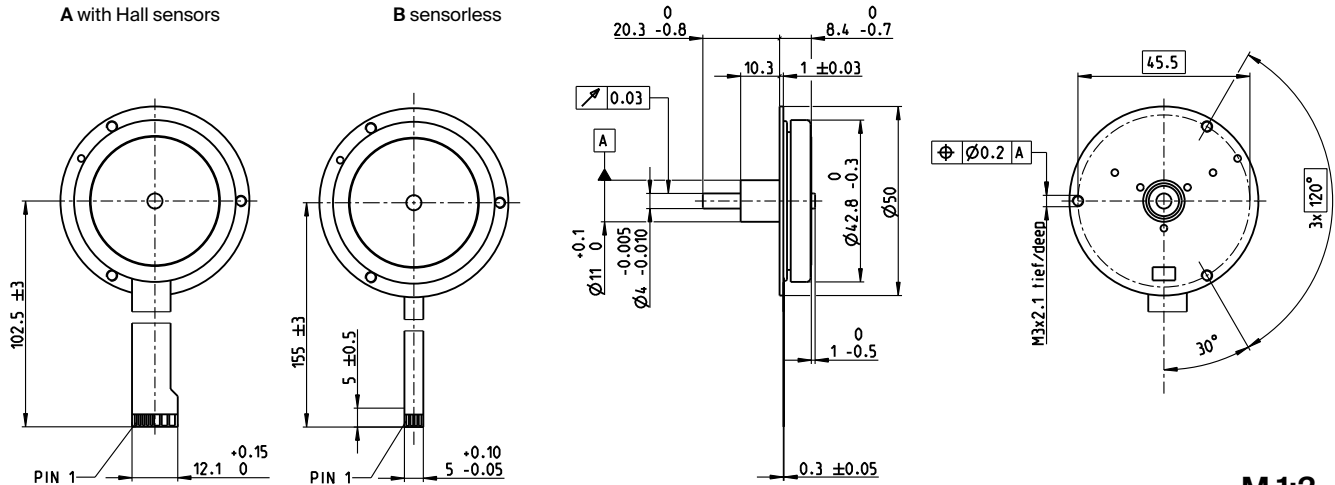


# EC 45 flat $\varnothing 42.8$ mm, brushless, 12 Watt

EC flat



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

		Part Numbers					
A with Hall sensors		200188		339275		339276	
B sensorless			200141		339277		339278

Motor Data							
<b>Values at nominal voltage</b>							
1 Nominal voltage	V	9	9	12	12	24	24
2 No load speed	rpm	8000	7980	8160	8150	7310	7300
3 No load current	mA	147	147	115	115	476	476
4 Nominal speed	rpm	4780	4540	4840	4720	4390	4360
5 Nominal torque (max. continuous torque)	mNm	23.8	23.6	20.1	20	27	27.1
6 Nominal current (max. continuous current)	A	2.04	2.04	1.37	1.37	0.766	0.768
7 Stall torque <sup>1</sup>	mNm	92.6	80.6	70.8	66.5	114	112
8 Stall current	A	8.9	7.75	5.24	4.92	3.74	3.67
9 Max. efficiency	%	77	75	73	73	79	79
<b>Characteristics</b>							
10 Terminal resistance phase to phase	$\Omega$	1.01	1.16	2.29	2.44	6.42	6.54
11 Terminal inductance phase to phase	mH	0.32	0.32	0.541	0.541	2.75	2.75
12 Torque constant	mNm/A	10.4	10.4	13.5	13.5	30.5	30.5
13 Speed constant	rpm/V	918	918	706	706	313	313
14 Speed/torque gradient	rpm/mNm	89.3	103	120	128	65.9	67.1
15 Mechanical time constant	ms	48.9	56.1	65.5	69.8	36.1	36.8
16 Rotor inertia	gcm <sup>2</sup>	52.3	52.3	52.3	52.3	52.3	52.3

Specifications		Operating Range		Comments	
<b>Thermal data</b>		n [rpm]		<div style="background-color: red; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></div> <b>Continuous operation</b> 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.	
17 Thermal resistance housing-ambient	6.59 K/W			<div style="border: 1px solid black; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></div> <b>Short term operation</b> The motor may be briefly overloaded (recurring).	
18 Thermal resistance winding-housing	5.56 K/W				
19 Thermal time constant winding	8.36 s				
20 Thermal time constant motor	188 s				
21 Ambient temperature	-40...+100°C			<div style="border-bottom: 1px solid black; width: 15px; display: inline-block; margin-right: 5px;"></div> <b>Assigned power rating</b>	
22 Max. winding temperature	+125°C				
<b>Mechanical data (preloaded ball bearings)</b>					
23 Max. speed	10000 rpm				
24 Axial play at axial load < 5.0 N	0 mm				
	> 5.0 N	typ. 0.6 mm preloaded			
25 Radial play	4.8 N				
26 Max. axial load (dynamic)	45 N				
27 Max. force for press fits (static) (static, shaft supported)	1000 N				
28 Max. radial load, 15 mm from flange	12.5 N				

Other specifications		maxon Modular System		Details on catalog page 38	
29 Number of pole pairs	8				
30 Number of phases	3				
31 Weight of motor	57 g				

Connection with Hall sensors		sensorless	
Pin 1	V <sub>Hall</sub> 4.5...18 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		

\*Internal pull-up (7...13 k $\Omega$ ) on V<sub>Hall</sub>  
 Wiring diagram for Hall sensors see p. 49

Adapter	Part number	Part number
see p. 514	220300	220310

Connector	Part number	Part number
TE	1-84953-1	84953-4
Molex	52207-1133	52207-0433

**Recommended Electronics:**

Notes	Page 38
ESCON Module 24/2	486
ESCON 36/3 EC	487
ESCON Mod. 50/4 EC-S	487
DEC Module 24/2	491
EPOS4 Micro 24/5	495
EPOS4 Mod./Comp. 24/1.5	496
EPOS4 Mod./Comp. 50/5	496
EPOS4 Comp. 24/5 3-axes	497
EPOS4 50/5	501