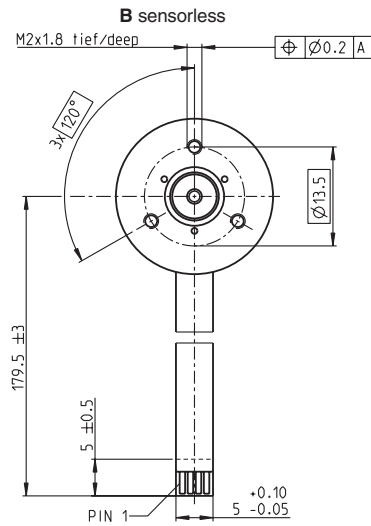
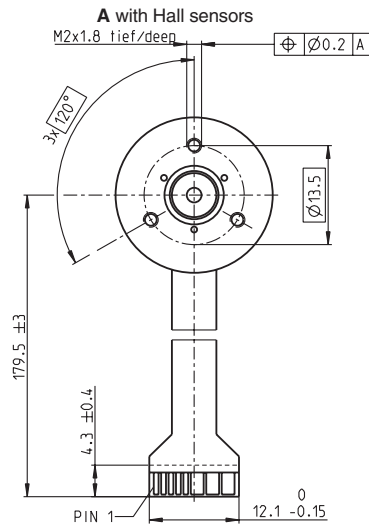
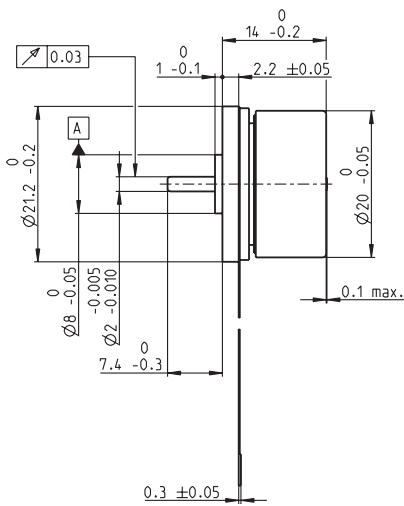


EC 20 flat Ø20 mm, brushless, 5 Watt

maxon flat motor



M 1:1

- Stock program
- Standard program
- Special program (on request)

		Order Number			
A with Hall sensors	351005	351006	351007	351008	
B sensorless	351054	351055	351056	351057	

Motor Data (provisional)	
Values at nominal voltage	
1 Nominal voltage	V 6.0
2 No load speed	rpm 9350
3 No load current	mA 102
4 Nominal speed	rpm 5110
5 Nominal torque (max. continuous torque)	mNm 7.01
6 Nominal current (max. continuous current)	A 1.22
7 Stall torque	mNm 17.2
8 Starting current	A 2.93
9 Max. efficiency	% 67
Characteristics	
10 Terminal resistance phase to phase	Ω 2.05
11 Terminal inductance phase to phase	mH 0.189
12 Torque constant	mNm / A 5.88
13 Speed constant	rpm / V 1620
14 Speed / torque gradient	rpm / mNm 567
15 Mechanical time constant	ms 30.3
16 Rotor inertia	gcm ² 5.1

Operating Range		Comments			
n [rpm]	M [mNm]	I [A]	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			5.0 W		

Specifications	
Thermal data	
17 Thermal resistance housing-ambient	13.7 K / W
18 Thermal resistance winding-housing	2.66 K / W
19 Thermal time constant winding	1.77 s
20 Thermal time constant motor	22.8 s
21 Ambient temperature	-40 ... +100°
22 Max. permissible winding temperature	+125°C
Mechanical data (preloaded ball bearings)	
23 Max. permissible speed	15000 rpm
24 Axial play at axial load < 2.0 N	0 mm
24 Axial play at axial load > 2.0 N	0.14 mm
25 Radial play	preloaded
26 Max. axial load (dynamic)	1.8 N
27 Max. force for press fits (static) (static, shaft supported)	200 N
28 Max. radial loading, 5 mm from flange	10 N

Other specifications	
29 Number of pole pairs	4
30 Number of phases	3
31 Weight of motor	22 g

Values listed in the table are nominal.

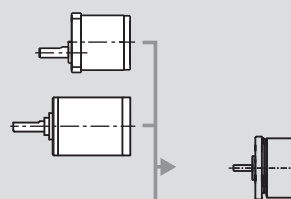
Connection with Hall sensors		sensorless	
Pin 1	4.5 ... 24 VDC	Motor winding 1	
Pin 2	Hall sensor 3	Motor winding 2	
Pin 3	Hall sensor 1	Motor winding 3	
Pin 4	Hall sensor 2	neutral point	
Pin 5	GND		
Pin 6	Motor winding 3		
Pin 7	Motor winding 2		
Pin 8	Motor winding 1		
Adapter	Order number	Order number	
see p. 310	220300	220300	
Connector	Article number	Article number	
TYCO	1-84953-1	84953-4	
MOLEX	52207-1185	52207-0485	
MOLEX	52089-1119	52089-0419	

Pin for design with Hall sensors:
FPC, 11-pol, Pitch 1.0 mm, top contact style
Wiring diagram for Hall sensors see p. 29

maxon Modular System Overview on page 16 - 21

Spur Gearhead
Ø20.3 mm
0.06 - 0.25 Nm
Page 219

Planetary Gearhead
Ø22 mm
0.5 - 2.0 Nm
Page 222 / 224



Recommended Electronics:
DECS 50/5 Page 289
DEC 24/1 289
DEC Module 24/2 290
Notes 20