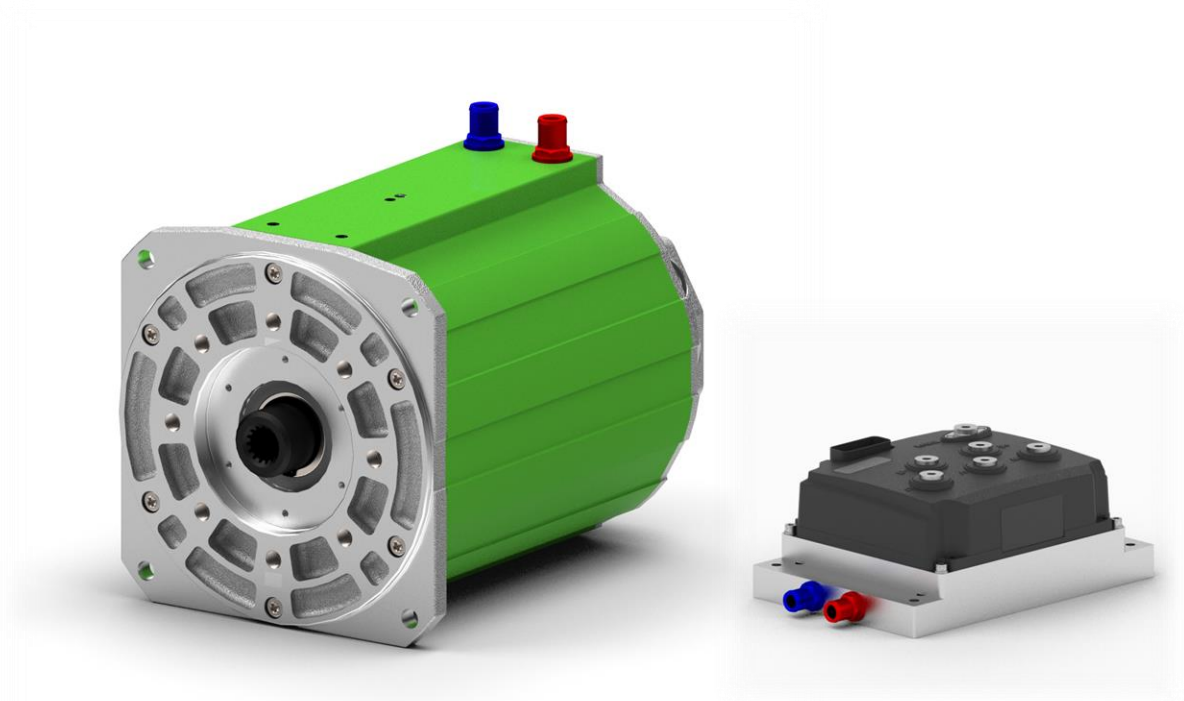
205W-12006-ABC

water-cooled motor / generator with 34 kW continuous power



Article-No.: 4867660
Article-Name: CurtisF10_60V_1000A_W_P3 incl. cooling plate

KEY FEATURES

- permanent magnet synchronous machine
- water-cooled
- convincing cost-benefit ratio
- recommended voltage range from 48V to 200V
- delivery with controller possible

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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**
4842948	205W_12006_SSE	S1	S1	E
4842947	205W_12006_DDE	D1	D1	E

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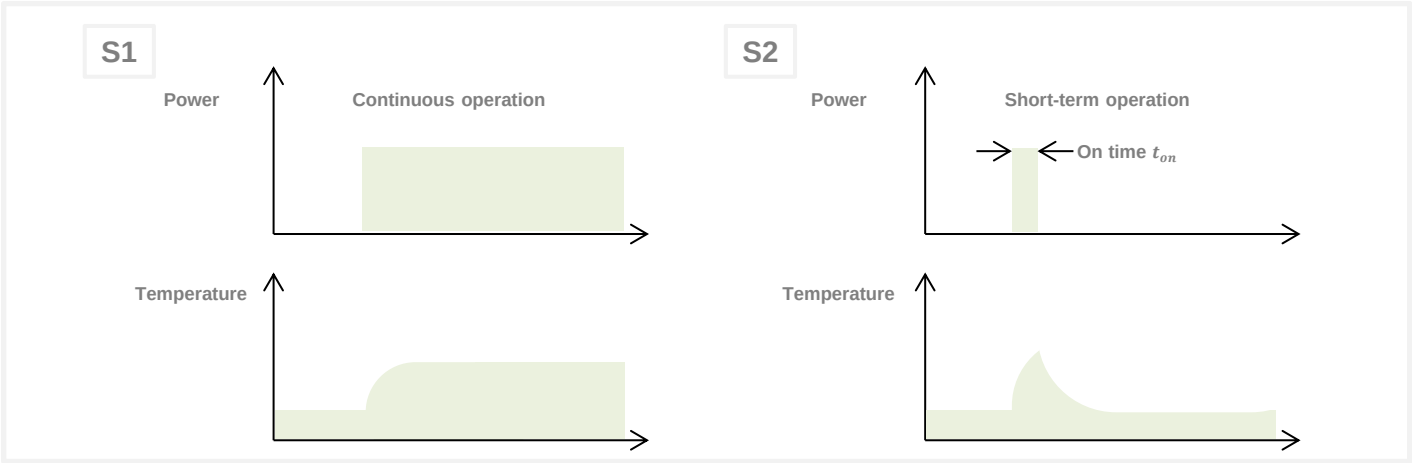
Operating Range

