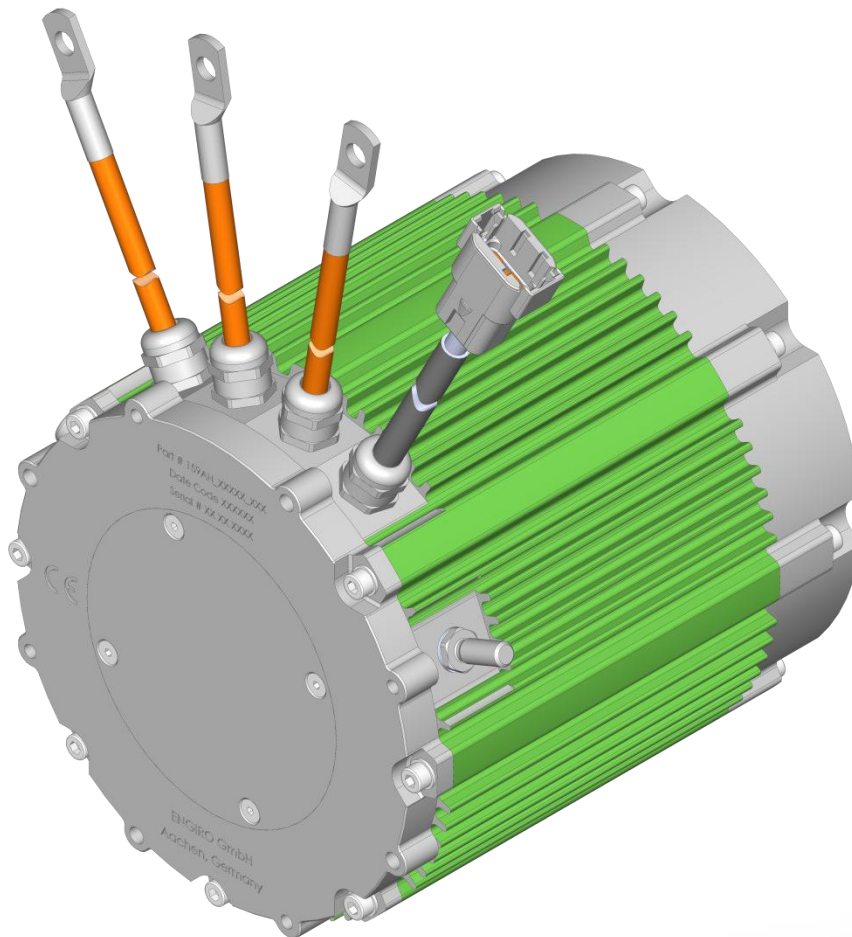


159AH-06020-ABC

air-cooled motor / generator with 9.6 kW continuous power

This datasheet applies to part numbers: see page 2



KEY FEATURES

- permanent magnet synchronous machine
- air-cooled
- high peak power for motor applications
- convincing cost-benefit ratio
- recommended voltage range from 48 V to 200 V
- delivery with controller possible
- various mechanical interfaces available

Section	Page
Operating Range	3
Certifications	4
Available Type Variants	5
Technical Drawings	6
Performance Plots	7

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:

Part number conversion					
Part.no.	Old part.no.	Flange	Shaft	Position sensor	Cable configuration
4960637	159AH_06020_BCR	B1	C1	R	A3M5
4960525	159AH_06020_BER	B1	E1	R	A1M6
4844589	159AH_06020_EDE	E1	D1	E	A1M1

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.

Data, including specifications, contained within this document are summary in nature and subject to change at any time without notice and are intended for general information only. Call for latest revision. All brand names and product names referenced are trademarks, registered trademarks, or trade names of their respective holders.

