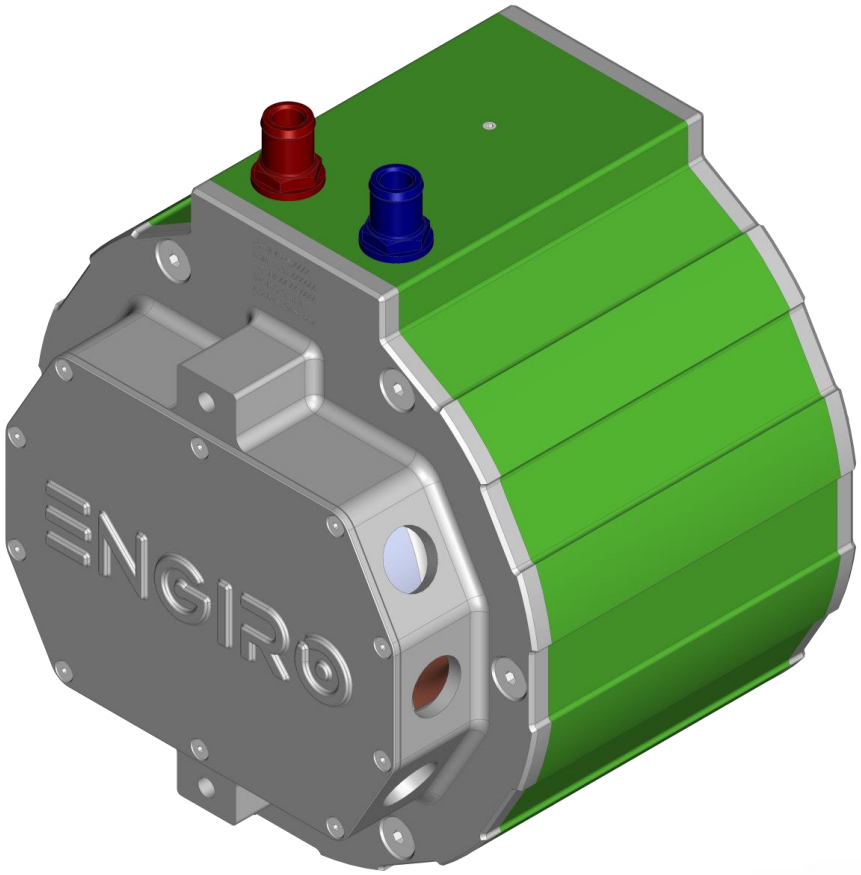
205W-04191-P-ABC

water-cooled motor / generator with up to 12 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

ENGIRO GmbH · Avantisallee 51 · 52072 Aachen · Germany
Tel. +49 (0)241 99798-0 · E-Mail: engineering@engiro.de · www.engiro.de

Version: 002

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**
4872215	205W_04191_SHF_P	S1	H1	F
4872204	205W_04191_BCF_P	B1	C1	F
4872207	205W_04191_CDF_P	C1	D1	F
4872211	205W_04191_CDN_P	C1	D1	N
4872240	205W_04191_SSF_P	S1	S1	F
4903414*	205W_04191_SSN_P	S1	S1	N

* This motor variant employs a modified coolant-channel sealing material to ensure compatibility with certain hydraulic oils as coolant. All performance values & plots in the data sheet are based on the use of a coolant as specified in the chapter “Additional Data” under “Cooling” and not on the use of a hydraulic oil as coolant. When using a hydraulic oil as coolant, the performance of the motor will be influenced.

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.

