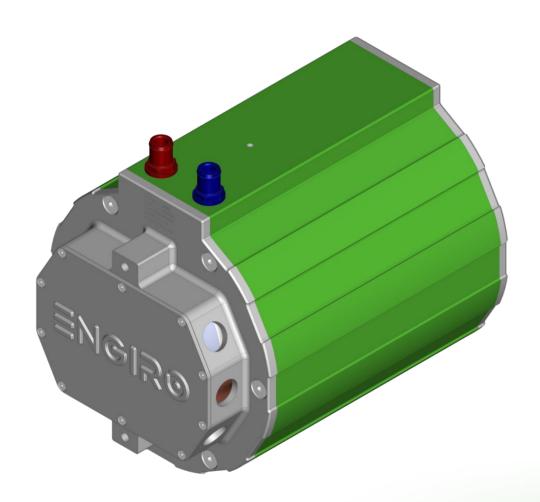


Data Sheet 205W-12013-ABC

water-cooled motor / generator with up to 27 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

Hc

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Technical Data Machine



Power P_mam 14 27 kW Speed		Nominal Operation (S	1, cooling as sp	ecified belo	w)			
Speed	Torque	T_{nom}		129		120	Nm	
Phase rms-current	Power	P_{nom}		14		27	kW	
Battery voltage (DC) U _{rom} 48 96 V Electric frequency f _{atrom} 72 145 Hz Hz Hz Power factor cos(φ) 0.72 0.69 Electric frequency f _{atrom} 72 145 Hz Hz Hz Trox 0.69 Electric frequency Trox 296 284 Nm Power Prex 24 52 kW Phase rms-current f _{max} 959 ²⁰ 959 ²⁰ A Power Prex 24 52 kW Phase rms-current f _{max} 959 ²⁰ 959 ²⁰ A Power Prex 200 V Prex Prex 200 V Prex P	Speed	n_{nom}				rpm		
February	Phase rms-current	I _{nom}		3591,2)		3391,2)	А	
Power factor cos(φ) 0.72 0.69 Maximal Values (S2, 10s, cooling as specified below) Torque T _{max} 298 284 Nm Power P _{max} 24 52 kW Phase rms-current I _{max} 9592 9592 A Battery voltage (DC) U _{max} 200 V Speed n _{max} 5700 rpm Electric frequency f _{at} max 380 Hz Electrical Data Number of phases 3 *** *** Number of pole pairs 4 *** *** Maximal efficiency 96 %** 71/ constant (AC) at a temperature of 30°C rms: 23.8 peak: 40.5 V/(1000 K ₆ constant (AC) at a temperature of 30°C rms: 0.057 peak: 0.097 V/(rad*s ** Additional Data Weight (w/o cables) see page 4 *** Rotor moment of inertia 0.0209 Kg*m² Protection category<	Battery voltage (DC)	U _{nom}		48 96			V	
Power factor Cos(φ) Co.72 Co.89 Co	Electric frequency	$f_{el,nom}$		72 145			Hz	
Torque T_{max} 298 284 Nm Power T_{max} 298 284 Nm Power T_{max} 24 52 kW Phase rms-current T_{max} 9592 9592 9592 A September 2010 V Phase rms-current T_{max} 9592 9592 A September 2010 V Phase rms-current T_{max} 9592 9592 A September 2010 V Phase rms-current T_{max} 9592 9592 A September 2010 V Phase rms-current T_{max} 9592 9592 A September 2010 V Phase Relectric frequency T_{max} 9592 9592 A September 2010 Phase Relectric frequency T_{max} 9592 9592 A September 2010 Phase Relectric frequency T_{max} 9592 9592 Phase Relectric frequency T_{max} 9592 9592 Phase Relectric frequency T_{max} 9592 9592 Phase Relectric frequency 9592 Phase Relectric frequency 9692 Phase Relectric frequency 9692 Phase Relectric frequency 9692 Phase Phase Relectric frequency 9692 Phase Phase Relectric frequency 9792	Power factor			0.72		0.69		
Power P_{max} 24 52 kW Phase rms-current I_{max} 959° 959° 959° A Battery voltage (DC) I_{max} 200 V Speed I_{max} 5700 rpm Electric frequency $I_{el, max}$ 380 Hz **Electrical Data** Number of phases 3 3 Number of pole pairs 4 4 Maximal efficiency 96 % **Maximal efficiency 96 % **Moximal location of temperature of 30°C rms: 23.8 peak: 40.5 V/(1000 of 2000		Maximal Values (S2, 1	0s, cooling as s	pecified belo	ow)			
Phase rms-current Imax 959 ²⁰ 959 ²⁰ A Page 1 Battery voltage (DC) Umax 200 V Speed nmax 5700 rpm Electric frequency fet, max 380 Hz Electrical Data Number of phases 3 Secondary (I 4 Maximal efficiency 96 % 71/ constant (I 0.35 Nm/Amax 0.35 Nm/Amax W/n constant (AC) at a temperature of 30°C rms: 23.8 peak: 40.5 V/(1000 Additional Data Weight (w/o cables) see page 4	Torque	T_{max}		298		284	Nm	
Battery voltage (DC) Umax 200 V	Power	P_{max}		24		52	kW	
Speed Image	Phase rms-current	I _{max}		9592)		959 ²⁾	А	
