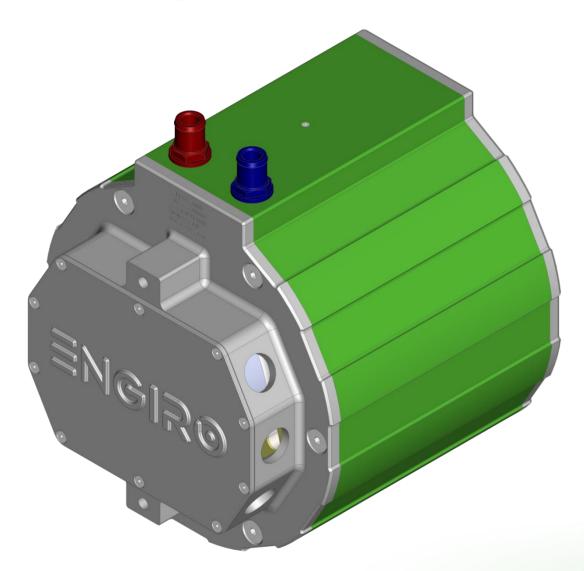


205W-08020-ABC

water-cooled motor / generator with up to 29 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

205W-08020-ABC

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Technical Data Machine



Power		Nominal Operation (S	1, cooling as spe	ecified	below)		
Speed n _{roan} 1050 3100 rpm Phase rms-current I _{nom} 247 247 A Battery voltage (DC) U _{roan} 48 140 V Electric frequency ∫ _{Rixon} 70 207 Hz Power factor cos(φ) 0.72 0.59 D Maximal Values (S2, 10s, cooling as specified below) Torque T _{max} 189 189 Nm Power P _{max} 16 51 kW Phase rms-current J _{max} 625 625 A Battery voltage (DC) U _{max} 625 625 A Battery voltage (DC) U _{max} 8000 rpm Electrical Data Number of phases 3 Na Number of phases 3 Nm/A Number of pole pairs 4 4 Maximal (I <i<sub>loan) >96 % VI/ constant (AC) rms: 24.4 peak: 34.5 V/(roa</i<sub>	Torque	T_{nom}		89		89	Nm
Phase rms-current I _{com} 247 247 A Battery voltage (DC) U _{nom} 48 140 V Electric frequency f _{atoren} 70 207 Hz Maximal Values (S2, 10s, cooling as specified below) Torque T _{max} 189 189 Nm Power P _{ress} 16 51 kW Phase rms-current I _{max} 625 625 A Speed n _{max} 8000 rpm Electric requency f _{ac max} 533 Hz Electrical Data Number of pales 3 Nm/A Maximal efficiency >96 % 7// constant (I 3. Nm/A Wight (w/o cables) see page 4 Additional Data Weight (w/o cables) see page 4 Additional Data Weight (w/o cables) see page 4 C Allowed ambient temperature -20 45% C Cooling (medium, flow rate, inlet temperature, pressure)	Power	P_{nom}		9.8			kW
Battery voltage (DC)	Speed	n_{nom}		1050		3100	rpm
Electric frequency	Phase rms-current	I _{nom}		247		247	А
Power factor cos(φ) 0.72 0.69 Maximal Values (S2, 10s, cooling as specified below) Torque Tmax 189 189 Nm Power Pmax 16 51 kW Phase rms-current Imax 625 625 A Battery voltage (DC) Umax 200 V Speed nmax 8000 rpm Electric frequency fat max 533 Hz Electrical Data Number of phases 3 Nm/An	Battery voltage (DC)	U_{nom}		48		140	V
Naminal Values (S2, 10s, cooling as specified below) Torque	Electric frequency	$f_{el,nom}$		70		207	Hz
Torque Tmax 189 189 Nm Power Pmax 16 51 kW Phase rms-current Imax 625 625 A Battery voltage (DC) Umax 200 V Speed nmax 8000 rpm Electric frequency fet max 533 Hz Electrical Data Number of phases 3 3 Number of pole pairs 4 4 Maximal efficiency >96 % 7// constant (I 15 24 peak: 34.5 V//(100 Maximal efficiency rms: 0.05 peak: 0.082 V//(100 7// constant (AC) rms: 0.05 peak: 0.082 V//(100 Additional Data Weight (W/o cables) see page 4 8 2 4 10 1 1 1 1 1 1 1 1 1 1 1 1 1	Power factor			0.72		0.69	
Power	N	laximal Values (S2, 10	s, cooling as sp	ecified	l below)		
Phase rms-current I_max 625 A Battery voltage (DC) U_max 200 V Speed n_max 8000 rpm Electric frequency fet_max 533 Hz Electrical Data Number of pole pairs 3 Number of pole pairs 4 Maximal efficiency >96 % 7// constant (I 1,000 ms: 24.4 peak: 34.5 V/(100 Muln constant (AC) rms: 24.4 peak: 34.5 V/(100 Additional Data Weight (w/o cables) see page 4 0.082 V/(rad Additional Data Weight (w/o cables) see page 4 0.0123 kg*m² Protection category IP65 / IP69k Name C Allowed ambient temperature 20 4510 °C Cooling (medium, flow rate, inlet temperature, pressure) water/glyccl 50/50, 6 l/min, ≤ 45°C, ≤ 0.5 bar C C Ce, EN 60034 C	Torque	T_{max}		189		189	Nm