Characteristic Operating Points[1]					
		S1	S2	S2	
Feasible operation time	t_{on}	continuous	15 min	30 sec	
Torque	T	134	134	176	Nm
Power	P	34	34	41	kW
Speed	n	2400	2400	2200	rpm
Phase rms-current (AC)	I_{rms}	790	790	1000	A
Battery current (DC)	I_{nom}	806	806	984	A
Battery voltage (DC)	U_{nom}	48	48	48	V
Electric frequency	f_{el}	160	160	147	Hz
Set Efficiency	η_{tot}	88	88	88	%
Power factor	$cos(\varphi)$	0.83	0.83	0.76	
Cooling	specified on page 5				

Maximum Operating Range			
Torque	T_{max}	176 @ 2200 rpm[2]	Nm
Power	P_{max}	43 @ 3000 rpm	kW
Speed	n_{max}	8000	rpm
Phase rms-current (AC)	$I_{rms,max}$	1000 [3] [4]	A
Battery current (DC)	I_{max}	1000 [3] [4]	A
Battery voltage (DC)	U_{max}	75	V
Electric frequency	f_{el}	533	Hz



1) Defined Range only valid for a power factor of 1 at DC input
2) Torque rating is dependent on rotor temperature
3) The cables must not exceed a temperature of 140 °C at any time. Temperature and service life depend on the installation condition.
4) Peak rating for max. 60 seconds on time

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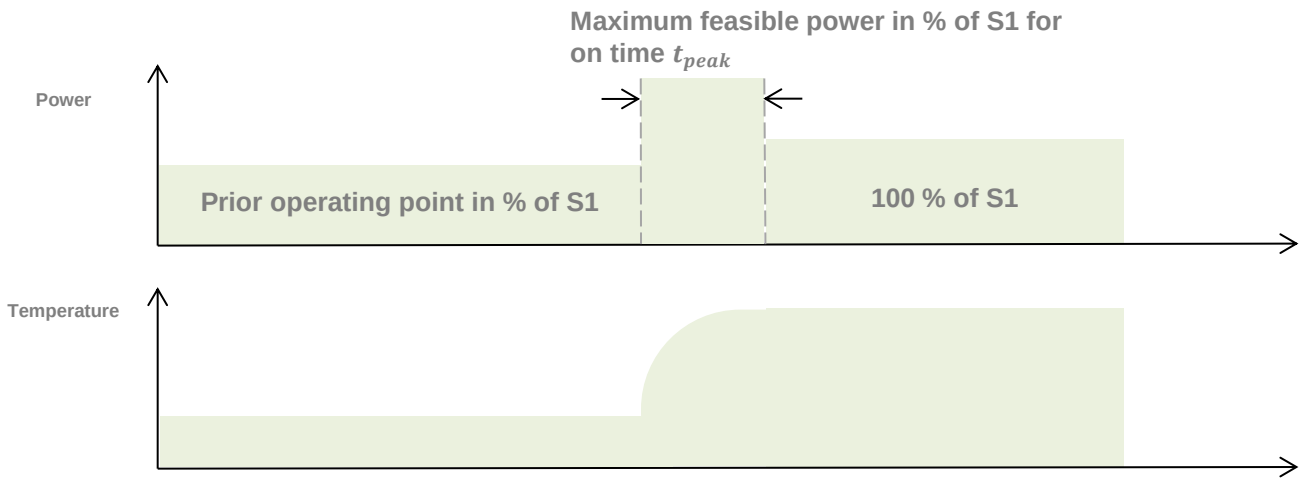
Operating Range