Electrical Data Fet max Sano Hz	Battery voltage (DC)	U_{max}		200 \				
Electrical Data Number of phases 3 Number of pole pairs 4 Maximal efficiency 96 % 77/ constant (I 0.35 Nm/Amm U/n constant (AC) at a temperature of 30°C rms: 23.8 peak: 40.5 V/(1000 peak: 0.097 V/(rad*s) Additional Data Weight (w/o cables) see page 4 Rotor moment of inertia 0.0209 kg*m² Protection category IP6K9K³) Maximal motor temperature 140 °C Allowed ambient temperature -20 45° °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 Connectors	Speed	n_{max}		5700 r				
Number of phases Number of pole pairs Maximal efficiency Maximal efficiency 7// constant (I<1,000) 1// constant (I<1,000	Electric frequency	f _{el, max}				380	Hz	
Number of pole pairs 4 Maximal efficiency 96 Maximal efficiency 96 Maximal efficiency 96 Maximal efficiency 96 Minimal efficiency 96 Maximal efficiency 96 Minimal efficiency 9		Ele	ectrical Data					
Maximal efficiency 96 % T/I constant ($I < I_{nom}$) 0.35 Nm/A _{mm} U/In constant (AC) at a temperature of 30°C rms: 23.8 peak: 40.5 V/(1000 K _o constant (AC) at a temperature of 30°C rms: 0.057 peak: 0.097 V/(rad*s) Additional Data Weight (w/o cables) see page 4 Rotor moment of inertia 0.0209 kg*m² Protection category IP6K9K³ Maximal motor temperature 140 °C Allowed ambient temperature 20 454° °C Cooling (medium, flow rate, inlet temperature, pressure) water/glycol 50/50, 8 I/min, \leq 45°C, \leq 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	Number of phases		3					
T// constant ($) U/n constant (AC) at a temperature of 30°C rms: 23.8 peak: 40.5 V/(1000 K_0 constant (AC) at a temperature of 30°C rms: 0.057 peak: 0.097 V/(rad*s) Additional Data Weight (W/o cables) Rotor moment of inertia 0.0209 kg*m² Protection category IP6K9K³) Maximal motor temperature Allowed ambient temperature Allowed ambient temperature Allowed ambient temperature Cooling (medium, flow rate, inlet temperature, pressure) Temperature monitoring Type approval Customs tariff number Connectors Power terminals 3 x M25 cable gland Signal connectors$	Number of pole pairs		4					
Wn constant (AC) at a temperature of 30°C rms: 23.8 peak: 40.5 V/(1000 Modes) Additional Data Weight (w/o cables) see page 4 Rotor moment of inertia 0.0209 kg*m² Protection category IP6K9K³) Maximal motor temperature 140 °C Allowed ambient temperature -20 45⁴) °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	Maximal efficiency		96		%			
K _o constant (AC) at a temperature of 30°C rms: 0.057 peak: 0.097 W/(rad*s) Additional Data Weight (w/o cables) see page 4 Rotor moment of inertia 0.0209 kg*m² Protection category IP6K9K³) Maximal motor temperature 140 °C Allowed ambient temperature -20 45⁴) °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	T/I constant (I <i<sub>nom)</i<sub>					0.35	Nm/A _{rms}	
Additional Data Weight (w/o cables) see page 4 Rotor moment of inertia 0.0209 kg*m² Protection category IP6K9K³) Maximal motor temperature 140 °C Allowed ambient temperature -20 45⁴) °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	U/n constant (AC) at a temperature of 30°C		rms:	23.8	peak:	40.5	V/(1000rpm)	