ENGIRO GmbH · Avantisallee 51 · 52072 Aachen · Germany
Tel. +49 (0)241 99798-0 · E-Mail: engineering@engiro.de · www.engiro.com

Technical Data Machine

ENGIRO HYDAC INTERNATIONAL

Nominal Operation (S1, cooling as specified below)				
Torque	T_{nom}	40	39	Nm
Power	P_{nom}	7	12	kW
Speed	n_{nom}	1750	3010	rpm
Phase rms-current	I_{nom}	25[1,2)]	24[1,2)]	A
Battery voltage (DC)	U_{nom}	400	700	V
Electric frequency	$f_{el,nom}$	117	201	Hz
Power factor	cos(φ)	0.71	0.70	
Maximal Values (S2, 10s, cooling as specified below)				
Torque	T_{max}	94	94	Nm
Power	P_{max}	12	20	kW
Phase rms-current	I_{max}	66[2)]	66[2)]	A
Battery voltage (DC)	U_{max}		850	V
Speed	n_{max}		6070	rpm
Electric frequency	$f_{el,\ max}$		405	Hz

Electrical Data					
Number of phases				3	
Number of pole pairs				4	
Maximal efficiency				96	%
T/*I* constant (I<I_{nom})				1.68	Nm/A_{rms}
U/*n* constant (AC) at a temperature of 30°C	rms:	116.5	peak:	198.1	V/(1000rpm)
K_e constant (AC) at a temperature of 30°C	rms:	0.278	peak:	0.473	V/(rad*s^{-1})

Additional Data		
Weight (w/o cables)	see page 4	kg
Rotor moment of inertia	0.0092	kg*m²
Maximal motor temperature	140	°C
Allowed ambient temperature	-20 … 85	°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	

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

ENGIRO GmbH · Avantisallee 51 · 52072 Aachen · Germany
Tel. +49 (0)241 99798-0 · E-Mail: engineering@engiro.de · www.engiro.com

Certifications

Certifications	
Type approval	CE, EN 60034
Salt mist	ISO 9227
Protection grade	ISO 20653 IP6K9K [1)]
Vibrations	Prepared for ISO 16750-3
Customs tariff number	8501 5230

1) 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.

ENGIRO GmbH · Avantisallee 51 · 52072 Aachen · Germany
Tel. +49 (0)241 99798-0 · E-Mail: engineering@engiro.de · www.engiro.com

Available Type Variants

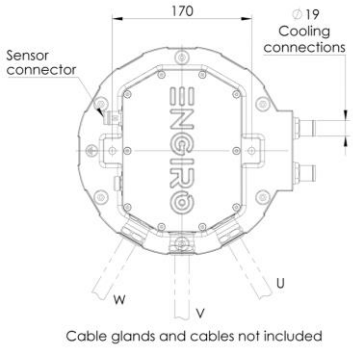
ENGIRO HYDAC INTERNATIONAL

Available Type Variants			
Flange	**Shaft**	**Pos. sensor**	**Weight (kg)**
S1 Standard with 4xM10x35 threaded stud	**H1** Hollow shaft with internal splines ANSI B 92.1 9T 16/32DP 30°	**F** Resolver	≈ 26 kg
B1 Hydraulic pump ANSI 127-4 / SAE C Ø127 mm centering shoulder	**C1** cylindrical shaft with keyway Ø35mm	**F** Resolver	≈ 30 kg
C1 Hydraulic Pump ANSI 101-2 / SAE B Ø101,6 mm centering hole	**D1** hollow shaft with internal splines ANSI B 92.1 15T 16/32DP30°	**F** Resolver **N** Without speed sensor	≈ 29 kg
S1 Standard with 4xM10x35 threaded stud	**S1** Cylindrical shaft with keyway Ø 28mm	**F** Resolver **N** Without speed sensor	≈ 25 kg

Other individual combinations are also possible on request.

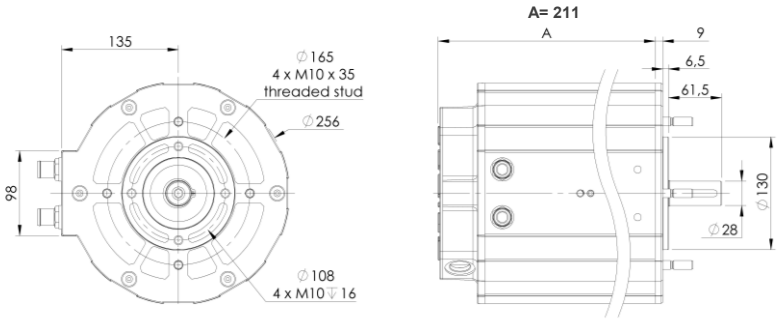
ENGIRO GmbH · Avantisallee 51 · 52072 Aachen · Germany
Tel. +49 (0)241 99798-0 · E-Mail: engineering@engiro.de · www.engiro.com