S9 Operating Points[1)] Maximum Feasible Power in % of S1						
U_{nom} = 48 V		Prior operating point in % of S1				
		0 %	25 %	50 %	75 %	100 %
On time t_{peak}	30 s	125%	120%	110%	110%	100%
	180 s	110%	100%	100%	100%	100%
	420 s	105%	100%	100%	100%	100%

S9

Overload capability for subsequent continuous operation depending on preceding operation



1) Theoretical rounded assumption

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Additional Data

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Electrical Data					
Number of phases				2 x 3 [1]	
Number of pole pairs				4	
Maximal motor efficiency				91	%
T/I constant (I<Inom)				0.170	Nm/A_{rms}
U/n constant (AC) at temperature 20°C	rms:	10.79	peak:	17.6	V/(1000rpm)
Ke constant (AC) at temperature 20°C	rms:	0.103	peak:	0.168	$V/(rad*s^{-1})$

Additional Data			
Rotor moment of inertia		0.0209	$kg*m^2$
Allowed range of ambient temperature		-20 … +85	°C
Maximal motor temperature		140	°C
Temperature monitoring		1 x KTY84-130	
Cooling	Advised medium (OAT Coolants)	water/glycol - 50/50 ▪ TL 774-D/F ▪ VIN 878389 ▪ MAN 324 SNF ▪ MTL 5048	
	Flow rate	8	l/min
	Inlet temperature	45	°C
	Pressure drop	< 0.2	bar
	Maximum inlet pressure	2	bar
	Cooling channel volume	1.04	l

Connectors	
Power terminals	6 x M25 cable gland
Signal connectors	1x Hummel 10 Pin Connector, M16
Cooling connectors	2 x ¾" / 19 mm

Certifications	
Type approval	CE, EN 60034
Environmental	ISO 9227
Protection grade	IP6K9K [2]
Vibrations	Prepared for ISO 16750-3
Customs tariff number	8501 5230

1) The phase cables for this motor are connected in parallel. The phase rms current on page 3 is the sum from both cables
2) 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.

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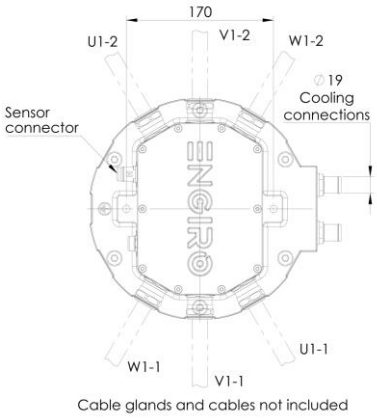
Available Type Variants

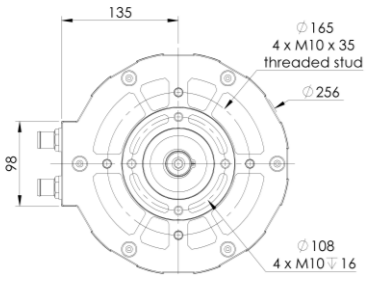
Shaft and Flange Combinations for 205W-12006-ABC		Flange (A)	
		S1 (Standard)	**D1** (Flange for fan without insert)
Shaft (B)	**S1** (Cylindrical shaft with keyway Ø 28mm)	● (~48 kg)	
	D1 (hollow shaft with internal splines ANSI B 92.1)		● (~50 kg)
Position Sensor (C)		E: Sin/cos Encoder	

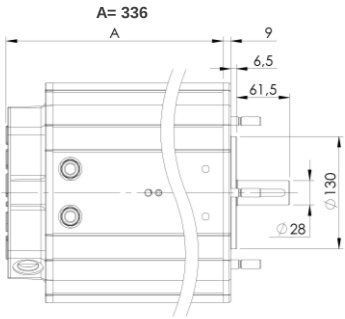
Other individual combinations are also possible on request.

