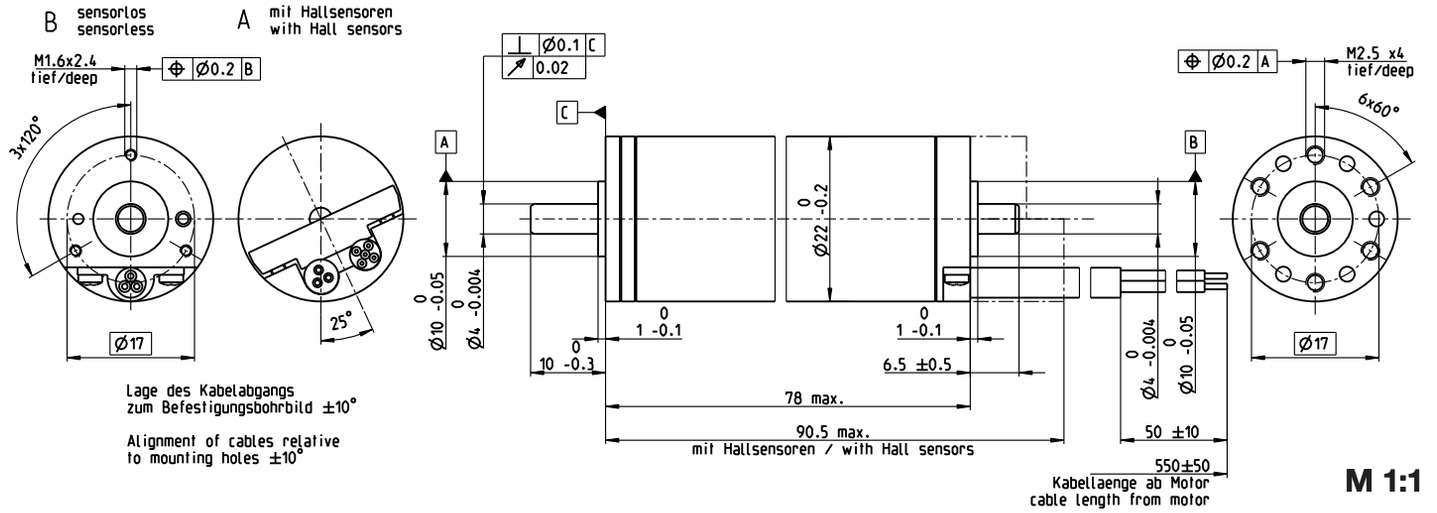
EC 22 ∅22 mm, brushless, 240 Watt

Heavy Duty – for applications in oil



Stock program
Standard program
Special program (on request)

Part Numbers

A with Hall Sensors	426450
B sensorless	426451

Motor Data (provisional)									
Values at nominal voltage and ambient temperature °C		**25**	**100**	**150**	**200**				
1 Nominal voltage	V	48	48	48	48				
2 No load speed	rpm	12900	13400	13600	13800				
3 No load current	mA	384	177	183	188				
4 Nominal speed[1]	rpm	8410	8510	9130	10600				
5 Nominal torque (max. continuous torque)[1]	mNm	149	120	92.2	55.8				
6 Nominal current (max. continuous current)	A	4.48	3.61	2.88	1.86				
7 Stall torque	mNm	460	346	295	256				
8 Stall current	A	13.4	10.3	8.98	7.93				
9 Max. efficiency	%	71	77	75	73				
Characteristics									
10 Terminal resistance phase to phase	Ω	3.59	4.64	5.35	6.05				
11 Terminal inductance phase to phase	mH	0.626	0.626	0.626	0.626				
12 Torque constant	mNm/A	34.4	33.5	32.9	32.3				
13 Speed constant	rpm/V	278	285	290	296				
14 Speed / torque gradient	rpm/mNm	29	39.5	47.2	55.4				
15 Mechanical time constant	ms	2.31	3.16	3.77	4.43				
16 Rotor inertia	gcm²	7.63	7.63	7.63	7.63				

[1] Values in thermal steady state.

Specifications

Thermal data

17	Thermal resistance housing-ambient	0.793 K/W
18	Thermal resistance winding-housing	0.754 K/W
19	Thermal time constant winding	4.78 s
20	Thermal time constant motor	40.2 s
21	Ambient temperature	-55…+200°C
22	Max. winding temperature	+240°C

Mechanical data (preloaded ball bearings)

23	Max. speed		20000 rpm
24	Axial play at axial load	< 5 N	0 mm
		> 5 N	max. 0.14 mm
25	Radial play		preloaded
26	Max. axial load (dynamic)		8 N
27	Max. force for press fits (static)		98 N
	(static, shaft supported)		250 N
28	Max. radial load, 5 mm from flange		16 N

Other specifications

29	Number of pole pairs	1
30	Number of phases	3
31	Weight of motor (sensorless)	210 g

Connection A, motor cable PTFE (AWG 19)

red	Motor winding 1
black	Motor winding 2
white	Motor winding 3

Connection A, sensors cable PTFE (AWG 24)

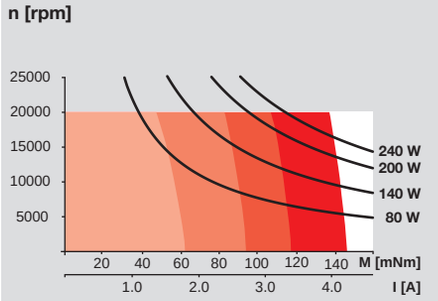
green	VHall 4.5…24 V
blue	GND
red	Hall sensor 1
black	Hall sensor 2
white	Hall sensor 3

Connection B, motor cable PTFE (AWG 19)

red	Motor winding 1
black	Motor winding 2
white	Motor winding 3

Wiring diagram for Hall sensors see p. 35

Operating Range



Comments

TA = 25°C
TA = 100°C
TA = 150°C
TA = 200°C

Continuous operation
In observation of above listed thermal resistance (lines 17 and 18) the maximum permissible winding temperature will be reached during continuous operation at 25°C ambient.
= Thermal limit.

Short term operation
The motor may be briefly overloaded (recurring).

Assigned power rating

Application

General
– extreme temperature applications
– vibration tested according to MIL-STD810F/Jan2000 Fig. 514.5C-10
– operation in oil and high pressure (only minimal lubrication, therefore use under rated ambient conditions is not suggested)

Oil & Gas Industry
– oil, gas and geothermal wells

Notice

This motor contains leaded solder. It therefore does not fulfill the requirements for the permitted maximum concentration of hazardous substances in accordance with the EC directive 2011/65/EC (RoHS) for all applications. The motor may therefore only be used for devices that are not subject to this directive.

Reference medium: Shell Tellus oil T15
Operation in oil of different viscosity will affect the motor data.

maxon modular system

Overview on page 20–27

Planetary Gearhead
∅22 mm
2.0 - 4.0 Nm
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