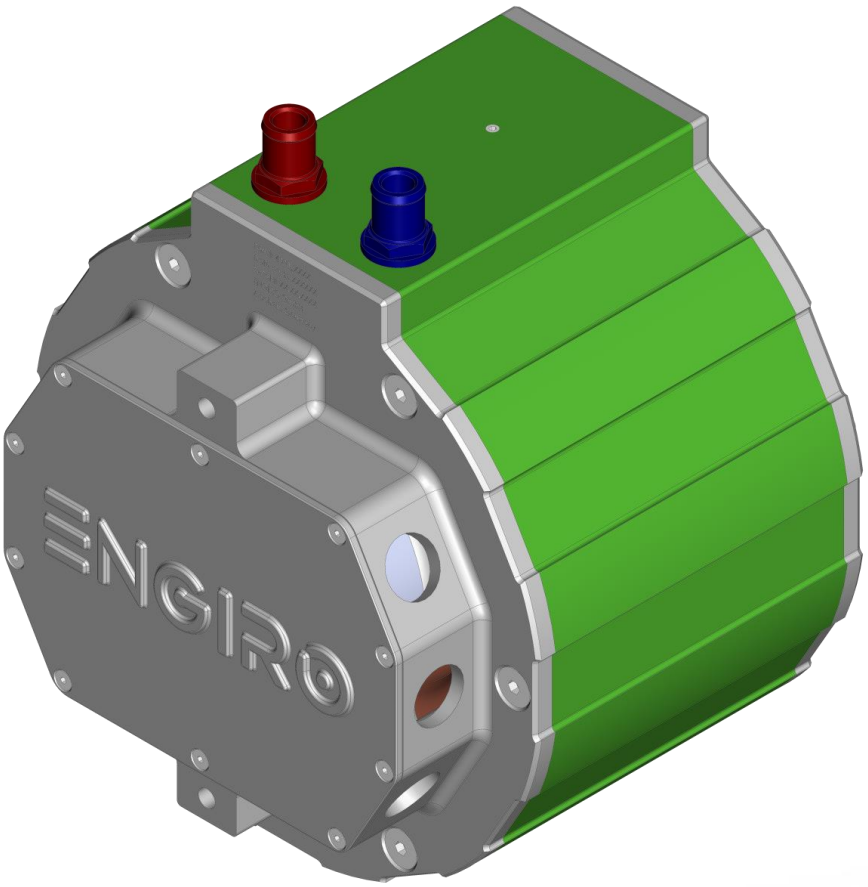
205W-04099-P-ABC

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

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



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
- various mechanical interfaces available

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Version: 003

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**. 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**
4872129	205W_04099_BCN_P	B1	C1	N
4900359	205W_04099_BCF_P	B1	C1	F
4872196	205W_04099_CDF_P	C1	D1	F
4872199	205W_04099_SHF_P	S1	H1	F
4872201	205W_04099_SSF_P	S1	S1	F

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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Nominal Operation (S1, cooling as specified below)				
Torque	T_{nom}	38	38	Nm
Power	P_{nom}	14	26	kW
Speed	n_{nom}	3580	6750	rpm
Phase rms-current	I_{nom}	48[1,2)]	47[1,2)]	A
Battery voltage (DC)	U_{nom}	400	700	V
Electric frequency	$f_{el,nom}$	239	450	Hz
Power factor	cos(φ)	0.75	0.82	

Maximal Values (S2, 10s, cooling as specified below)				
Torque	T_{max}	86	86	Nm
Power	P_{max}	21	39	kW
Phase rms-current	I_{max}	127[2)]	126[2)]	A
Battery voltage (DC)	U_{max}		850	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})				0.85	Nm/A_{rms}
U/*n* constant (AC) at a temperature of 30°C	rms:	60.4	peak:	102.7	V/(1000rpm)
K_e constant (AC) at a temperature of 30°C	rms:	0.144	peak:	0.245	V/(rad*s^{-1})