Nominal Operation (S1, cooling as specified below)				
Torque	T_{nom}		20	Nm
Power	P_{nom}		9.6	kW
Speed	n_{nom}		4600	rpm
Phase rms-current	I_{nom}		113 ^{1,2)}	A
Battery voltage (DC)	U_{nom}		96	V
Electric frequency	$f_{\text{el, nom}}$		384	Hz
Power factor	$\cos(\varphi)$		0.76	
Maximal Values (S2, 10s, cooling as specified below)				
Torque	T_{max}		74	Nm
Power	P_{max}		26	kW
Phase rms-current	I_{max}		500 ²⁾	A
Battery voltage (DC)	U_{max}		200	V
Speed	n_{max}		8000	rpm
Electric frequency	$f_{\text{el, max}}$		667	Hz
Electrical Data				
Number of phases			3	
Number of pole pairs			5	
Maximal efficiency			95	%
T/I constant ($I < I_{\text{nom}}$)			0.20	Nm/A _{rms}
U/n constant (AC)	rms:	11.3	peak:	17.5 V/(1000rpm)
K_e constant (AC)	rms:	0.022	peak:	0.033 V/(rad*s ⁻¹)
Additional Data				
Rotor moment of inertia		EDE: 0.0062; BER, BCR: 0.0052		kg*m ²
Maximal motor temperature			140	°C
Allowed ambient temperature			-20 ... 85	°C
Cooling (medium, flow rate, inlet temperature, pressure)		air, >12 m/s, ≤ 25°C		
Temperature monitoring			1 x KTY84-130	
Customs tariff number			8501 5230	
Connectors				
Power terminals		3 x AWG 4 (21 mm ²) cables with M8 cable lugs		
Length power cables		50 (cable config. A1xx) 100 (cable config. A3xx)		cm
Signal connectors		Deutsch DTM04-08PA 8 pins		
Length signal cables		50 (cable config. xxM1) 60 (cable config. xxM6) 110 (cable config. xxM5)		cm

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.

Data, including specifications, contained within this document are summary in nature and subject to change at any time without notice and are intended for general information only. Call for latest revision. All brand names and product names referenced are trademarks, registered trademarks, or trade names of their respective holders.

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

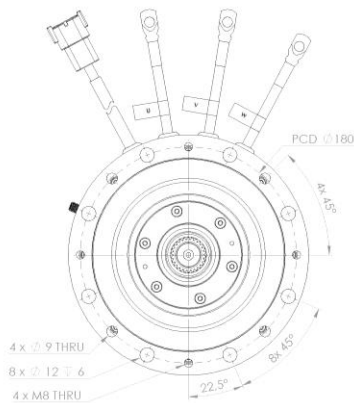
- 1) Please note that the IP6K9K rating is only valid if the machine is installed with suitable cable glands and an appropriate sealed interface at the drive side of the motor (flange and/or shaft). Please contact ENGIRO for further questions.

Data, including specifications, contained within this document are summary in nature and subject to change at any time without notice and are intended for general information only. Call for latest revision. All brand names and product names referenced are trademarks, registered trademarks, or trade names of their respective holders.

Available Type Variants				
Flange	Shaft	Pos. sensor	Cable config.	Weight (kg)
B1 Flange for Allweier PGR 1500 gearbox including shaft seal	C1 Shaft with external helical gear fitting PGR 1500-2 Gearbox (only for i=19,3)	R Resolver 0,29 Gain	A3M5 1000 mm and 1100 mm	≈ 14 kg
B1 Flange for Allweier PGR 1500 gearbox including shaft seal	E1 Extended shaft with external helical gear fitting PGR 1500-2 Gearbox (only for i=19,3)	R Resolver 0,29 Gain	A1M6 500 mm and 600 mm	≈ 16 kg
E1 IEC B14 flange (Ø95 mm centering, Ø115 mm PCD 8x M8)	D1 Cylindrical shaft with keyway, Ø19 mm	E Encoder	A1M1 500 mm and 500 mm	≈ 15 kg

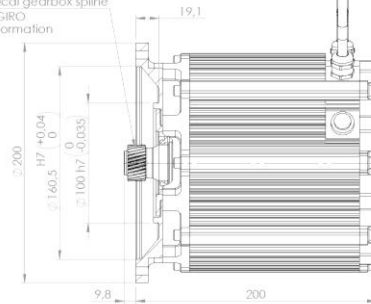
Other individual combinations are also possible on request.