Weight (w/o cables) see page 4 Rotor moment of inertia 0.0209 kg*m² Protection category IP6K9K³ Maximal motor temperature 140 °C Allowed ambient temperature $-20 \dots 45^4$ °C Cooling (medium, flow rate, inlet temperature, pressure) water/glycol 50/50, 8 l/min, $\leq 45^{\circ}$ C, ≤ 0.5 bar Temperature monitoring $1 \times \text{KTY84-130}$ Type approval CE, EN 60034 Customs tariff number $8501\ 5230$ Connectors Power terminals $3 \times \text{M25}$ cable gland Signal connectors $M16, 10\ \text{Pin Hummel Connector}$	$K_{\rm e}$ constant (AC) at a temperature of 30°C		rms:	0.057	peak:	0.097	V/(rad*s-1)	
Rotor moment of inertia $0.0209 \text{ kg}^*\text{m}^2$ Protection category 1P6K9K^3 Maximal motor temperature 140 °C Allowed ambient temperature $-20 \dots 45^4$ °C Cooling (medium, flow rate, inlet temperature, pressure) water/glycol 50/50, 8 l/min, $\leq 45^\circ\text{C}$, $\leq 0.5 \text{ bar}$ Temperature monitoring $1 \times \text{KTY84-130}$ Type approval CE , EN 60034 Customs tariff number $8501\ 5230$ Connectors Power terminals $3 \times \text{M25}$ cable gland Signal connectors $M16$, 10 Pin Hummel Connector		Ado	ditional Data					
Protection category Maximal motor temperature Allowed ambient temperature Cooling (medium, flow rate, inlet temperature, pressure) Temperature monitoring Type approval Customs tariff number Connectors Power terminals Signal connectors IP6K9K³) **C **C **C **C **C **C **C *	Weight (w/o cables)			see page 4				
Maximal motor temperature Allowed ambient temperature Cooling (medium, flow rate, inlet temperature, pressure) Temperature monitoring Type approval Customs tariff number Connectors Power terminals Signal connectors 140 °C -20 45⁴) °C water/glycol 50/50, 8 l/min, ≤ 45°C, ≤ 0.5 bar 1 x KTY84-130 CE, EN 60034 Connectors 3 x M25 cable gland M16, 10 Pin Hummel Connector	Rotor moment of inertia	otor moment of inertia 0.020			0.0209	kg*m²		
Allowed ambient temperature -20 45⁴) °C Cooling (medium, flow rate, inlet temperature, pressure) Temperature monitoring 1 x KTY84-130 Type approval Customs tariff number Connectors Power terminals 3 x M25 cable gland Signal connectors M16, 10 Pin Hummel Connector	Protection category	otection category IP6K9		IP6K9K ³⁾				
Cooling (medium, flow rate, inlet temperature, pressure) Temperature monitoring 1 x KTY84-130 Type approval Customs tariff number Connectors Power terminals 3 x M25 cable gland Signal connectors M16, 10 Pin Hummel Connector	Maximal motor temperature			140				
Temperature monitoring 1 x KTY84-130 CE, EN 60034 Customs tariff number 8501 5230 Connectors Power terminals 3 x M25 cable gland Signal connectors M16, 10 Pin Hummel Connector	Allowed ambient temperature			-20 45 ⁴⁾			°C	
Type approval Customs tariff number 8501 5230 Connectors Power terminals 3 x M25 cable gland Signal connectors M16, 10 Pin Hummel Connector	Cooling (medium, flow rate, inlet to	oling (medium, flow rate, inlet temperature, pressure) water/glycol 50/50, 8 l/min, ≤ 45°C, ≤ 0.5 ba		≤ 0.5 bar				
Customs tariff number Connectors Connectors 3 x M25 cable gland Signal connectors M16, 10 Pin Hummel Connector	Temperature monitoring	g 1 x KTY84-130						
Connectors Power terminals 3 x M25 cable gland Signal connectors M16, 10 Pin Hummel Connector	Type approval			CE, EN 60034				
Power terminals 3 x M25 cable gland Signal connectors M16, 10 Pin Hummel Connector	ustoms tariff number 8501 5230							
Signal connectors M16, 10 Pin Hummel Connector		С	onnectors					
	Power terminals			3 x M25 cable gland				
Cooling connectors 2 x 3/4" / 19 mm	Signal connectors			M16, 10 Pin Hummel Connector				
	Cooling connectors			2 x ¾" / 19 mm				