Additional Data		
Weight (w/o cables)	see page 4	
Rotor moment of inertia	0.0092	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-04099-P-ABC		Flange (A)		
		S1 (Standard)	**B1** (flange for fan motor)	**C1** (flange for fan without insert)
Shaft (B)	**S1** (Cylindrical shaft with keyway Ø 28mm)	● (~26kg)		
	H1 (Hollow shaft with internal splines ANSI B 92.1 9T)	● (~25kg)		
	D1 (Hollow shaft with internal splines ANSI B 92.1)			● (~29kg)
	C1 (cylindrical shaft with keyway Ø35mm)		● (~30kg)	
Position Sensor (C)		F: resolver gain 0.29 R: resolver gain 0.5 N: none (Please note: The R resolver is a phase-out version with a 0.5 gain, which is replaced by the F resolver with a 0.29 gain)		

Other individual combinations are also possible on request.

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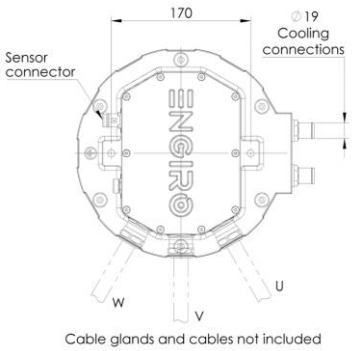
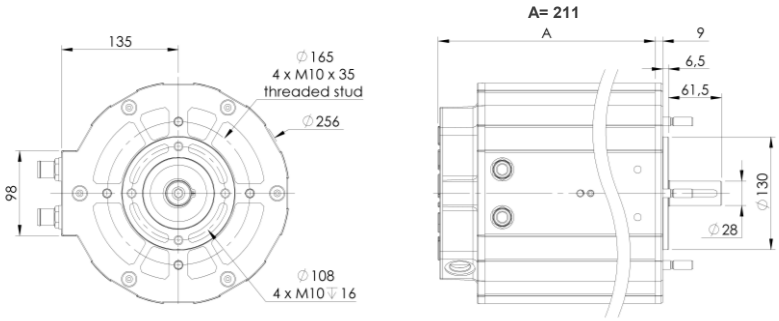
Technical Drawings