1) Only fitting for a gear ratio of 19.3:1



Flange B1

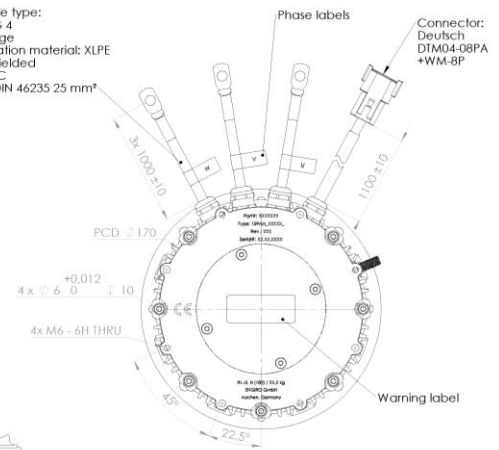
26 Teeth helical gearbox spline
 Contact ENGIRO
 for further information



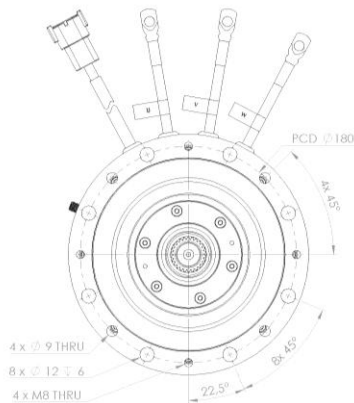
Shaft C1

Grounding

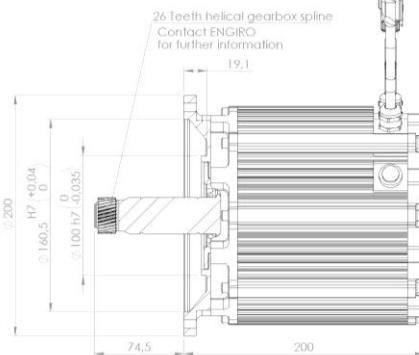
Cable type:
 AWG 4
 orange
 Insulation material: XLPE
 Unshielded
 150°C
 M8 DIN 46235 25 mm²