Battery voltage (DC) U_{max} 200 V Speed n_{max} 8000 rpm Electric frequency $f_{el, max}$ 533 Hz $\frac{1}{2}$ $$	Power	P_{max}		16		51	kW
Battery voltage (DC) U_{maix} 200 V Speed n_{maix} 8000 rpm Electric frequency $f_{el. maix}$ 8000 rpm Speed n_{maix} 8000 rpm Speed Spee	Phase rms-current	I _{max}		625		625	А
Electric frequency f ot max Electrical Data	Battery voltage (DC)					200	V
Number of phases 3 3	Speed	n_{\max}		8000			rpm
Number of phases 3 Number of pole pairs 4 Maximal efficiency >96 % 7/I constant (I 0.36 Nm/An U/n constant (AC) rms: 24.4 peak: 34.5 V/(100 Kg constant (AC) Additional Data Weight (w/o cables) Rotor moment of inertia Rotor moment of inertia 0.0123 kg*m² Protection category IP65 / IP69k Maximal motor temperature 140 °C Allowed ambient temperature 140 °C Cooling (medium, flow rate, inlet temperature, pressure) water/glycol 50/50, 6 l/min, ≤ 45°C, ≤ 0.5 bar Temperature monitoring Type approval CE, EN 60034 Customs tariff number 8501 5230 Connectors Power terminals 3 x M25 cable gland Signal connectors M16, 10 Pin	Electric frequency	f _{el, max}		533			Hz
Number of pole pairs Maximal efficiency 7/I constant ($I < I_{nom}$) 0.36 Nm/A _n 1/I constant (AC) 1/I co		Ele	ctrical Data				
Maximal efficiency >96 % T/I constant $(I < I_{nom})$ 0.36 Nm/A _n U/n constant (AC) rms: 24.4 peak: 34.5 V/(100 Ke constant (AC) rms: 0.058 peak: 0.082 V/(rad Maximal Maximal Maximal Motor temperature 140 °C Allowed ambient temperature >96 % Temperature monitoring 1 x KTY84-130 Type approval Customs tariff number 8501 5230 Connectors Power terminals 3 x M25 cable gland Signal connectors Minimum 1.36 Nm/A _n Nm	Number of phases					3	
T/I constant ($) U/n constant (AC) rms: 24.4 peak: 34.5 V/(100 Additional Data Weight (w/o cables) Rotor moment of inertia Protection category Maximal motor temperature Allowed ambient temperature Cooling (medium, flow rate, inlet temperature, pressure) Type approval Customs tariff number Connectors Power terminals Signal connectors Nm/An Nm/An 124.4 peak: 34.5 V/(100 Neak) See page 4 No.0123 kg*m² Nm/An Nm/An 124.4 peak: 34.5 V/(100 Neak) Nm/An 124.4 peak: 34.5 V/(100 Neak) Nm/An 124.4 peak: 34.5 V/(100 Neak) Nm/An Nm/An 124.4 peak: 34.5 V/(100 Neak) Nm/An Nm/An 124.4 peak: 34.5 V/(100 Neak) Nm/An Nm/An Nm/An 124.4 peak: 34.5 V/(100 Neak) Nm/An Nm/An 124.4 peak: 34.5 V/(100 Neak) Nm/An Nm/An Nm/An 124.4 peak: 34.5 V/(100 Neak) Nm/An Nm/An Nm/An Nm/An Nm/An 124.4 peak: 34.5 V/(100 Neak) Nm/An Nm/An$				4			
U/n constant (AC)rms:24.4peak:34.5V/(100 Mode) K_0 constant (AC)rms:0.058peak:0.082V/(rad Mode)Additional DataWeight (w/o cables)see page 4Rotor moment of inertia0.0123kg*m²Protection categoryIP65 / IP69kMaximal motor temperature140°CAllowed ambient temperature-20 45¹¹)°CCooling (medium, flow rate, inlet temperature, pressure)water/glycol 50/50, 6 l/min, ≤ 45°C, ≤ 0.5 barTemperature monitoring1 x KTY84-130Type approvalCE, EN 60034Customs tariff number8501 5230ConnectorsPower terminals3 x M25 cable glandSignal connectorsM16, 10 Pin				>96			%
