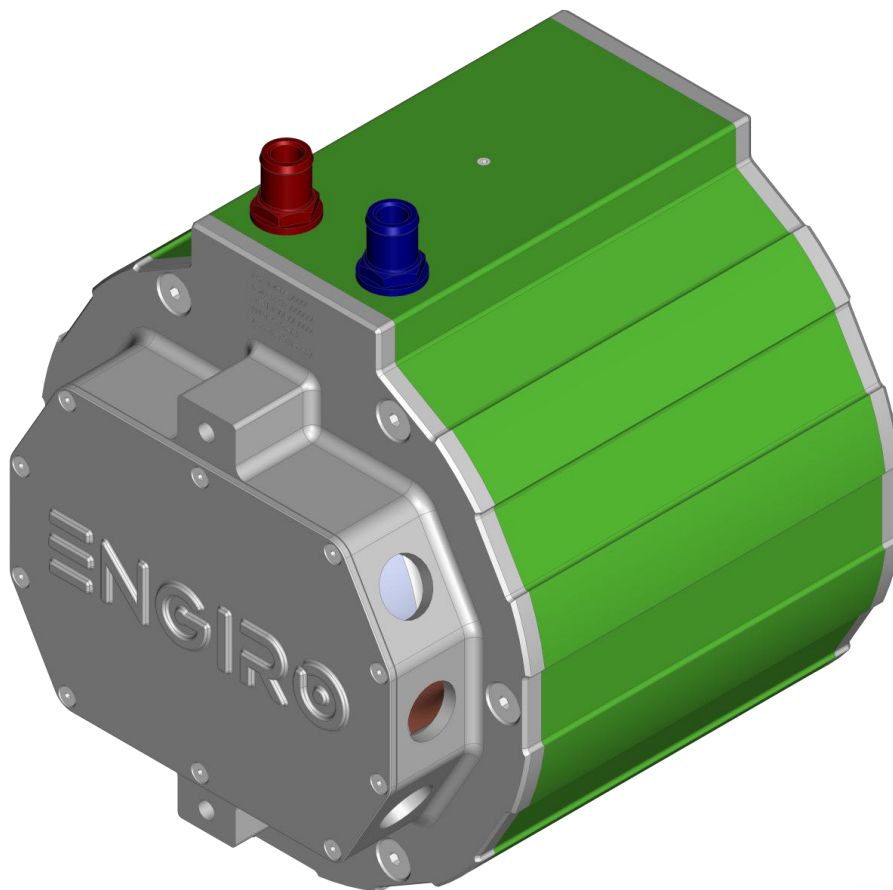


# Data Sheet

## 205W-04013-ABC

water-cooled motor / generator with up to 12 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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**Note:**

On September 1<sup>st</sup>, 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
4822803	205W_04013_SHE	S1	H1	E
4822805	205W_04013_SSE	S1	S1	E

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

Torque	$T_{nom}$	34	Nm
Power	$P_{nom}$	12	kW
Speed	$n_{nom}$	3270	rpm
Phase rms-current	$I_{nom}$	310 <sup>1,2)</sup>	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	$T_{max}$	94	Nm
Power	$P_{max}$	20	kW
Phase rms-current	$I_{max}$	960 <sup>2)</sup>	A
Battery voltage (DC)	$U_{max}$	200	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 <sub>rms</sub>
$U/n$ constant (AC) at a temperature of 30°C	rms:	7.9	peak: 13.4 V/(1000rpm)
$K_e$ constant (AC) at a temperature of 30°C	rms:	0.019	peak: 0.032 V/(rad*s <sup>-1</sup> )

### Additional Data

Weight (w/o cables)		see page 4	
Rotor moment of inertia		0.0091	kg*m <sup>2</sup>
Protection category		IP6K9K <sup>3)</sup>	
Maximal motor temperature		140	°C
Allowed ambient temperature		-20 ... 45 <sup>4)</sup>	°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, Hummel 10 Pin Connector	
Cooling connectors		2 x ¾" / 19 mm	

<sup>1)</sup> Nominal current strongly dependent on cooling as specified below.

<sup>2)</sup> The cables must not exceed a temperature of 140 °C at any time. Temperature and service life depend on the installation condition.

<sup>3)</sup> 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.