 $^{^{\}mbox{\scriptsize 1)}}\mbox{\sc Nominal current}$ 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

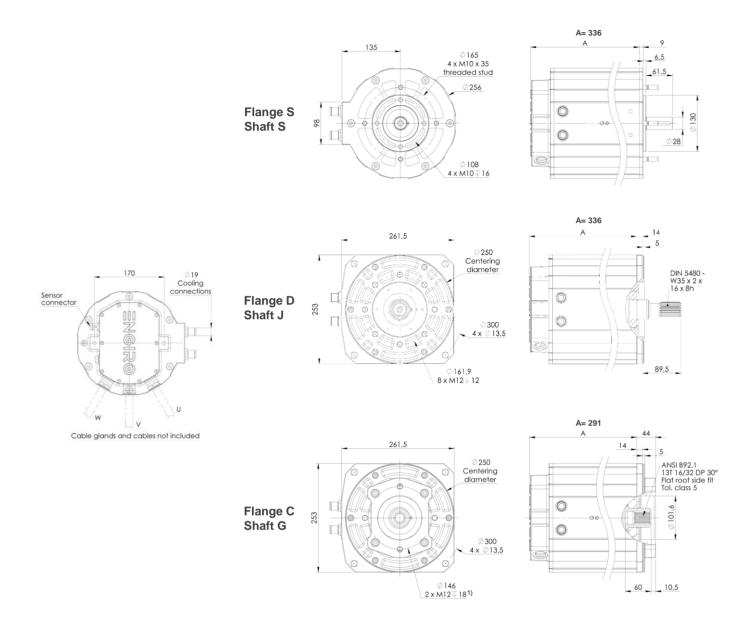


Shaft and Flange Combinations for 205W-12013-ABC		Flange (A)				
		S (Standard)	D (Flange for fan without insert)	C (Flange for fan with hydraulic pump adapter)		
	S (Cylindrical shaft with keyway Ø 28mm)	● (~ 48 kg)				
Shaft (B)	J (External splines, DIN 5480)		• (~ 48 kg)			
	G (Hollow shaft with internal splines ANSI B 92.1)			• (~ 49 kg)		
Position Sensor (C) E: sin/cos encoder			r			

Other individual combinations are also possible on request.

Technical Drawings





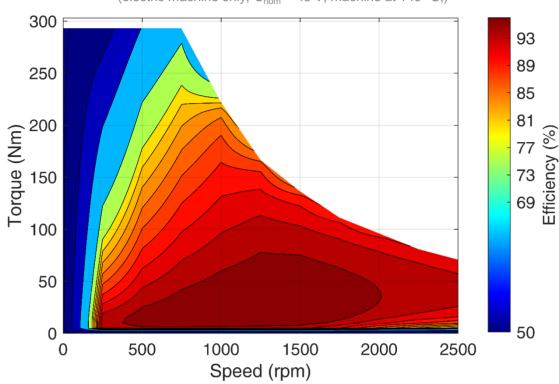
¹⁾ Machines with C-Flange and a revision number smaller than Rev16 have an M14 Helicoil 1,5*D. Revision number is printed on each machine on the rear flange below the water-cooling hose barbs.

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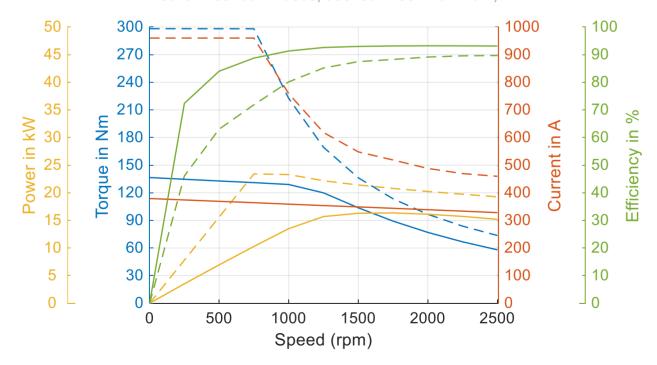
Characteristics Machine







Simulated Characteristic Motor Parameters $U_{\text{nom}} = 48 \text{ V}$ solid lines: continuous; dashed lines: maximum;

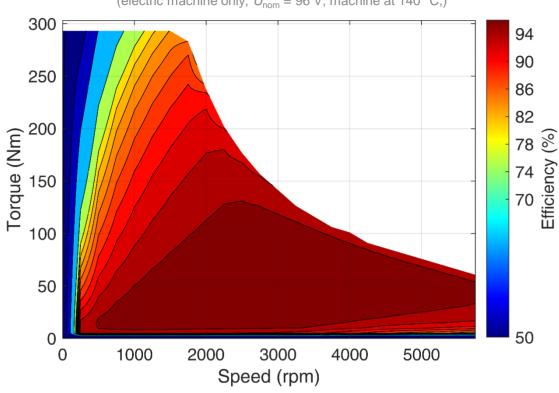


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Characteristics Machine







Simulated Characteristic Motor Parameters $U_{\text{nom}} = 96 \text{ V}$ solid lines: continuous; dashed lines: maximum;