Technical Drawings

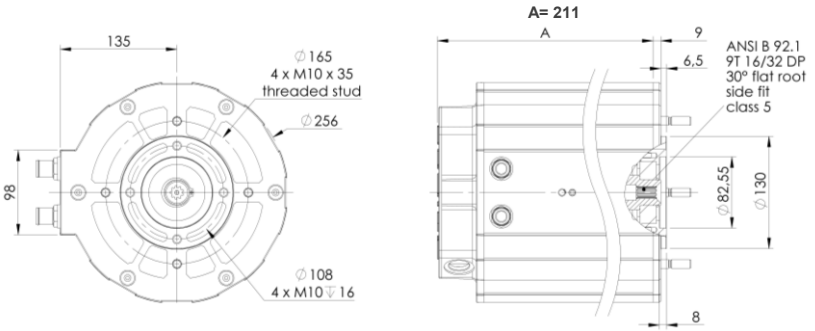


Cable glands and cables not included

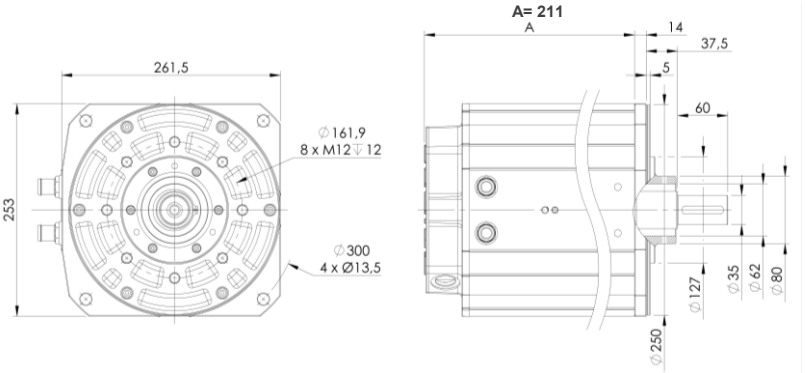
Flange S1
Shaft S1



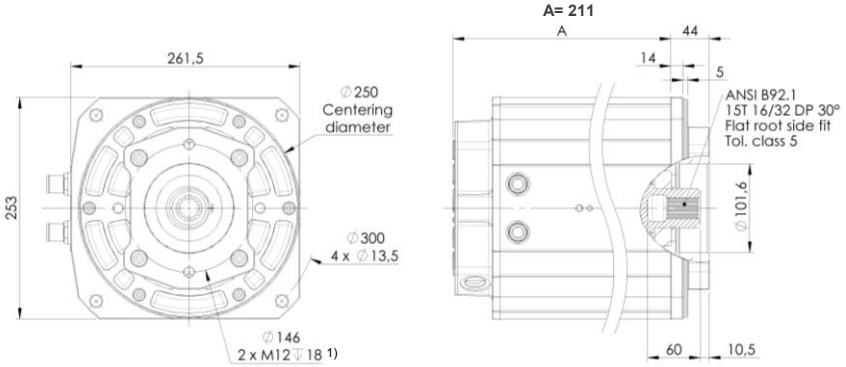
Flange S1
Shaft H1



Flange B1
Shaft C1



Flange C1
Shaft D1

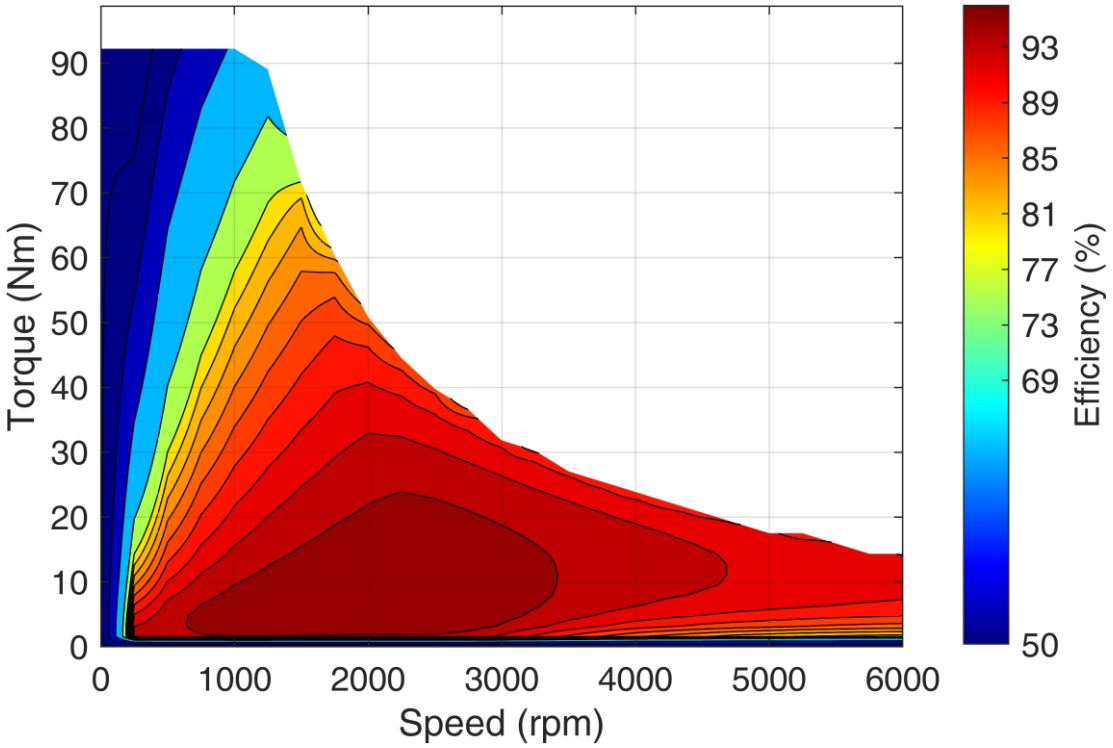


[1)] Machines with C-Flange and a revision number smaller than Rev16 have an M14 Helicoil 1,5*D. Revision number is printed on each machine on the rear flange below the water-cooling hose barbs.

ENGIRO GmbH · Avantisallee 51 · 52072 Aachen · Germany
Tel. +49 (0)241 99798-0 · E-Mail: engineering@engiro.de · www.engiro.com