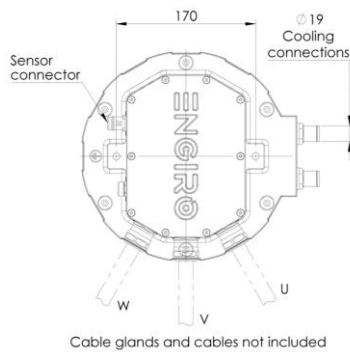
<sup>4)</sup> other range on request

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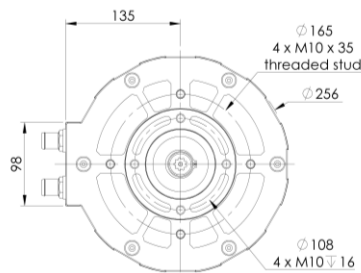
Available Type Variants			
Flange	Shaft	Pos. sensor	Weight (kg)
<p><b>S1</b> Standard with 4xM10x35 threaded stud</p>	<p><b>H1</b> Hollow shaft with internal splines ANSI B 92.1 9T 16/32DP 30°</p>	<p><b>E</b> Encoder</p>	<p>≈ 28 kg</p>
<p><b>S1</b> Standard with 4xM10x35 threaded stud</p>	<p><b>S1</b> Cylindrical shaft with keyway Ø 28mm</p>	<p><b>E</b> Encoder</p>	<p>≈ 28 kg</p>

Other individual combinations are also possible on request.

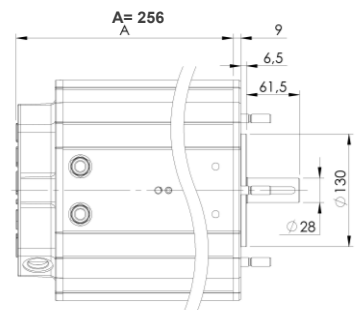
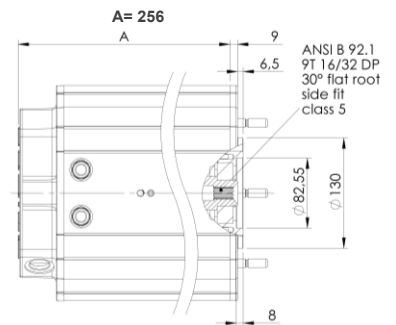
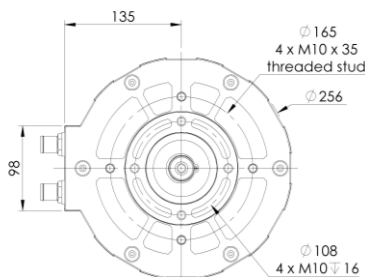
## Technical Drawings