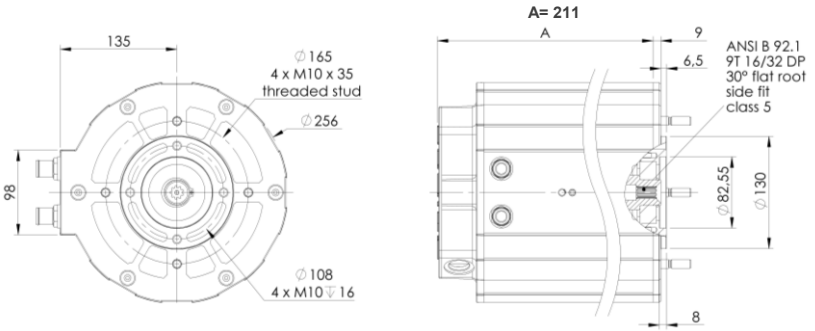


Cable glands and cables not included

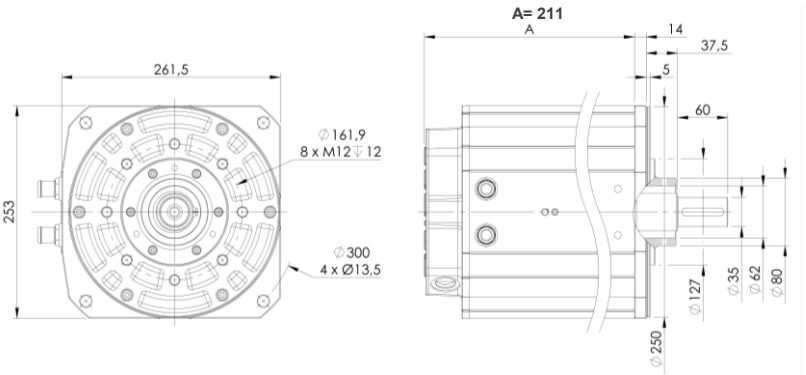
Flange S1
Shaft S1



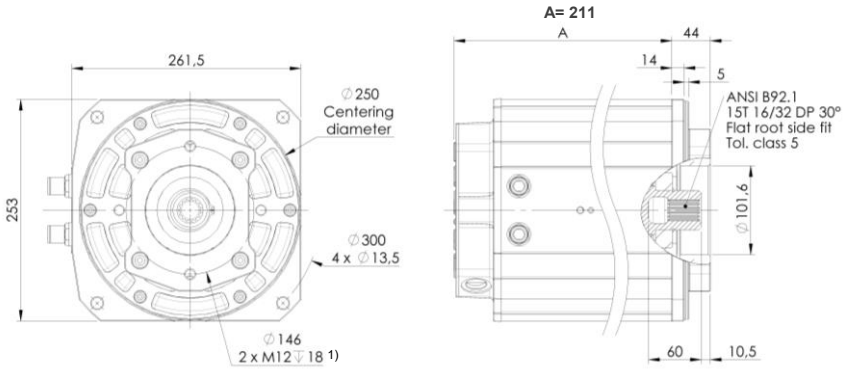
Flange S1
Shaft H1



Flange B1
Shaft C1



Flange C1
Shaft D1



[1)] Machines with C1-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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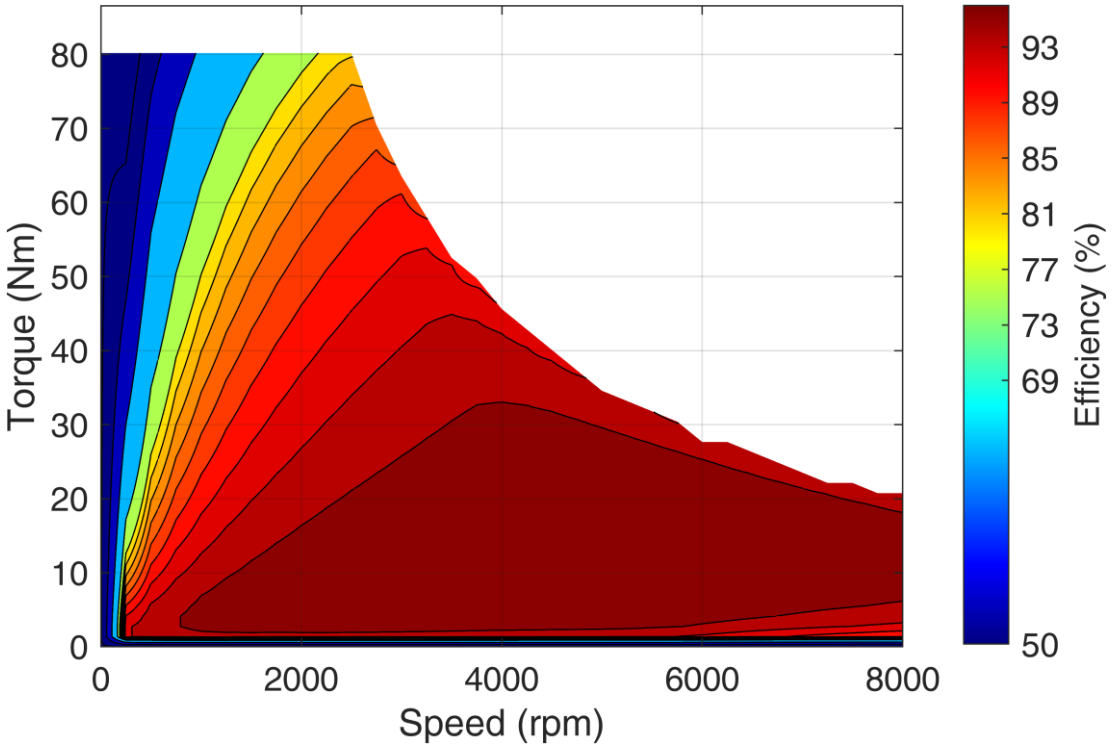
Simulated Efficiency of Motor Application