K _e constant (AC) rms: 0.058 peak: 0.082 V/(rad Additional Data Weight (w/o cables) see page 4 Rotor moment of inertia 0.0123 kg*m² Protection category IP65 / IP69k Maximal motor temperature 140 °C Allowed ambient temperature -20 45°) °C Cooling (medium, flow rate, inlet temperature, pressure) water/glycol 50/50, 6 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	T/I constant (I <i<sub>nom)</i<sub>			0.36		Nm/A _{rms}	
Additional Data Weight (w/o cables) see page 4 Rotor moment of inertia 0.0123 kg*m² Protection category IP65 / IP69k Maximal motor temperature 140 °C Allowed ambient temperature -20 45¹¹ °C Cooling (medium, flow rate, inlet temperature, pressure) water/glycol 50/50, 6 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	U/n constant (AC)		rms:	24.4	peak:	34.5	V/(1000rpm
Weight (w/o cables) see page 4 Rotor moment of inertia 0.0123 kg*m² Protection category IP65 / IP69k Maximal motor temperature 140 °C Allowed ambient temperature -20 45¹¹ °C Cooling (medium, flow rate, inlet temperature, pressure) water/glycol 50/50, 6 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	K _e constant (AC)		rms:	0.058	peak:	0.082	V/(rad*s ⁻¹)
Rotor moment of inertia 0.0123 kg*m² Protection category IP65 / IP69k Maximal motor temperature 140 °C Allowed ambient temperature -20 45¹¹ °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		Add	litional Data				
Protection category IP65 / IP69k Maximal motor temperature 140 °C Allowed ambient temperature -20 45° 1 °C Cooling (medium, flow rate, inlet temperature, pressure) water/glycol 50/50, 6 l/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	Weight (w/o cables)					see page 4	
Protection category IP65 / IP69k Maximal motor temperature 140 °C Allowed ambient temperature -20 45° 1 °C Cooling (medium, flow rate, inlet temperature, pressure) water/glycol 50/50, 6 l/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	Rotor moment of inertia			0.0123			kg*m²
Allowed ambient temperature Cooling (medium, flow rate, inlet temperature, pressure) Temperature monitoring Type approval Customs tariff number Connectors Power terminals Signal connectors Cooling (medium, flow rate, inlet temperature, pressure) water/glycol 50/50, 6 l/min, ≤ 45°C, ≤ 0.5 bar 1 x KTY84-130 CE, EN 60034 Connectors 3 x M25 cable gland M16, 10 Pin	Protection category						
Cooling (medium, flow rate, inlet temperature, pressure) water/glycol 50/50, 6 l/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	Maximal motor temperature			140			°C
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				-20 45 ¹⁾			°C
Type approval CE, EN 60034 Customs tariff number 8501 5230 Connectors Power terminals 3 x M25 cable gland Signal connectors M16, 10 Pin	Cooling (medium, flow rate, inlet te	emperature, pressure)	water/gly	col 50/5	0, 6 l/min, ≤ 45	5°C, ≤ 0.5 bar	
Customs tariff number Connectors Power terminals Signal connectors 8501 5230 A x M25 cable gland M16, 10 Pin				1 x KTY84-130			
Connectors Power terminals 3 x M25 cable gland Signal connectors M16, 10 Pin	Type approval			CE, EN 60034			
Power terminals 3 x M25 cable gland Signal connectors M16, 10 Pin	Customs tariff number					8501 5230	
Signal connectors M16, 10 Pin		Co	onnectors				
Signal connectors M16, 10 Pin	Power terminals		3 x M25 cable gland				
Cooling connectors 2 x 3/," / 19 mm	Signal connectors						
Z X /4 / 10 mm	Cooling connectors			2 x ¾" / 19 mm			