Technical Drawings

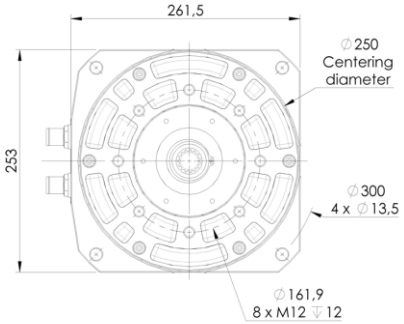


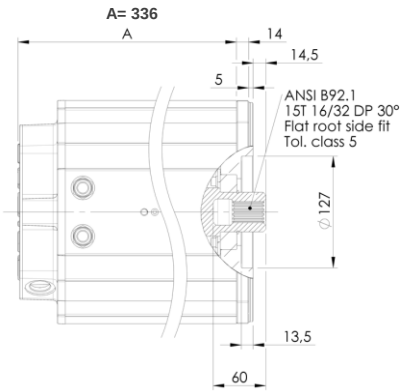
Flange S1
Shaft S1





Flange D1
Shaft D1





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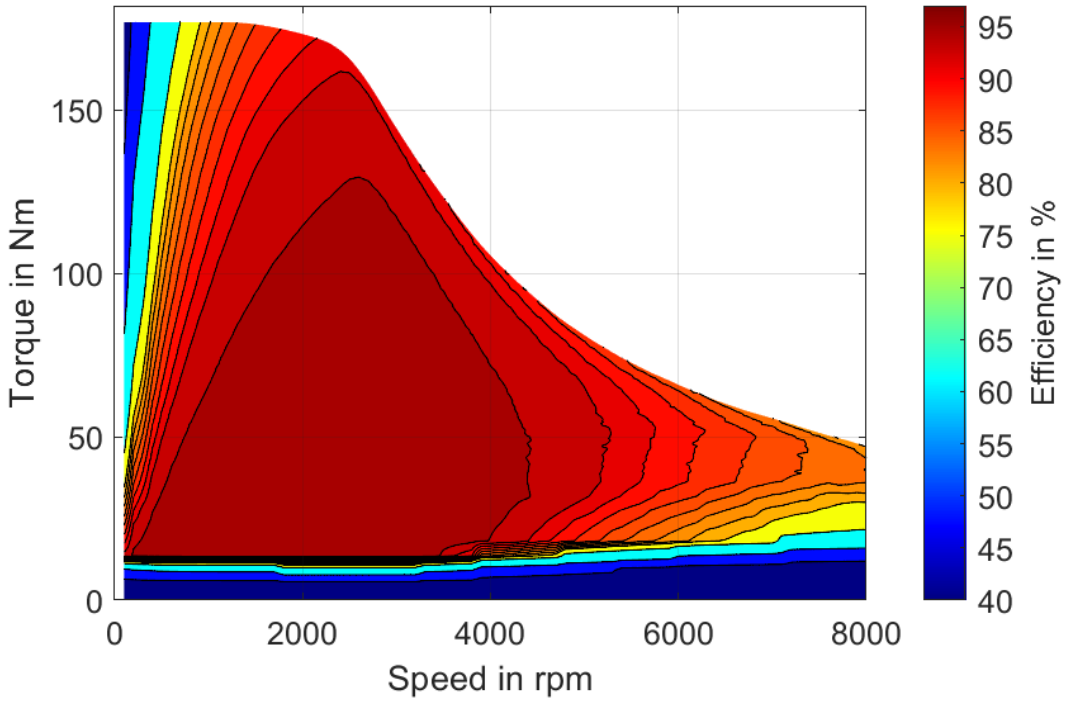
Simulated Efficiency of Motor Application

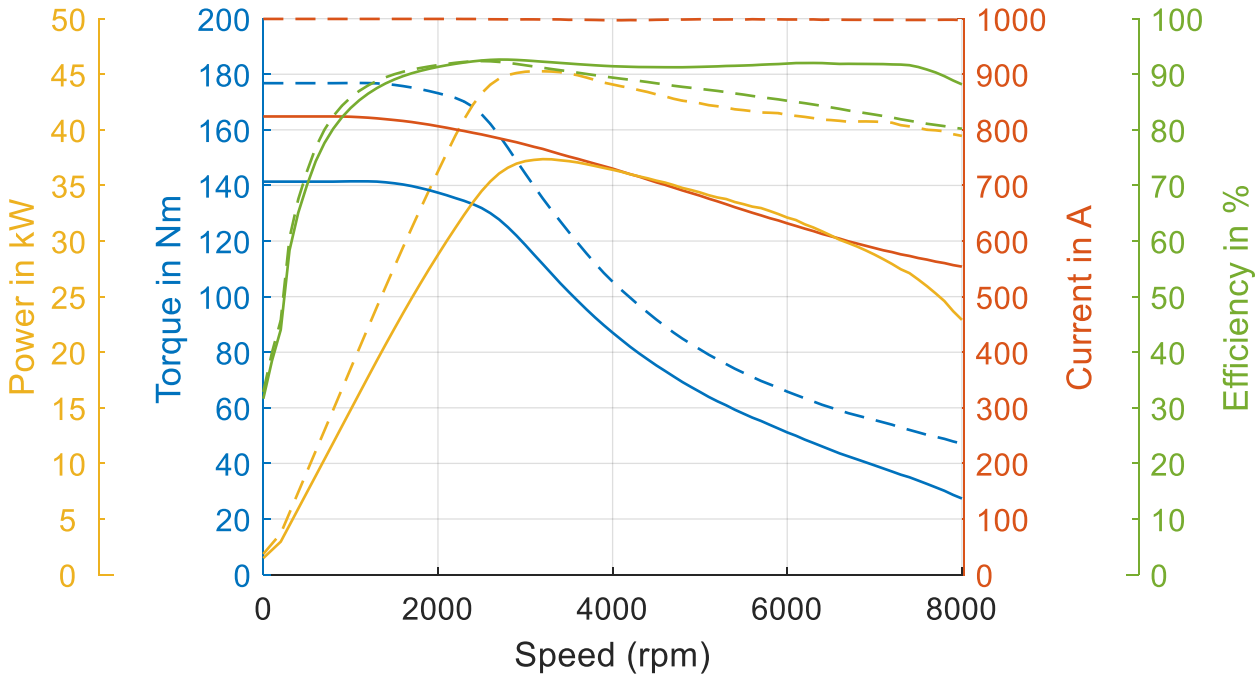
(electric machine only; U_{nom} = 48 V)