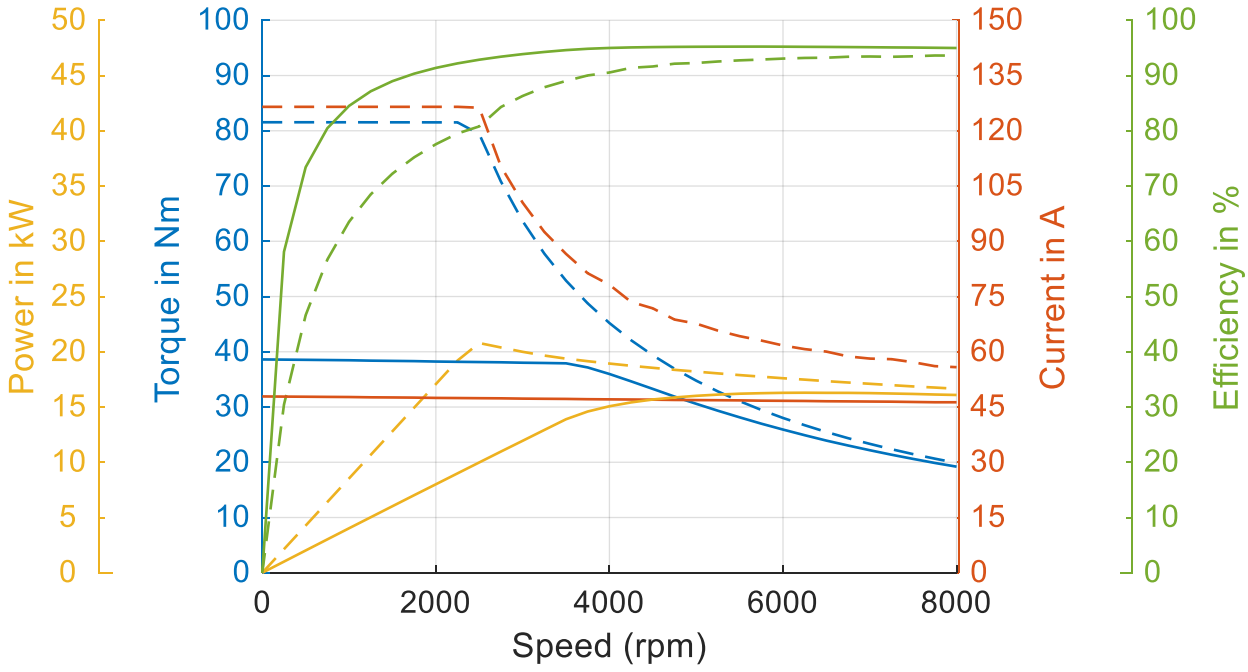
(electric machine only; U_{nom} = 400 V; machine at 140 °C;)



Simulated Characteristic Motor Parameters

U_{nom} = 400 V

solid lines: continuous; dashed lines: maximum;



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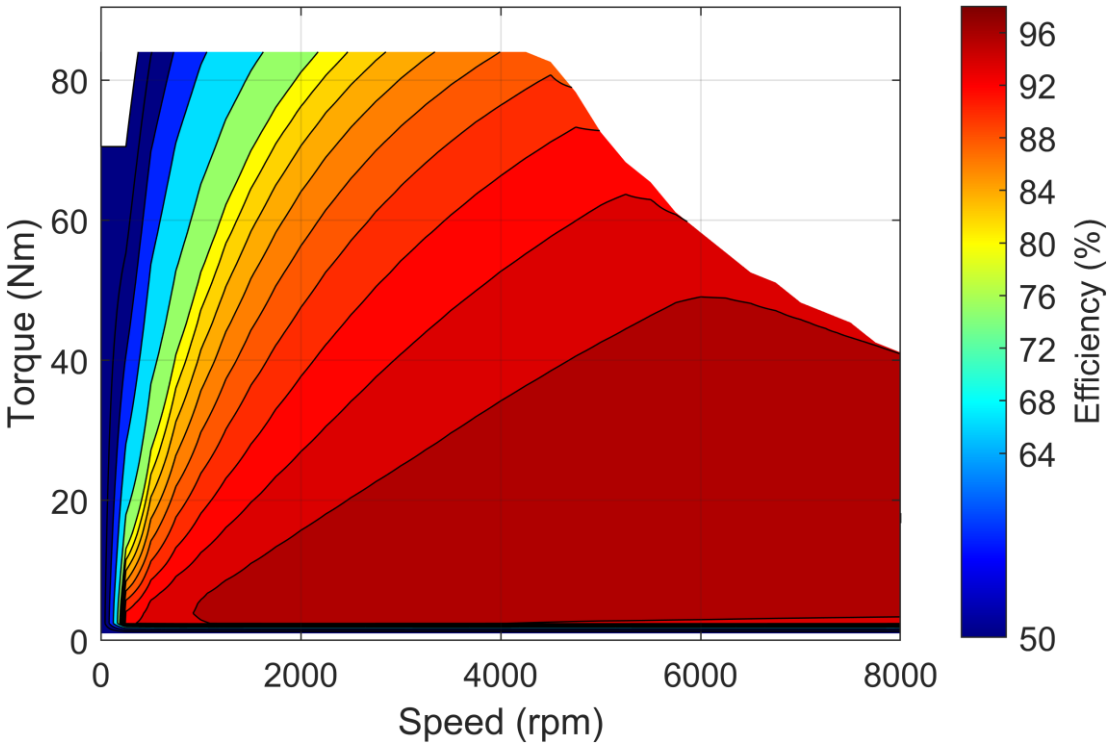
03.2025