1) other range on request

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Technical Drawings



Available Type Variants					
type number	A: flange	B: shaft	C: position sensor		
	S: standard	S: cylindrical shaft with keyway Ø28mm	R: resolver		
	B: flange for fan motor	H: hollow shaft with internal splines ANSI B 92.1	E: sin/cos encoder		
205W-08020-	C: flange for fan without insert	E: external splines, DIN 5480	N: none		
		C: cylindrical shaft with keyway Ø35mm			
		D: hollow shaft with internal splines ANSI B 92.1			

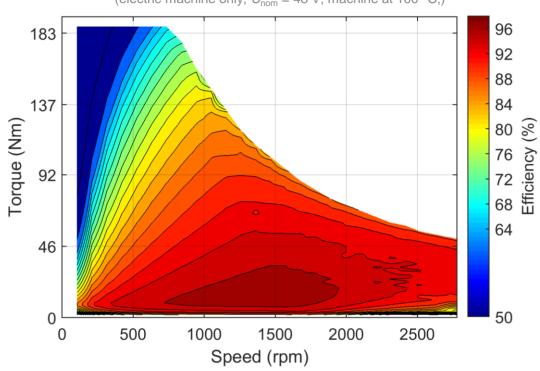
Ø 256 Dimension "A" = 252 mm 0 Flange S Shaft S **Approximate** 0 machine weight Ø 165 4 x M10 x 35 Threaded stud flange shaft S S 35 DIN 5480 W28 x 1,25 x 21 x 8f Ø 256 S Е 35 34 0 Flange S Shaft E С 130 D 37 0 Ø 165 С В 39 4 x M10 x 35 Threaded stud Sensor Ø19 15,5 connector Cooling Ø 256 ANSI B 92.1 9T 16/32 DP 30° connections 0 Flange S Shaff H Ø 82,55 0 Ø 108 4 x M10 98 44 ANSI B92.1 15T 16/32DP 30° МЗ 0 Flange C Shaft D 146 Ø 101,6 2 x M12 0 10,5 Ø300 4 x Ø 13,5 37,5 Ø 127 60 0 Flange B Shaft C 253 0 Ø300 4 x ∅ 13,5