Simulated Characteristic Motor Parameters

U_{nom} = 48 V

solid lines: continuous; dashed lines: maximum;



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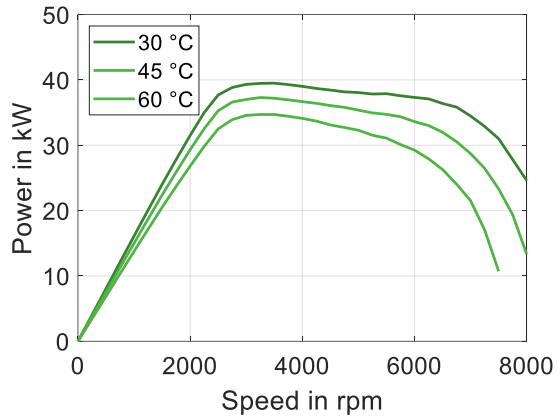
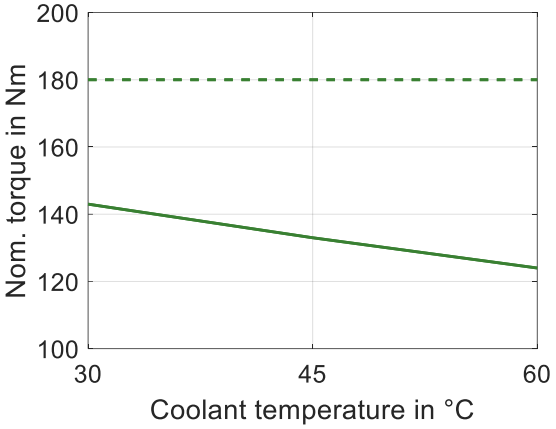
Additional Characteristics

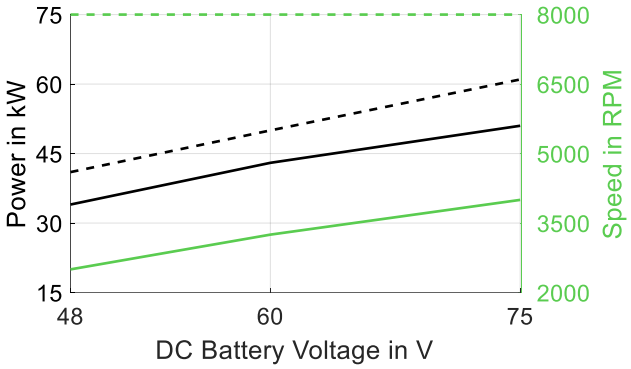
Simulated nominal power at different coolant temperatures - U_{nom} = 48 V



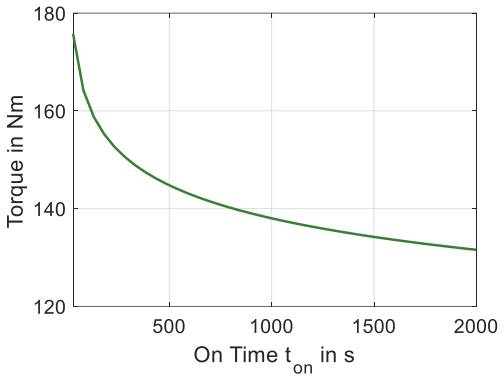
Available torque at different coolant temperatures[1)]



Simulated power and speed over battery voltage[1)]



Torque over feasible maximum on time, S2 operation cycles (45°C coolant temperature)



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

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