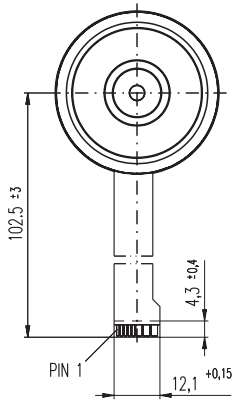
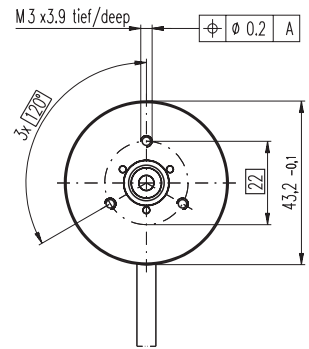
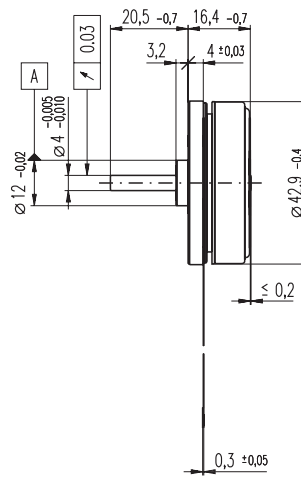
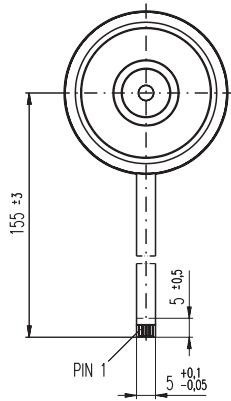


# EC 45 flat $\varnothing 45$ mm, brushless, 30 Watt

**A with hall sensors**



**B sensorless**



**M 1:2**

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

**Order Number**

A with hall sensors  
B sensorless

200142	339281	339282
200189	339283	339284

**Motor Data**

Values at nominal voltage		12.0	12.0	24.0	24.0	36.0	36.0
1	Nominal voltage	V	12.0	12.0	24.0	24.0	36.0
2	No load speed	rpm	4370	4360	4370	4370	4760
3	No load current	mA	151	150	75.3	75.2	56.9
4	Nominal speed	rpm	2860	2820	2850	2840	3210
5	Nominal torque (max. continuous torque)	mNm	59.0	54.3	58.8	57.5	70.6
6	Nominal current (max. continuous current)	A	2.14	2.00	1.07	1.05	0.893
7	Stall torque	mNm	255	219	253	243	380
8	Starting current	A	10.0	8.57	4.96	4.77	5.38
9	Max. efficiency	%	77	76	77	77	81
<b>Characteristics</b>							
10	Terminal resistance phase to phase	$\Omega$	1.20	1.40	4.84	5.04	6.70
11	Terminal inductance phase to phase	mH	0.560	0.560	2.24	2.24	4.29
12	Torque constant	mNm / A	25.5	25.5	51.0	51.0	70.6
13	Speed constant	rpm / V	374	374	187	187	135
14	Speed / torque gradient	rpm / mNm	17.6	20.6	17.8	18.5	12.8
15	Mechanical time constant	ms	17.1	19.9	17.2	17.9	12.4
16	Rotor inertia	gcm <sup>2</sup>	92.5	92.5	92.5	92.5	92.5

**Specifications**

<b>Thermal data</b>		
17	Thermal resistance housing-ambient	4.23 K / W
18	Thermal resistance winding-housing	4.57 K / W
19	Thermal time constant winding	13.2 s
20	Thermal time constant motor	186 s
21	Ambient temperature	-40 ... +100°C
22	Max. permissible winding temperature	+125°C
<b>Mechanical data (preloaded ball bearings)</b>		
23	Max. permissible speed	10000 rpm
24	Axial play at axial load < 5.0 N	0 mm
	> 5.0 N	typ. 1.0 mm
25	Radial play	preloaded
26	Max. axial load (dynamic)	4.8 N
27	Max. force for press fits (static) (static, shaft supported)	50 N
28	Max. radial loading, 7.5 mm from flange	5.5 N

**Other specifications**

29	Number of pole pairs	8
30	Number of phases	3
31	Weight of motor	88 g

Values listed in the table are nominal.

Connection	with hall sensors	sensorless
Pin 1	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	

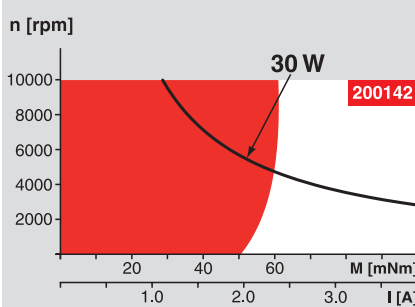
\*internal pull-up (7 ... 13 k $\Omega$ ) on pin 1

Wiring diagram for Hall sensors see page 29

Adapter	Order number	Order number
see p. 299	220300	220310
Connector	Article number	Article number
AMP	1-487951-1	487951-4
MOLEX	52207-1190	52207-0490
MOLEX	52089-1110	52089-0410

Pin for design with Hall sensors:  
FPC, 11 pole, pitch 1.0 mm, top contact style

**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**

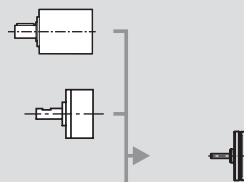
Overview on page 16 - 21

**Planetary Gearhead**

$\varnothing 42$  mm  
3 - 15 Nm  
Page 244

**Spur Gearhead**

$\varnothing 45$  mm  
0.5 - 2.0 Nm  
Page 246



**Recommended Electronics:**

DECS 50/5	Page 284
DEC 24/3	285
DEC 50/5	285
DECV 50/5	286
EPOS 24/1	294
EPOS 24/5	294
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