**Flange S  
Shaft H**



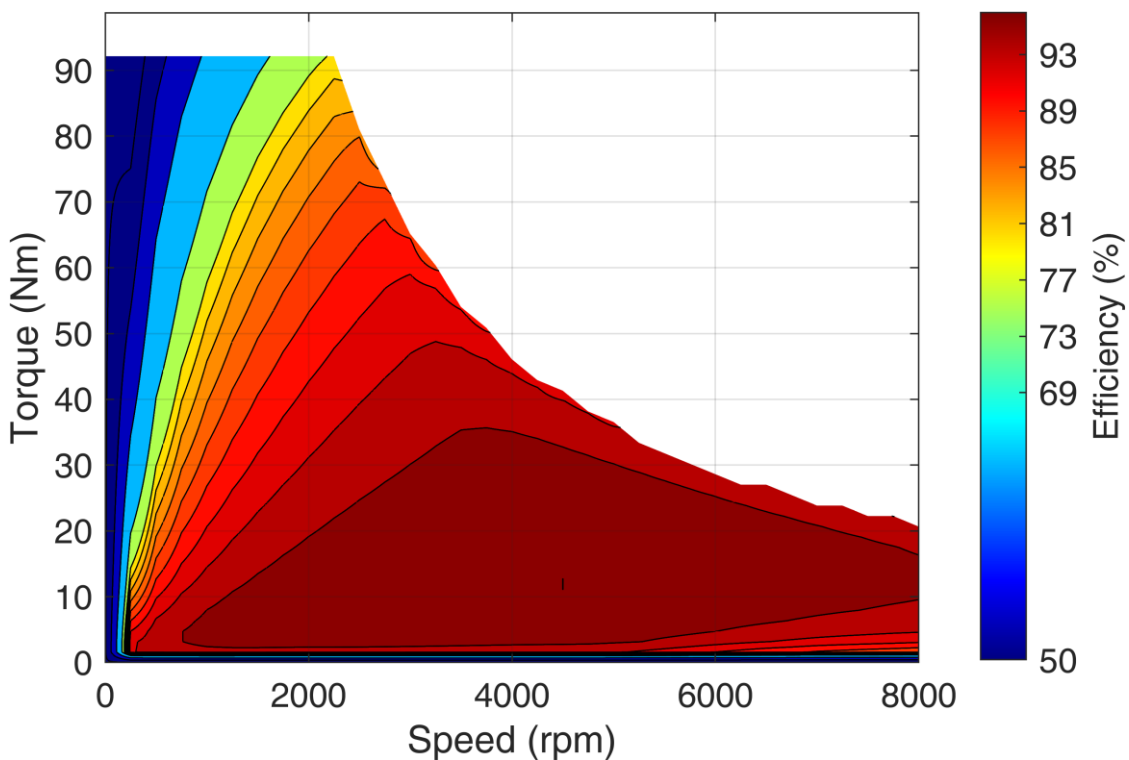
**Flange S  
Shaft S**



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## Simulated Efficiency of Motor Application

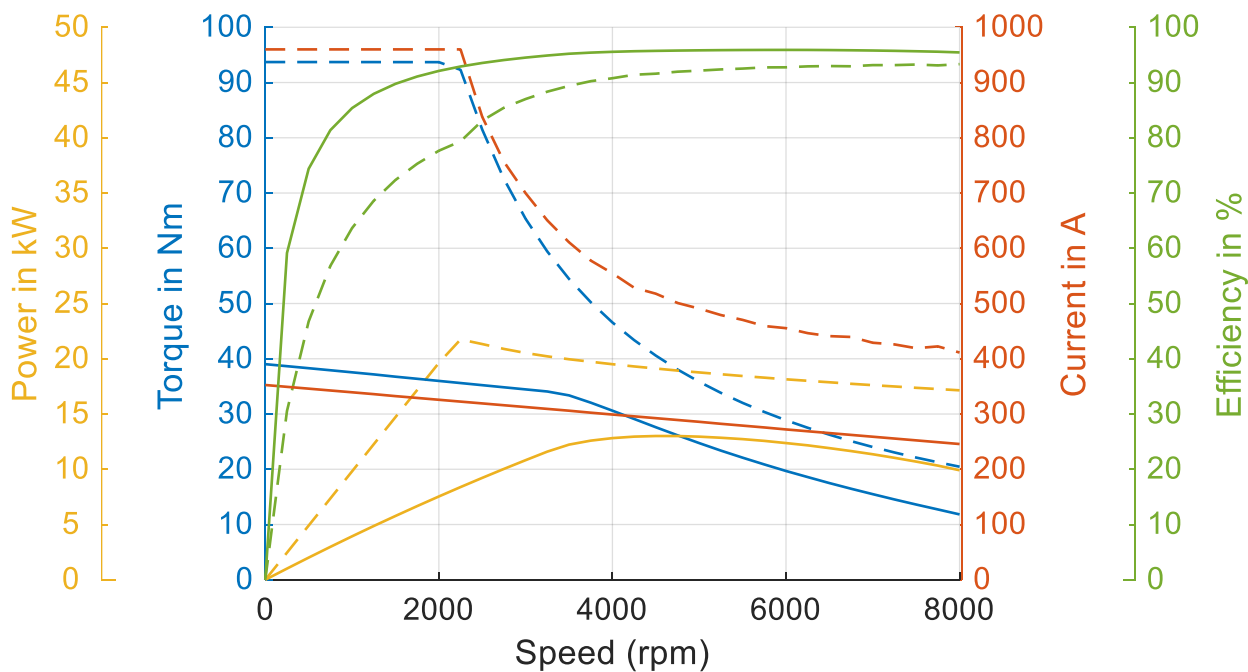
(electric machine only;  $U_{nom} = 48\text{ V}$ ; machine at  $140\text{ °C}$ ;) )



## Simulated Characteristic Motor Parameters

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

solid lines: continuous; dashed lines: maximum;



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