cable config. A3M5



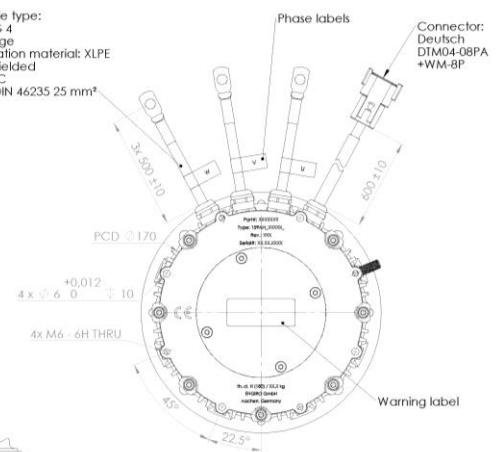
Flange B1



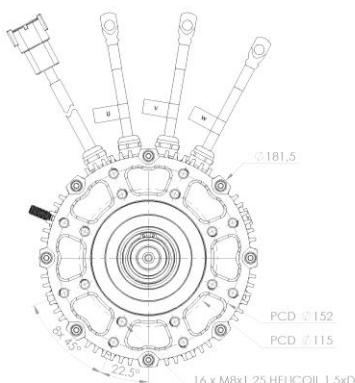
Shaft E1

Grounding

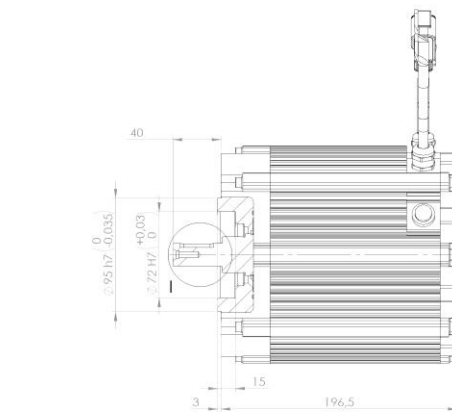
Cable type:
 AWG 4
 orange
 Insulation material: XLPE
 Unshielded
 150°C
 M8 DIN 46235 25 mm²



cable config. A1M6

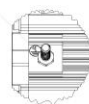


Flange E1



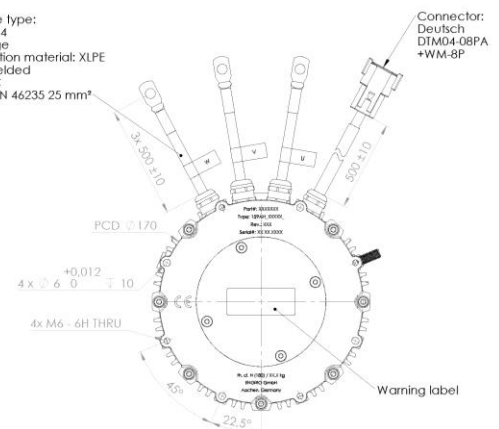
Shaft D1

Grounding connection



M6 ± 16 min.
 DIN 332

Cable type:
 AWG 4
 orange
 Insulation material: XLPE
 Unshielded
 150°C
 M8 DIN 46235 25 mm²