Simulated Efficiency of Motor Application

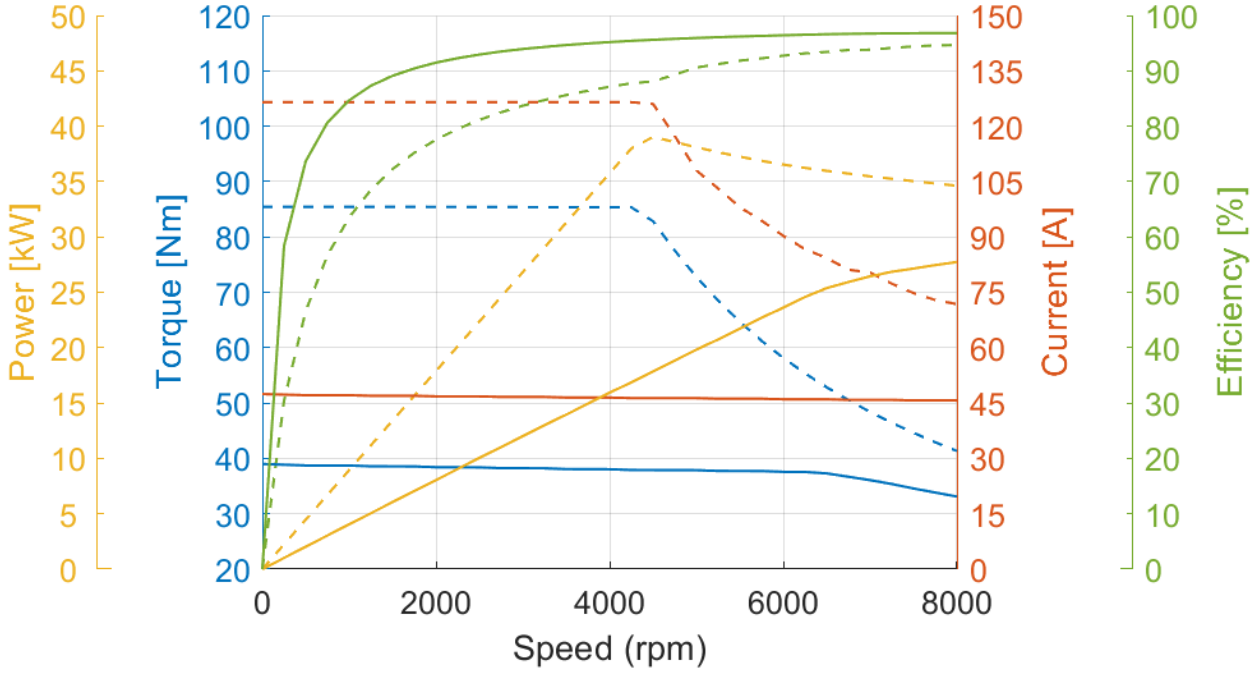
(electric machine only; U_{nom} = 700 V; machine at 140 °C;)



Simulated Characteristic Motor Parameters

U_{nom} = 700 V

solid lines: continuous; dashed lines: maximum;



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