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Characteristics Machine



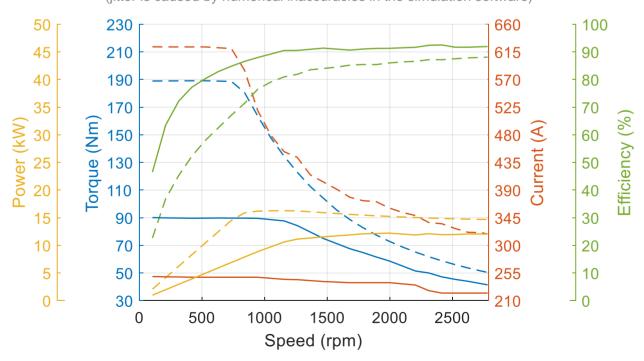
Simulated Efficiency of Motor Application (electric machine only; $U_{nom} = 48 \text{ V}$; machine at 100 °C;)



Simulated Characteristic Motor Parameters

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

solid lines: continuous; dashed lines: maximum; (jitter is caused by numerical inaccuracies in the simulation software)

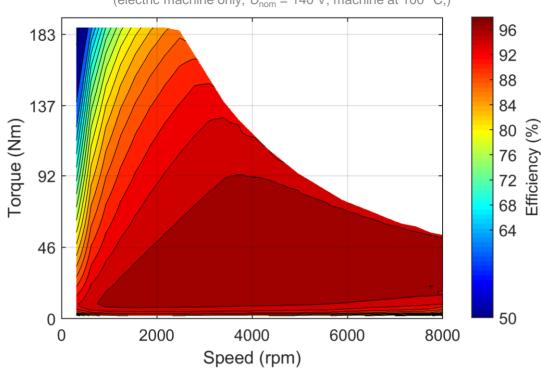


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Characteristics Machine



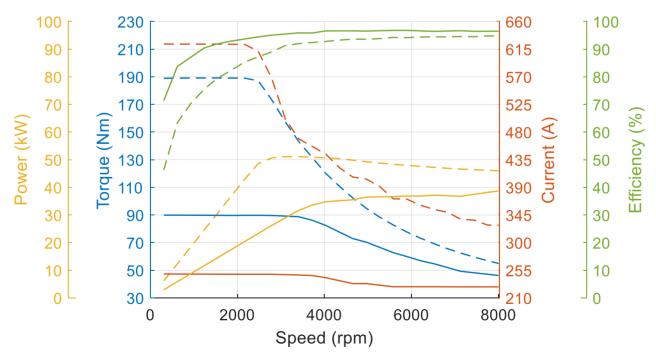
Simulated Efficiency of Motor Application (electric machine only; $U_{\text{nom}} = 140 \text{ V}$; machine at 100 °C;)



Simulated Characteristic Motor Parameters

 $U_{\text{nom}} = 140 \text{ V}$

solid lines: continuous; dashed lines: maximum; (jitter is caused by numerical inaccuracies in the simulation software)



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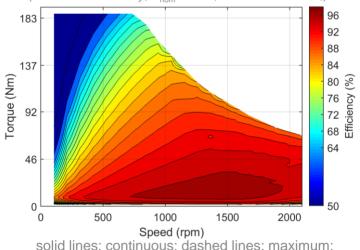
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Technical Data Inverter Set



	Nominal Operation	on Drive Set – 48V (S1)	
Torque	T_{nom}	89	Nm
Power	P_{nom}	9.8	kW
Speed	n_{nom}	1050	rpm
Phase rms-current	I_{nom}	247	А
Battery voltage (DC)	U_{nom}	48	V
Electric frequency	f _{el,nom}	70	Hz
Power factor	$cos(\phi)$	0.72	
	Maximal Values	Drive Set (S2, 1-10s)	
Torque	T_{max}	189	Nm
Power	P_{max}	16	kW
Phase rms-current	I_{max}	624	А
Battery voltage (DC)	U_{max}	48	V
Speed	n_{max}	2100	rpm
Electric frequency	f _{el, max}	140	Hz

Simulated Efficiency and Motor Characteristic of Motor Application (electric machine only; $U_{\text{nom}} = 48 \text{ V}$; machine at 100 °C;)



solid lines: continuous; dashed lines: maximum;

