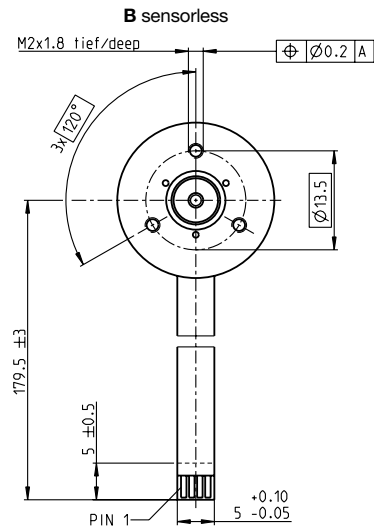
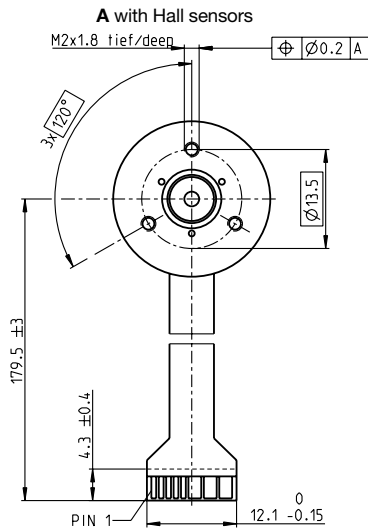
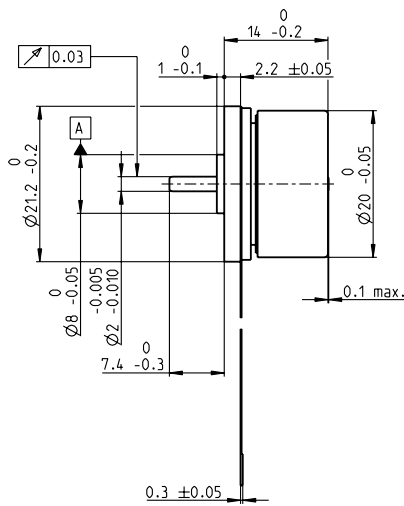


EC 20 flat Ø20 mm, brushless, 5 Watt



M 1:1

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

		Part Numbers			
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	9	12	24
2	No load speed	rpm	9350	9430	9380	9300
3	No load current	mA	102	68.3	51.1	25.1
4	Nominal speed	rpm	4780	5310	5170	5220
5	Nominal torque (max. continuous torque)	mNm	7.59	8.58	7.59	7.74
6	Nominal current (max. continuous current)	A	1.31	0.974	0.655	0.329
7	Stall torque ¹	mNm	17.2	22.4	18.9	19.9
8	Stall current	A	2.93	2.54	1.61	0.838
9	Max. efficiency	%	67	71	68	69
		Characteristics				
10	Terminal resistance phase to phase	Ω	2.05	3.54	7.45	28.6
11	Terminal inductance phase to phase	mH	0.189	0.424	0.754	3.09
12	Torque constant	mNm/A	5.88	8.82	11.8	23.8
13	Speed constant	rpm/V	1620	1080	812	402
14	Speed/torque gradient	rpm/mNm	567	435	515	484
15	Mechanical time constant	ms	30.3	23.2	27.5	25.8
16	Rotor inertia	gcm ²	5.1	5.1	5.1	5.1

Specifications

Thermal data		
17	Thermal resistance housing-ambient	16.5 K/W
18	Thermal resistance winding-housing	2.66 K/W
19	Thermal time constant winding	1.77 s
20	Thermal time constant motor	27.5 s
21	Ambient temperature	-40...+100°C
22	Max. winding temperature	+125°C
Mechanical data (preloaded ball bearings)		
23	Max. speed	15000 rpm
24	Axial play at axial load < 2.0 N	0 mm
	> 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)	26 N
28	Max. radial load, 5 mm from flange	200 N
		5.3 N

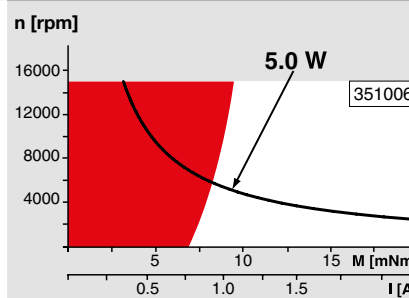
Other specifications

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	V _{Hall} 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		Part number	
see p. 471	220300	220310	
Connector		Part number	
Tyco	1-84953-1	84953-4	
Molex	52207-1133	52207-0433	
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. 43 ¹ Calculation does not include saturation effect (p. 53/164)			

Operating Range



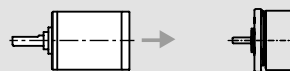
Comments

- 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**

maxon Modular System

Overview on page 28–36

Planetary Gearhead
Ø22 mm
0.5 - 2.0 Nm
Page 333/336



Recommended Electronics:	
Notes	Page 32
ESCON Module 24/2	444
ESCON 36/3 EC	445
ESCON Mod. 50/4 EC-S	445
DEC Module 24/2	449
EPOS4 Mod./Comp. 24/1.5	452
MAXPOS 50/5	468