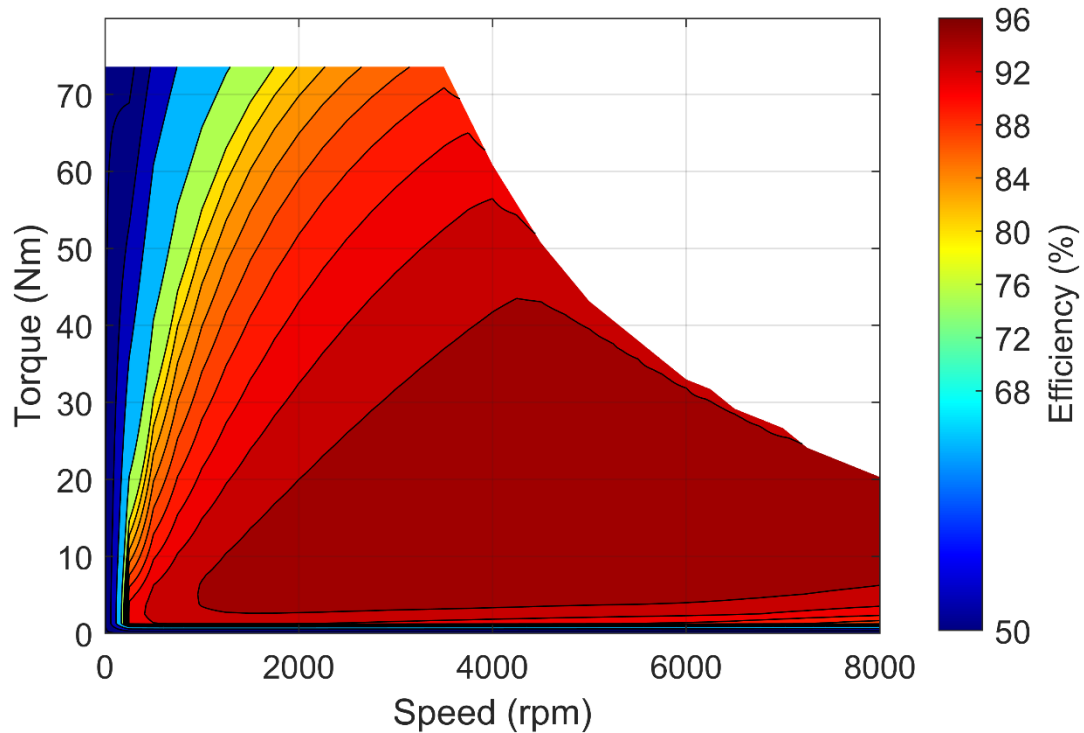


cable config. A1M1

Data, including specifications, contained within this document are summary in nature and subject to change at any time without notice and are intended for general information only. Call for latest revision. All brand names and product names referenced are trademarks, registered trademarks, or trade names of their respective holders.

Simulated Efficiency of Motor Application

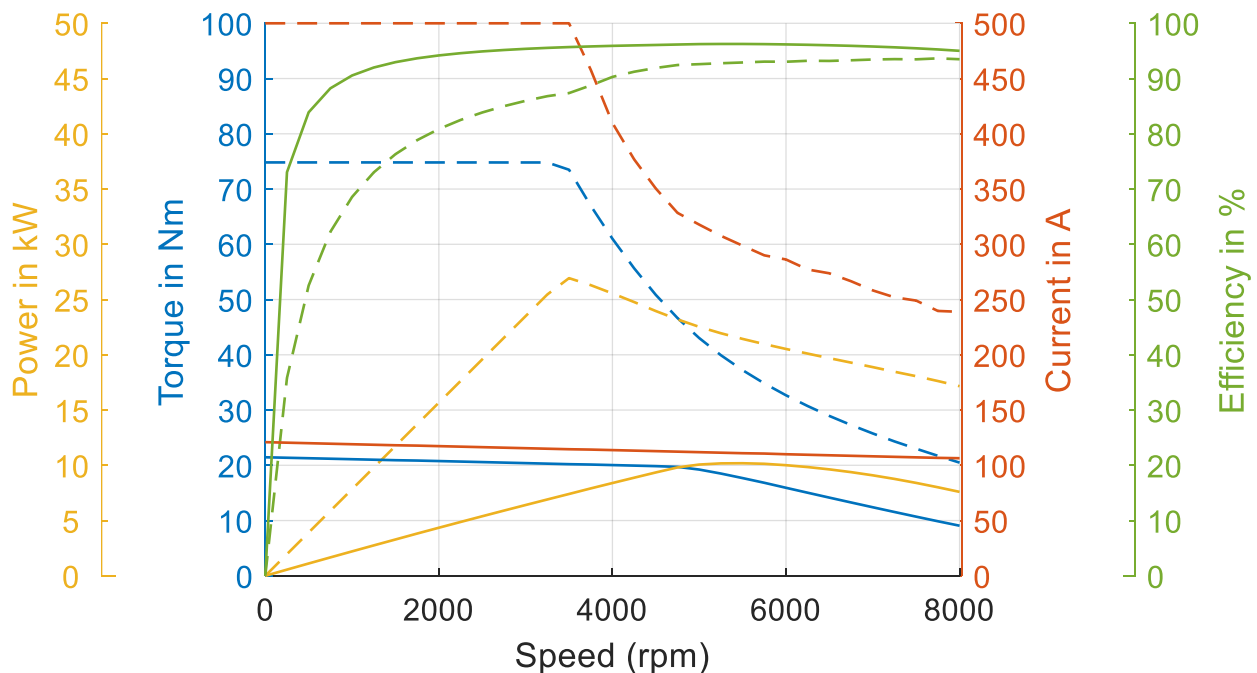
(electric machine only; $U_{\text{nom}} = 96 \text{ V}$)



Simulated Characteristic Motor Parameters

$U_{\text{nom}} = 96 \text{ V}$

solid lines: continuous; dashed lines: maximum;



Data, including specifications, contained within this document are summary in nature and subject to change at any time without notice and are intended for general information only. Call for latest revision. All brand names and product names referenced are trademarks, registered trademarks, or trade names of their respective holders.