Simulated Efficiency of Motor Application

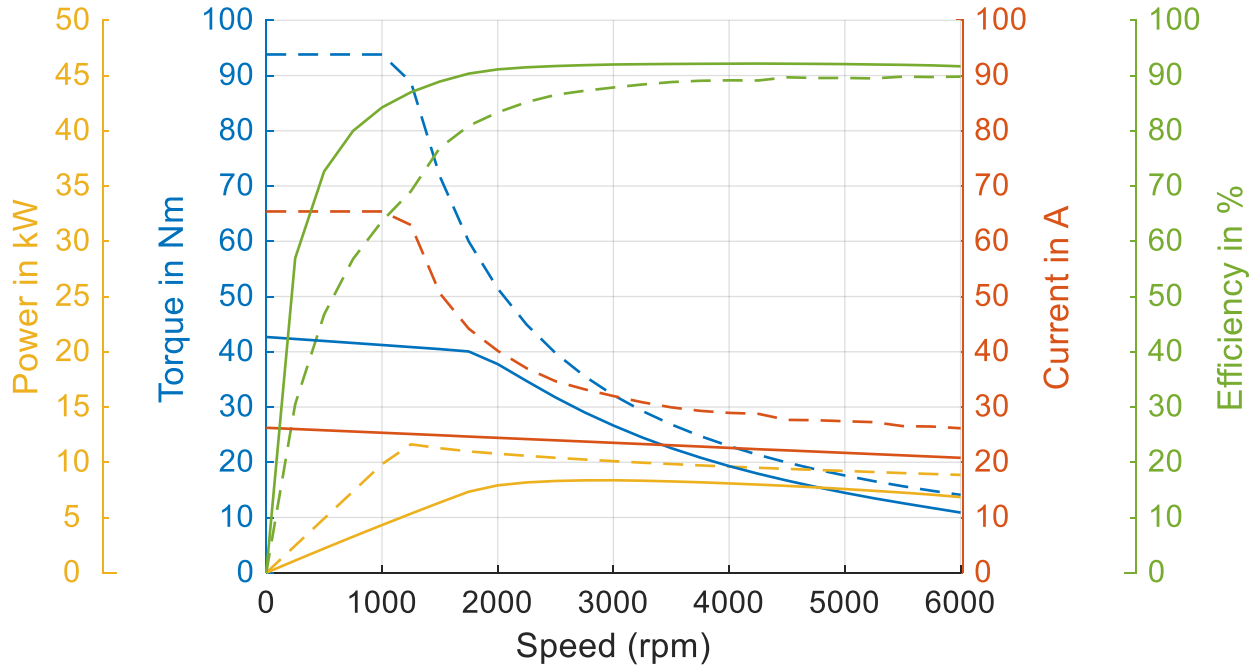
(electric machine only; U_{nom} = 400 V; machine at 140 °C;)



Simulated Characteristic Motor Parameters

U_{nom} = 400 V

solid lines: continuous; dashed lines: maximum;



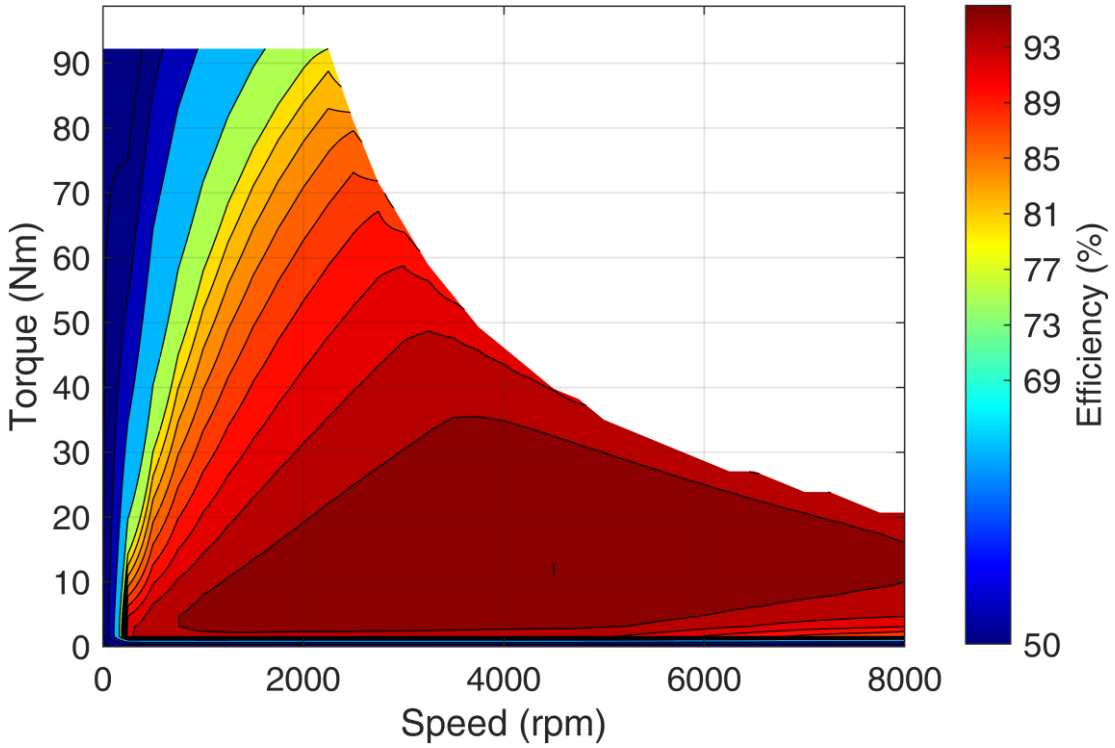
ENGIRO GmbH · Avantisallee 51 · 52072 Aachen · Germany
Tel. +49 (0)241 99798-0 · E-Mail: engineering@engiro.de · www.engiro.com

Characteristics Machine

ENGIRO HYDAC INTERNATIONAL

Simulated Efficiency of Motor Application

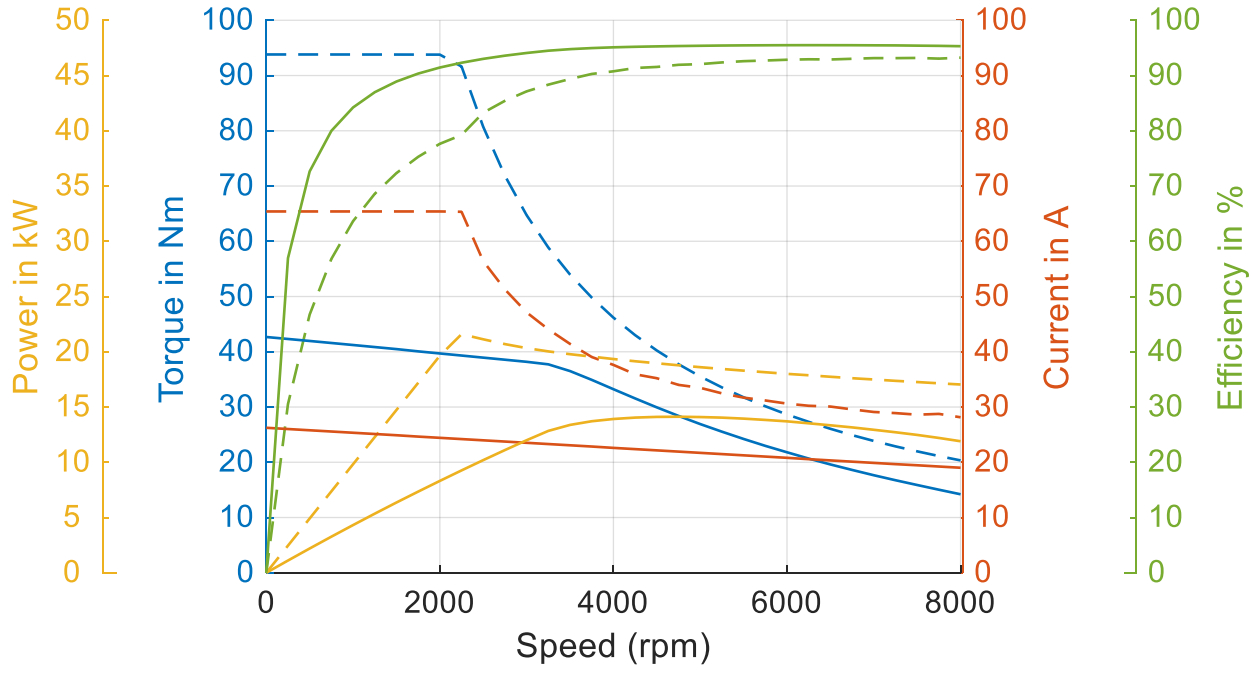
(electric machine only; U_{nom} = 700 V; machine at 140 °C;)



Simulated Characteristic Motor Parameters

U_{nom} = 700 V

solid lines: continuous; dashed lines: maximum;



ENGIRO GmbH · Avantisallee 51 · 52072 Aachen · Germany
Tel. +49 (0)241 99798-0 · E-Mail: engineering@engiro.de · www.engiro.com